Australian Government

Jobs and Skills Australia

2025 Occupation Shortage List Methodology

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Overview

Introduction

The Occupation Shortage List (OSL), produced by Jobs and Skills Australia, provides a list of occupations in shortage at the national level and in each state and territory. The OSL is released annually and as a point-in-time assessment of occupations.

The methodology used to assess occupations and produce the 2025 OSL ratings are explained in this report. The purpose of this report is to provide readers transparency on how the OSL is produced and data sources and information used in occupation assessments.

How the OSL is used

The OSL is a key source of labour market intelligence. Insights from the OSL, with other analytical outputs, produced by Jobs and Skills Australia, can inform advice on labour market policies and programs.

Moreover, the OSL time series may enable researchers and policy makers to distinguish between occupations that experience persistent shortages and those affected by economic fluctuations. This insight may further inform the development of targeted solutions to shortages in the labour market.

Scope and granularity

The 2025 OSL is available on both the Australian Bureau of Statistics (ABS):

- 2024 Occupation Standard Classification for Australia (OSCA)
- 2022 Australian and New Zealand Standard Classification of Occupations (ANZSCO).[1]

Only skill levels 1 to 4 (as defined by OSCA and ANZSCO) are in scope of the OSL because of their stronger links to tertiary education and training. Occupations that are in shortage for several years, particularly those where qualifications are mandatory, have implications for the Australian education and training sector.

[1] OSCA and ANZSCO are skill-based frameworks used to classify all occupations and jobs in the Australian and New Zealand labour market. OSCA is an update to the ANZSCO and was released in December 2024. The framework only includes Australian occupations. Both classifications are organised into a 5 level hierarchy: major groups, sub-major groups, minor groups, unit groups and occupations. Occupation is the most granular level, which is represented by 6 digit OSCA and ANZSCO code. This is the level that the report refers to.

Several occupations are excluded from the OSL scope:

- Skill Level 5 occupations[2]
- New Zealand-based occupations[3]
- Occupations where the labour market is not open and contestable.[4]

The full list of excluded occupations is in Appendix A.

Jobs and Skills Australia assess occupations at the national level only. State and territory ratings (state) are primarily based on feedback from stakeholders, particularly where these differ from the national rating.[5]

Caveats

Occupation assessments are dependent on the quality and availability of evidence available, both quantitative and qualitative, including input from stakeholders. There are additional caveats:

- The analysis is initially based on ANZSCO, which does not identify all job titles in the labour market separately that employers seek skilled workers for.
- There are time lags in the data inputs. Some sources have a one month lag, while others may be delayed by 3 to 6 months or even up to a year.
- The OSL is a point-in-time assessment of occupations in the labour market and is not forward looking.
- The OSL is an employer-focused view of shortages and is driven by data on employers' recruitment activity.
- The binary-like classification of the occupations in scope (shortage or no shortage) does not reflect the severity of shortages. Further, the classification does not clearly show the transition, over time, of occupations toward or away from a shortage.

Occupation shortage definition

Jobs and Skills Australia defines an occupation as being in shortage when employers are unable to fill vacancies, face considerable difficulty filling them, or cannot meet significant specialised skill needs within the occupation under the following conditions:

- At current levels of remuneration

[2] Skill Level 5 occupations are commensurate with Australian Qualifications Framework Certificate I or compulsory secondary education. For some occupations a short period of on-the-job training may be required in addition to or instead of the formal qualification. Skill Level 5 occupations have fewer barriers to entry and unlike other in-scope occupations, generally do not require significant post-school education and training.

[3] Māori occupations are examples of New Zealand-based occupations only.

[4] The definition of open and contestable labour market used is based on job titles, descriptions, tasks performed and specialisations within the occupations.

[5] More details on the state ratings are in the Stage 3: Incorporating stakeholder feedback section of the report

Stage 3: Incorporating stakeholder feedback.

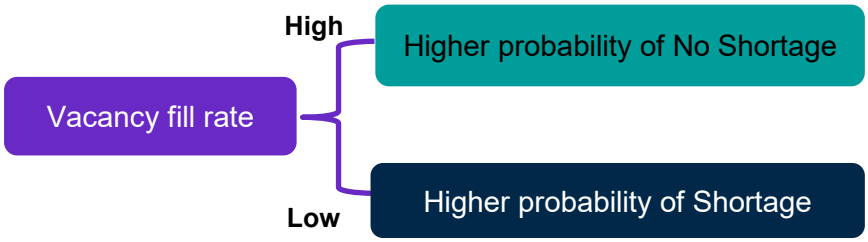
- At current conditions of employment
- In reasonably accessible locations.

Based on this definition, the primary measure of an occupational shortage is the fill rate – the proportion of vacancies that employers can fill. The metric has a simple intuition:

- Lower fill rates imply greater difficulty for employers in filling vacancies, indicating a shortfall in suitably skilled workers and a higher likelihood of occupations in shortage.
- Higher fill rates imply fewer recruitment challenges and a lower likelihood of shortage.

This relationship is illustrated in Figure 1 below.

Figure 1: The fill rate and its underlying intuition



Source: Jobs and Skills Australia.

An advantage of using fill rates is that the metric accounts for both employer demand for skilled workers and the supply of those workers. These factors are likely to be influenced by prevailing wages, wage growth, working conditions and other considerations that impact employers' decisions to recruit and workers' decisions to apply.

Jobs and Skills Australia uses a fill rate threshold of 67% to assess shortages; fill rates below 67% imply a higher likelihood of an occupation in shortage. However, the OSL methodology goes beyond fill rates. It incorporates a broad range of evidence to ensure assessments are comprehensive. Consequently, not all occupations with a fill rate below 67% are considered as being in shortage. Likewise, occupations with fill rates above 67% are not automatically assessed as not in shortage.

OSL categorisations

The OSL has 4 ratings classifications (Table 1).

Table 1: Classifications of occupations in scope of the OSL

Occupation ratings	Definition
Shortage (S)	An occupation is in national shortage or overall shortage
Metropolitan shortage (M)	An occupation is in shortage in a metropolitan area
Regional shortage (R)	An occupation is in shortage in a regional area
No shortage (NS)	An occupation is not in shortage.[6]

Source: Jobs and Skills Australia.

[6] Metropolitan area refers to Capital City, while Regional area refers to Rest of State locations. Capital City and Rest of State areas are defined by the Australian Statistical Geography Standard (ASGS) Edition 3 - Reference period July 2021 to June 2026. https://www.abs.gov.au/statistics/statistical-geography/australian-statistical-geography-standard-asgs

OSL assessment framework

A mix-methods approach is used for the 2025 OSL methodology. The approach consists of 3 stages:

1. The preliminary occupation ratings produced via a machine learning model and a modelling framework.
2. The manual verification of preliminary occupation ratings using additional sources of information.
3. The incorporation of feedback from the Commonwealth Government, state governments and Jobs and Skills Councils (JSCs).

Figure 2: A 3 stage occupation assessment process



Source: Jobs and Skills Australia.

Stage 1: Generating preliminary occupation ratings

The preliminary ratings are produced on 2013 ANZSCO as most data from the ABS and Jobs and Skills Australia are currently based on this ANZSCO version.

These stage 1 occupation ratings are then mapped onto the 2022 ANZSCO occupations to produce the 2022 ANZSCO version of the OSL, which are then mapped in a similar way to produce the 2024 OSCA version of the OSL. The mapping approach is described in Appendix B.

Preliminary occupation ratings are based on a modelling framework, which includes results from a Gradient Boosted Machine (GBM) learning model. The key elements of the modelling framework are summarised in Table 2.

Table 2: Key steps of the preliminary occupation rating modelling framework

Key elements of the modelling framework
• Estimating occupation fill rates using a GBM model
• Blending the GBM-based fill rates with 5-year weighted moving average fill rates from the Survey of Employers who have Recently Advertised (SERA)
• Producing 80% confidence intervals for the blended occupation fill rates
• Converting the blended fill rates, confidence intervals and occupation employment size data into occupation ratings using a set of decision rules

Source: Jobs and Skills Australia.

The GBM and modelling framework

The GBM model uses decision trees to predict fill rates for each occupation. The GBM operates by consecutively fitting new decision trees to enhance the estimate of the fill rate. The process of fitting new models continues until a stopping rule is reached. For example, when the performance of the model on the training data set ceases to improve.

The final predicted fill rates are therefore the weighted sum of the predicted values from the previous tree's models.[7] Thus, the GBM produces the estimated fill rates in a gradual, additive, and sequential manner.

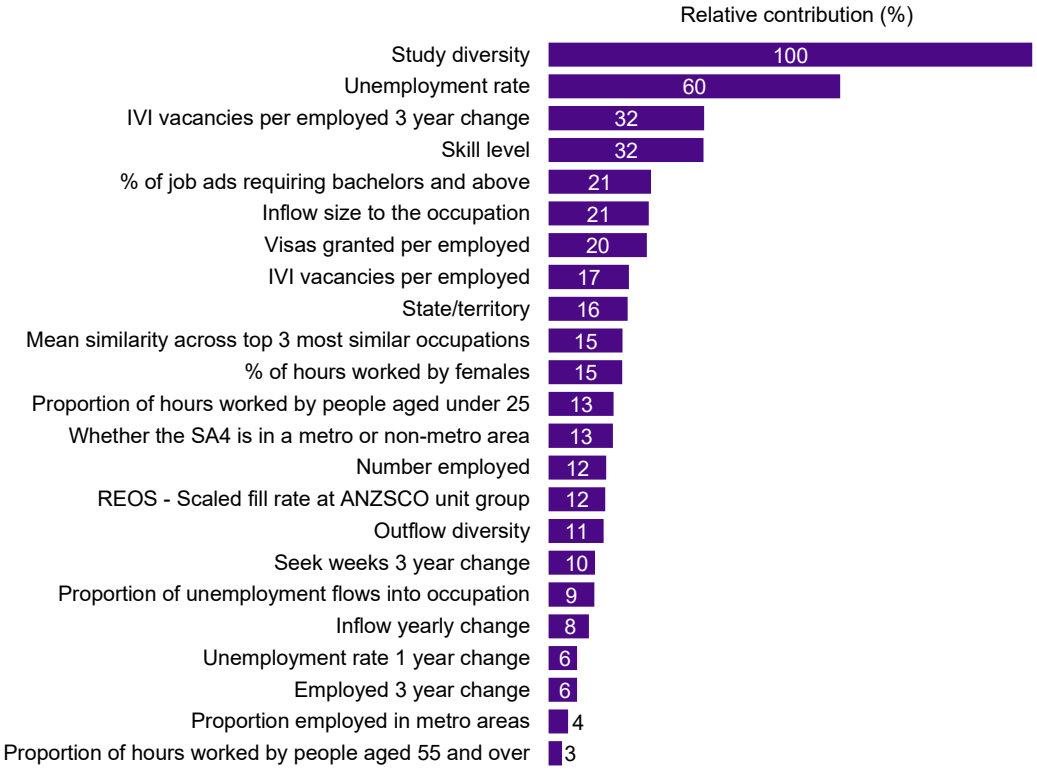
The final GBM model uses 23 inputs from 13 sources. A more detailed list of data sources is in Table C1 in Appendix C.

Variable importance

Figure 3 shows the relative importance of variables used in the GBM.

Key model contributors include study diversity, the unemployment rate, skill level, and other labour demand and supply indicators. Generally, the sources of data are Lightcast, Department of Home Affairs, ABS and Jobs and Skills Australia.

Figure 3: Variable importance of indicators in the model (2025)



Source: Jobs and Skills Australia.

[7] More information on GBMs is available online, including high level introductions. An example is: Introduction to Boosted Trees — https://xgboost.readthedocs.io/en/stable/tutorials/model.html.

Blending the GBM-based fill rates with SERA

A key variable used in the modelling framework, including featuring in the GBM as the target variable, is the vacancy fill rate from SERA. The estimated GBM and SERA fill rates, for each occupation are first converted to a linear predictor scale using a logit transformation and then blended.[8]

Constructing confidence intervals

The modelling framework uses an 80% confidence interval of estimated fill rate for each occupation. A confidence interval is the range of values that an estimated value is expected to fall between with a certain level of probability (or confidence).

Considerations and limitations of the modelling framework

GBM is a useful tool for estimating occupation fill rates, which are then used to identify occupation shortages. However, like all models, it has limitations.

- Limited data coverage: The model is applied to all in scope occupations, including those not typically surveyed in SERA. While SERA provides data on 577 occupations at skill levels 1 to 4, model performance may be weaker for occupations with limited SERA data.
- Data gaps and uncertainty: For occupations with no SERA data, the indicator model produces wider confidence intervals, which introduces uncertainty in assessments. However, the GBM is effective at ranking occupations by fill rates, from low to high. This supports confidence in applying the criteria to convert model results into the OSL ratings.
- Data quality dependence: The accuracy and reliability of the model is reliant on the quality of the underlying data sources. It also assumes that the structure and format of the data sources remain stable over time. Any structural change in the data will require the GBM to be retrained to ensure it continues to produce valid results.

Converting fill rates into ratings

To obtain preliminary ratings, Jobs and Skills Australia applies a set of decision rules based on vacancy fill rates and other data.

National or overall shortage (S)

An occupation is rated as national shortage (S) if:

1. The occupation fill rate is below 67% in both metro and regional areas, and
2. The occupation fill rate is below 67% in an area that has a majority employment share, which is defined as 80% or more.

> ***Example:*** An occupation would be rated as S if the employment share in a metropolitan area was 85% and the occupation fill rate in the metropolitan area was 62%.

[8] Refer to Appendix D for further details on the Blending process and to Appendix E for further details on SERA.

Regional/Metropolitan shortages (R/M)

An occupation is rated as in regional shortage (R) if:

1. The occupation fill rate is below 67% in a regional area, and
2. The employment share of the occupation in the regional area is between 20% and 80%.

> ***Example:*** An occupation would be rated as R if the employment share in the regional area is 40% and the occupation fill rate in the regional area is 57%.

A similar rule holds for Metropolitan shortage (M) if the above criteria are met for a metropolitan area.

Additional rules used to convert the occupation fill rates into ratings

In addition to the rules described previously, additional criteria are used when producing occupation ratings (Table 3).

Table 3: Additional decision rules applied to determine stage 1 occupation ratings[9]

Criteria
1. For an S, M or R to apply, the employment size for an occupation must be greater than the bottom 25th percentile (approximately 1,400 workers).
2. If the employment size is between the 10th and 25th percentiles, an uncertainty flag is applied for close review in verification.
3. The occupation's fill rate is considered to have a low fill rate when at least 90% of all possible fill rates are below 67%, based on an 80% confidence interval.
4. To change an occupation's rating from last year, there must be at least a 20 percentage point difference in the percentage that occupation fill rate falls below 67%.
5. If the above rules are not satisfied, an NS rating is applied.
6. If the employment size is below the 10th percentile, an NS rating is also applied as there is too much uncertainty to rate the occupation as S, M or R.

Source: Jobs and Skills Australia.

The above rules were based on sensitivity tests to produce the most stable and consistent results over time.

These rules and thresholds are applied to ensure that:

- the preliminary ratings are based on strong data evidence; and
- any changes in ratings reflect, as best as possible, changes in labour market conditions rather than being influenced by sudden shifts or data volatility.

These initial occupation ratings are further verified in the second stage of the OSL assessment process.

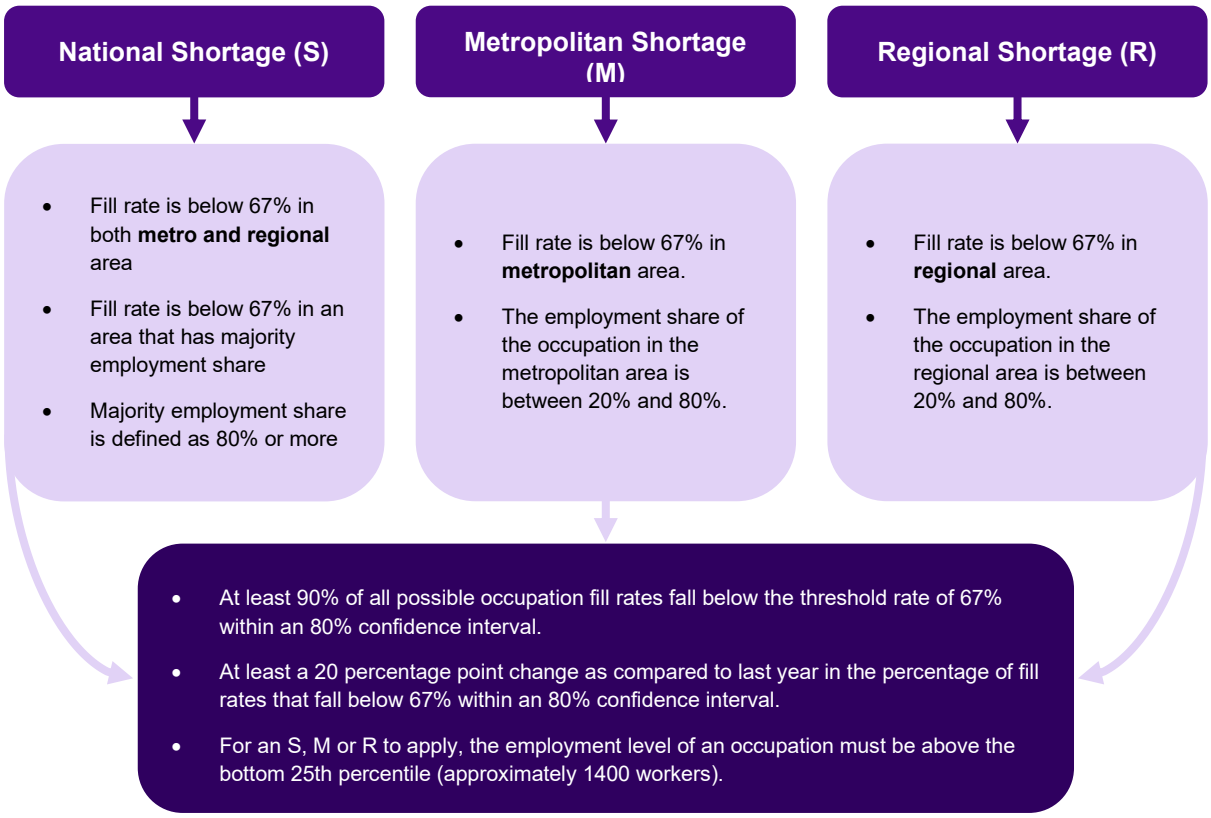
[9] There are additional rules. Due to their complex nature and ensure ease of understanding the key elements of the OSL methodology, they were not included in the table.

Given the above, an occupation could have an initial, preliminary NS rating because:

- the occupation is not in shortage in the labour market
- there is uncertainty due to mixed or limited data evidence.

Figure 4 below illustrates example occupation shortage scenarios.

Figure 4: Occupation shortage scenarios



Source: Jobs and Skills Australia.

Stage 2: Manual verification of preliminary results

In this stage of the assessment process, the preliminary occupation ratings are reviewed using both additional labour market indicators and a significant volume of stakeholder evidence that is primarily gathered through the annual OSL stakeholder survey.

The review begins with the 2013 ANZSCO framework, which allows for more data and ensures consistency in analysis over time. After that, the 2013 ANZSCO results are converted to the 2022 ANZSCO and 2024 OSCA frameworks.[10]

A secondary review is performed for occupations which have complex mappings between the 2013 and 2022 ANZSCO versions, and between the 2022 ANZSCO and 2024 OSCA versions, including:

- one 2013 ANZSCO occupation which maps to multiple 2022 ANZSCO occupations
- multiple 2013 ANZSCO occupations which map to one 2022 ANZSCO occupation
- newly created occupations in the 2022 ANZSCO framework
- one 2022 ANZSCO occupation which maps to multiple 2024 OSCA occupations
- multiple 2022 ANZSCO occupations which map to one 2024 OSCA occupation
- newly created occupations in the 2024 OSCA framework.[11]

During the review process, priority is given to:

- occupations with a high uncertainty (e.g. those with wide confidence intervals)
- occupations that show a rating change from the previous year
- occupations supported by data evidence from the stakeholder survey.

Testing on past year's OSL outcomes shows that, on average, 85% to 90% of preliminary ratings match the final ratings after manual review.

The sources and metrics used during the review are listed in Table 4.

[10] Refer to Appendix B for the approach used.

[11] Ibid.

Table 4: Sources and metrics used to review and verify the preliminary ratings

Metrics	Source
Supply, demand and proportion of vacancies filled	OSL Stakeholder Survey[12]
Qualified applicants per vacancy; Suitable applicants per vacancy; Duration of vacancies	SERA; Australian Skills Classification (ASC)[13]
2021 employment level; Current employment level	ABS Census of Population and Housing 2021; GBM[14]
Recruitment difficulty rates	Recruiting Employer Outlook Survey (REOS)[15]
Labour Supply Index (LSI)[16]	SERA; REOS; ASC
Desktop research of occupations and industries	Industry reports and media articles
Occupation's characteristics (skill level, qualification requirement, task descriptions, specialisations)	ABS ANZSCO and OSCA framework

Source: Jobs and Skills Australia.

The review process involves applying judgment on what the overall evidence suggests about an occupation's rating. Below are 2 simplified examples.

- Case 1: The preliminary rating for an occupation is NS (No Shortage), but the occupation just narrowly misses the criteria for S (Shortage). Additional sources provide compelling evidence supporting an S. The rating is revised to S.
- Case 2: The preliminary rating is S but it only just meets the criteria. However, the employment level is below the 25th percentile and the additional sources offer little or no evidence of a shortage rating. The rating is revised to NS.

[12] Refer to Appendix F and the 2025 OSL Stakeholder Survey for more information.

[13] Occupation similarity scores from the ASC are used to increase the sample size of SERA data. The ASC was developed to provide a common language of skills to increase understanding and recognition of skills across occupations, sectors, and contexts. More information on the ASC is available on the Jobs and Skills Australia webpage.

[14] One feature used by the GBM model is an estimate of the current year's employment size based on Census 2021 employment sizes and updated information from the ABS Labour Force Survey and Jobs and Skills Australia Nowcast of Employment by Region and Occupation (NERO). For more information on NERO, refer to Nowcast of Employment by Region and Occupation (NERO) | Jobs and Skills Australia.

[15] For more information, refer to Recruitment Experiences and Outlook Survey | Jobs and Skills Australia.

[16] The LSI measures how far the applicants per vacancy for a specific unit group deviates from the overall average as a measure of how oversupplied or undersupplied the unit group is. A large negative LSI indicates an undersupply of applicants, while a large positive LSI indicates an oversupply. For more information on the LSI, refer to the Occupation Shortage Report – March 2025.

Stage 3: Incorporating stakeholder feedback

Consultation with select external stakeholders

Jobs and Skills Australia seek feedback on the preliminary, stage 1, ratings from:

- Commonwealth Government departments, requesting review of the national level ratings
- State government departments, requesting review of whether the national level ratings apply to the state
- JSCs, requesting review on the national level ratings and the ratings that should apply to each state.

Given the limited data currently available on the 2024 OSCA framework, feedback for the 2025 OSL was primarily requested on the 2022 ANZSCO version of the OSL. As data based on the 2024 OSCA framework becomes more readily available in future years, this will become the primary framework for seeking feedback.

The reason Jobs and Skills Australia requests a review of the preliminary ratings (rather than the stage 2, verified ratings) is to:

- ensure timely production of the OSL
- provide stakeholders with sufficient time to review and share feedback.

The aim of stage 3 is to gather additional evidence. This stage ensures that the evidence base that inform the final OSL ratings are broad and comprehensive.

Jobs and Skills Australia recommends that state level analysis be based on the products and outputs produced by the states for the following reasons:

- Modelling, data analysis, research and assessments are undertaken to produce national level ratings and not state level ratings.
- Feedback from states and the JSCs on whether the national ratings apply to a particular state serve as a validation step to ensure accuracy of the national ratings.
- The published state ratings are based on the accepted feedback from the 3 mentioned groups of stakeholders (see the Criteria for incorporating feedback section below). They do not represent Jobs and Skills Australia's view of labour market conditions in states.

Criteria for incorporating feedback

Table 5 summarises the process Jobs and Skills Australia undertake to incorporate feedback from Commonwealth departments and JSCs into the national level ratings.

Table 5: Steps used when reviewing and incorporating feedback from Commonwealth and JSCs

Key steps
1. Score the feedback for each occupation using a scoring matrix.
2. Reject feedback for occupations that do not meet the minimum benchmark score.[17]
3. For feedback that meets the benchmark, compare it against the manually verified ratings from stage 2 and the supporting evidence used during that stage.
4. Accept feedback if it provides stronger evidence than what were used in the stage 2 process.
5. Adjust the national level ratings based on accepted feedback in step 4.
6. For occupations where no feedback was received, retain stage 2 ratings as the final national level ratings.

Source: Jobs and Skills Australia.

Additional rules are applied to state feedback and JSC feedback for state ratings (Table 6).

Table 6: Further rules used for state ratings

Rule	Reason or assumption
1. An occupation is rated as NS in a state with zero employment recorded.[18]	A shortage cannot exist where there is no active labour market for that occupation.
2. National level rating of occupations is adjusted to reflect the accepted state ratings where employment share for those states collectively exceeds 2 thirds of the national employment for that occupation.[19]	Ensures that the national level ratings for occupations are aligned with the majority of accepted state ratings, reflecting broader labour market conditions across states.

Source: Jobs and Skills Australia.

[17] In some instances, feedback that scores below the acceptance benchmark may still be considered if it presents strong qualitative evidence, based on judgement.

[18] The occupation employment level is based on the 2021 ABS Census.

[19] In some cases, the collective employment share of states where the rating has been accepted is marginally short of 2 thirds share of national level employment. For those cases, judgement is applied to determine whether the national level rating should be adjusted.

Box 1 shows a simple example of how Rule 2 (in Table 6) is applied.

Box 1: An example of Rule 2 (in Table 6)

- Occupation A was rated as NS in the stage 2 verification.
- The national total employment for occupation A is 1,000.
- Occupation A is rated as S in NSW, VIC, and QLD with employment figures of 400, 200 and 100, respectively.
- Occupation A is rated as NS in the remaining states which have a combined employment size of 300.
- The combined employment share of S rated states (NSW, VIC, and QLD) is 70%, while the NS rated states make up 30%.
- Therefore, the national level rating for occupation A is changed from NS to S as 70% exceeds the 2 thirds criteria.

Source: Jobs and Skills Australia.

Once feedback has been accepted and reflected into the national level ratings, the 2022 ANZSCO results are then mapped to 2024 OSCA. Refer to Appendix B for more details.

Appendix

Appendix A: Occupations out of OSL scope

There are several occupations that are excluded from the OSL. These are:

- Skill Level 5 occupations
- Occupations specific to New Zealand (such as Māori specific occupations)
- Occupations where the labour market has been judged to be not open and contestable.

Skill Level 5 occupations are excluded from both the OSCA and the 2022 ANZSCO versions of the OSL.

For more information on OCSA and ANZSCO, refer to their respective ABS webpages.[20]

Skill Level 5 occupations

Table A1 shows the ABS ANZSCO skill level classification. There are 156 Skill Level 5 occupations that are excluded from the OSL scope.

Table A1: ANZSCO skill level classification

Skill Level	Definition
Level 1	• Occupations at Skill Level 1 have a level of skill commensurate with a bachelor degree or higher qualification. At least 5 years of relevant experience may substitute for the formal qualification. In some instances, relevant experience and/or on-the-job training may be required in addition to the formal qualification.
Level 2	• Occupations at Skill Level 2 have a level of skill commensurate with one of the following: • NZ Register Diploma or • AQF Associate Degree, Advanced Diploma or Diploma. • At least 3 years of relevant experience may substitute for the formal qualifications listed above. In some instances, relevant experience and/or on-the-job training may be required in addition to the formal qualification.
Level 3	• Occupations at Skill Level 3 have a level of skill commensurate with one of the following: • NZ Register Level 4 qualification • AQF Certificate IV or • AQF Certificate III including at least 2 years of on-the-job training. • At least 3 years of relevant experience may substitute for the formal qualifications listed above. In some instances, relevant experience and/or on-the-job training may be required in addition to the formal qualification.

[20] For the OSCA classification, consult the webpage: OSCA - Occupation Standard Classification for Australia, 2024, Version 1.0 | Australian Bureau of Statistics.
For the ANZSCO classification, consult the webpage: ANZSCO - Australian and New Zealand Standard Classification of Occupations, 2022 | Australian Bureau of Statistics.

Skill Level	Definition
Level 4	• Occupations at Skill Level 4 have a level of skill commensurate with one of the following: • NZ Register Level 2 or 3 qualification or • AQF Certificate II or III. • At least one year of relevant experience may substitute for the formal qualifications listed above. In some instances, relevant experience may be required in addition to the formal qualification.
Level 5	• Occupations at Skill Level 5 have a level of skill commensurate with one of the following: • NZ Register Level 1 qualification • AQF Certificate I or • compulsory secondary education. • For some occupations, a short period of on-the-job training may be required in addition to or instead of the formal qualification. • In some instances, no formal qualification or on-the-job training may be required.

Source: ABS, ANZSCO.

New Zealand occupations

There are 7 Māori specific occupations that are excluded from the OSL (Table A2).

Table A2: List of New Zealand occupations

ANZSCO	Description
241112	Kaiako Kohanga Reo (Māori Language Nest Teacher)
241211	Kaiako Kura Kaupapa Māori (Māori-medium Primary School Teacher)
241212	Pouako Kura Kaupapa Māori (Māori-medium Primary School Senior Teacher)
252215	Traditional Māori Health Practitioner
411512	Kaiāwhina (Hauora) (Māori Health Assistant)
422113	Kaiāwhina Kohanga Reo (Māori Language Nest Assistant)
422114	Kaiāwhina Kura Kaupapa Māori (Māori-medium School Assistant)

Source: ABS, ANZSCO.

Occupations where the labour market is not open and contestable

Jobs and Skills Australia assess whether the labour market for occupations are open and contestable. For example, defence force roles, judges and detectives are excluded from scope as recruitment is mainly conducted internally.

Table A3 lists the 2022 ANZSCO occupations that were excluded from the ANZSCO version of the 2025 OSL.

Table A3: List of occupations excluded from the OSL, 2022 ANZSCO

ANZSCO	Description
111212	Defence Force Senior Officer
111311	Local Government Legislator
111312	Member of Parliament

ANZSCO	Description
111399	Legislators nec[21]
139111	Commissioned Defence Force Officer
139112	Commissioned Fire Officer
139113	Commissioned Police Officer
139211	Senior Non-commissioned Defence Force Member
271211	Judge
271212	Magistrate
271213	Tribunal Member
441111	Defence Force Member – Other Ranks
441311	Detective
452411	Footballer
452412	Golfer
452499	Sportspersons nec

Source: Jobs and Skills Australia.

Table A4: lists the OSCA occupations that were excluded from the 2024 OSCA version of the 2025 OSL.

Table A4: List of occupations excluded from the OSL, 2024 OSCA

OSCA	Description
121232	Defence Force Senior Officer
121331	Local Government Legislator
121332	Member of Parliament
121399	Legislators nec
149231	Commissioned Defence Force Officer
149232	Commissioned Fire Officer
149233	Commissioned Police Officer
149431	Senior Non-commissioned Defence Force Member
281233	Judge
281235	Magistrate
281238	Tribunal Member
451131	Defence Force Member - Other Ranks
299231	Specialist Police Officer
462631	Footballer
462632	Golfer
462699	Sportspersons nec

[21] nec stands for 'not elsewhere classified'.

Source: Jobs and Skills Australia.

Appendix B: Mapping to 2022 ANZSCO and to OSCA

Mapping from 2013 ANZSCO to 2022 ANZSCO

The preliminary, stage 1 assessments and occupation ratings are initially based on 2013 ANZSCO. This is because most data sources are readily available on that basis.

These stage 1 occupation ratings from 2013 ANZSCO are then mapped onto the 2022 ANZSCO occupations to produce the 2022 ANZSCO version of the OSL.

This mapping is guided by the ANZSCO correspondence tables, from 2013 to 2021 and from 2021 to 2022, as published by ABS. The interactions between the different frameworks can be complex, but they can be reduced to the 4 following scenarios.

Case 1: One-to-one (Full) occupation match

This is when there is a one-to-one match between an occupation on the 2013 ANZSCO and the 2022 ANZSCO basis (Figure B1). Most (834 of 859) occupations have a one-to-one match between the 2 ANZSCO versions. The stage 1, 2013 ANZSCO occupation ratings are directly applied to the 2022 ANZSCO occupations.

Figure B1: One to one occupation match

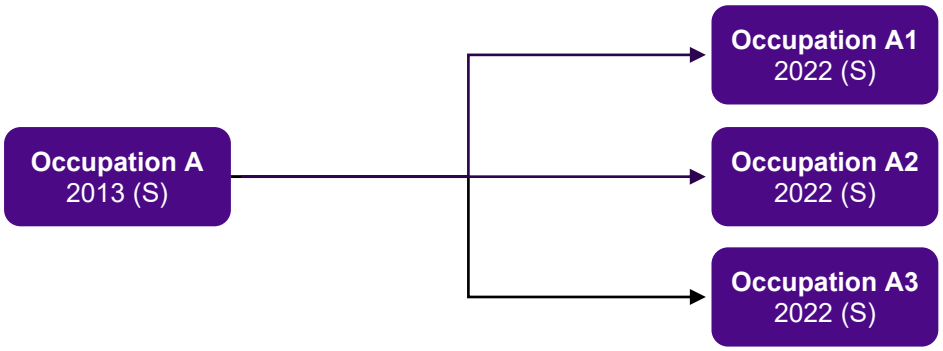


Source: Jobs and Skills Australia.

Case 2: One-to-multiple (Partial) occupation match

There are 56 occupations where an occupation on 2013 ANZSCO splits into several or many occupations on 2022 ANZSCO (Figure B2). In this case, the stage 1 occupation ratings on 2013 ANZSCO is given to or is the same as the 2022 ANZSCO occupations.

Figure B2: One to multiple occupation match



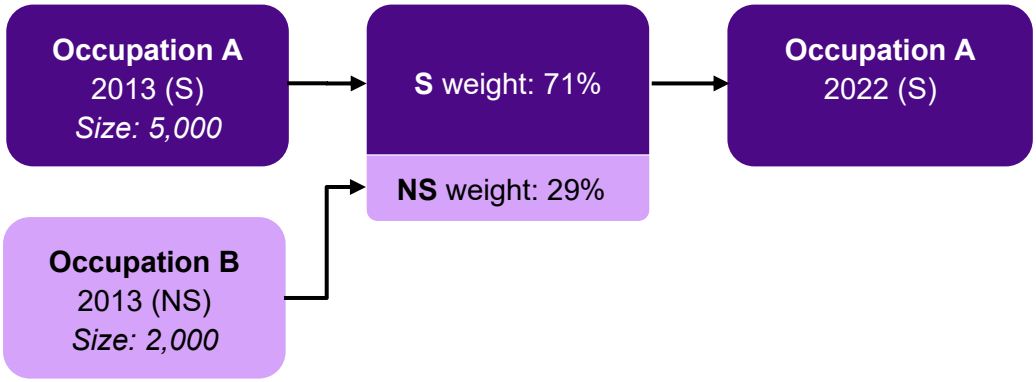
Source: Jobs and Skills Australia.

Case 3: Multiple-to-one (Mixed) occupation match

There are 7 occupations where multiple occupations on 2013 ANZSCO map to a single occupation on the 2022 ANZSCO (Figure B3). This is the most complex scenario, as the ratings of the constituent occupations may disagree with each other.

To determine the final rating, the employment share of 2013 ANZSCO occupations are used as weights, with the rating linked to the highest share assigned to the 2022 ANZSCO occupation.[22]

Figure B3: Multiple to one occupation match



Source: Jobs and Skills Australia.

Case 4: New occupations

Fifteen occupations were introduced in 2022 ANZSCO and do not map from any occupation on 2013 ANZSCO. In this case, there is no historical data from SERA and REOS, including GBM fill rates. As such, the previous year ratings (2024 OSL) are applied as the stage 1, preliminary ratings for these occupations in the first instance. These ratings are then verified further using additional evidence, where 2022 ANZSCO data for them exists, including feedback from stakeholders.

Mapping from 2022 ANZSCO to 2024 OSCA

Jobs and Skills Australia use ANZSCO to OSCA correspondence tables, provided by ABS, and the 2022 ANZSCO OSL ratings to create OSL ratings on OSCA.

The concordance between ANZSCO and OSCA includes:

- one-to-one (70% of 2022 ANZSCO occupations)
- partial or mixed mapping (30% of 2022 ANZSCO occupations).

The mapping between ANZSCO and OSCA is challenging for partial or mixed mappings, or when an ANZSCO code splits into several (or many) different OSCA occupations. The challenges are further heightened as no data exists – particularly employment level for occupations – on OSCA. Therefore, assumptions were used to convert 2022 ANZSCO occupation ratings to OSCA, including for occupations that are new to OSCA and did not exist under ANZSCO (Table B1).

[22] ABS Census of Population and Housing 2021.

Table B1: Rules and assumptions underpinning ANZSCO to OSCA mapping

Rule/assumptions	Reason
Equal split rule	At the time that the 2025 OSL was verified, Jobs and Skills Australia did not have employment sizes coded to OSCA. Therefore, an even split of occupations was assumed using the ABS 2021 Census of Population and Housing data coded to ANZSCO 2022 classification.
Majority employment share rule	Where an OSCA occupation has a shortage rating for occupations under ANZSCO representing a majority of its employment size, this is used as the most appropriate rating for the OSCA occupation.
Title match rule	For consistency across classifications, if an occupation has the same title in OSCA as an occupation in ANZSCO 2022, the same rating is applied.
Rule for new OSCA occupations	In the absence of compelling evidence for shortage, the default rating is NS.

Source: Jobs and Skills Australia.

Appendix C: GBM input variables

Table C1 lists the GBM inputs and their source.

Table C1: GBM input variables

Variable	Geography	Period	Source
IVI vacancies per employed IVI vacancies per employed 3 year change	State	2006 to 2025	Jobs and Skills Australia
Number employed 3 year change	National State	1987 to 2024	ABS Labour Force Survey
Unemployment rate Unemployment rate 1 year change	State National	2008 to 2025	ABS Labour Force Survey
Seek weeks 3 year change	National	1991 to 2025	ABS Labour Force Survey
Visas granted per employed	National	2006 to 2025	Home Affairs
Proportion of hours worked by people aged under 25 Proportion of hours worked by people aged 55 and over Proportion of hours worked by females	State State National	2021	ABS, 2021 Census of Population and Housing
Proportion employed in metro areas	State	2021	ABS, 2021 Census of Population and Housing
Whether the SA4 is in a metro or non-metro area	SA4		ABS, ASGS
Mean similarity across top 3 most similar occupations, weighted by employment size	National	Dec 2023	Jobs and Skills Australia
Skill level of occupation		2013	ABS, ANZSCO

Variable	Geography	Period	Source
Scaled fill rate at ANZSCO unit group	National	May 2021 to Apr 2025	Jobs and Skills Australia
Total size of inflow to the occupation Inflow yearly change Percentage net flow; net flow relative to occupation size Outflow diversity.	National	2011–12 to 2022–23	Jobs and Skills Australia
Proportion requiring bachelor and above	National	Jan 2012 to Jun 2025	Lightcast vacancies
Study diversity	National	2021	ABS, 2021 Census of Population and Housing
Proportion of unemployment flows into occupation	National	2011–12 to 2021–22	Jobs and Skills Australia

Source: Jobs and Skills Australia.

Appendix D: Blending the GBM-based fill rates with SERA

The GBM and SERA fill rates, for each occupation, are first converted to a linear predictor scale using a logit transformation.

GBM fill rates are then blended with a 5-year weighted moving average fill rates from SERA. The blending is based on a Bayesian credibility approach, where more weight is applied to the source (GBM or SERA) with the lower variance.

The credibility weight used to determine the blended fill rate for occupation j is the contribution to uncertainty of the GBM model and SERA fill rates and is shown below.

$$\phi_j = \frac{\sigma^2_{GBM}}{\sigma^2_{GBM} + \sigma^2_{j,SERA}}$$

Therefore, if the number of SERA vacancies surveyed is large, $\sigma_{j,SERA}$ will be small and the credibility factor ϕ_j will be close to 1. On the other hand, if there are very few SERA vacancies surveyed, $\sigma_{j,SERA}$ will likely be large and the credibility factor ϕ_j will be closer to 0.

The blended fill rate is then converted back into probability or a proportion fill rate figure.

Appendix E: SERA

SERA is a structured, monthly, telephone and web-based survey of employers. Employers are asked about their experiences recruiting for specific advertised vacancies in particular occupations. The survey includes only skill level 1 to 4 occupations as defined by 2022 ANZSCO. Information is collected for close to 11,000 employers, annually, for 577 occupations.

Table E1 lists the questions in the SERA questionnaire.

For more information on SERA, including the survey methodology, please contact Jobs and Skills Australia at: OccupationShortageList@jobsandskills.gov.au.

Table E1: SERA Questionnaire

SERA Questionnaire
From this advertisement for a (job title) how many positions were you attempting to fill?
How many positions were filled?
Are you still in the process of hiring for this position?
What is the expected date for completing the hiring process for this position?
You were attempting to fill (number of job title) position/s, but you ended up filling (number) position(s), is this correct?
How many people applied for the position/s?
An exact number is not required. Can you please give us an idea of how many applicants there were? (Range of numbers)
Which of the following statements best describes the qualifications required for the position/s? • Formal qualifications are required • Formal qualifications are preferred but not required • Formal qualifications are not required for the position
What qualifications were required?
Of the applicants, how many had the qualification/s required?
Even though the position/s did not require a qualification, did you receive any applicants who held a relevant, formal qualification? If so, how many?
Did the applicant have the qualification/s required?
Even though it was not required for the position/s, did the applicant have the relevant, formal qualification/s?
Thinking about the experience needed for the role, which of the following statements is the most accurate: • Relevant experience is required • Relevant experience is preferred but not required • Relevant experience is not required
Did the position/s require the applicant/s to have relevant experience?
What is the minimum length of experience required for the position?
Was the applicant suitable? That is, they had the qualifications, skills, and experience to do the job?
Now thinking about the applicants who were not suitable, what were the main reasons the applicants were considered unsuitable for the position? • Lacked qualifications/registrations • Lacked technical skills (e.g. specific tools, techniques, strategies) • Lacked experience in the occupation • Poor application/interview • Lacked required communication skills • Remuneration (wage/salary/pay rate) • Location of applicant not suitable (e.g. lives too far away) • Applicant overseas/does not have Australian working rights

SERA Questionnaire

- Applying for Centrelink purposes only
- Did not have required licence (e.g. driver's, forklift, etc)
- Applicant/s did not show up (to interview or to work
- Overqualified
- Applicant/s did not want the hours/flexibility offered
- Poor references/work history

How long have you been trying to fill this vacancy/these vacancies?

- Less than 4 weeks
- 4 to less than 6 weeks
- 6 weeks to less than 3 months
- 3 to less than 6 months
- 6 months or more

Reflecting on your attempt to fill this position, why do you think there weren't any applications?

- Location e.g. remote or regional
- Specialist role
- Employment status (e.g. part-time, temporary/contract)
- Remuneration (wage/salary/pay rate)
- Undesirable working conditions/hours/flexibility
- Potential applicants' preference for self-employment over wage or salary roles
- Not enough skilled workers available/skill shortage
- Other (please specify)

Reflecting on your attempt to fill this position, why do you think there were not many suitable applicants?

- Location e.g. remote or regional
- Specialist role
- Employment status (e.g. part-time, temporary/contract)
- Remuneration (wage/salary/pay rate)
- Undesirable working conditions/hours/flexibility
- Potential applicants' preference for self-employment over wage or salary roles
- Not enough skilled workers available/skill shortage
- Other (please specify)

Why has/have the vacancy/vacancies remained unfilled even though there were enough suitable applicants?

- Suitable applicants chose to stay with current employer
- Suitable applicants found other work in the same occupation
- Could not agree remuneration (wage/salary/pay rate) with suitable applicant
- Suitable applicants were not offered the position because they were overqualified
- Suitable applicant was not willing to relocate
- Suitable applicants' preference for self-employment over wage or salary roles
- Still recruiting/still in process/pending
- Suitable applicant did not agree with the flexible work condition (remote work, in-office work)
- Other (please specify)

SERA Questionnaire
Are you confident that you will successfully fill the vacancy/vacancies in the current recruitment round?
Since one or more of the vacancies were not filled, what will be done now? • Keep advertising/readvertise in same places/sites/areas • Advertise on different sites/areas • Seek candidates other than through advertising (e.g. word-of-mouth) • Change job advertisement • Change position requirements including taking apprentices • Change remuneration • Change the working conditions of the position • Give up on filling the position • Restructure the organisation • Turn down work or cancel existing work • Keep the position on hold • Offer overseas sponsorships/take applicants from overseas • Use recruitment agency • Outsource work

Source: Jobs and Skills Australia.

Appendix F: OSL Stakeholder Survey

The OSL Stakeholder Survey (stakeholder survey) targets peak bodies, professional associations, unions, regional representative bodies, and education and training advisory bodies. Responses are also received from government agencies, recruitment agencies/labour hire firms, employers and JSCs.

The stakeholder survey can be completed between November each year and March the following year.

This survey is different to Jobs and Skills Australia SERA. Compared to SERA, the stakeholder survey collects high level information on 3 key areas related to recruitment experience:

- Proportion of vacancies filled by states/territories and metropolitan, regional or both
- Supply of workers
- Demand for workers compared to the previous year.

Information is collected at 2022 ANZSCO occupation level.

Table F1 lists the questions in the stakeholder survey.

Table F1: Stakeholder Survey Questionnaire

Stakeholder Survey questionnaire
About the organisation (Part A)
What is the name of the organisation?
Which best describe your organisation?

Stakeholder Survey questionnaire
In regard to your organisation, how many employees does it have?
In regard to your organisation, how many members (individuals) does it represent?
In regard to your organisation, how many other organisations does it represent?
About the organisation (Part B)
Which industries does your organisation represent?
About the organisation (Part C)
Which states and territories is your organisation active in?
What is the postcode of the primary location of your organisation?
Which areas is your organisation active in?
For metropolitan and regional areas, how would you like to respond?
About you
Name
Job title
Best contact number
Work email address
Which occupations will you report on?
Select at least one occupation you will report on
Enter other occupations (optional)
Your advice on occupations
How many vacancies were advertised?
How many of the vacancies were filled?
If the 2 previous questions could not be answered, which percentage of the vacancies were • Low % of vacancies filled (E.g. nil–25%) • Moderate % of vacancies filled (E.g. 25–50%) • High % of vacancies filled (E.g. 50–75%) • Vacancies completely filled (E.g. 75–100%)
What was the supply of suitable skilled workers who applied for vacancies? • Severe undersupply (Number of workers is critically insufficient to meet needs) • Undersupply (Less workers than needed) • About right (Enough workers to meet needs) • Oversupply (More workers than needed)
How much demand was there for the occupation compared to 2023? • Lower demand • About the same demand • Higher demand • Much higher demand
What was the main challenge you found with job applicants

Stakeholder Survey questionnaire
What were other (up to 4) challenges you found with job applicants?
Information sources
Which information sources did you use to complete this survey?
Comments
Please provide any additional information and/or emerging issues regarding the occupations you provided responses for.
How can we improve this survey experience for next year?

Source: Jobs and Skills Australia.