

Skills Priority List Methodology

1. Overview

1.1 Introduction

The Skills Priority List (SPL) provides a detailed view of occupations in shortage, nationally and by state and territory, as well as the future demand for occupations in Australia. The list provides a single source of intelligence on occupations in shortage. While the SPL helps inform advice around the targeting of policy initiatives, it is important to note that it is not the only input into any such advice.

The list and occupation assessments are determined through extensive statistical analysis of the labour market, employer surveys, and extensive stakeholder engagement.

The National Skills Commission (NSC) engaged with a wide range of organisations as part of this year's SPL consultation process. These included peak bodies, industry groups, professional associations, unions, regional representative bodies and major employers in the Australian labour market, combined with extensive consultations with federal and state and territory governments.

The use of various sources of evidence and stakeholder consultations ensures the SPL represents a comprehensive assessment of occupational shortages. The NSC thanks all participants for their engagement and their expertise. In particular, we thank state and territory agencies for their insights into the occupational shortages that are specific to their jurisdiction, including points of difference in their labour market when compared to the national picture.

This methodology will be revised and updated where required as further data sources and information become available. This will

ensure the methodology continues to provide the most accurate assessment of occupations possible.

Scope and granularity

Occupations considered in scope for the SPL are:

- defined in the Australian and New Zealand Standard Classification of Occupations (ANZSCO) as Skill Level 1 - 4 occupations at the six-digit level, excluding occupations 'not further defined',¹ and
- occupations with an open and contestable labour market.²

Occupational assessments, where the data supports a robust assessment and there is evidence suggesting variation between metropolitan and regional locations, are made at a national, state and territory level..

While data and stakeholder input on Skill Level 5 occupations are gathered by the NSC through employer surveys and can be provided during the SPL consultation process, these occupations are not considered in-scope for the SPL. This is due to these occupations having fewer barriers to entry and, unlike other in-scope occupations, they generally do not require significant post-school education and training.

The Australian Bureau of Statistics (ABS) defines Skill Level 5 occupations as having:

'a level of skill commensurate with...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'.

Shortage definition

A key component of the SPL is the assessment of occupational shortages. An occupation is considered to be in shortage when employers are unable to fill or have considerable difficulty filling vacancies. Or they cannot meet significant specialised skill needs within that occupation, at current levels of remuneration, conditions of employment and in reasonably accessible locations.

Based on this definition, the primary measure of an occupational shortage is the ability of employers to fill vacancies, i.e. the vacancy fill rate.

SPL categories

Taking account of all available information, a Current Labour Market Rating is determined for each occupation. Ratings are provided nationally and for each state and territory. Where there is evidence suggesting variation between metropolitan and regional locations this is reflected in the rating. A full list and detailed explanation of the ratings are available at [Attachment A](#).

In addition, each occupation is given an indicative future demand rating (strong, moderate or soft) to indicate the likely demand for the occupation over the coming five-year period. The Future Demand Rating is only available nationally.

Using these two components, each occupation assessed is categorised into one of six categories.

SPL categories

	Current Labour Market Rating	Future Demand Rating
1	Shortage	Strong future demand
2	Shortage	Moderate future demand
3	Shortage	Soft future demand
4	No Shortage	Strong future demand
5	No Shortage	Moderate future demand
6	No Shortage	Soft future demand

All occupations are allocated to one of these categories but are not further ranked. Occupations rated as either Metropolitan or Regional Shortage are clearly identified and included in the Shortage category

1.2 Evidence base

Current Labour Market Rating

Evidence informing the composition of the Current Labour Market Rating for the SPL encompasses:

- SPL Indicator Model
- Survey of Employers who have Recently Advertised (SERA)
- major employer and peak/representative body input
- federal and state/territory government input, and
- other available data/evidence.

Future Demand Rating

Evidence informing the composition of the indicative Future Demand Rating for the SPL encompasses:

- five-year employment projections
- replacement rates data
- employer and peak/representative body input
- federal and state/territory government input, and
- other available data/evidence.

Further information on each of these elements is detailed in the relevant sections below.

2. Current Labour Market Rating

2.1 SPL Indicator Model

Overview

The SPL Indicator Model has been developed by the NSC to assist in the assessment of the current labour market for over 900 occupations at the Australian and New Zealand Standard Classification of Occupations (ANZSCO) six-digit level. It provides a valuable link to, and extension of, the targeted long-standing research undertaken on skill shortages and the Survey of Employers who have Recently Advertised (SERA).

The SERA employer survey undertaken by the NSC is unique as it can be taken as an estimate of current skill shortages and can be used as a direct measure of whether there is adequate supply to meet demand. The SERA provides a mechanism for testing the validity of secondary labour market indicators, and a way to sensibly combine them. If an indicator is predictive of SERA results, then it can be incorporated into a skills model directly.

By using SERA results as the benchmark for an occupation shortage, a robust model was produced that targets an explicit measure (the vacancy fill rate – that is, the percentage of employers who are able to fill vacancies for a particular occupation over the 12-month research period). It also allows precision about the expected accuracy of the indicator model and the relative strength of different variables in the model. The model produces an estimated fill rate, along with the level of certainty around the estimate, for all in-scope occupations at both the national and state and territory levels (where sufficient data are available). Lower fill rates imply a tighter labour market for that occupation and therefore more likelihood that the occupation will be in shortage.

The model will continue to be developed and tested further as additional or improved data sets become available. For example, the NSC will consider labour market nowcasting inputs or other additional data where available and relevant.

Method

The SPL Indicator Model is a binomial regression model that predicts vacancy fill rates.³

In the development of the model, many labour market indicators (around 190 variables overall) were tested to see if they were predictive of vacancy fill rates. Indicators were predominantly chosen for testing based on theoretical justifications and existing literature and research. A decision tree-based machine learning algorithm was applied to create a shortlist of labour market indicators that were most predictive of vacancy fill rates. This shortlist was used as the basis to determine the indicators that were included in the model. Through further testing, several indicators that were generally found to be predictive of fill rates in isolation but that were correlated with other indicators in the model were

excluded. The final list of indicators used in the model includes those that are predictive of vacancy fill rates, with an interpretable modelled relationship with fill rates, that contribute most to improvement in model performance.⁴

The SPL Indicator Model uses the following variables to estimate the vacancy fill rate:

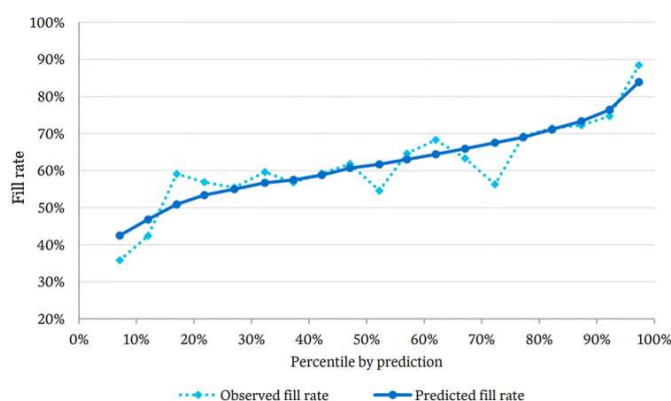
- Change in the number of average weeks spent looking for work for unemployed persons - An increase in the average number of weeks seeking work relative to the last three years is associated with higher fill rates.
- Internet Vacancy Index (IVI) - Occupations with a relatively large number of vacancies have lower fill rates. Additionally, occupations with a growing number of vacancies tend to have lower fill rates.
- Employment numbers - Smaller occupations tend to have lower fill rates. Additionally, occupations that are growing tend to have lower fill rates.
- Unemployment rates - Occupations where unemployment rates have increased relative to a year ago tend to have higher fill rates.
- Change in average salaries - Occupations with rising salaries tend to have lower fill rates.
- Job qualification requirements – Occupations that tend not to require at least a bachelor's degree or above tend to have lower fill rates.
- Visas granted relative to occupation size - Occupations where the number of visas granted is large relative to the total number employed tend to have lower fill rates.
- Study diversity for occupation - Occupations where employees come from a more diverse range of fields tend to have higher fill rates.

Further detail on the indicators used in the model is included at [Attachment B](#).

Where indicators are available at lower geographical levels, a credibility approach has been used.⁵ For example, the adopted state-level indicator is a weighted average of the state value and national value.

During development, performance of the indicator model was tested by fitting the model using a random 70% of the modelling data and comparing model predictions for the remaining 30% ('test data') to what was observed. Figure 1 shows the range of predicted values from the indicator model for observations corresponding to historical SERA estimates. The chart orders predictions from low to high and divides into 20 equally sized groups. It shows the 5% lowest-ranked occupations have a predicted fill rate of 43% and the highest 5% have a predicted rate of 83%, a significant spread. SERA results have then been overlaid to show the strong alignment with the models predicted results.

Figure 1 – Observed versus predicted fill rate, by predicted value (data as at early 2020)



Blending the indicator model and SERA results

Estimates of the fill rate for occupations are available from two sources:

- The indicator model, which is available for all occupations, but may not recognise occupation-specific factors that affect vacancies and how they get filled.
- The SERA results themselves, which directly measure the fill rate, but are available only for a subset of occupations. These results, however, may be subject to volatility if the sample size is small.
 - The SERA results are currently available for more than 350 occupations.⁶

Where there is no SERA data available for an occupation, the fill rate estimate from the indicator model is used. For occupations where estimates are available from both the indicator model and the

SERA results, the fill rates are combined to utilise the strengths of both sources. To combine the two estimates, a blended indicator-SERA approach is used, effectively taking a weighted average between the two.

At the national level, a 'running estimate' of SERA results has been developed for an occupation by taking a weighted average of the current year as well as the previous three years, allocating greater weight to more recent years. The indicator and SERA estimates are then blended using a credibility approach.

At the state and territory level, a similar approach is applied, except first a 'hybrid SERA' score is created, that mixes the national results and those at lower levels.

2.2 Survey of Employers who have Recently Advertised (SERA)

Overview

The SERA is designed for the specific purpose of assessing occupational shortages and provides a direct measure of the employer experience when recruiting. Data from the SERA is used to make confident labour market assessments that tend to be stable over time. Quantitative results from the SERA, primarily the fill rate, are input into the SPL Indicator Model and used to assess shortages. While additional data from the survey (such as the number of suitable applicants per vacancy, or reasons vacancies were unfilled) are used when making assessments for occupations.

The SERA is a telephone-based survey of employers who have advertised vacancies for selected occupations. These employers have had recent interactions with the labour market and are, therefore, able to provide information on current recruitment conditions and issues for selected occupations. The survey asks employers a range of questions regarding their recruitment experience for an advertised vacancy, collecting both quantitative and qualitative data.

- Examples of the quantitative data collected include the proportion of vacancies filled, and the number of applicants, qualified applicants, and suitable applicants.

- Qualitative questions are asked to identify key labour market issues and include questions relating to reasons why vacancies are not filled, why applicants are considered unsuitable, and the impact of recruitment challenges on employers.

Occupations surveyed

The SERA is undertaken for selected occupations defined in ANZSCO and is generally conducted at the six-digit level, although for some occupations several six-digit codes are combined to best represent a single labour market. The survey focuses on relatively large occupations (usually those with national employment of at least 1500 as at the most recent Census of Population and Housing), with low instances of self-employment and with enough job advertisements available to conduct employer surveys. Most occupations surveyed require at least three years of post-school education and training and are generally Skill Level 1-3 occupations as described in ANZSCO. A subset of Skill Level 4 occupations are also surveyed as part of the program, to increase the breadth of the research. Skill Level 4 occupations that have a strong link to training are prioritised in the SERA research.

Method

Employers of selected occupations are surveyed through a structured, telephone-based survey. Employers are asked about their experiences recruiting for specific advertised vacancies for particular occupations (see [Attachment C](#) for the SERA questionnaire).

Surveyed vacancies must be for a specific position offered for paid work of 15 hours or more per week and at least three months' duration.⁷ Advertisements for self-employment or partnerships are generally excluded. However, in industries where there is significant sub-contracting (e.g. construction), such positions may be included. Vacancies advertised by recruitment agencies are included in the SERA if they are for an actual vacancy with an employer rather than a general 'canvassing' advertisement.

Vacancies are surveyed across all states and territories. The sampling method used is a blended fixed and proportional approach, based on employment levels in the regions. This is to allow an accurate estimate for national fill rates, while still obtaining

meaningful results at the state and territory level. Attempts are made to survey an appropriate number of employers from both metropolitan and regional areas. The proportion of vacancies outside metropolitan areas depends on the state or territory's employment profile, as well as the profile for the particular occupations. The term metropolitan area refers to state and territory capital cities and regional refers to the rest of the state or territory.

SERA occupation coverage within the SPL has expanded considerably. SERA data is now collected for over 350 occupations (around triple the number covered previously). Over half of the occupations covered by SERA are Professionals (ANZSCO Major Group 2) and Technicians and Trades Workers (ANZSCO Major Group 3), noting though that the program also includes Manager (Major Group 1) and Community and Personal Service Workers (Major Group 4) occupations, as well as a number of targeted occupations within the remaining major groups.

The majority of the occupations covered by the SERA are Skill Level 1 – 3 occupations, as these occupations generally have longer lead times for training or greater required experience. A number of Skill Level 4 occupations are also surveyed, with occupations that have a strong link to training and employ a large number of workers, being prioritised for inclusion in the SERA research.

Occupations included in the SERA program are reviewed annually. The method to determine which occupations are included in the SERA research each year balances flexibility and consistency of research, with a set of occupations surveyed annually, along with a variable subset. The occupations included in the subset are chosen based on a number of factors including:

- whether they are suitable for inclusion (as outlined earlier in section 2.2)
- results from the indicator model
- indications of change in the occupational labour market, and
- stakeholder interest in a particular occupation.

Employers are surveyed over the course of a year for all occupations, to reduce the impact of seasonal factors, and to ensure research can be drawn on at any point in time for an

occupation. Generally, employers are contacted one to two months after advertising a vacancy.

2.3 Stakeholder consultation

Overview

The NSC engages with employers, peak bodies, industry groups, professional organisations, unions, regional representative bodies, government agencies and state/territory governments on the development of the SPL. This is to ensure the NSC has visibility of Australia's skills needs for the widest range of occupations.

Consultation process

Formal consultation for the SPL involves two online surveys (a peak body stakeholder survey and a major employer survey), engagement with government agencies and state/territory governments for feedback, as well as face-to-face (or online) engagement stakeholders year-round.

An indicative annual timeline for ongoing consultation is below:

Timing	Activity
September	Peak body stakeholder and major employer survey
May	Draft SPL tested with state/territory and federal agencies
Continuous	Face-to-face/digital engagement with stakeholders as appropriate
Continuous	Engage with state/territory government, including through working groups, as appropriate

Survey program

The NSC's peak body stakeholder survey and major employer survey seek to capture information from stakeholders on

recruitment challenges and skills needs across a wide range of occupations and industries.

Survey respondents can provide additional documentation to support their claims, such as member surveys, industry reports or their own internal modelling or data. Respondents are also given the opportunity to provide information on new and emerging occupations, or occupations that are not currently categorised in ANZSCO. Information gathered through the surveys is then considered during the assessment process. In addition to the SPL surveys, stakeholders can contact the NSC at any time to provide advice or submissions on occupations or to arrange a meeting to discuss input with the NSC. Any stakeholders wishing to provide input can contact the NSC at skillsprioritylist@skillscommission.gov.au.

Peak body stakeholder survey program

Peak body stakeholder survey is conducted annually, and target industry bodies, unions and regional bodies. Targeted surveys have been developed to collect information from these different groups. The same group of core questions are used to ensure consistency across the surveys. However, splitting the surveys enables the NSC to tailor the language and phrasing of questions in acknowledgement of the different roles these representative bodies play in the Australian labour market.

In each of the targeted surveys, stakeholders are asked to identify occupations that are difficult to recruit for in their experience, or, that their members have difficulty recruiting for. Stakeholders are asked to comment on issues regarding access to skills, to provide an indication of the level of shortage or adequacy of supply that exists for an occupation, and why. This provides an understanding of skills needs across industries, occupations and regions.

Major employer survey program

In 2022, the NSC introduced the major employer survey. This survey is conducted annually and aims to capture major employers' experiences recruiting for occupations on the SPL, across a wide range of industries. The survey collects quantitative evidence on the employers' recruitment experiences.

Consultation with government agencies

Many federal, state and territory government agencies already conduct their own occupation and/or skills shortage research.

Where appropriate, the NSC consults with government stakeholders on the development of the SPL, including through working groups.

Federal government agencies are consulted on the SPL occupations that are deemed relevant to their portfolio, e.g. Department of Health are consulted on health-related occupations. Whereas the state and territory agencies are consulted on the SPL findings within their jurisdiction. Draft SPL findings are tested to verify the findings to seek any additional context or evidence that may not have been considered in the initial occupation assessment.

2.4 Consideration of additional sources

The SPL Indicator Model, SERA research, and stakeholder consultation are developed and conducted directly by the NSC for the purposes of developing the SPL. These factors are therefore the primary determinants of Current Labour Market Ratings. Other sources of information, however, are also considered to strengthen assessments. While the availability of data varies from occupation to occupation, additional information is considered to provide accurate commentary and ratings. The below list is not exhaustive but outlines some of the additional sources which are considered in the assessment of occupations and include:

- occupation and industry assessments made by the NSC
- studies, assessments and reports by federal government departments
- state and territory government occupation and industry findings
- relevant skills needs or workforce planning information from government departments or industry groups
- industry activity statistics, projections and reports
- media articles, and
- presentations and speeches by industry groups, unions, workforce associations and government.

These resources can be valuable in providing additional information for all occupation assessments and are particularly useful in

circumstances where there is either uncertain evidence produced by the statistical model and or no stakeholder feedback, or situations where there is contradictory evidence. This evidence can then be used to support a rating, despite otherwise inconclusive evidence, allowing for an accurate and comprehensive assessment.

In certain circumstances where there is consistent, dependable and timely evidence from these additional validation points, there is the possibility they can be considered as stronger evidence than both stakeholder feedback and the statistical model. For example, an occupation in which there are a significant number of retrenchments. If these retrenchments are relatively sudden, they may not be captured in the statistical model nor the received stakeholder feedback. In cases of this nature, quality additional sources would be highly valued, and assessments may favour these findings over the primary determinants of SPL assessments.

It is important to note, though, simply because commentary exists on an occupation, it is not automatically considered for assessment.

2.5 Current Labour Market Rating process

The main factors determining whether an occupation is rated in shortage are the output of the statistical model (both the estimated fill rate and the level of certainty), the SERA results (where available) and the strength of stakeholder feedback (government and non-government). However, it is important to note that each occupation is individually assessed, and consideration is given to all available evidence in order to make the most accurate assessment possible.

Method to analyse components

The output of the SPL Indicator Model (including SERA data) and findings from the peak body stakeholder and major employer surveys are analysed in the first instance, followed by other sources of information. The available sources of information are assessed to determine the strength of evidence as well as consistency of findings between sources. Where sources have strong, consistent evidence, the initial assessment is more straightforward. However, where evidence does not align, or strong but conflicting evidence is

received, expert judgement and additional analysis is required, this includes:

- where a mix of strong and inconclusive evidence exists, more weight is applied to the stronger evidence
- where conflicting strong evidence exists, expert judgement is critical to assess sources and conduct additional research to determine the overall weight of evidence, and
- when all available sources of information are exhausted and no strong evidence of shortages is found, the occupation is rated as not in shortage.

The final labour market rating for occupations is based on a holistic assessment of all available sources of information and evidence.

To determine the strength of evidence for the statistical model, the estimated fill rate and margin of error are considered. A high fill rate indicates that employers are largely able to fill vacancies and generally no shortage is present. Similarly, low fill rates are an indication of shortage. Where the fill rate is inconclusive, additional analysis is needed to determine the rating, including assessing any information received through stakeholder consultation, or information from external sources.

For the peak body stakeholder survey, major employer survey and government submissions, the following factors (where relevant) are considered when determining the strength of the input. This includes the:

- relevance/strength of the evidence presented, and the methodology used, e.g., anecdotal evidence, surveys, internal recruitment data, analysis of external data
- timeliness of the evidence presented
- number of members/businesses/workers represented, and
- strength and relevance of experience/expertise in the area.

The source needs to provide evidence to support their claims in order for it to be considered as part of the assessment process.

3. Future Demand Rating

3.1 Five year employment projections

Each year, the NSC produces employment projections by industry, occupation, skill level and region for the following five years. These projections are designed to provide a guide to the future direction of the labour market. However, like all such exercises, they are subject to an inherent degree of uncertainty.

The projections have been derived by using a blend of two techniques, namely:

- best practice time series models that summarise the information that is in a time series and converted into a forecast. The time series projections are made by combining forecasts from autoregressive integrated moving average (ARIMA) and exponential smoothing with damped trend (ESWDT) models, with some adjustments made to take account of research undertaken by the NSC and known future industry developments, and
- the Computable General Equilibrium modelling work the NSC undertook in 2022 to better understand how structural changes in the economy may affect employment growth. This work was undertaken with the Victoria University Centre of Policy Studies,.

The nature of both exercises means that there will be differences between them. The NSC believes that having a range of techniques assessing future skills trends is one way of mitigating the risks of error inherent in any forecasting exercise.

The Australian Government's forecasts and projections for total employment growth from 2021-22 onwards, as published in the 2021-22 MYEFO is consistent with employment growth to November 2021.

3.2 Replacement rates

The NSC produces replacement rates by occupation at the national level, to provide an estimate of the total replacement demand resulting from flows of workers exiting a job irrespective of the inflows to employment over the same period. This information

represents an indication of likely job opportunities in the occupation. This can occur when:

- people leave their occupation to take up a new job
- leave an occupation as a result of retrenchment
- move into retirement, or
- leave the labour force.

The replacement rate method is based on data from the ABS Participation, Job Search and Mobility Supplementary Survey, which is conducted throughout Australia in February of each year as a component of the monthly Labour Force Survey, and employment data from the Labour Force Survey. The survey provides a comprehensive and consistent dataset on a person's experiences relating to job search, job change and labour market participation, and enables insights to be gained on detailed occupations in the ANZSCO classification of occupations.

When illustrating the growth in a particular occupation, all the people who leave a specific job need to be replaced. Replacement is equal to the number of people who were employed in that particular occupation at the end of the reference year, minus the number who did not change jobs, as well as the employment growth over the year.

The labour market is underpinned by significant dynamism. ABS Labour Force data show that over 4 million job vacancies are created through turnover each year (noting that this varied during years when COVID-19 lockdowns affected the labour market). Replacement rates are an indicative measure that should be used and interpreted with caution.

3.3 Future Demand Rating

Future demand for each occupation is based on combining the projected future employment growth (from the five-year employment projections produced by the NSC) and the replacement rate.

Each occupation receives a Future Demand Rating of either strong, moderate or soft. Occupations are categorised based on whether their future demand ratio (future demand divided by number employed in the occupation) is outside one standard deviation from

the mean (weighted by occupation size, based on 2018 figures; a year that is judged to be a moderate labour market use for comparisons).

A proportional, rather than absolute measure of future demand is used to assign ratings to each occupation. Proportional measure is used as it puts all occupations on a comparable scale. A small occupation doubling in size should be classified as having 'strong' demand, even if a larger occupation with 10% growth will add more jobs in absolute terms.

The projected employment growth and replacement rate provide the Future Demand Rating at the 4-digit ANZSCO level, which is apportioned to the 6-digit ANZSCO level by allocating it proportionately to occupation size. This approach assumes the same Future Demand Rating ratio for all 6-digit level occupations within the same 4-digit level occupation. The size of the 6-digit occupation can be used to multiply the proportion to obtain the corresponding absolute predicted demand.

The Future Demand Rating is only available at the national level due to limitations in the availability of more granular data used in this assessment. Where required, national ratings can be used as a proxy for state/territory ratings.

Incorporating additional sources

In addition to the five-year employment projections and replacement rate, other sources of reliable and relevant information regarding future demand may be available. These sources are incorporated where appropriate by adjusting the final rating as needed. For example, the Future Demand Rating may suggest an occupation has moderate future demand, however, where high quality forecasts or workforce planning exist that suggest uncaptured high demand, the Future Demand Rating can be amended to reflect this.

As outlined in the previous sections of this paper, additional sources considered in the Future Demand Rating include:

- stakeholder input and advice from employers, peak, industry, government or regional bodies gathered through the stakeholder surveys or through submissions and/or meetings with the NSC

- occupation and industry assessments/information developed by the NSC (including the Reliance on Temporary Visa Holders and Training Funding Indicators)
- studies, assessments and reports by federal government departments
- state and territory government occupation and industry findings
- relevant skills needs or workforce planning information from government departments or industry groups
- industry activity statistics, projections and reports
- media articles, and
- presentations and speeches by industry groups, unions, workforce associations and government.

Where new and emerging data sets or methods become available to provide additional insight that are otherwise not captured, they are reviewed for incorporation into the future demand assessments.

4. Final validation

Once all available sources of information have been considered, an initial determination is made regarding the Current Labour Market Rating and Future Demand Rating. Internally, quality checks are completed to ensure occupations have been assessed consistently.

The draft SPL is then tested with state/territory and federal agencies to verify the findings and to seek any additional context/evidence. State and territory governments are consulted on the findings relevant to their region. Similarly, federal government agencies are consulted on the occupations that are deemed relevant to their portfolio (e.g. Department of Health is consulted on health related occupations).

Where feedback does not align with the draft findings, the NSC conducts further consultation with the relevant agencies as needed. Any additional information obtained through this process is considered in the final SPL ratings.

Attachments

Attachment A - Occupation ratings

Taking account of all available information, a labour market rating is determined for each occupation. Ratings are provided nationally, and for each state and territory, where sufficient evidence is available. Where there is evidence suggesting variation between metropolitan and regional locations this is reflected in the rating. The term metropolitan area refers to state and territory capital cities and regional refers to the rest of the state or territory.

An occupation may be assessed as being in shortage demand even though not all specialisations are in shortage. Similarly, a rating of national shortage does not mean that employers in every geographical location have difficulty recruiting. While an occupation can be considered in shortage, it is still possible that job seekers can face significant competition for positions. This is due to the level of experience or specialisations required. Similarly, employers can still have difficulty recruiting for occupations that are not in shortage.

The SPL provides the following ratings of the current labour market for occupations where sufficient data are available to make an assessment.

Shortage (S)

Shortages exist when employers are unable to fill or have considerable difficulty filling vacancies. Or they cannot meet significant specialised skill needs within that occupation, at current levels of remuneration, conditions of employment and in reasonably accessible locations.

In some instances, shortages may be apparent in particular specialisations within the occupation, but otherwise shortages are not apparent. In these instances, provided there is sufficient evidence, the occupation will still be considered in shortage.

Metropolitan Shortage (M)

Shortages (as defined above) are restricted to metropolitan areas.

Regional Shortage (R)

Shortages (as defined above) are restricted to regional areas.

No Shortage (NS)

Research has not identified any significant difficulty filling vacancies.

For some occupations, a lack of evidence overall will, by default, result in an occupation being rated as 'No Shortage'.

Attachment B – SPL Indicator Model components

The following table outlines the indicators used in the model. The table detail how the indicators were determined is included in Section 2.1. The indicators used in the model are subject to review and change as appropriate.

Indicator	Source	Definition
Seek weeks 3-year change	ABS Labour Force Survey	Change in the number of average weeks spent looking for work for unemployed person, relative to the average over the last three years. Indicator is cupped and capped at -10% and +10%.
IVI vacancies	Internet Vacancy Index	Number of job vacancies reported online standardised by size of occupation according to number

		employed. Different coefficients for when the indicator is less than or greater than 1%.
Employed	ABS Labour Force Survey	Number of persons employed, capped at 50,000.
IVI vacancies per employed 3-year change	Internet Vacancy Index	Change in the number of IVI vacancies per person employed, relative to the average over the last three years. Indicator is capped and capped at -30% and +30%.
Unemployment rate 1-year change	ABS Labour Force Survey	Change in the unemployment rate from the previous year. Indicator is capped and capped at -10% and +10%.
Mean salary 1-year change	ATO	Change in mean annual salaries, inflated to current values, from the previous year. Indicator is capped and capped at -5% and +5%.
Bachelor	Burning Glass	Proportion of Burning Glass job listings that specify at least a bachelor degree as a minimum education

		requirement. Indicator is capped at 15%.
Temporary skilled visas granted	Home Affairs	Number of temporary skilled visas granted as a proportion of number of persons employed, capped at 2%.
Study diversity	Census of Population and Housing 2016	Entropy of the education background of those in the occupation. A higher entropy means employees come from a more diverse range of backgrounds.
Employed 3-year change	ABS Labour Force Survey	Change in the number of persons employed, relative to the average over the last three years. Indicator is capped and capped at -10% and +20%.

Attachment C – SERA questionnaire

- What is the postcode where the vacancy is located?
- How many positions for [target occupation] were you attempting to fill?
- How many of these positions were filled?
- How many people applied for the position(s)?
- Are formal qualifications required for the position?
 - (If yes) what qualification are required?
 - (If yes) how many applicants had the required qualification?

- (If no) how many applicants held a relevant, formal qualification?
- Is relevant experience required for the position?
 - (If yes) what is the minimum length of experience required for the position?
- Are any specific skills or specialised experience required for the position?
 - (If yes) what specific skills or specialised experience are required?
- How many applicants were suitable - that is, they had the qualifications, skills and experience to do the job?
- What were the main reasons applicants were considered unsuitable for the position?
- How long have you been trying to fill the vacancy/ies?; or
- How long did it take you to fill the vacancy/ies?
- (If insufficient suitable applicants were attracted) why?
- (If suitable applicants were attracted, but the vacancy was not filled) why?
- (If vacancy unfilled) what will be done now?
- What are the main tasks and duties of the position(s)?
- Is the position full-time, part-time or casual?
 - (If part-time or casual) for how many hours per week, on average, is the position?
- Is the position permanent (ongoing) or a contract (fixed term)?
 - (If contract) what is the length of the contract?
- What goods or services does your organisation mainly produce or supply (what industry is your organisation in)?
- How many staff are currently employed in this organisation in Australia?
- Do you have any other comments in relation to this recruitment round or the labour market for this occupation?
- Would you like to receive a copy of the report once it is published?

Attachment D – Methodology updates

A number of changes have been made to the methodology in version 1.2.

- Occupations assessed in the SPL align to the updated 2021 ANZSCO structure. Changes to ANZSCO affect the composition of the SPL, as the SPL is based on the most current ANZSCO possible at time of publishing. ANZSCO is maintained and updated by the Australian Bureau of Statistics (ABS), with further detail on any current or future changes to the occupation classification available on the ABS website.⁸
- Previously, occupations defined under ANZSCO as ‘not elsewhere classified’ (nec) were out of scope of the SPL. To align the SPL with other products and to expand the coverage of the SPL, ‘nec’ occupations are now considered in scope.
- The number of SPL occupations covered by the Survey of Employers who Recently Advertised (SERA) has increased to more than 350 six-digit ANZSCO occupations (around triple the number covered by SERA previously).
- The NSC has introduced a new major employer survey (discussed in section 2.3).
- There have been some slight adjustments to employment projections and the replacement rate methodology. Employment projections are now derived from a blend of two techniques, namely best practice time series models, and CGE modelling work. Replacement rates now measure people leaving their occupation completely, rather than also counting people who remain in the same occupation but change employers.

Footnotes

¹ ‘Nfd’ is used when a respondent has not provided adequate information for the response to be put into a category at the most detailed level.

² For example, defence force roles will not be covered as recruitment is mainly conducted internally. In some cases, stakeholder insight or external data may be available for closed labour markets, and in these cases an assessment of the occupation may be possible.

³ Binomial regression models are used to predict the likelihood of particular events (i.e. whether a job vacancy will be filled), using a range of explanatory variables/indicators.

⁴ Indicators used in the model have an intuitively understandable modelled relationship to fill rates. This allows for a degree of interpretability of the model results.

⁵ Credibility theory provides a way of combining two estimates to form a more accurate and relevant estimate. It is generally used when one available estimate has a high level of uncertainty and the alternative is more certain but less relevant.

⁶ In some cases, occupations are surveyed in groups, as it is more efficient and practical to survey some occupations at an aggregated level. The 350 occupations are surveyed across 250 groups.

⁷ The thresholds used are to ensure consistency with past approaches.

⁸ For further information on ANZSO, please see:

<https://www.abs.gov.au/statistics/classifications/anzsco-australian-and...>