Skills Priority List Methodology

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1. Overview

Introduction

The National Skills Commission (NSC) has responsibility for providing trusted and independent intelligence on Australia's labour market. A key deliverable for the NSC in this role is the Skills Priority List (SPL).

The SPL provides a detailed view of shortages as well as the future demand for occupations across Australia. This list provides the backbone piece of labour market analysis on occupations that will be a key input to a range of Australian Government policy initiatives, including targeting of skilled migration, apprenticeship incentives and training funding. Noting that each of these measures will also need to consider other inputs relevant to their specific policy needs.

Providing a single source of advice on occupations creates a direct line of input for stakeholders and ensures greater consistency and better targeting of resources across the various policy responses implemented by government.

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.

The SPL is reviewed and updated annually and will be published on the NSC website along with any additional reports developed from the analysis of occupations.

1.1 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' or 'not elsewhere classified'[1].
- Occupations with an open and contestable labour market[2].

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[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, while 'Nec' allows occupations which do not fit into a suitable category in the classification to still be included.
[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.

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

While data and stakeholder input on Skill Level 5 occupations are gathered by the NSC during the SPL assessment process, these occupations are not considered in-scope. 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 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 for an occupation or cannot meet significant specialised skill needs within that occupation, at current levels of remuneration and 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 will be given an indicative future demand rating (strong, moderate or soft) to indicate the likely demand for the occupation over the coming five year period. For the first iteration of the SPL, the future demand rating will only be available nationally.

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

	Current Labour Market Assessment	Future Demand Indicator
	SPL categories	
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 will be allocated to one of these categories but will not be further ranked. Occupations rated as either Metropolitan or Regional Shortage will be 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)
- Peak/Representative body input
- Federal and state/territory government input
- 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
- Peak/Representative body input
- Federal and state/territory government input
- 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 around 800 occupations at the ANZSCO six-digit level. It provides a valuable link to, and extension of, the targeted long-standing research undertaken on skill shortages, 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 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[3] that predicts vacancy fill rates.

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

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[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.

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

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 person - An increase in the average number of weeks seeking work relative to the last 3 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[5] has been used. For example, the adopted state-level indicator is a weighted average of the state value and national value.

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[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.

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
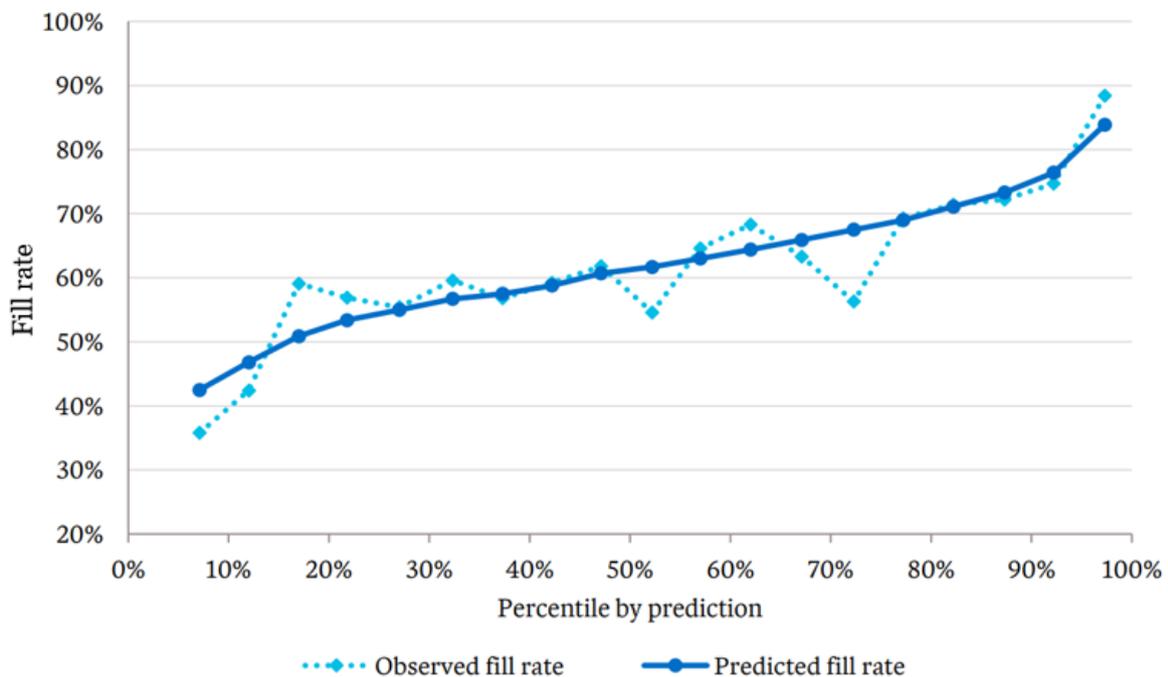
Blending the indicator model and SERA results
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Estimates of the fill rate for occupations are available from two sources:
- The indicator model, which is available for all occupations, but may not recognise occupation-specific factors that affect vacancies 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 80 occupations. This coverage will be increased to 250 occupations annually from 1 July 2021.

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 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 as additional factors 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 of ANZSCO, 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), 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 is 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[6]. 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, 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 will depend 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.

In the 2020-21 financial year, SERA data was collected for 80 occupations and these data are used in the 2021 SPL assessments. Most occupations were Professionals (ANZSCO Major Group 2) and Technicians and Trades Workers (ANZSCO Major Group 3), although a small number of other occupations were also included.

From the start of the 2021-22 financial year, the coverage of the SERA has expanded to increase the robustness of the data available to make occupational assessments for the 2022 SPL and beyond. The expanded program includes around 250 occupations that are surveyed yearly with an intended sample size of 50 vacancies per year, per occupation. The method to determine which occupations are included in the research each year balances flexibility and consistency of research, with a core of around 200 occupations surveyed annually and the remaining occupations forming a flexible subset. The occupations to be included in the subset are chosen based on a number of factors, including results from the

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[6] The thresholds used are to ensure consistency with past approaches.

indicator model, indications of change in the occupational labour market, and stakeholder interest in a particular occupation.

The occupations covered by the SERA are primarily Skill Level 1 – 3 occupations, as these occupations generally have longer lead times for training or greater required experience. A subset of Skill Level 4 occupations are also surveyed to increase the breadth and quality of the survey. Each year around 35 Skill Level 4 occupations are included in the SERA program. Skill Level 4 occupations that have a strong link to training, and that employ a large number of workers, are prioritised in the SERA research.

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 peak bodies, industry groups, professional organisations, unions, and regional representative bodies 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 a twice-yearly online survey as well as face-to-face (or online) engagement with representative bodies year round. The survey seeks to capture information from stakeholders on recruitment challenges and skills needs across a wide range of occupations and industries.

An indicative annual timeline for ongoing consultation is below:

Timing	Activity
September	Initial stakeholder survey
February	Follow-up stakeholder survey
Continuous	Face-to-face/digital engagement with stakeholders as appropriate

Targeted surveys have been developed to collect information from the different groups of representative bodies (peak bodies/industry groups, unions and regional bodies). 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.

Stakeholders can provide additional documentation to support their claims, such as member surveys, industry reports or their own internal modelling or data. Stakeholders 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 twice-yearly survey, 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.

Consultation with government agencies

As many federal and state and territory government agencies conduct their own occupation and/or skills shortage research, the NSC consults with government stakeholders on the development of the SPL.

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 state/territory agencies are consulted on the SPL findings within their region. SPL findings are tested to verify the findings and to seek any additional context or evidence that may not have been considered in the initial occupation assessment.

2.4 Current Labour Market Assessment 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 stakeholder consultation are analysed in the first instance. Where both sources have strong, consistent evidence, the initial assessment is more straightforward. However, where these sources do not align, additional analysis is required (see Figure 2). In cases where only the statistical model or stakeholder evidence is strong, greater weight is placed on the strong source of evidence. In cases where both sources have strong, but contradictory evidence, further research and/or consultation is conducted. Where both sources of evidence are inconclusive, additional sources of information are investigated.

All available sources of information and evidence are analysed for each occupation assessment but become particularly important where the research produces contradictory findings.

Figure 2: Decision matrix (where stakeholder information and the SPL Indicator Model do not align)

		SPL Indicator Model Evidence	
		Inconclusive	**Strong**
Stakeholder Input	**Inconclusive**	More work is needed to evaluate other sources.	More weight applied to the statistical model in final determination.
	Strong	More weight applied to stakeholder feedback in final determination.	Expert judgement is critical if evidence is contradictory. Further research/ consultation may be required.

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 generally an indication of shortage. Where the fill rate does not point to a clear shortage (or no shortage), additional analysis of all available sources of information and evidence is crucial.

For the stakeholder information, the following factors are considered when determining the strength of the input:

- Relevance/strength of the evidence presented, and the methodology used (e.g., anecdotal evidence, stakeholder surveys, analysis of external data)
- Timeliness of the evidence presented
- Number of members/businesses/workers represented by the stakeholder input.

In instances where further information is required to determine the strength of stakeholder input, the NSC will contact the stakeholder directly to seek clarification.

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 Assessments. 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.

- Occupation and industry assessments made by the NSC (including the Reliance on Temporary Visa Holders and Training Funding Indicators)
  - o For more information on these indicators please see <u>Attachments D and E</u>.
- 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
- 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 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 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. 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 regional areas for the following five year period. These employment 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 employment projections are based on detailed data from the Australian Bureau of Statistics (ABS) Labour Force Survey. The projections have been derived from best practice time series models that summarise the information that is in a time series and convert it into a forecast.

The 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, such as the CGE modelling, and known future industry developments.

The projection for total employment growth is consistent with reported employment growth, and the Government's forecasts and projections for total employment growth, as published in the annual budget and/or MYEFO.

3.2 Replacement Rates

The NSC produce 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, from people leaving their occupation or employer to take up a new job, leaving an occupation as a result of retrenchment, moving into retirement, or otherwise leaving 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.

To illustrate, for a growing occupation, all people who leave the occupation or change employer need to be replaced, and replacement is equal to the number of people who were employed in the occupation at the end of the reference year, minus the number who did not change occupation during the reference year, as well as the employment growth over the year and the number who were employed in the same occupation but changed employer.

The labour market is underpinned by significant dynamism, with more than five million movements into and out of employment every year. 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) and the replacement rate.

Each occupation will receive 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 useful for comparisons).

A proportional, rather than absolute measure of Future Demand is used to assign ratings to each occupation. A 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 at the 4-digit ANZSCO level, which is apportioned to the 6-digit ANZSCO level by allocating the Future Demand proportionately to occupation size. This approach assumes the same Future Demand 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 Indicator will only be available at the national level due to limitations in the availability of more granular data used in this assessment. Where required, national level Future Demand ratings will 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 Indicator 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 Indicator will 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 peak, industry 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
- Presentations and speeches by industry groups, unions, workforce associations and government.

Where new and emerging data sets or methods become available, and provide additional insight that is otherwise not captured, they will be reviewed for incorporation into the Future Demand assessments.

4. Final validation

1. 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.

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

3. The NSC will discuss any feedback received with relevant agencies where the feedback does not align with the draft findings. Any additional information obtained through this process will be considered in the final SPL ratings.

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 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 (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 for an occupation, or significant specialised skill needs within that occupation, at current levels of remuneration and 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 parameter table

The following table outlines the indicators used in the model. Detail of 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. The parameter estimates specify the modelled relationship between each indicator and fill rate, and the statistical significance as measured via the p-value.

Indicator	Source	Definition	Estimate	P value
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%.	0.4882	0.0456
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%.	-32.3672	<0.0001
			-4.4813	<0.0001
Employed	ABS Labour Force Survey	Number of persons employed, capped at 50,000.	0.0161	<0.0001
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 cupped and capped at -30% and +30%.	-0.3288	0.0006
Unemployment rate 1-year change	ABS Labour Force Survey	Change in the unemployment rate from the previous year. Indicator is cupped and capped at -10% and +10%.	0.0524	0.0979

Mean salary 1-year change	ATO	Change in mean annual salaries, inflated to current values, from the previous year. Indicator is cupped and capped at -5% and +5%.	-3.0855	0.0077
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%.	3.7618	<0.0001
Temporary skilled visas granted	Home Affairs	Number of temporary skilled visas granted as a proportion of number of persons employed, capped at 2%.	-20.1953	<0.0001
Study diversity	Census 2016	Entropy of the education background of those in the occupation. A higher entropy means employees come from a more diverse range of backgrounds.	0.3911	<0.0001
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 cupped and capped at -10% and +20%.	-0.6624	0.0017

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?
  - How many applicants had the required 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 - Reliance on Temporary Visa Holders Indicator

To gain an understanding of an occupation's reliance on importing skilled workers from overseas, the NSC has developed the Reliance on Temporary Visa Holders (RTVH) indicator. This indicator will provide more context for the NSC for each assessed occupation.

The Reliance on Temporary Visa Holders (RTVH) indicator relates to the use of primary temporary subclass 457/Temporary Skill Shortage (TSS) visa holders[7,8] in a specified occupation.

- Consistent with the terms "skilled occupation" and "skilled worker" for migration purposes, the Skilled Migration Occupation Lists (SMOL) that underpin the TSS visa program and the Consolidated Sponsored Occupations List (CSOL) that underpinned the former Subclass 457 visa program, have only considered ANZSCO Skill Level 1 to 3 occupations.

- As primary Subclass 457/TSS visas can only be granted for ANZSCO Skill Level 4 and 5 occupations under Labour Agreements, the "low proportion" rating for ANZSCO Skill Level 4 occupations should be appropriately caveated. That is, this rating is not likely to reflect labour market demand and rather reflects that these occupations have <u>not</u> been approved by Home Affairs for Labour Agreements.

The RTVH uses the latest ABS Labour Force Survey and Census to determine the size of the occupation and the most recent Department of Home Affairs Subclass 457/482 visa holder data to determine the proportion of visa holders for each occupation at a point in time.

This indicator has several interpretations, including

- A high level of reliance on primary temporary skilled visa holders may indicate a genuine labour market need for overseas skilled workers.

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[7] The Subclass 457 visa program was closed to new applicants in March 2018 when the Temporary Skill Shortage (TSS, Subclass 482) visa program was introduced. As Subclass 457 visas are granted for periods of up to 4 years, and noting that legally valid visa applications lodged under the Subclass 457 program prior to the abolition of this visa would have been processed, there remains a small (but declining) stock of Subclass 457 visa holders in Australia.

[8] Primary Subclass 457/TSS visa holders are those who are directly sponsored by an approved business sponsor (or employer)—that is, they are job matched as a condition of visa grant.

- A high level of reliance on temporary visa holders may indicate structural inadequacies in the labour market (including preference for other occupations by new entrants, an ageing workforce, low wages, etc).

Interpretations of this indicator should be made in the context of the characteristics of the labour market for a given occupation.

The RTVH contains the below categories, noting the benchmarks used are consistent with analysis of Department of Home Affairs visa data and ABS Labour Force data. This analysis shows that, over the longer-term and across all industries and occupations, the average reliance on primary Subclass 457/TSS visa holders is estimated at 1%. This reliance has fallen since the April 2017 visa reforms.

Reliance on Temporary Visa Holders (RTVH) categories	
Category	Category explanation
High	Occupation has a primary temporary skilled visa holder proportion 5% or above
Medium	Occupation has a primary temporary skilled visa holder proportion between 1% and below 5%
Low	Occupation has a primary temporary skilled visa holder proportion above 0% and below 1%
Nil	Occupation has zero primary temporary skilled visa holders

Attachment E - Training Funding Indicator

A Training Funding Indicator has also been developed to identify whether occupations have existing funding or incentives in place for training (VET or Higher Education). This indicator will provide more context for the NSC for each assessed occupation.

The Training Funding Indicator uses publicly available funding and incentives information for all occupations in the VET or Higher Education sectors. Information has been gathered at the federal and state and territory level where available and uses existing or committed funding/incentives only.

Funding and incentives for training are rarely committed to specific occupations, instead, funding is usually allocated to certain areas of study, courses or qualifications. Where funding or incentives exist that cannot be confidently linked to occupations they will be considered out of scope. Broad-based incentive programs such as HECS and Austudy are also not considered in scope given they likely apply to all/most training options available.

The training funding, occupation lists or incentives considered for the Training Funding Indicator for VET include:

- National Skills Needs List
- The Additional Identified Skills Shortage Payment
- NCVER Total VET Activity Funding data
- MySkills data
    - Subsidised courses
    - VET Student Loans
    - Job Trainer
- Publicly available state/territory government priority VET occupation lists (such as the NSW 'Smart and Skilled' list, Victoria's 'Skills First' and ACT's 'Skilled Capital').

The training funding or incentives considered for the Training Funding Indicator for Higher Education include:

- 2021 Allocation of units of study to funding clusters
- Job Ready Graduate Package.

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The Training Funding Indicator will provide a simple Yes/No rating system to indicate whether funding or incentives are currently available for each occupation. This will be further categorised by whether the funding or incentives are in the VET or Higher Education area.

The Training Funding Indicator is intended to provide an indicative rating of the level of existing training funding or incentives currently allocated to an occupation. However, given the NSC does not hold policy responsibilities for all training funding or incentives, the appropriate policy or program area should be contacted where stakeholders have queries.