Flinders University
Australian Industrial Transformation Institute

Migrants Skills Mismatch

Analysis of Multi-Agency Data Integration Project (MADIP) data

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Key findings

- Evidence of skills mis(match) was investigated across three measures: labour market status, occupational status, and income from wages and salaries, comparing migrants and Australian citizens.

> **Labour market status** comparisons look for *barriers to obtaining* work which may be related to differences in education or language proficiency.
>
> **Occupational status** comparisons provide a direct measure of *skills (mis)match*, recording the core competencies required in occupations in which migrants and citizens with similar characteristics, including similar qualifications, work.
>
> **Wages and salaries** comparisons examine whether migrants and citizens with similar characteristics also achieve similar earnings, or whether there is an *earnings gaps*, which may be explained by migration status.

- Comparisons included naturalised Australian citizens, permanent visa holders, and temporary visa holders. Their experiences were compared with those of Australian citizens.
- The study addressed a number of Research Questions, the findings for which are presented in tabular form at the end of each section and are summarised in Table 9 at the end of the Conclusions.

Overview of findings

We find strong evidence of mismatch for all migrant groups. The mismatch occasionally favours the migrant group when compared to Australian citizens, but most frequently it is to the migrants' disadvantage.

We find there is strong evidence of mismatch for **temporary visa holders** with regard to employment rates and occupational core competencies. Compared to Australian citizens with similar characteristics, this group experiences *lower employment rates* and is employed in occupation with *lower core competency requirements*. At the same time, temporary visa holders reported *higher earnings* than Australian citizens and other migrant groups, *all else equal.*

We also find strong evidence of mismatch for **permanent visa holders**. Like temporary visa holders, this group experiences *lower employment rates,* but the size of the mismatch is less than for temporary visa holders. Differences in *occupational core competency requirements* are also *less pronounced* and, in the case of primary applicants, *absent*. Unlike temporary visa holders, permanent visa holders have *lower earnings* than Australian citizens, *all else equal*.

We find some evidence of mismatch for **naturalised citizens**. This group experiences *higher employment rates,* but *lower occupational core competency requirements* and, similar to permanent visa holders, *lower earnings* than Australian citizens, *all else equal*. The size of the gap in *core competency requirements* to Australian citizens is lowest compared with the other migrant groups.

Overall, skills mismatches (measured as *core competency requirements*) are more pronounced than differences in employment rates or earnings.

Finally, we also find strong evidence of mismatch amongst **secondary visa applicants**, especially those on temporary visas, but also others on permanent visas. *All else equal*, this group experiences *markedly lower employment rates* and *markedly lower core competency requirements* (this also applies to naturalised citizens) compared to Australian citizens but *also compared to primary visa applicants* (in their respective category). Secondary visa applicants include a disproportionate share of women whose labour market activities and outcomes typically differ from those of men. The differences reported here statistically control for differences by sex.

These patterns of (mis)matches in labour markets and occupational status, and wages and salaries are repeated across Australian states and territories.

In more detail, the study's principal findings are:

Labour market status

Labour market status records employment rates amongst migrants and citizens, and tells us about barriers to *obtain* employment. It is not a measure of skills (mis)match but demonstrates the influence of education, language competency as well as migrant status on the chances of being in paid work. It may be described as a measure education (mis)match.

Compared with Australian citizens:

- Employment rates were **one percentage point *higher* for naturalised citizens (82.6%), but about one to two percentage points *lower* for permanent (81%) and temporary (80%) migrants**. They were typically a few percentage points higher amongst primary applicants, but about **ten percentage points *lower* for secondary applicants**.
- Permanent and temporary primary visa applicants experienced lower employment rates in the first year of arrival to Australia. Employment rates were consistently higher for all primary visa holders and naturalised citizens who had been in Australia for at least one year. In contrast, secondary applicants are not observed to ever experience employment rates similar to Australian citizens.
- Notably **higher employment rates** of 90 per cent and above were found amongst migrants **in remote and very remote** areas, followed by the Outer Regions. In the Major Cities, migrants' employment rates were below those of Australian citizens.
- Employment rates varied, but only marginally for migrants (and citizens) with Certificate 3 or higher levels of education, with Australian citizens having **higher employment rates.**
- Employment rates **differed for migrants from China, India and the UK**, i.e., the three largest donor countries: they were lowest for migrants from China, followed by India and the UK.

Occupational status

Occupational status is a direct measure of *skills (mis)match*. It focusses on people in employment. Skills (mis)match is measured by comparing the core competency requirements of migrants' and citizens' occupations whilst taking into account differences in educational qualifications, language competency and other socio-demographic variables.

Compared with Australian citizens:

- Migrants and naturalised citizens typically reported **higher levels of qualification across all occupational categories** (from managers to labourers) when compared with Australian citizens; this was especially the case for **temporary migrants** of whom **35 per**

cent or more reported postgraduate qualifications across all eight major occupational groups.

- Using a more fine-grained measure developed by the National Skills Commission (NSC), migrants typically worked in occupations with **NSC competency scores between 0.2 and 0.4 points lower** (or between five and ten percent) than that for Australian citizens, *all else equal*. The exceptions were permanent visa holders who were also primary applicants; their occupations' core competency scores matched those of Australian citizens.
- The difference in NSC competency score between visa holders and Australian citizens **decreased** over a three-year period (based on tax return data from 2016/17 through 2018/19) but did not reach parity.
- A similar diverging experience of primary and secondary applicants was observed with respect to occupational status, but with the data also suggesting **lower** occupational status amongst migrants and naturalised citizens with **longer stays** in Australia since their latest visa or citizenship status change.
- Specific **visa sub-classes** associated with working in occupations with matching or higher core competency scores than held by Australian citizens were all the permanent visa type and skilled – independent, employer nominated (including via labour agreement) or State/Territory Sponsored Business Skills visas.
- Differences held across the three tax years following the 2016 Census. Additional data tracking competency scores from 2010/11 to 2018/19 also suggest these **patterns are persistent over longer time** periods

Wage differentials

Wage differentials tell us whether migrants experience an *earnings penalty or earnings bonus* when compared with citizens with similar characteristics and working in jobs with similar skills content.

Compared with Australian citizens:

- **Temporary visa holders earned almost $4,000 per annum more** in 2016/17, although this decreased to just under $2,000 in 2018/19. In contrast, **naturalised citizens and permanent migrants earned about $1,000 less** in 2016/17, decreasing to $600 and $500 respectively by 2018/19.
- Migrants earned **lower wages and salaries if they had post-graduate qualifications** but recorded somewhat higher earnings at most other levels of educational qualification, albeit variably across migrant and citizen groups.
- **Earnings gaps** to Australian citizens were least amongst labourers, community and personal service workers, and clerical and administrative workers. They were greatest for machinery operators and drivers, technicians and trades workers, and managerial and professional occupations. Except for machinery operators and drivers, migrants tended to earn more.
- Migrants' earnings were highest (when compared to Australian citizens) in the information, media and telecommunication sector.

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1 Introduction

The Department of Treasury ('Treasury') has commissioned the Australian Industrial Transformation Institute (AITI) at Flinders University in collaboration with Dr George Tan, Department of Geography, Environment and Population at The University of Adelaide to analyse and describe migrant skills mismatch in the Australian labour market, using Multi-Agency Data Integration Project (MADIP) data.

Specifically, Treasury seeks the following information:

Research Question (RQ) 1a: How prevalent is skills matching or mismatching amongst migrants to Australia compared to Australian born workers?

RQ 1b: How well does the Australian migration system and labour market work to ensure that the skills of temporary and permanent migrants are effectively utilised?

RQ2: Are there skills matching or mismatching that are associated with visa subclasses, and how long do these take to resolve?

RQ3: Are there spatial components of skills matching or mismatching? This should include looking at breakdowns such as (a) State and Territories and (b) regional and metropolitan areas, and (c) remoteness classification?

RQ4: Are there patterns of skills matching or mismatching by other migrant characteristics, such as industry, occupation, country of origin or education?

RQ5: Are there wage differentials between migrants and Australian born? In what industry sectors / occupations are wages differentials most pronounced? This should include breakdowns by visa type, country of origin, education and occupation.

This report addresses each of the RQs in turn.

Analyses were conducted separately for migrants with permanent and temporary visas.

1.1 Data

To examine the RQs, AITI obtained access to the Australian Bureau of Statistics (ABS) DataLab and, within the lab, modules contained within the Multi-Agency Data Integration Project (MADIP).

The modules requested were:

- ABS Census of Population and Housing 2011, 2016, and 2021;
- Australian Taxation Office (ATO) Client Register (2006-), Income Tax Return (all available reference periods), Payment Summary (all available reference periods)
- Department of Home Affairs (DoHA) Migrant data (demographics, travellers, visa, permanent migrants: from 2000-current); and
- National Centre for Vocational Education Research (NCVER): total vocational education and training (VET) activity (2015-).

The data were requested with a view to facilitating future, more in-depth analysis and there was no expectation that all data could be analysed in the time and with the resources available to this project.

1.2 Defining skills (mis)match

The International Labour Organisation (ILO) has defined skills mismatch as “a discrepancy between the skills that are sought by employers and the skills that are possessed by individuals” (International Labour Organization 2020). Alternatively, the Organisation for Economic Co-operation and Development (OECD) in a recent report defined skills mismatch as “a situation where an employee feels that his or her skill level does not match the level required for the job, either because it is too high or because he or she feels that it is too low in relation to the needs of the job” (Brun-Schammé and Rey 2021). Alternative definitions are summarised, for instance, by Flisi et al. (2017).

In common, these definitions require information about the skills of workers or job seekers, such as their levels of numeracy or literacy, but also team working or project management capabilities, which employers may deem important.

Neither information about migrants’ and citizens’ skills, nor information about employers’ expectation of skills is contained in the MADIP dataset. Alternative measures of mismatch are therefore required.

In this study, skills (mis)match was measured in terms of three indicators:

- labour market status, distinguishing between employed, or not employed;
- occupational status; and
- income from wages and salary.

Labour market status comparisons determine differences in the likelihood of migrants and citizens obtaining employment. Likelihood differentials may be indicative of demand side constraints, such as employers’ preference for employees with locally acquired work experience and Australian qualifications. They may also result from differences in skills or educational attainment between migrants and Australian citizens. To the extent that they do, labour market status differentials indicate a skill (mis)match, which has become a *barrier to employment*.

More immediate indicators of skills (mis)match observe migrants’ and citizens’ experience *in employment*. Occupational status information defines the skills typically required for performing tasks associated with an occupation. It is here used in lieu of an indicator defining employees’ skills, which is not available in the data.

In each instance, the experience of migrants is presented in comparison to that of Australian citizens, reporting both, nominal statistics and statistics controlling for socio-demographic differences, most notably highest educational qualification, but also age and sex. Australian citizens are thus used as a benchmark for estimating migrants’ skills (mis)match. Australian citizens may, of course, themselves be mismatched in terms of their skills, although this cannot be established with the data available.

The analysis presented here therefore ought to be read as examining the extent to which migrants are similarly or differently (mis)matched in terms of skills compared with Australian citizens, *all else equal*. That is, compared with Australian citizens, migrants

- are more, less or similarly likely to be employed;
- work in occupations of higher, lower or similar status; or
- earn higher, lower or similar wages and salaries

1.2.1 Measuring occupational status

Two measures of occupational status were used in this study, appended to the data in the MADIP dataset. Both measure the skills or education associated with an occupation rather than the skills or education that an individual worker or job seeker may have.

The first, the Australian Socioeconomic Index 2006 (AUSEI06), measures status in relation to the typical level of educational attainment associated with an occupation and the occupation's typical remuneration (McMillan et al. 2009). The AUSEI06 used 2006 Census of Population and Housing to create a single occupation-specific status score, also accounting for the age, sex, and hours worked of labour market participants.

The disadvantage of this indicator was that, because of how it had been constructed, it was statistically correlated with several of the variables, which were intended to be used to compare the socio-demographic characteristics of migrants with different labour market outcomes. This limited its usefulness in identifying factors associated with those outcomes and the indicator was subsequently used only for descriptive purposes.

The second and more insightful indicator turned to instead was the National Skills Commission's (NSC) core competencies measure. As part of its Australian Skills Classification 1.0, the NSC has identified ten core competencies that are shared across occupations (National Skills Commission, 2020). They are:

- reading;
- learning;
- problem solving;
- oral communication;
- planning and organising;
- initiative and innovation;
- numeracy;
- digital engagement;
- teamwork; and
- writing.

For each unit group of occupations[1] as defined by the Australian and New Zealand Standard Classification of Occupations (ANZSCO), the NSC has scored each core competency on the level of knowledge and capability (i.e., competency) required to fulfil the tasks associated with an occupation; the levels ranging from 1 (basic) to 10 (high). For this study, we averaged the scores for each occupation and appended them to the 2016 Census and ATO datasets. The scores estimate across the working population in this study ranged from a minimum of 3.8 to a maximum of 7.6, with a mean of 5.85.[2]

Based on this measure of skill, the occupations requiring the highest level of skill are typically in the Manager and Professional categories, including Chief Executives and Managing Directors, Policy and Planning Managers, and Surgeons. The occupations with the lowest skill requirements typically fall into the broad categories of Machinery Operators and Drivers, and Labourers, including Crop Farm Workers, and Textile and Footwear Production Machine Operators.

[1] The unit group is the fourth most disaggregated level of occupations, denoted by 4-digit codes.
[2] Standard deviation = 1.012582

This allowed a comparison of occupations held by migrants and citizens based on their typically required competencies. In regression analyses, this was done whilst controlling for socio-demographic priors, such as highest educational qualifications.

1.3 Data preparation

For the purpose of the current analysis and to address the RQs, the ABS 2016 Census of Population and Housing was linked to the DoHA Migrant dataset, containing information about visa applications and visa approvals. Salaries and wages by income year were also appended, using the ATO data.

The Census of Population and Housing of the year 2016 was chosen because part of the analysis, namely RQ2 and RQ5, required forward-looking data to observe change over time. This was made possible by appending ATO data for subsequent (tax) years to the 2016 Census dataset.

Since forward-looking data was only available for three years following the 2016 Census, the starting point for this study, information about migrants' and citizens' occupations obtained from ATO data going back to 2011/12 is also presented to provide an extended longitudinal perspective. This uses nominal data, i.e., it does not control for potentially confounding variables.

It should be noted that DoHA visa application and visa approval data cannot be linked conclusively due to the transactional nature of the data sets. For this reason, the visa approval data has been adjusted to only consider the most recent visa granted to an individual prior to the 2016 Census.

1.3.1 Visa subclass aggregation

As part of the data preparation, visa subclasses identified in the merged dataset were aggregated into distinct groups of permanent and temporary visa categories (Table 1). During this process, we excluded any visas that did not have an explicit skills requirement, including those that involved short-term participation in training or education. From the permanent visa categories, we excluded: humanitarian visas, special eligibility (New Zealand) visas, visas without skills requirements (Other Family, Other Permanent Entrant, Child dependent, Parent, Child adoption), investment visas (Business Skills[3], Entrepreneur visa), spouse and fiancé visas, and returning resident visas.

From the temporary visa categories, we excluded visitor and working holiday maker visas, Temporary worker visas for special purposes, Student Guardian visas, International relations, Other sponsored training, Social/Cultural and Transit visas. Visa subclasses were aggregated into temporary visas and permanent visas. In all instances, cases identified in the datasets as "visa unknown" were excluded.

[3] Except for subclasses 843, 841, 164, 161, 130, 128.

Table 1: Visa subclasses – categorisation into permanent and temporary groups

Visa Type	Visa Subclass Code	Visa Subclass Label
Temporary Visa		
Bridging Visa	010	Bridging A
Bridging Visa	020	Bridging B
Bridging Visa	030	Bridging C
Bridging Visa	040	Bridging (Prospective Applicant)
Bridging Visa	041	Bridging (Non-Applicant)
Bridging Visa	050	Bridging (General)
Bridging Visa	060	Bridging F
Skilled Temporary Resident	418	Educational
Skilled Temporary Resident	422	Medical Practitioner
Skilled Temporary Resident	457	Temporary Work (Skilled)
Sponsored (RSMS)	475	Skilled - Regional Sponsored
Recognised Graduate	476	Skilled - Recognised Graduate
Skilled Temporary Resident	482	Temporary Skill Shortage
Other Temporary Entrant	485	Temporary Graduate
Sponsored (RSMS)	487	Skilled - Regional Sponsored
Sponsored (RSMS)	489	Skilled - Regional (Provisional)
Skilled Independent Regional	495	Skilled Independent Regional (Provisional)
SAL-Regional Linked/SAS - Regional (DAS)	496	Skilled Designated Area Sponsored (Provisional)
Other Temporary Entrant	497	Graduate Skilled
Permanent Visa		
Skilled Australian Linked/Skilled Australian Sponsored (SAL/SAS)	105	Skilled - Australian Linked
Sponsored (RSMS)	119	Regional Sponsored Migration Scheme
Employer Sponsored	120	Labour Agreement
Employer Sponsored	121	Employer Nomination Scheme
Distinguished Talent	124	Distinguished Talent
Distinguished Talent	125	Distinguished Talent and Special Service (Independent)
Skilled Independent	126	Independent
Business Skills	128	Senior Executive
Business Skills	130	State/Territory Sponsored Senior Executive
State/Territory Nominated Independent (STNI)	134	Skill Matching
Skilled Independent	136	Regional Independent
State/Territory Nominated Independent (STNI)	137	State/Territory Nominated Independent
Skilled Australian Linked/Skilled Australian Sponsored (SAL/SAS)	138	Skilled - Australian Sponsored
SAL-Regional Linked/SAS - Regional (DAS)	139	Skilled-Designated Area Sponsored
Resident	155	Five Year Resident Return
Resident	157	Three Month Resident Return
Business Skills	161	Senior Executive
Business Skills	164	State/Territory Sponsored Senior Executive
Skilled Independent	175	Skilled - Independent
Sponsored (RSMS)	176	Skilled - Sponsored
Employer Sponsored	186	Employer Nomination Scheme
Sponsored (RSMS)	187	Regional Sponsored Migration Scheme
Skilled Independent	189	Skilled - Independent
Skilled Independent	190	Skilled - Nominated
Skilled Independent	805	Skilled
Business Skills	841	Senior Executive
Business Skills	843	State/Territory Sponsored Executive
Employer Sponsored	855	Labour Agreement
Employer Sponsored	856	Employer Nomination
Sponsored (RSMS)	857	Regional Sponsored Migration Scheme
Distinguished Talent	858	Global Talent
Skilled Independent	861	Skilled - Onshore Independent New Zealand Citizen
Skilled Australian Linked/Skilled Australian Sponsored (SAL/SAS)	862	Skilled - Onshore Australian - Sponsored New Zealand Citizen
Employer Sponsored	863	Skilled - Onshore Regional - Sponsored New Zealand Citizen
Skilled Independent	880	Skilled - Independent Overseas Student
Skilled Australian Linked/Skilled Australian Sponsored (SAL/SAS)	881	Skilled - Australian Sponsored - Overseas Student
SAL-Regional Linked/SAS - Regional (DAS)	882	Skilled - Designated Area Sponsored-Overseas Student
Skilled Independent	885	Skilled - Independent
Skilled Sponsored	886	Skilled - Sponsored
Sponsored (RSMS)	887	Skilled - Regional

1.3.2 Missing or non-matching cases

In the course of merging datasets, discrepancies in the information contained in the ABS Census of Population and Housing 2016 and the DoHA visa approval datasets emerged, namely:

- individuals reporting in the 2016 Census that they were not an Australian Citizen and without any record of receiving a visa in the DoHA dataset; and
- individuals not stating their citizenship status in the 2016 Census (some with a corresponding visa, and some without).

We excluded everyone in either of these groups, as their true status could not be determined.

1.3.3 Assigning migrant and citizenship status

The following migrant and citizenship status categories were derived from the merged data:

- Australian citizen - individuals who, in the 2016 Census, identified as “Australian Citizen”;
- naturalised Australian Citizen – individuals who, in the 2016 Census, identified as “Australian Citizen” and also had an eligible[4] visa recorded, which had been approved prior to the 2016 Census night; and
- migrant - individuals who specified in the 2016 Census that they were not an Australian citizen and had an eligible visa recorded in the DoHA dataset.

1.4 Analysis

The skills (mis)match analysis focuses on visa holders aged between 25 and 54 years at the time of the 2016 Census of Population and Housing, that is, the primary working age population, thus allowing for the completion of most advanced levels of education and also corresponding to the upper age limits for eligibility for several visa classes (although these upper age limits have varied over the years). Our analysis consists of two approaches – descriptive statistics based on cross-tabulated data, e.g., the percentage of individuals employed by education level, and regression analysis to determine the association of specific variables (e.g., education level) within employment, occupation status or wages/salaries, while controlling for demographic variables, such as age and sex.

The analysis included both primary and secondary visa applicants. We occasionally report results separately for primary and secondary applicants to highlight differences in labour market outcomes.

For the regression analysis on visa holders, primary applicant status is used as an independent variable to determine the differences in skills (mis)matching by applicant status.

The primary method of analysis was binomial regression on employment status, and ordinary least squares regression for occupational status and wages/salaries across four population categories (amongst other control variables):

- Australian citizens;
- naturalised Australian citizens;
- migrants on a permanent visa; and
- migrants on a temporary visa.

[4] As defined above.

As described above, the citizenship and migrant statuses were determined as per the 2016 Census of Population and Housing.

In the text, we use the terms 'migrants on a permanent (temporary) visa' and 'permanent (temporary) resident' interchangeably.

1.5 Structure of the report

In the following sections, we present the findings from the analysis, commencing with a generic overview, which is followed by a more detailed presentation of findings from the analysis of migrants' and citizens' (i) labour market outcomes; (ii) occupational status; and (iii) income from wages and salary.

At the end of each discussion, we present a brief summary of findings and explain how they relate to the above mentioned RQs, in the format shown below.

Research Question	Findings from analysis
RQ 1a: How prevalent is skills matching or mismatching amongst migrants to Australia compared to Australian born workers?	
RQ 1b: How well does the Australian migration system and labour market work to ensure that the skills of temporary and permanent migrants are effectively utilised?	
RQ2: Are there skills matching or mismatching that are associated with visa subclasses, and how long do these take to resolve?	
RQ3: Are there spatial components of skills matching or mismatching? This should include looking at breakdowns such as (a) State and Territories and (b) regional and metropolitan areas, and (c) remoteness classification?	
RQ4: Are there patterns of skills matching or mismatching by other migrant characteristics, such as industry, occupation, country of origin or education?	
RQ5: Are there wage differentials between migrants and Australian born? In what industry sectors / occupations are wages differentials most pronounced? This should include breakdowns by visa type, country of origin, education and occupation.	

2 Findings

2.1 Overview

Skills (mis)match is observed in terms of differences in the prevalence of employment, the typical hours worked of those in employment, the occupational status attained by migrants and Australian citizens, and median wages. Table 2 provides a summary of citizens' and migrants' labour market experiences in 2016 *without* controlling for their socio-demographic characteristics.

The statistics show few marked differences. Employment rates were uniformly high at between 80 per cent and 83 per cent; as were mean hours worked, which ranged between 38 hours and 39 hours per week. Given that migrants in this study were on working visa – and the study focussed on those of primary working age -, migrants' employment rate could be expected to be higher than that of Australian citizens who might include more individuals not active in the labour market, including for reasons that would rule out eligibility for working visas.

There was greater variation across and within citizen and migrant groups with regard to the occupational status index, the AUSEI06. Here, permanent visa holders (score: 51.3), on average, were employed in occupations of higher status than naturalised citizens (49.3), temporary visa holders (48.7) and, in particular, Australian citizens (47.1).

A similar pattern emerged with respect to NSC core competency scores, except the lowest scores were observed for temporary migrants, below the average score for Australian citizens. On average, permanent residents were employed in occupations with the highest competency requirements.

Finally, the statistics show differences in median wages and salaries, which were marginally higher for naturalised citizens ($59,872) and permanent residents ($59,694) when compared to Australian citizens ($58,065), and substantially higher when compared with temporary residents ($55,856).

In analyses reported in the following sections, some of these nominal relationships and associations between migrant status and labour market outcomes change once socio-demographic differences between migrants and citizens are taken into account.

Table 2: Employment, occupation and wages, by citizenship and migrant status, Census 2016

	Australian Citizen	Naturalised Citizen	Permanent Visa	Temporary Visa
Employed (%)	81.6	82.6	81.0	80.0
Hours worked (mean)	38.3	37.7	37.9	38.6
AUSEI06 (mean)	47.1	49.3	51.3	48.7
NSC core competencies score (mean)	6.14	6.10	6.21	6.08
Wages and salaries (median)	$58,065	$59,872	$59,694	$55,856
N (All)	6,490,415	175,410	273,504	110,124
N (employed only)	5,296,263	144,888	221,407	88,132

Legend: population aged 25-54 years old, primary and secondary visa applicants.
Employed include full time and part time employed, and those employed but away from work.

To conclude, Table 3 shows, in more detail, the differences in the occupations held by citizens and migrants in Australia, with naturalised citizens and both, permanent and temporary migrants more strongly represented amongst professionals and, in the case of temporary visa holders, amongst technicians and trade workers.

Table 3: Occupational status by visa class, Census 2016 (column %)

Occupation	Australian Citizen	Naturalised	Permanent Visa	Temporary Visa
Managers	15.3	13.3	14.4	16.9
Professionals	33.5	38.6	44.7	41.2
Technicians and Trade Workers	16.3	13.4	12.9	19.7
Community and Personal Service Workers	10.0	9.6	6.3	5.2
Clerical and Administrative Workers	12.6	10.7	10.7	5.1
Sales Workers	4.9	5.0	4.8	5.0
Machinery Operators and Drivers	3.5	5.1	2.8	2.0
Labourers	4.0	4.3	3.5	4.8

Legend: population aged 25-54 years old, primary and secondary visa applicants

Hours worked

Although initially considered a possible indicator of underemployment, which may be one outcome of skill (mis)match, initial analysis found few differences in hours worked between migrants and citizens in the age group in question. Furthermore, in the absence of information about migrants' *desired* hours worked, it was concluded that the indicator provided little insight into the risk of underemployment. Hence, the analysis did not further explore patterns of the hours worked by migrants and citizens after.

2.1.1 Contribution to Research Questions

Research Question	Findings from analysis
RQ 1a: How prevalent is skills matching or mismatching amongst migrants to Australia compared to Australian born workers?	The analysis reported above did not account for differences in educational achievements between migrants and citizens, and thus yield little immediate insight into any prevalence skills matching or mismatching. At this aggregate level, differences were few, although the **lower median earnings of temporary migrants** should be noted (given otherwise lesser differences in terms of AUSEI06 or NSC scores, and strong representation amongst the top three [high skilled] occupation groups). Moreover, it may be argued that, whilst migrants' employment rates were nominally similar to those of Australian citizens but **could be expected to be higher** given that many migrants were holding a *working* visa.
RQ 1b: How well does the Australian migration system and labour market work to ensure that the skills of temporary and permanent migrants are effectively utilised?	To be addressed in final section.
RQ2: Are there skills matching or mismatching that are associated with visa subclasses, and how long do these take to resolve?	n/a
RQ3: Are there spatial components of skills matching or mismatching? This should include looking at breakdowns such as (a) State and Territories and (b) regional and metropolitan areas, and (c) remoteness classification?	n/a
RQ4: Are there patterns of skills matching or mismatching by other migrant characteristics, such as industry, occupation, country of origin or education?	n/a
RQ5: Are there wage differentials between migrants and Australian born? In what industry sectors / occupations are wages differentials most pronounced? This should include breakdowns by visa type, country of origin, education and occupation.	n/a

Legend: n/a – not applicable or available for this section.

2.2 Labour market status – Employment rates

Employment rates provide an indication of the capacity of the Australian labour market to integrate migrants and to provide them with employment. Extant evidence has shown that employment rates increase with time as migrants acquire a better understanding on how to navigate the Australian job market, obtain work experience and gain recognition of their prior qualifications.

Whilst Table 2 signalled few differences the employment rates of migrants and citizens, this changes as we distinguish between migrants and citizens according to the time passed since they had obtained their current visa or obtained Australian citizenship (both as recorded in the 2016 Census) and some of their socio-demographic characteristics.

Time passed since obtaining the current visa or citizenship is measured as within:

- a year of the 2016 Census,
- 1-2 years,
- 2-3 years,
- 3-4 years,
- 4-5 years or
- more than 5 years before the 2016 Census.

This indicator is used as a proxy for time spent in the country and seeks to capture migrants' opportunity to seek and obtain employment. It should however be noted that this measure is an imperfect indicator, foremost because it does not tell us how long a migrant or citizen might already have lived and worked in Australia before that date, for instance, on a different visa. Prior work experience and its duration would have affected the likelihood of employment at the time of the 2016 Census. In addition, in the case of first-time offshore visa applicants, it is unlikely that the date of the visa being granted was also the migrant's arrival date in Australia. However, that information is not available.[5]

[5] Later sections use forward-looking wage data to explore (mis)match over time, taking the 2016 Census as the starting point. The same cannot be done with regard to employment rates, for which we have no annual records pertaining to migrants and citizens in the Census. A proxy indicator is, therefore, required, for which we selected the time (initially measured in week, converted into years) between the 2016 Census night and the date that the then current visa or citizenship status had been granted.

Table 4 compares the employment rates of migrants and naturalised citizens who had obtained their current visa or Australian citizenship prior to the 2016 Census. With average employment rates already high across migrant and citizen groups (as reported above), the question to explore is whether there was any evidence of an initial gap (which was then progressively closed).[6]

Table 4: Employment rates, by time since latest visa or citizenship granted, primary and secondary applicants, Census 2016 (in %)

VISA TYPE	<1 year	1-2 years	2-3 years	3-4 years	4-5 years	5+ years
Primary or secondary applicants						
Naturalised Citizen	82.2	87.3	87.5	87.2	87.2	86.0
Permanent Visa	77.6	80.4	81.6	82.1	82.1	80.9
Temporary Visa	73.2	85.7	87.5	87.3	*	*
Primary applicants only						
Naturalised Citizen	83.3	88.9	89.5	89.6	90.2	90.3
Permanent Visa	80.3	84.5	85.5	85.8	85.8	84.1
Temporary Visa	76.7	93.6	96.0	94.9	*	*
Secondary applicants only						
Naturalised	64.7	78.7	79.4	79.5	78.7	77.3
Permanent Visa	62.2	64.0	67.1	69.3	69.1	70.1
Temporary Visa	61.5	66.4	66.6	65.7	*	*

Legend: population aged 25-54 years old. * indicates cell values do not meet ABS confidentiality threshold and cannot be reported.

The statistics suggest that there was. Employment rates for both permanent and temporary visa holders who had their latest visa granted within one year prior to the 2016 Census (< 1 year) were below the average for Australian citizens (81.6%, Table 2). In contrast, recently naturalised citizens' employment rates matched those of Australian citizens in the first year.

In all instances, employment rates were higher for those whose latest migrant or citizenship status change dated back more than a year. In the case of naturalised citizens, employment rates exceeded those of Australian citizen for anyone with two or more years since becoming an Australian citizen (reaching a maximum of 87%). Permanent and temporary residents reported employment rates similar to Australian citizens if two or more years had passed since their latest visa change.

These statistics are affected by the joint inclusion of primary and temporary visa applicants. As is apparent from the lower half of Table 4 the employment rates of secondary visa applicants were consistently lower than those of primary applicants and Australian citizens. Primary applicants' employment rates matched, if not exceeded, those of Australian citizens if one or more years had passed since their latest visa or citizenship status change.

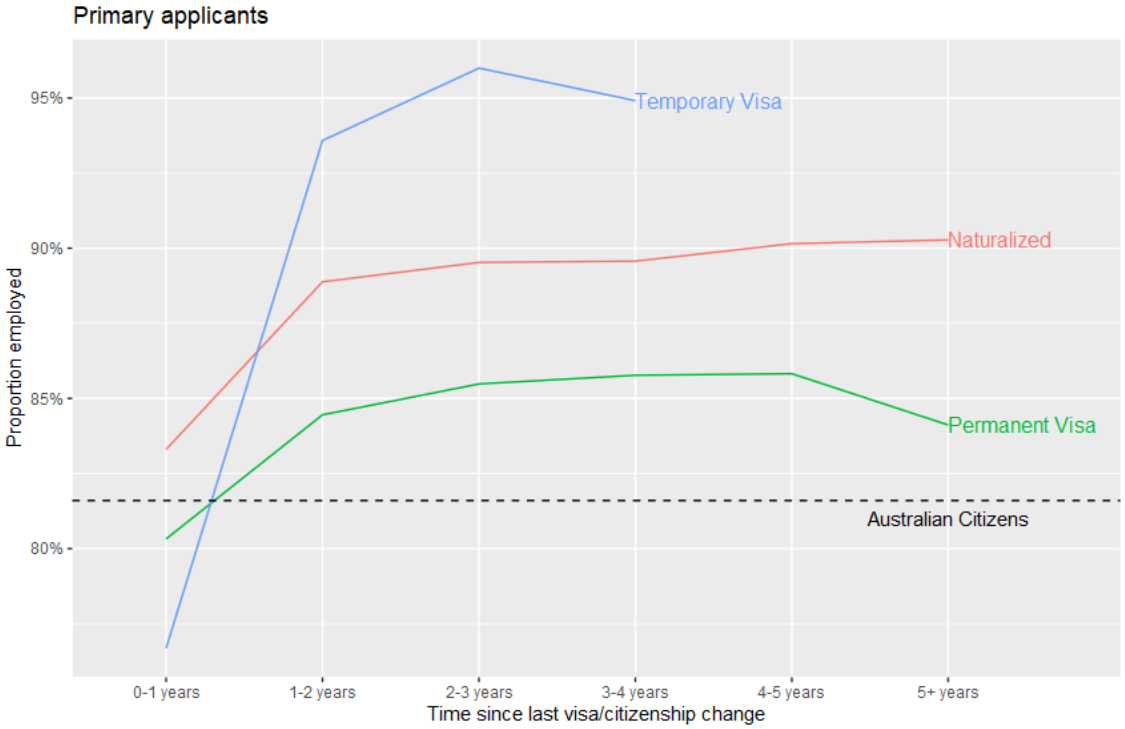
Figure 1 and Figure 2 below graphically illustrate these statistics, tracking the employment rates of primary and secondary visa applicants with different time lapses since their latest status change against Australian citizens' employment rates[7]. As noted above, employment rates were

[6] There is no information in the 2016 Census about how long Australian citizens had lived in the country. The comparison of employment rates over time, hence, excludes values for Australian citizens.

[7] Note that due to data confidentiality requirements, the employment rate for temporary visa holders in their 4th and 5th years can not be reported.

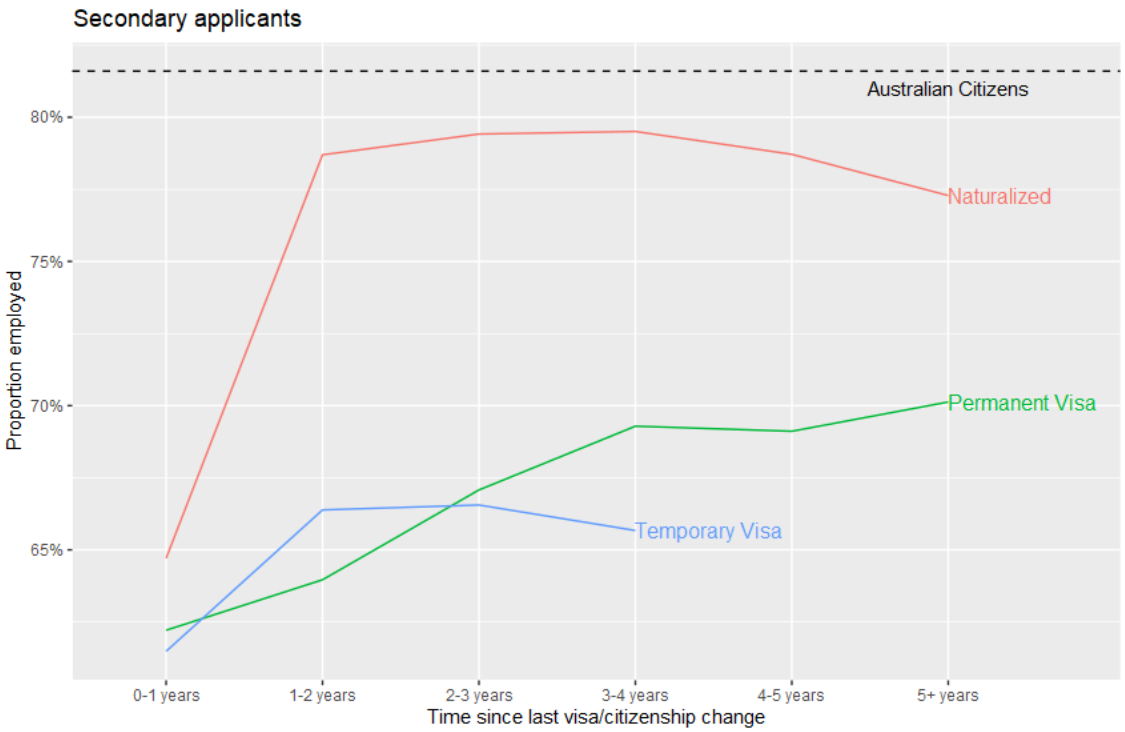
consistently above the Australian citizen average for primary applicants, with the exception of recently arrived temporary visa holders, but consistently below that average for secondary applicants, although the gap was found to be less pronounced for naturalised citizens and closing for permanent residents with longer residency since their last visa status change.

Figure 1: Employment rates, by time since latest visa or citizenship granted, Census 2016 (in %)



Legend: population aged 25-54 years old

Figure 2: Employment rates, by time since latest visa or citizenship granted, Census 2016 (in %)



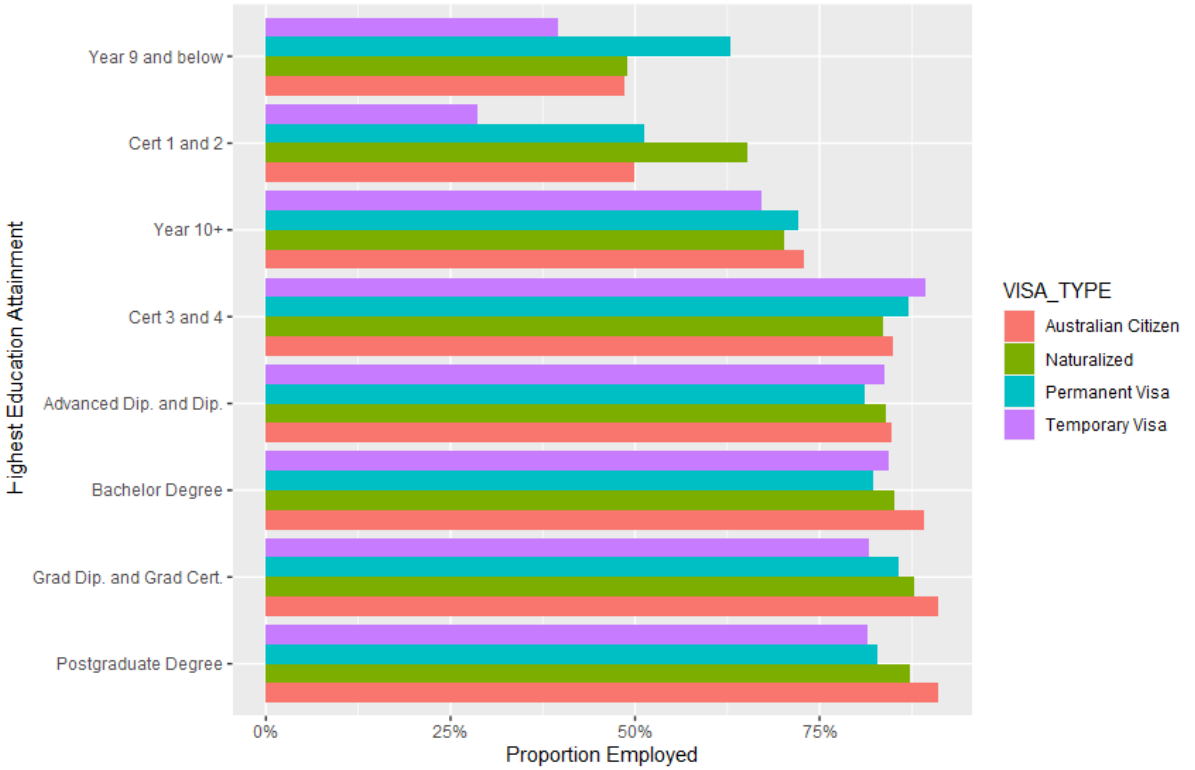
Legend: population aged 25-54 years old

2.2.1 Employment rates by highest educational qualification

Employment rates are known to be affected by the level of educational qualifications of those active in the labour market, regardless of their migration status. They are typically higher for those with higher levels of qualifications. This was confirmed in this study of migrants.

At 2016 Census night, employment rates were highest for migrants and citizens with Certificate level 3 or Certificate level 4 qualification, or above (Figure 3; see also Table 10 in the Appendix). Permanent and temporary residents, and naturalised citizens typically reported lower employment rates at the highest level of educational attainment (graduate diploma and graduate certificate, or postgraduate degree), but differences were typically small (+/- 5 percentage points). Differences were least pronounced at bachelor degree, Advanced Diploma, and Certificate 3 and 4 levels, with permanent and temporary residents reporting highest employment rates if they held Advanced Diplomas or Certificate level qualifications.

Figure 3: Migrants and citizens' employment rates, by highest educational qualification, Census 2016 (in %)



Legend: population aged 25-54 years old, primary and secondary visa applicants

Below Certificate 3 or 4 levels, employment rates dropped off noticeably and especially for temporary residents.

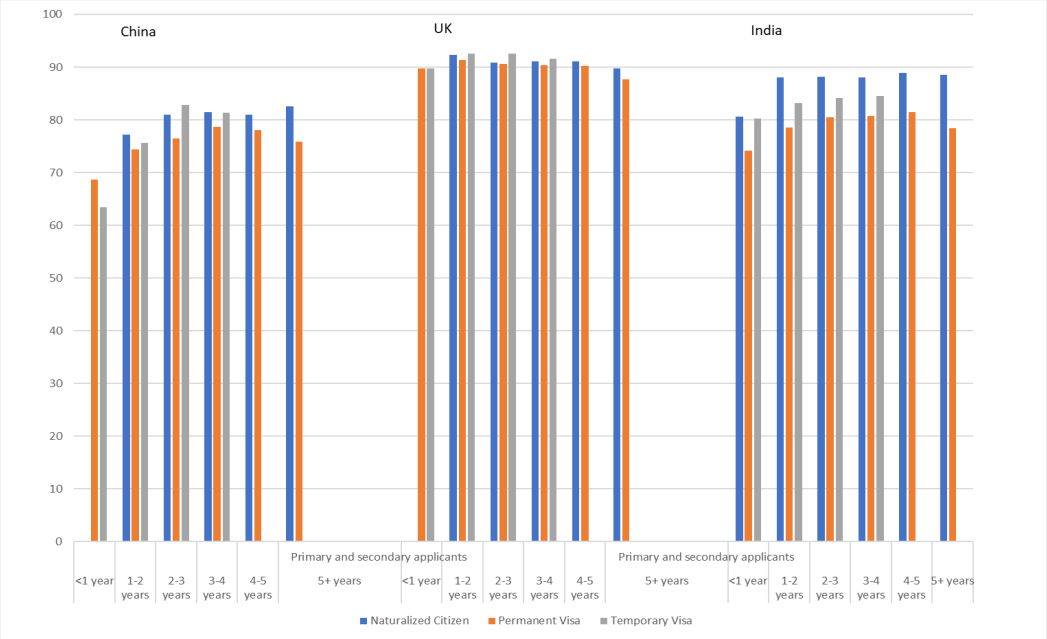
2.2.2 Employment rates by migrant country of citizenship

Employment rates varied by migrants reported country of citizenship, as illustrated in Figure 4 and Figure 5 (see also Table 11 through Table 13 in the Appendix) for migrants with original citizenship of China, the United Kingdom (UK) and India – the three largest donor countries:

- Migrants from China recorded the lowest employment rates, followed by migrants from India, then the UK.

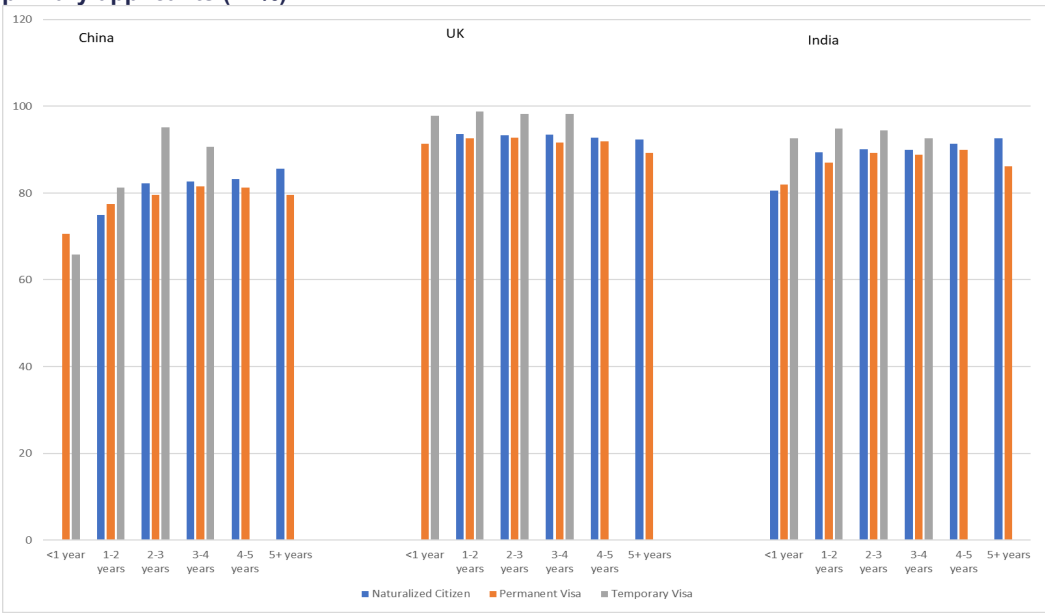
- For migrants from China and India, employment rates were higher for those who had spent two or more years in Australia and remained high; for migrants from the UK, employment rates decreased slightly for migrants with longer stays in Australia.
- Naturalised citizens' employment rates were higher than those of permanent or temporary residents among migrants from China and India, whereas there was little difference between migrants of different status who had originated from the UK.

Figure 4: Employment rates by time since visa granted, selected countries of citizenship, Census 2016, primary and secondary applicants (in %)



Legend: population aged 25-54 years old

Figure 5: Employment rates by time since visa granted, selected countries of citizenship, Census 2016, primary applicants (in %)



Legend: population aged 25-54 years old

These statistics include both primary and secondary visa applicants. The observed patterns were broadly repeated for primary applicants with the exception that primary applicants who were temporary residents typically reported the highest employment rates. For more statistics about migrants by their country of origin/citizenship, see Section 2.3.3.3.

2.2.3 Employment rates by remoteness status

Migrants and naturalised citizens in remote and very remote areas reported the highest employment rates, whereas Australian citizens reported highest rates in the major cities and remote areas (Table 5). Migrants' and naturalised citizens' employment rates in very remote areas were over 20 percentage points higher than the employment rate of very remote-living Australian citizens. They were also higher, albeit by a smaller, yet still notable margin in remote and outer regional areas.

See Figure 33 in the Appendix for a graphic illustration of area definitions.

Table 5: Employment rates, by place of residence remoteness status, primary and secondary applicants, Census 2016 (in %)

VISA TYPE	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
Australian Citizen	82.4	79.6	79.4	81.6	74.4
Naturalised	82.4	82.7	85.5	88.7	97.2
Permanent Visa	80.6	84.0	84.2	89.1	94.8
Temporary Visa	79.5	82.1	85.1	92.3	96.9

Legend: population aged 25-54 years old, primary and secondary visa applicants

2.2.4 Predicted employment rates

Regression analysis estimated the likelihood of employment[8] according to Census 2016 data and based on visa type, education, English speaking proficiency, and remoteness area classification, whilst also controlling for age and sex. Note that there are differences between the likelihoods reported here and the descriptive analysis previously shown. This is due to the impact of the regression analysis controlling for differences in socio-demographic variables within each migrant cohort, which assumes the cohorts are identical based on those characteristics. The thus estimated employment rate across the entire population of migrants and citizens was 67.3 per cent. It is different from - and mostly lower than - reported above because it assumes cohorts are identical, thus permitting like-for-like comparisons.

The rows in Table 6 show the percentage point difference in the predicted employment rate comparing migrants, including naturalised Australians, with Australian citizens, *all else equal*. For instance, the first row shows that, assuming similar age, sex, English language proficiency and remoteness area, the employment rate for naturalised Australian with a postgraduate degree was 1.1 percentage *higher* than that of Australian citizens with the same characteristics. In contrast, the employment for permanent and temporary migrants, *all else equal*, was 0.5 percentage points and 0.8 percentage points *lower* than for Australian citizens.

[8] Employment likelihood refers to the probability that an individual is in employment (either full-time, part-time, or temporarily away from the workforce).

Overall, the results show consistently higher employment rates amongst naturalised Australians and equally consistently lower employment rates for permanent and temporary migrants. The employment rate gap (to Australian citizens) increased with lower educational qualifications and, albeit somewhat less so, poorer English language proficiency. Employment rates varied less, if at all, across remoteness zones.

Table 6: Difference in migrants' employment rates relative to Australian citizens, by highest educational qualification and English language proficiency, 2016 (in % points)

	Naturalised	Permanent visa	Temporary visa
Highest Educational Qualification			
Postgraduate Degree	1.1	-0.5	-0.8
Grad Diploma/Grad	1.0	-0.5	-0.7
Bachelor's degree	1.2	-0.6	-0.9
Advanced Diploma	1.5	-0.7	-1.0
Certificate level 3 or 4	1.6	-0.7	-1.1
Year 10 or above	1.9	-0.9	-1.3
Certificate level 1 or 2	2.0	-0.9	-1.3
Year 9 or below	1.9	-0.8	-1.3
English language proficiency			
Speaks only English	1.3	-0.6	-0.9
Speaks English: Very well	1.4	-0.6	-1.0
Speaks English: Well	1.6	-0.7	-1.1
Speaks English: Not well	1.7	-0.8	-1.2
Speaks English: Not at all	1.7	-0.8	-1.2
Remote area classification			
Major Cities	1.5	-0.7	-1.1
Inner Regional	1.6	-0.7	-1.1
Outer Regional	1.6	-0.7	-1.1
Remote	1.5	-0.7	-1.0
Very Remote	1.6	-0.7	-1.1

Legend: population aged 25-54 years old, primary and secondary visa applicants.

2.2.5 Contribution to Research Questions

Research Question	Findings from analysis
RQ 1a: How prevalent is skills matching or mismatching amongst migrants to Australia compared to Australian born workers?	Continuing the focus on employment rates, the statistics show notably **different experiences of primary and secondary visa applicants**, as well as between migrants categories within these two groups, when compared with Australian citizens. The differential experience was most marked for **temporary visa holders** amongst whom primary applicants recorded the highest employment rate of all (including Australian citizens), whereas secondary applicants recorded the lowest rate.
RQ 1b: How well does the Australian migration system and labour market work to ensure that the skills of temporary and permanent migrants are effectively utilised?	To be addressed in final section.
RQ2: Are there skills matching or mismatching that are associated with visa subclasses, and how long do these take to resolve?	Employment rates tended to increase with time, measures as the period since last visa change or acquisition of Australian citizenship. The increase typically occurred in the **first one or two years**, and then plateaued. In the case of primary applicants, they moved and then remained above the level of Australian citizens, whereas for temporary migrants they remained below, albeit closing the gap.
RQ3: Are there spatial components of skills matching or mismatching? This should include looking at breakdowns such as (a) State and Territories and (b) regional and metropolitan areas, and (c) remoteness classification?	Migrants' employment rates are **markedly higher** than Australian citizen's employment rates **in very remote** areas (where they are also higher than for migrants in other remoteness zones).
RQ4: Are there patterns of skills matching or mismatching by other migrant characteristics, such as industry, occupation, country of origin or education?	Employment rates were **lower for migrants of Chinese background** when compared with migrants from the UK or India. They **vary by education** with a marked drop off below the level of Certificate 3 or 4 qualification. This is **similar** for both migrants and citizens. Migrants' and citizens' employment rates more most similar at bachelor and Advanced Degree/Diploma levels. Lower levels of educational qualification and English language proficiency strongly reduce employment likelihood (i.e., increase propensity to be unemployed).
RQ5: Are there wage differentials between migrants and Australian born? In what industry sectors / occupations are wages differentials most pronounced? This should include breakdowns by visa type, country of origin, education and occupation.	n/a

Legend: n/a – not applicable or available for this section.

2.3 Occupations and occupational status

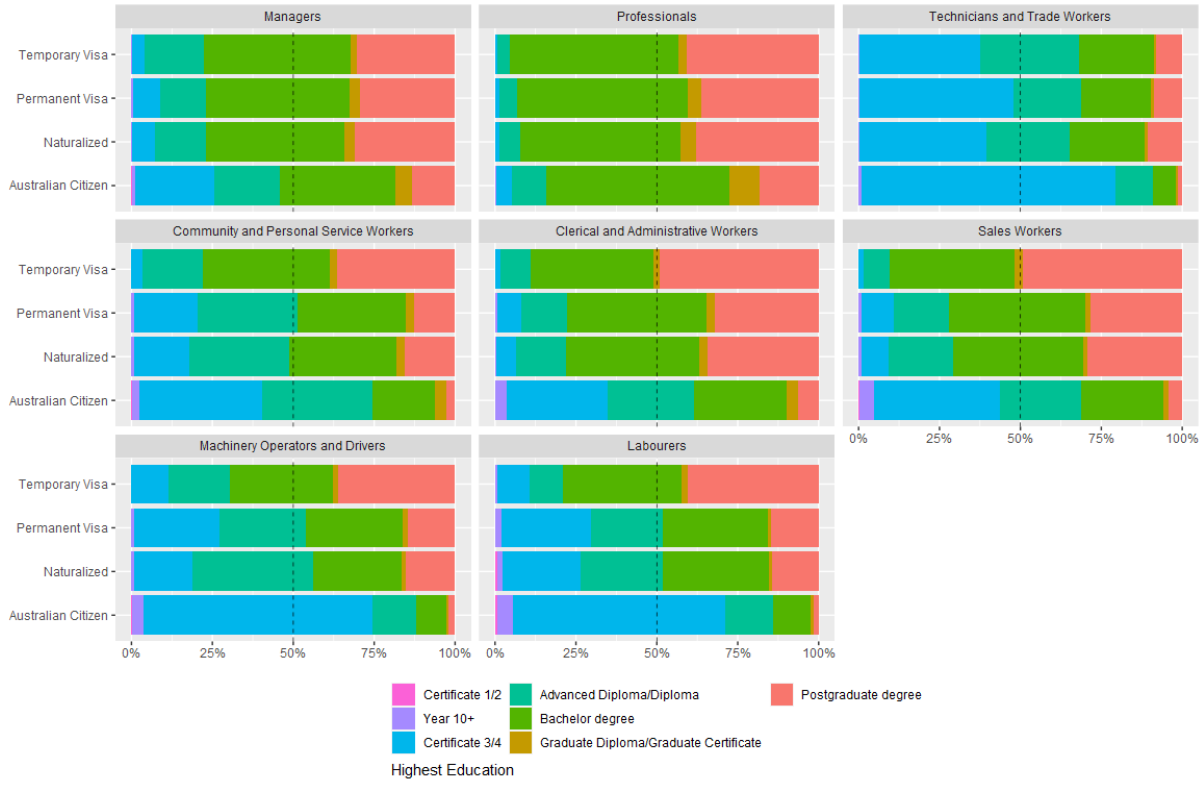
This section directly addresses the role of skills in migrants' employment. The section starts with a generic overview of the association between occupations and educational qualifications. It then moves on to analysing measures of occupational status (AUSEI06) and NSC core competencies that were used to compare the range of occupations that migrants hold with those of Australian citizens. As explained in the introductory section, these indicators do not identify the skills that migrants or citizens possessed (that information is not available), but the level of skills that an occupation in which they were employed typically required.

2.3.1 Highest educational qualification by occupation

According to the 2016 Census, migrants, including naturalised citizens typically were more qualified than Australian citizens working in any one of the eight major ANZSCO occupational groups; this included a comparatively high proportion of migrants who had graduate or postgraduate qualifications, especially amongst temporary residents (Figure 6). Migrants with postgraduate qualifications were found disproportionately present across all eight major

occupational groups, that is, also amongst the categories typically associated with the lowest qualification requirements (notably machine operators and drivers, and labourers). There is therefore strong evidence of migrants' educational over-qualification in most, if not all, occupational groups.

Figure 6: Migrants' and citizens' highest educational qualification by occupation, Census 2016



Legend: population aged 25-54 years old, primary and secondary visa applicants

Figure 7 below makes the same point but is based on estimating a mean score of highest educational qualification[9] for each citizen and migrant group in each occupation. That score is weighted by the number of citizens or migrants holding the specific highest education qualification in each occupation. Australian citizens were without exception least educationally qualified whereas temporary residents were most educationally qualified across all eight major occupation groups.

Permanent residents and naturalised citizens typically shared similar highest educational qualifications, which were also typically closer to those of Australian citizens. In contrast, temporary migrants were more highly educated than permanent residents or naturalised citizens, except for those working as technicians and trades workers, which shared education levels with permanent residents. Within migrant-group educational differences were also less pronounced, but still apparent, in managerial and professional occupations.

[9] Scores range from 1 (highest qualification = postgraduate) to 8 (lowest qualification = Year 9 or below). In Figure 7, the scores are inversed for presentational reasons, increasing from lowest to highest level of qualification from left to right

See Figure 20 through Figure 24 in the Appendix for additional analysis disaggregated by migrants' countries of origin.

Figure 7: Migrants' and citizens' mean weighted educational qualification score by occupation, Census 2016

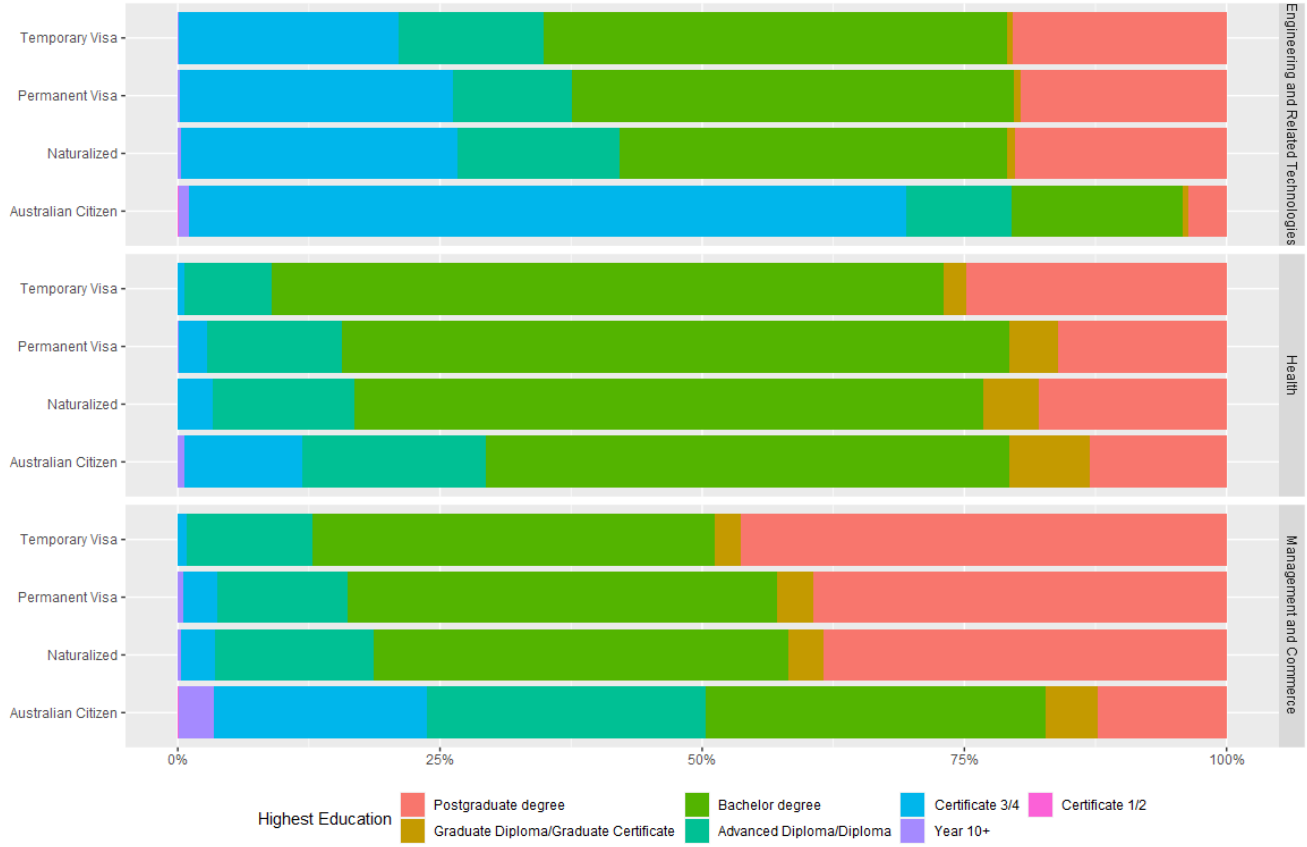
Legend: population aged 25-54 years old, primary and secondary visa applicants

Migrants' highest educational qualifications varied with their field of qualification, as illustrated in Figure 8 with regard to the three main qualification fields: engineering and related technologies, health, and management and commerce. Migrants and naturalised citizens had typically achieved higher levels of educational qualifications than Australian citizens, but this was much more the case in management and commerce, and engineering and related technologies, than in health.

Within migrant-group differences were less pronounced, especially with respect to postgraduate qualifications in engineering and related technologies.

The overall higher levels of educational qualifications found amongst migrants in employment may not be entirely unexpected as it might have been the desired outcome of visa programs that sought to attract migrants with high level skills otherwise not readily found in the Australian labour market.

Figure 8: Education attainment by visa class by selected fields of study



Legend: population aged 25-54 years old, primary and secondary visa applicants

2.3.2 AUSEI06

As explained earlier, the Australian Socio-Economic Index (AUSEI06) ranks occupations according to their educational requirements and earnings outcomes. Table 2 showed that all migrant groups and, in particular, permanent residents, scored higher on this index than Australian citizens.

This is a first indication that migrants' typically higher levels of educational qualification, which we described in the previous section, may, at least in part, reflect their having a job with higher qualification requirements – and commensurate remuneration[10].

Table 7, and Figure 9 and 10 show that this experience varied with the time since the latest visa or Australian citizenship had been granted, and with migrants' status as either primary or secondary applicant. Primary applicants were typically employed in jobs of higher occupational status than the average Australian citizen, although this changed for temporary migrants after about four years. Temporary migrants who had been secondary applicants for their visa always held jobs of lower occupational status than was typical for Australians. In general, only

[10] AUSEI06 takes earnings into account at construction.

naturalised citizens consistently maintained employment in jobs of high and higher than (Australian) average occupational status.

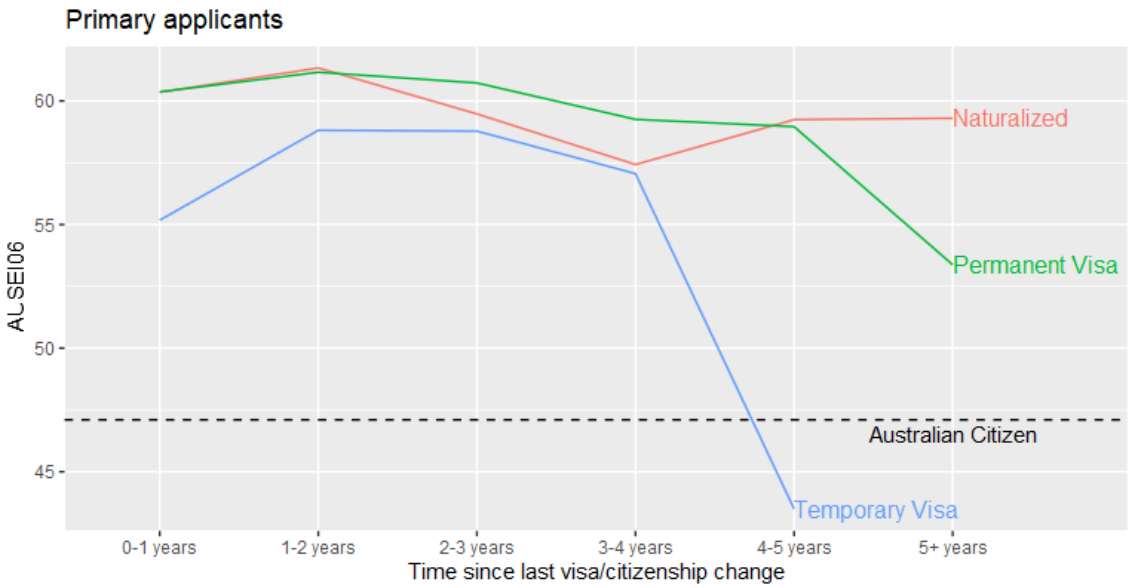
The differential experience of primary and secondary applicants of permanent or temporary visas was broadly consistent with that observed in relation to their employment rates reported earlier (Section 2.2).

Table 7: Occupational status (measured as AUSEI06), by time since latest visa or citizenship granted, Census 2016

VISA TYPE	<1 year	1-2 years	2-3 years	3-4 years	4-5 years	5+ years
Primary or secondary applicants						
Naturalised Citizen	50.7	55.0	54.2	52.4	54.6	54.2
Permanent Visa	55.0	56.5	56.4	54.7	54.6	50.4
Temporary Visa	48.0	50.7	51.6	50.8	43.5	
Primary applicants only						
Naturalised Citizen	60.4	61.3	59.5	57.4	59.2	59.3
Permanent Visa	60.4	61.2	60.7	59.3	59.0	53.4
Temporary Visa	55.2	58.8	58.8	57.1	43.5	*
Secondary applicants only						
Naturalised	41.1	48.7	49.0	47.3	49.9	49.0
Permanent Visa	49.7	51.7	52.1	50.2	50.2	47.5
Temporary Visa	40.7	42.6	44.5	44.5		

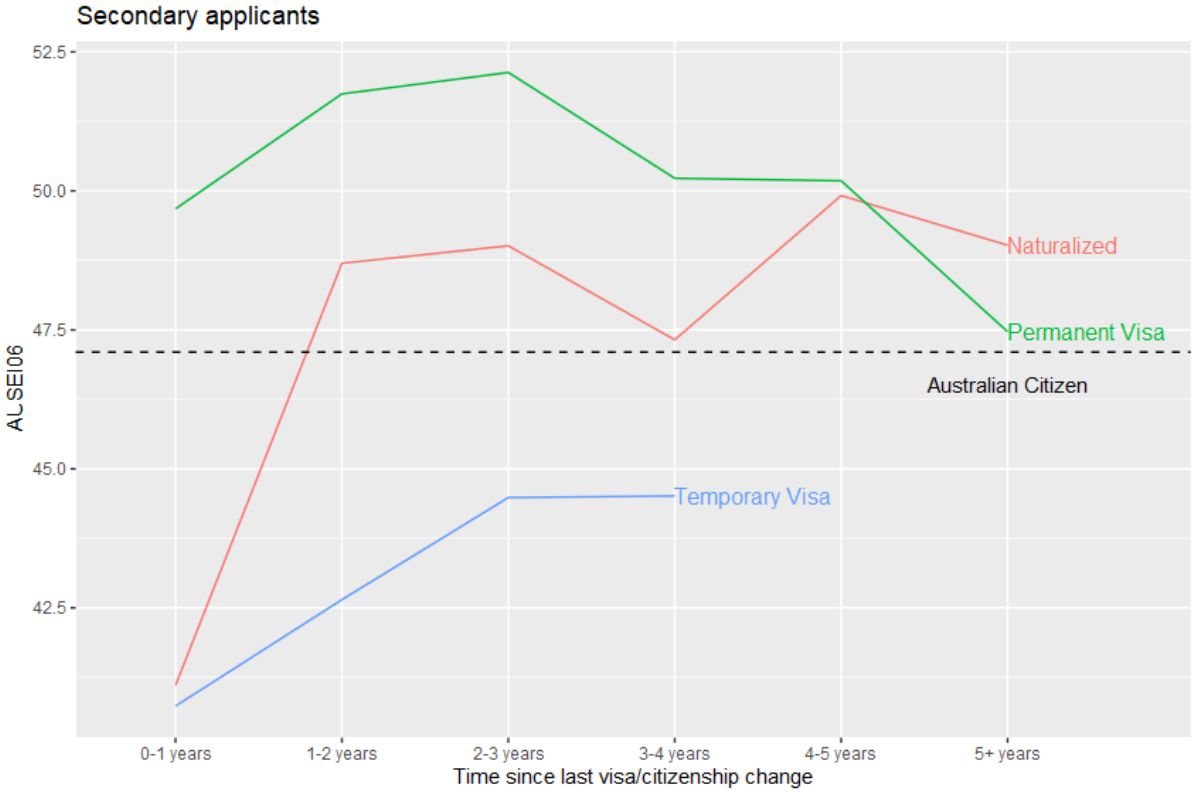
Legend: population aged 25-54 years old, primary and secondary visa applicants

Figure 9: Occupational status (AUSEI06), by time since latest visa or citizenship granted, secondary applicants, Census 2016 (in %)



Legend: population aged 25-54 years old, cross-sectional data. AUSEI06 for Australian citizens is the average score for all, regardless of time spent living in the country.

Figure 10: Occupational status (AUSEI06), by time since latest visa or citizenship granted, secondary applicants, Census 2016 (in %)



Legend: population aged 25-54 years old, cross-sectional data. AUSEI06 for Australian citizens is the average score for all, regardless of time spent living in the country.

2.3.3 NSC core competencies

The data so far suggest that migrants in employment were typically better qualified than Australian citizens and that that was, at least in part, reflected in their holding jobs with higher AUSIE06 scores. As noted above, the apparent overrepresentation of highly qualified migrants in most occupations (at ANZSCO major group level) may be the product of visa programs, which have sought to address labour market shortage at those higher levels of qualification.

The descriptive nature of the data did not allow any assessment as to whether the jobs held by migrants reflected their higher than (for Australian citizens) typical levels of educational qualifications that some visa programs sought to attract. To make such assessment, it is necessary to isolate a measure of skill levels and to account separately for potentially confounding socio-demographic characteristics, including educational qualifications. One way of doing so is to conduct regression analysis.

Since AUSEI06 scores were originally derived from a combination of educational, earnings and demographic characteristics, they were not suited for regression analysis.[11] The NSC core competences scores were selected as an alternative measure. The regression analysis

[11] Using AUSEI06 in a regression analysis with socio-demographic variables (e.g., age, sex, education) included as explanatory variables would have been circular: socio-demographics would have been used to explain AUSEI06 scores that were themselves derived from the same set of socio-demographic variables.

estimated average NSC skill competency score for migrants and citizens based on their occupation as identified in the ATO data.

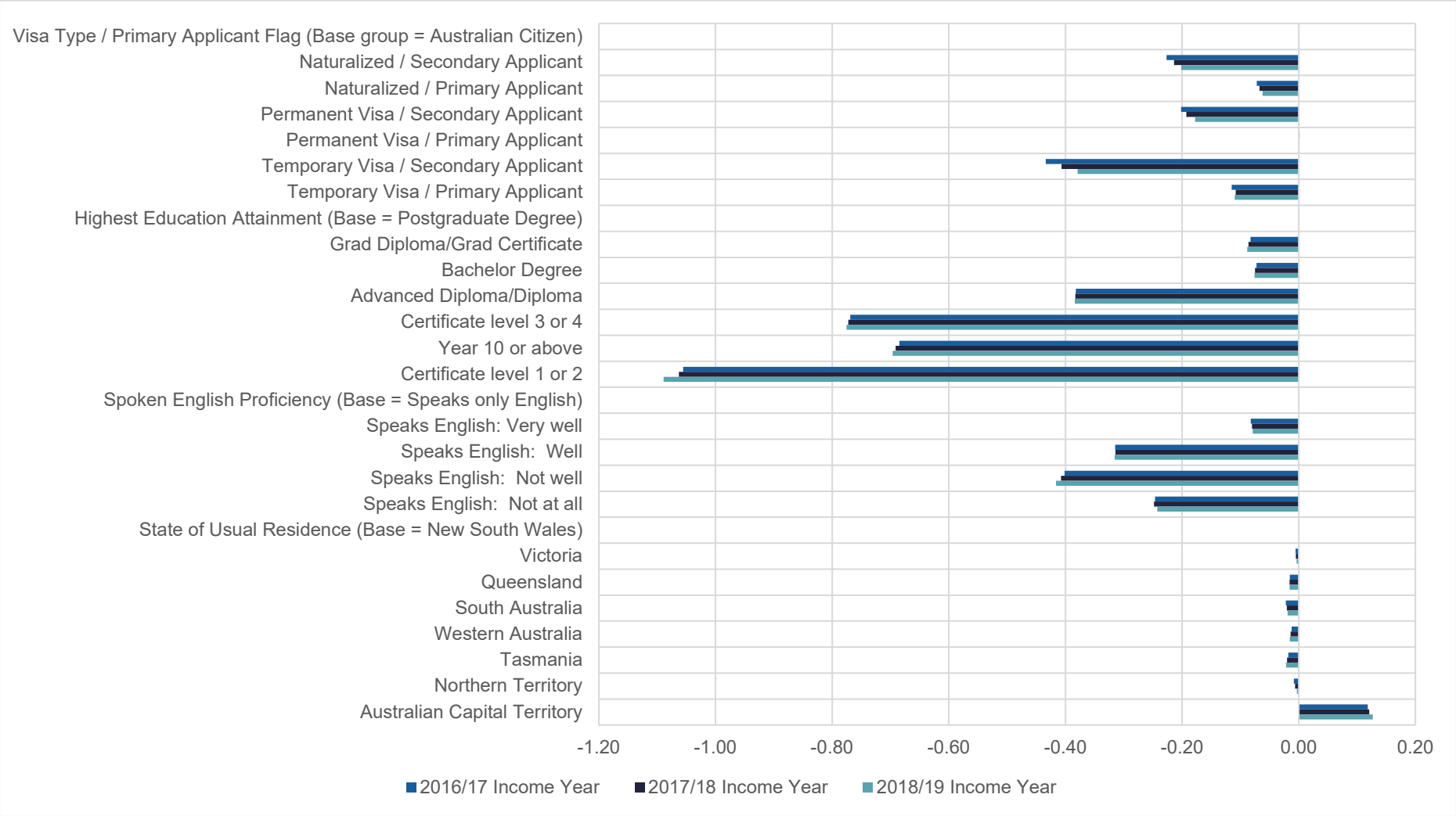
The results are shown in Figure 11, with effects determined by migrant status, further distinguishing between primary and secondary applicants. The regression was repeated for three financial years (following the 2016 Census) using a balanced sample, that is, the same individuals.

The regression accounted for (differences in) highest educational qualification, self-reported English language proficiency, state or territory of residence, age, sex, industry of employment, earnings, labour force status, hours worked, and whether a person had indicated in the 2016 Census that they had live in Australia one or five years earlier. Figure 11 only shows the first three indicators as well as migrant group status, as they were the primary concern for this investigation. Table 14 in the Appendix shows the full regression results.

The regression showed there was no statistically significant difference in occupational core competency scores between permanent visa holders who were also primary applicants and Australian citizens. This contrasted with statistically significant differences observed in all other instances, with migrants typically employed in occupations with *lower* competency scores. This negative gap was especially notable for secondary visa applicants. These differences were sustained over time, although decreasing (from a comparatively high level) for secondary applicants on a temporary visa.

Compared with migrant status, highest educational qualification and English language competency had greater effects on core competency scores. State or territory of residence made a small difference to core competency scores, with the exception of the ACT, where typical core competency scores were highest, *all else equal*.

Figure 11: Regression analysis results (coefficients) for average core competency, by migrant status, 2016/17-2018/19



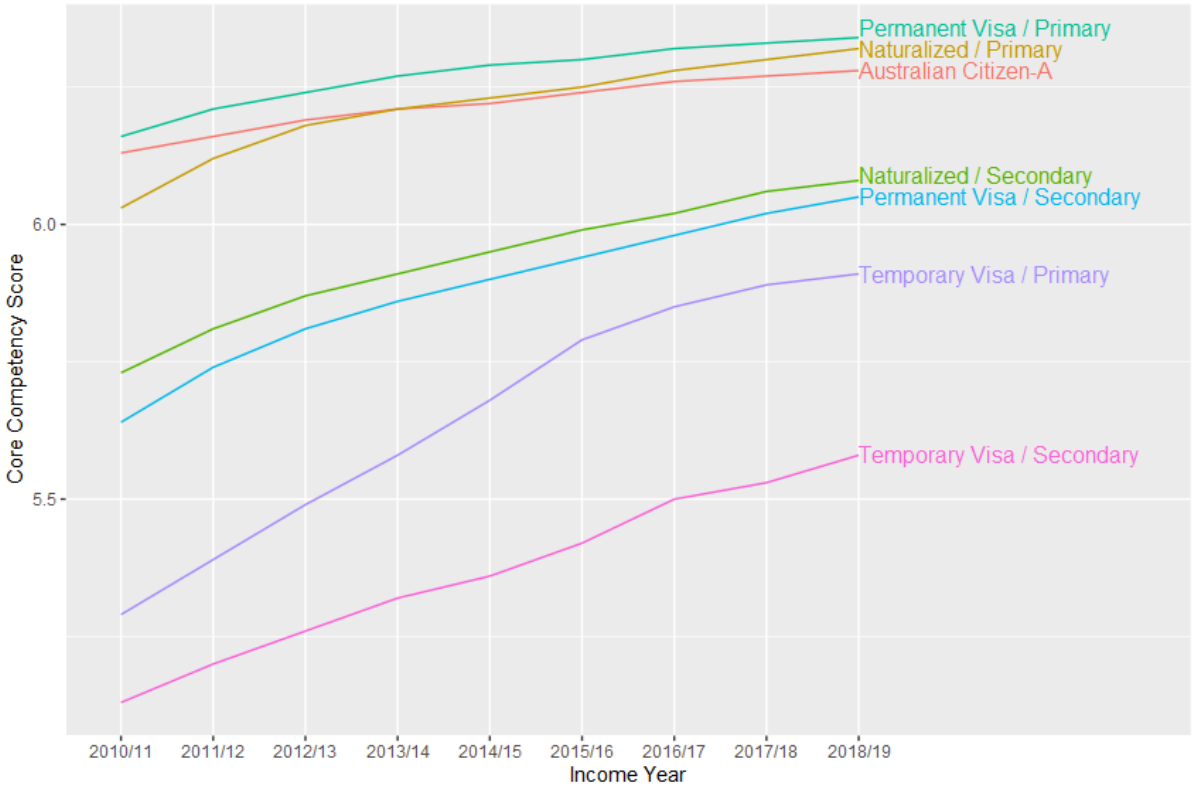
Legend: population aged 25-54 years old, primary, and secondary visa applicants. Other variables included in the regression but not shown here: wages and salaries in 2016/17, industry of employment, lived in Australia 1 year prior to 2016 Census, lived in Australia 5 years prior to 2016 Census, non-school qualification: field of study, labour force status (employed full-time, part-time, away from work), sex, hours worked (2016), hours worked^2 (2016), age (2016), age^2

Figure 12 makes use of the full ATO tax return data available to this project, mapping the mean NSC core competency scores for migrants and citizens over the longer period from 2010/11 to 2018/19. The statistics include only those migrants and citizens for whom data were available for all nine years (balanced panel). They do not control for socio-demographic or other differences.

The statistics confirm that NSC core competencies scores varied by migrant and citizen status, that permanent visa holder (primary applicants) held jobs with higher core competency scores than Australian citizens, and that temporary visa holders and secondary applicants were typically employed in occupation associated with lower competency scores than permanent visa holders and secondary applicants.

In addition, Figure 12 shows that these differences persisted in the long term, although temporary visa holders (especially primary applicants) and naturalised citizens narrowed the core competency gap to Australian citizens as time progressed. In fact, naturalised citizens progressed from occupations with lower competency scores than held by Australian citizens into occupations with higher competency scores.

Figure 12: Mean NSC core competency scores, by migrant status, 2010/11-2018/19



Legend: population aged 25-54 years old, primary and secondary visa applicants

2.3.3.1 Migrants on specific visa-sub classes

Figure 13 summarises the results based on the same regression as in Figure 11, but with a more fine-gained breakdown by visa sub-class. The comparison here is with Australian citizens; naturalised citizens are included amongst the visa sub-classes based on the last visa they held before citizenship.[12]

[12] Figure 13 does not include the other variables controlled for in this regression for presentational reasons. The full set of statistics is included in Table 15 in the Appendix.

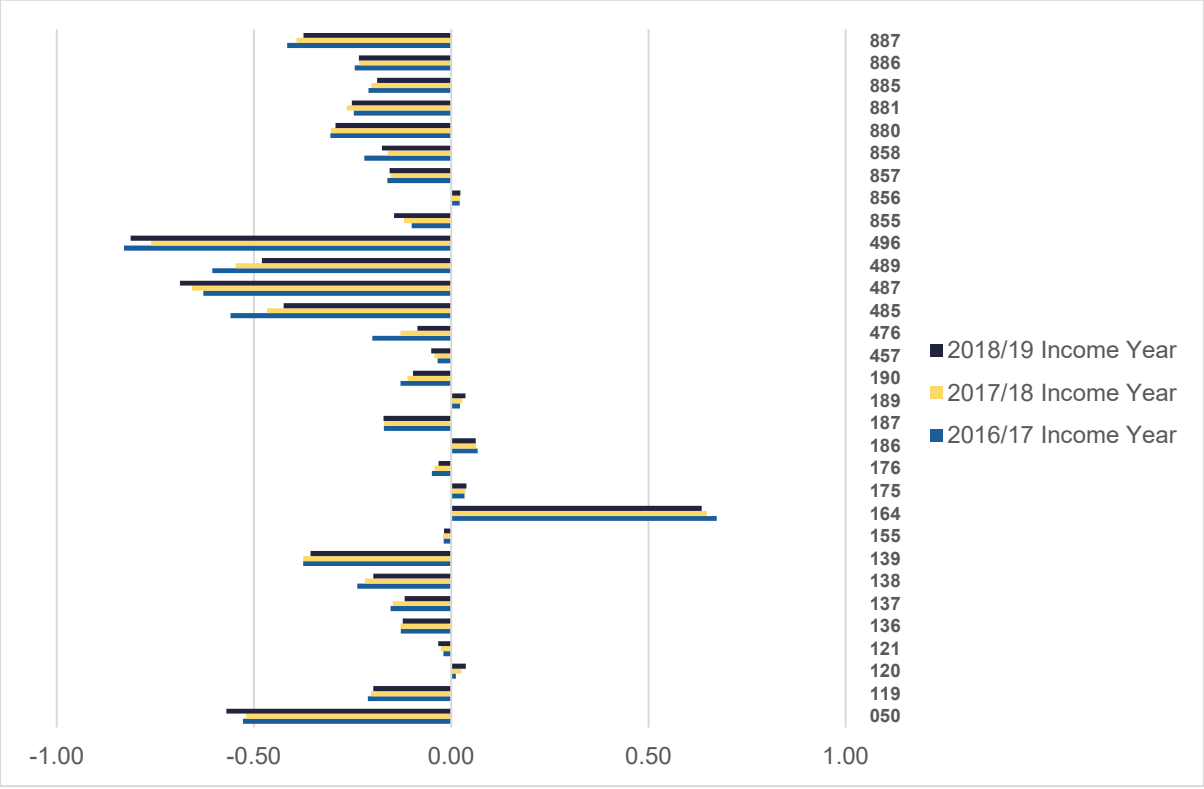
The statistics show that, all else equal:

- Most visa sub-classes were associated with working in occupations requiring lower core competency scores than was typical for Australian citizens;
- The exceptions were visa sub-classes:
    - 164 (State/Territory Sponsored Senior Executive, permanent)
    - 175 (Skilled – Independent, permanent),
    - 189 (Skilled – Independent, permanent), and
    - 856 (Employer Nomination Scheme, permanent),

  which were associated with working in occupations with higher core competency scores;

- There was no statistically significant difference in core competency scores for holders of the two Employer Nomination Scheme/Labour Agreement permanent visa sub-classes 120 (Labour Agreement) and 121 (Employer Nomination Scheme);
- Differences held across tax years.

Figure 13: Regression analysis results (coefficients) for average core competency, by visa sub-class, 2016/17-2018/19



Legend: population aged 25-54 years old, primary and secondary visa applicants

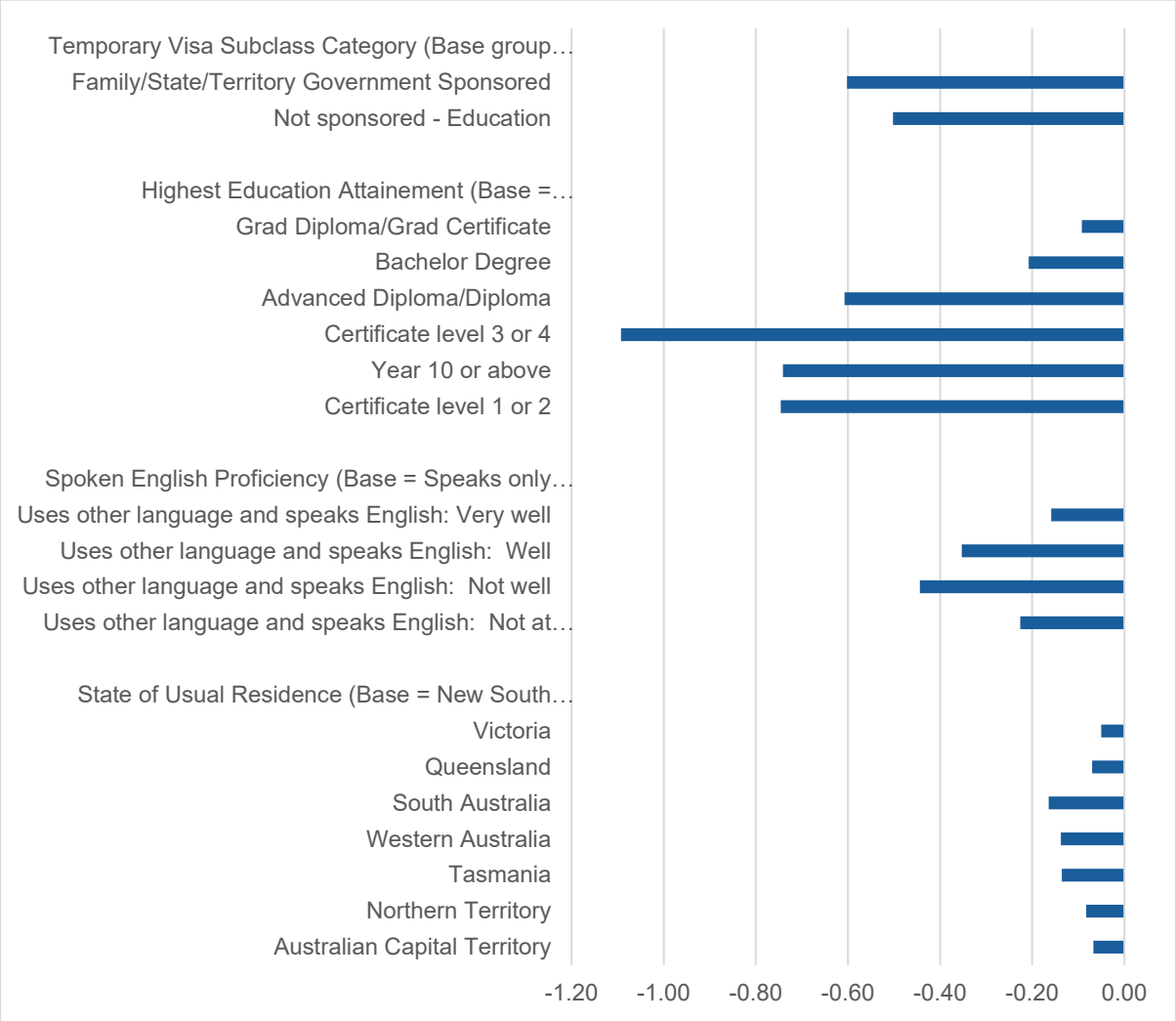
2.3.3.2 Migrants on temporary visas

An additional analysis of only the primary applicant for temporary visas was undertaken to determine the differences between employer sponsored visas; family, state or territory sponsored visas; and non-sponsored education visas, after controlling for differences in education level, state of usual residence, age, sex, and field of qualification. The results in Figure 14 show that, all else equal:

- primary applicants on employer sponsored temporary visas were employed in occupations requiring a higher level of skill than those on family/state/territory sponsored visas, and non-sponsored education visas;
- education and English proficiency were statistically significantly associated with average skill level, although the association had lower statistical significance than had the temporary visa category for individuals with bachelor's degrees, graduate diplomas or graduate certificates; and
- the average skill level of occupations in New South Wales was higher than in all other states and was lowest in South Australia.

Additional variables which were included to control for labour force status, sex, age, and field of study are included in Table 16 in the Appendix.

Figure 14: Regression analysis results (coefficients) for average core competency, by aggregated temporary visa subclass, Census 2016



Legend: population aged 25-54 years old, primary visa applicants, temporary visa holders.

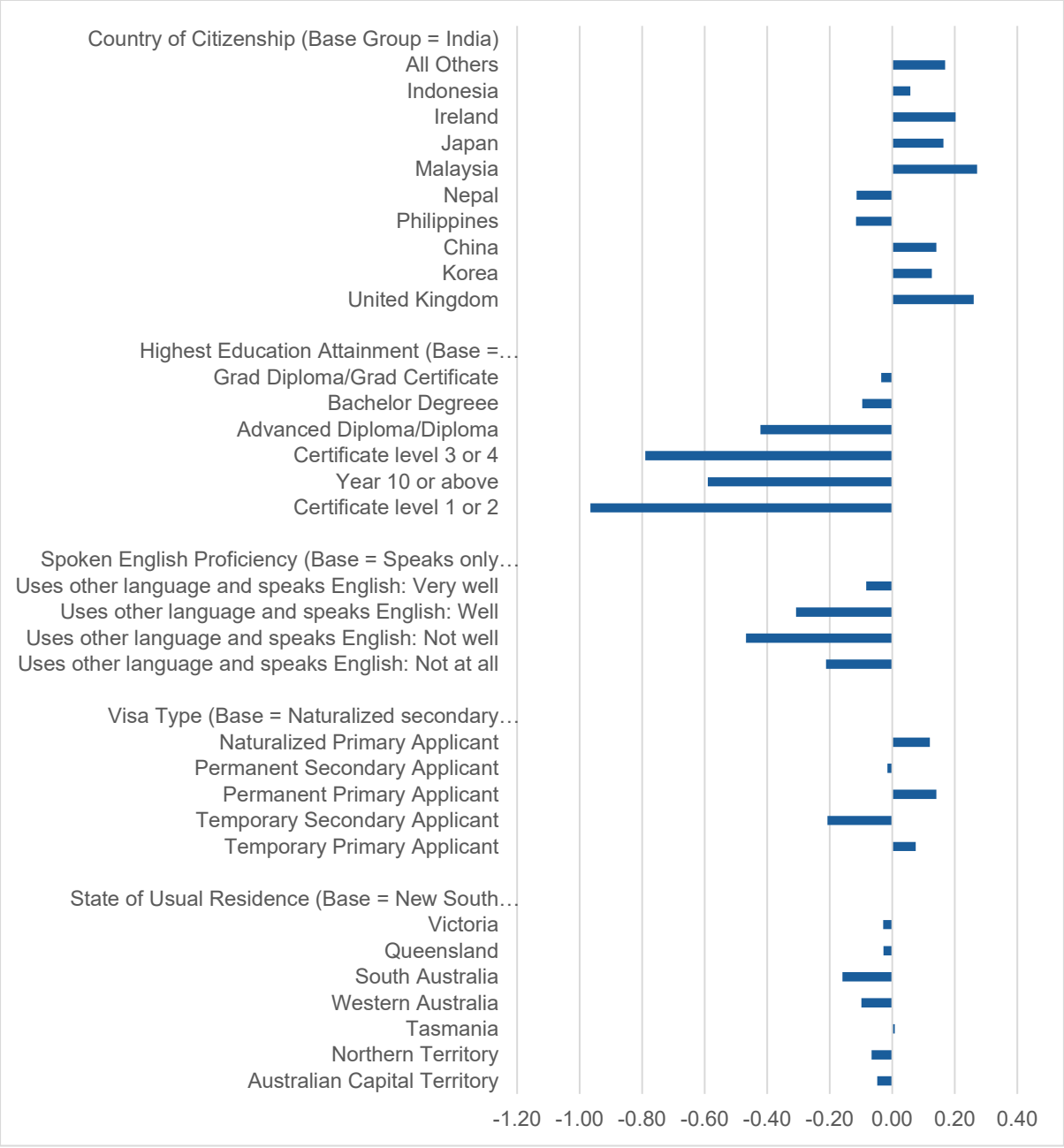
2.3.3.3 Migrants from different countries

The final analysis of core competencies looks at differences in outcomes by migrants' country of citizenship. Due to a large number of source citizenships, only the ten countries with the largest number of migrants in the 2016 Census are included, with the remaining countries aggregated

into “all others”. This aggregation was also necessary to protect the confidentiality of data. The comparison group for country of citizenship is India, as this is the country with the largest number of migrants as per the DoHA visa granted data.

Compared with migrants from India, migrants from Indonesia, Ireland, Japan, Malaysia, China, Korea, the United Kingdom and the mixed category of ‘all others’ worked in occupations with higher core competencies (Figure 15; also Table 17 in the Appendix). In contract, migrants from Nepal or the Philippines were more likely to work in low core competency occupations. These results account for migrants’ socio-demographic characteristics.

Figure 15: Regression analysis results (coefficients) for average core competency, by migrant country of citizenship, Census 2016



Note: regression also controlled for age and sex (not shown here).

2.3.4 Contribution to Research Questions

Research Question	Findings from analysis
RQ 1a: How prevalent is skills matching or mismatching amongst migrants to Australia compared to Australian born workers?	Migrants had **higher educational qualification** in each of the eight top-level ANZSCO occupational major groups than Australian citizens. Permanent residents and naturalised citizens typically had similar highest educational qualifications, across all occupation major groups, often only a little higher than those of Australian citizens. With few exceptions, **temporary migrants were most highly educated** amongst all migrant populations. After controlling for socio-demographic differences, **permanent visa holders and naturalised citizens** were **more likely to be employed in occupations with higher NSC core competency scores** than Australian citizens. Temporary migrants only held higher core competency occupations if they were primary applicants; secondary applicants tended to work in occupations with lower core competency scores than Australian citizens.
RQ 1b: How well does the Australian migration system and labour market work to ensure that the skills of temporary and permanent migrants are effectively utilised?	To be addressed in final section.
RQ2: Are there skills matching or mismatching that are associated with visa subclasses, and how long do these take to resolve?	Nominally, statistics that considered time since last visa status change showed **consistently higher occupational status** (when compared with Australian citizens) for **naturalised citizens and permanent visa holders**. Temporary visa holders' occupational status decreased from above to below Australian citizen average four to five years after their last visa status change if they were primary applicants. The occupational status of **secondary applicants of temporary visas** always stayed below the Australian citizen average. Controlling a sociodemographic and other characteristics in a regression, NSC core competencies were similar for permanent visa holders (primary applicants only) and Australian citizens. In all other instances, **migrants were employed in occupations with lower competency scores**. These **patterns were sustained in all three tax years** following the 2016 Census and also over the longer period 2010-11-2018/19 (nominal trend data only). Permanent skilled independent, senior executive or employer nomination scheme visas were the only **subclasses** associated with employment in occupations with higher core competency scores. Amongst temporary visa holders, those on **family or state/territory sponsored visas** were typically **employed in lower core competency occupations** than migrants on employer sponsored temporary visas.
RQ3: Are there spatial components of skills matching or mismatching? This should include looking at breakdowns such as (a) State and Territories and (b) regional and metropolitan areas, and (c) remoteness classification?	After controlling for other variables, place of usual residence had a small effect on the core competency scores.
RQ4: Are there patterns of skills matching or mismatching by other migrant characteristics, such as industry, occupation, country of origin or education?	The three main areas of migrants' qualification were **engineering and related technologies, health, and management and commerce**. Migrants and naturalised citizens were considerably more qualified than Australian in all three of those fields of qualification, albeit somewhat less so in health. Regression analysis shows statistically significant **differences in core competency scores for migrants from different countries of citizenship**.
RQ5: Are there wage differentials between migrants and Australian born? In what industry sectors / occupations are wages differentials most pronounced? This should include breakdowns by visa type, country of origin, education and occupation.	n/a

Legend: n/a – not applicable or available for this section.

2.4 Wage differentials between migrants and Australian born workers

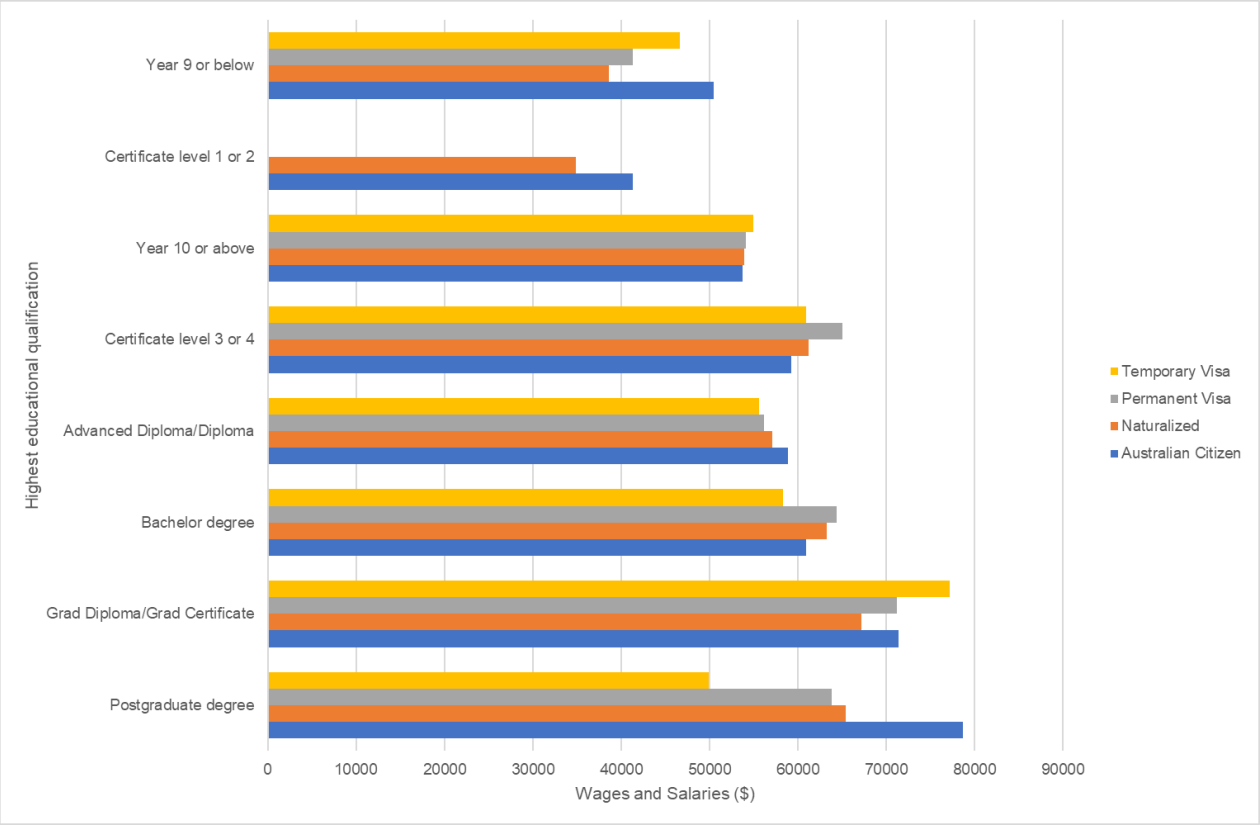
In this section, the Census 2016 is taken as a starting point at which wages were first recorded. For individuals on visas, only those who were in Australia the year prior to the Census were included for analysis. Crosstabulations below are median values across variables.

As already indicated in Table 2, on aggregate, whereas earnings were typically lower for temporary residents, there was comparatively little difference in the median wages and salaries earned by permanent residents, naturalised and Australia-born citizens. Wage differentials become apparent when breaking populations down by their educational qualifications, industry and occupations.

2.4.1 Education

Education brings higher wages (Figure 16; also Table 18 in the Appendix), but migrants' and naturalised citizens' earnings were markedly below those of Australian born citizens at postgraduate degree level. Figure 6 had shown the disproportionate presence of migrants with postgraduate (and other high level) qualifications in lower level occupations. This is likely a factor contributing to postgraduate migrants' lower average earnings depicted in Figure 16.

Figure 16: Median wages and salaries, by highest educational qualification, and migrant and citizen status, Census 2016 (in $)



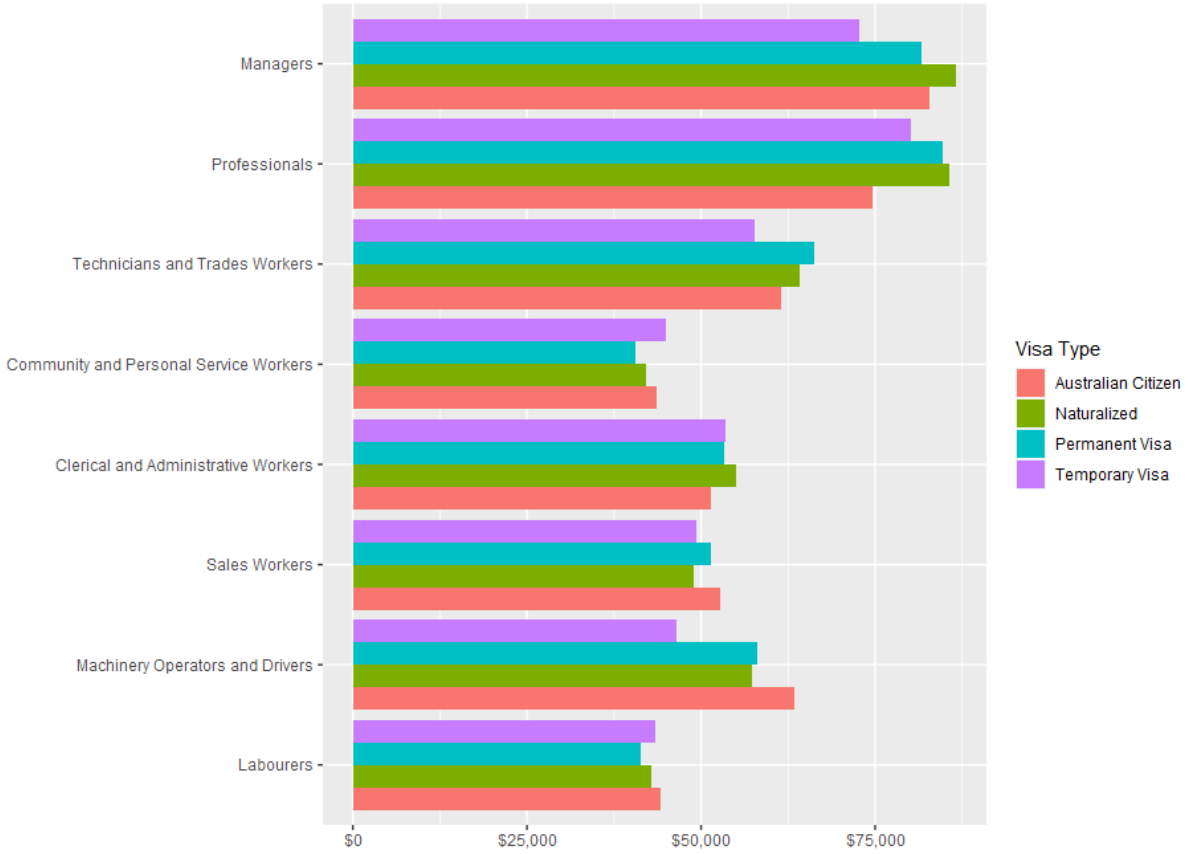
Legend: population aged 25-54 years old, primary and secondary visa applicants

Differentials were less pronounced at other educational levels. In fact, median wages and salaries were frequently higher for migrants and naturalised citizens than for Australian born citizens, most notably at Graduate Diploma/Graduate Certificate level, at bachelor's degree level, and Certificate levels 3 and 4.

2.4.2 Occupation

These earnings differentials by highest educational qualification are also mirrored by earnings differentials across occupations (Figure 17, also Table 19 in the Appendix). In the chart below (and the next one), the colour scheme approximates median wages and salaries, with brighter colours indicating higher earnings (as illustrated in the legend).

Figure 17: Median wages and salaries, by occupation, and migrant and citizen status, Census 2016 (in $)



Legend: population aged 25-54 years old, primary and secondary visa applicants

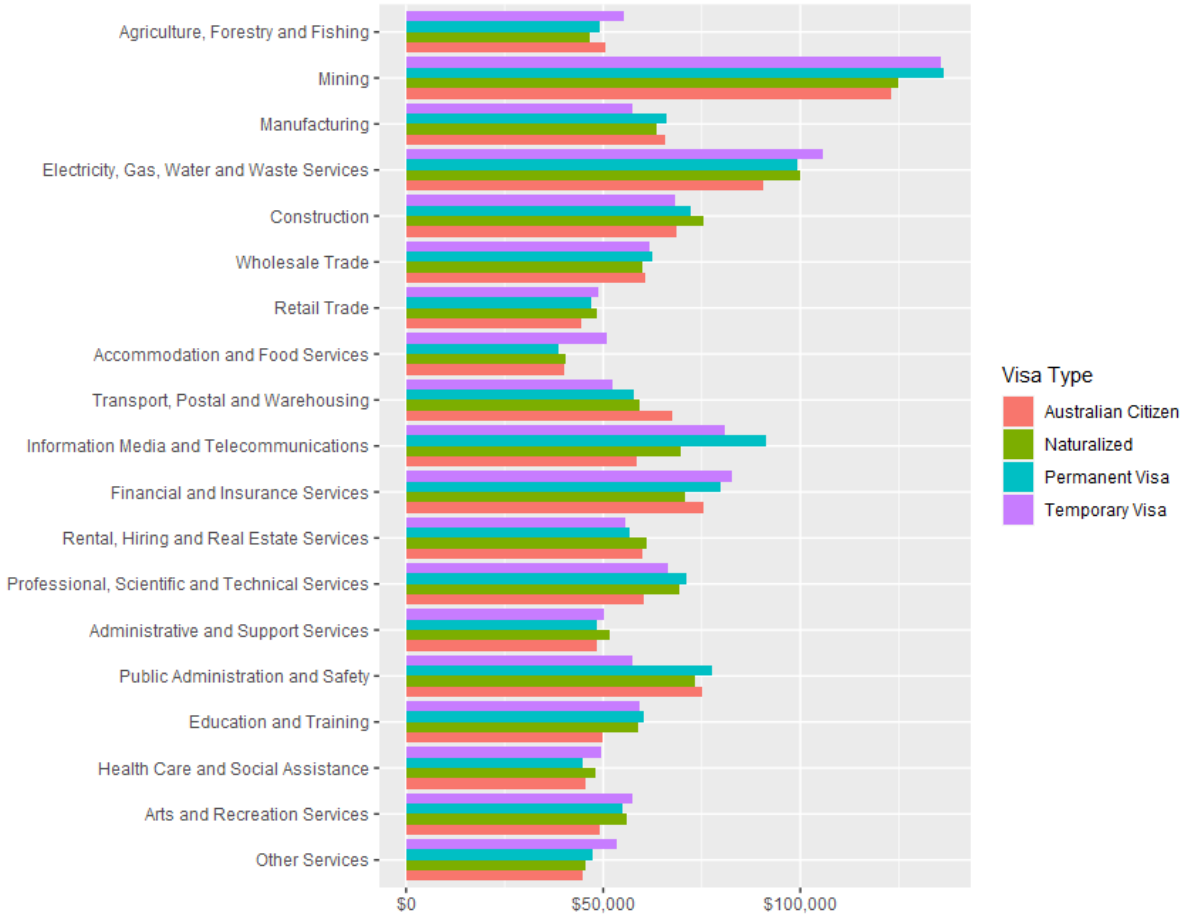
For labourers, community and personal service workers, and, albeit somewhat less so, clerical and administrative workers, and sales workers, the chart highlights few marked earnings differentials across occupations. Earnings gradients were more apparent for machinery operators and drivers, technicians and trades workers, and managerial and professional occupations.

Notably, with the exception of machinery operators and drivers, migrants and naturalised citizens reported higher and highest median earnings.

2.4.3 Industry

Earnings differentials were also apparent across industries, albeit arguably less pronounced than in the case of occupation (Figure 18, also Table 20 in the Appendix). The greatest variance in the colour scheme – and hence median earnings – is evident in the Information, media and telecommunications sector, in which both categories of Australian citizens typically earned less than temporary or permanent residents. The same is observed in the mining sector.

Figure 18: Median wages and salaries, by industry, and migrant and citizen status, Census 2016 (in $)



Legend: population aged 25-54 years old, primary and secondary visa applicants

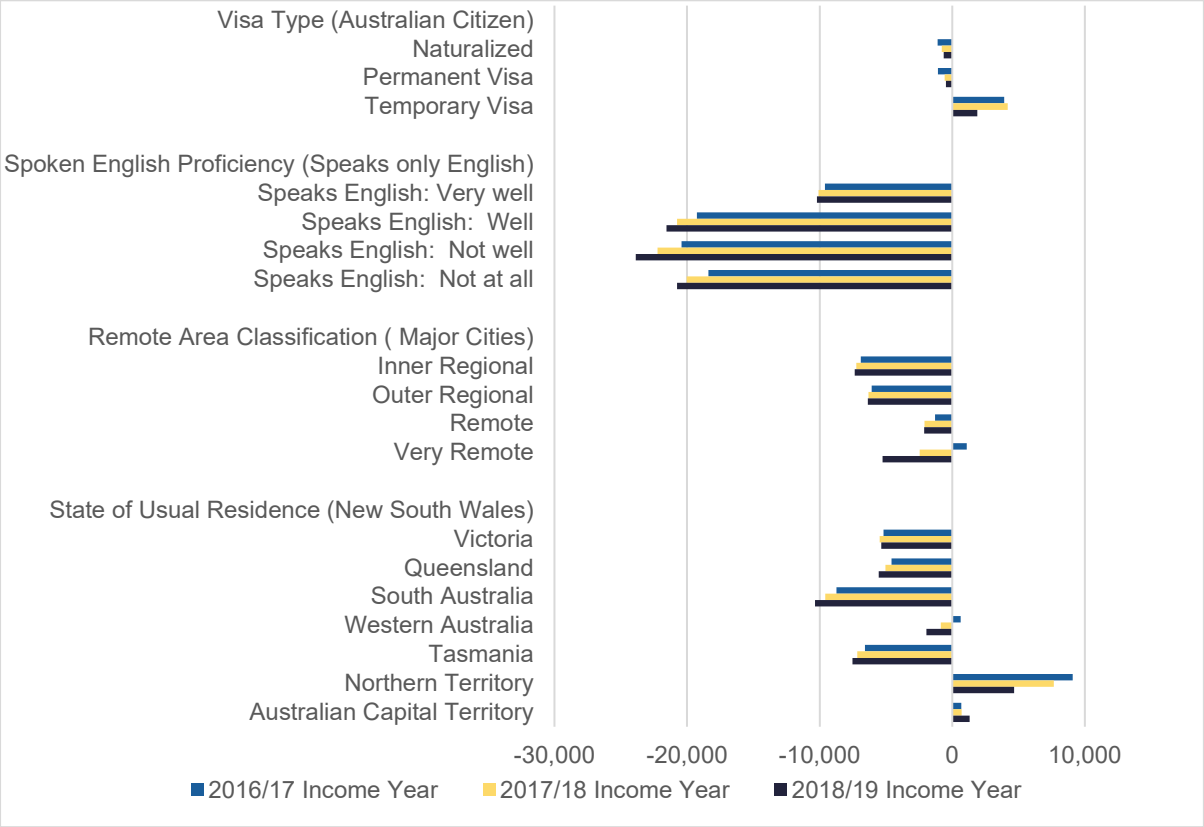
2.4.4 Regression results

The findings reported in this section so far have not controlled for the socio-demographic, educational, occupational or Industry characteristics of migrants and citizens in employment in Australia. Separate analysis of wages and salaries earned in 2016/17, 2017/18 and 2018/19, drawing on ATO data, was undertaken to include those 'control' variables. The regression results for state of usual residence, visa type, and spoken English proficiency are shown in Figure 19, with additional regression results shown in Table 21 in the Appendix.

All differences are statistically significant, which is not surprising given the large number of cases analysis in the regressions (N>2.8million). The regression results show that, all else equal:

- Naturalised Australians and permanent migrants earned less than Australian citizens, whereas temporary migrants earned more than Australian citizens;
- This was true for all three tax years;
- In comparison to other factors, notably sex, education, English proficiency, industry and occupation, the effect of visa status on wages was small.
- For naturalised citizens and permanent visa holders, the negative earnings gap decreased year on year from just over $1,000 to between $479 (permanent visa holders) and $635 (naturalised citizens).
- In contrast, for temporary visa holders, the already positive earnings gap initially increased (from $3,916 to $4,170), before decreasing (to $1,890).

Figure 19: Results of regression of socio-demographics on wages and salaries, 2016/17-2018/19, cross-sectional analysis



Legend: population aged 25-54 years old, primary and secondary visa applicants

Contribution to Research Questions

Research Question	Findings from analysis
RQ 1a: How prevalent is skills matching or mismatching amongst migrants to Australia compared to Australian born workers?	n/a
RQ 1b: How well does the Australian migration system and labour market work to ensure that the skills of temporary and permanent migrants are effectively utilised?	To be addressed in final section.
RQ2: Are there skills matching or mismatching that are associated with visa subclasses, and how long do these take to resolve?	n/a
RQ3: Are there spatial components of skills matching or mismatching? This should include looking at breakdowns such as (a) State and Territories and (b) regional and metropolitan areas, and (c) remoteness classification?	n/a
RQ4: Are there patterns of skills matching or mismatching by other migrant characteristics, such as industry, occupation, country of origin or education?	n/a
RQ5: Are there wage differentials between migrants and Australian born? In what industry sectors / occupations are wages differentials most pronounced? This should include breakdowns by visa type, country of origin, education and occupation.	Nominally, migrants' and naturalised citizens' **median earnings were below those of Australian born citizens at postgraduate degree level, but higher at other levels** and also higher in the top three ANZSCO occupations (major groups: managers, professionals, technicians and trades workers), with fewer differences elsewhere. Temporary visa holders also reported higher earnings as machinery operators and drivers. Migrants most likely earned higher median wages and salaries than Australian citizens when working in **Information, media and telecommunications sector**. After controlling for socio-demographics and other control variables, **migrants on temporary visas reported higher earnings** than all others and did so in each of the three post-2016 Census tax years. Permanent migrants and naturalised citizens, in contrast, earned less than Australian citizens, all else equal.

Legend: n/a – not applicable or available for this section.

3 Conclusions

This study and report addressed several Research Questions, the findings for which were summarised at the end of each relevant section. A summary table is included at the end of this section (Table 9). In these Conclusions, we address the final Research Question 1b:

How well does the Australian migration system and labour market work to ensure that the skills of temporary and permanent migrants are effectively utilised?

Several key patterns emerged when examining the various themes relating to migration and employment outcomes of skilled migrants in Australia. The analysis and observations shed light on the migration outcomes and experiences of three migrant cohorts, temporary visa holders, permanent visa holders, naturalised citizens, and Australian citizens. Using a range of indicators, that include country of birth, visa category, visa subclass, education levels, employment, wage differentials and geography, we outline and discuss the key findings around the level of skills utilisation of skilled migrants in Australia.

Analysis of the data reveals three key findings (secondary applicants; temporary visa holders; visa subclass analysis).

3.1 Secondary applicants

The composition of Australia's skilled migration program is dominated by secondary applicants, as evident from the data presented in Table 8. Over the past decade, secondary applicants have accounted for an average of 53.5 per cent of all permanent and temporary migrants entering Australia. Notably, within this period, an average of 58.1 per cent of secondary applicants were female. However, an analysis of various indicators reveals that secondary applicants face significant challenges and tend to experience lower employment rates compared to other migrant cohorts, including primary applicants, naturalised Australian citizens, and even Australian citizens themselves.

Table 8: Secondary applicants

Year	Female secondary applicants	% female secondary applicants	Male secondary applicants	% male secondary applicants	Secondary applicants total	% secondary applicants	Total primary and secondary applicants
2012–13	37,858	57.4	28,037	42.5	65,923	51.1	128,973
2013–14	38,794	57.9	28,135	42.0	67,015	52.1	128,550
2014–15	40,242	58.9	28,043	41.1	68,292	53.4	127,774
2015–16	39,883	58.8	2,7905	41.1	67,815	52.8	128,550
2016–17	40,094	60.1	26,636	39.9	66,750	54.0	123,567
2017–18	36,523	59.8	24,521	40.2	61,053	55.0	111,099
2018–19	34,606	58.6	24,417	41.4	59,038	53.8	109,713
2019–20	29,571	57.0	22,319	43.0	51,899	54.2	95,843
2020–21	24,907	57.2	18,627	42.8	43,538	54.7	79,620
2021–22	26,649	55.5	21,383	44.5	48,041	53.9	89,063

Source: Department of Home Affairs 2023.

Even when considering the passage of time, employment rates among secondary applicants remain below the average for Australian citizens. This disparity is particularly pronounced for secondary applicants holding temporary visas, as highlighted in Section 2.2. By employing the AUSEI06 index, it becomes apparent that while other migrant cohorts, such as permanent residents, naturalised citizens, and primary applicants, generally exhibit positive scores on this index, secondary applicants, especially those with temporary visas, tend to occupy lower status jobs compared to both Australian citizens and other migrant groups (Sections 2.3.2 and 2.3.3).

Furthermore, regression analysis focusing on average core competencies measured by the NSC (National Skills Classification) reinforces the notion that secondary migrants holding temporary visas often have lower competency scores. It is important to note that this analysis only includes secondary applicants between the ages of 25 and 54, excluding dependents. The findings strongly indicate that Australia's skilled migration program is significantly underutilising the potential of secondary applicants, particularly those on temporary visas, in terms of skills utilisation. Secondary migrants represent a blind spot in Australia's skilled migration program. (Webb 2015). The gendered dimension of skilled migration to Australia further compounds the issue, given that a majority of secondary applicants are female. In order to address this gender inequality and better harness the human capital of all skilled migrants, it is imperative to gain a deeper understanding of the settlement experiences and challenges faced by this specific subgroup of migrants. Moreover, it is critical to also understand how this intersects with Australia's immigration regime (Boucher 2007) if Australia is to better harness the human capital of all skilled migrants. Doing so will assist in ways to promote skills utilisation among skilled secondary migrants and effectively integrate them into the labour market.

3.2 Temporary visa holders

Australia's skilled migration program presents notable challenges in terms of employment outcomes and skills utilization for temporary migrants when compared to other migrant cohorts and Australian citizens. Temporary visa holders score relatively poorly across several indicators when it comes to understanding the level of their skills (mis)match in the Australian labour market.

Analysing the skilled migrant cohorts reveals that the features of migrant selectivity in Australia's skilled migration program allow it to benefit from a highly educated and qualified migrant population encompassing both temporary and permanent categories (Section 2.3.1). However, examining employment rates reveal that while all migrant cohorts had lower employment rates compared to Australian citizens across most education level (see Table 10 in Appendix), temporary migrants had the lowest employment rates. The underutilisation of the skills of temporary migrants is clear as those with Postgraduate degrees and Graduate Diploma/Graduate Certificates experienced the lowest rates of employment which is indicative of an underutilised but highly educated/qualified migrant cohort. This said, temporary migrants with bachelor's degrees and Advanced Diploma/Diploma did also perform better than their permanent counterparts but still lower than naturalised citizens and Australian citizens. Further, temporary migrants holding Certificate 3 and 4 qualifications had employment rates that surpassed all migrant cohorts and Australian citizens. This could suggest that Australia's temporary migration program is positively geared towards those with lower levels of education which could be related to sectors that continue to experience acute labour shortages such as aged care. It is not uncommon for migrants who acquire additional qualifications and to some extent, this could include the additional training that some migrants undertake to acquire locally recognised skilled work or simply to engage in 'survival jobs' (see Tan and Cebulla 2023).

While Australian citizens possessed the lowest educational qualifications, temporary migrants have the highest levels across all occupation groups. Permanent migrants and naturalised citizens display educational qualifications that are closer to those of Australian citizens but still exhibit higher levels. Overall, a consistent trend of overqualification among both permanent and temporary migrants across all occupations is evident with temporary migrants exhibiting the highest levels of education. This is especially so in occupations situated in the lower spectrum such as Labourers, Machinery Operators and Drivers, Sales Workers, Clerical and Administrative Workers and Community and Personal Service Workers (Section 2.3.1) where a far greater proportion of temporary visa holders held Postgraduate degrees compared to all other migrant cohorts and Australian citizens. This underscores the extent to which temporary migrants are overqualified in specific occupations in terms of education.

The overeducation of temporary visa holders becomes further evident when examining specific fields like Engineering, Health, and Management and Commerce. Temporary visa holders consistently demonstrate higher education levels than Australian citizens, albeit to a lesser extent compared to permanent migrants and naturalised citizens. Notably, management and commerce exhibited a substantial percentage of postgraduate degree holders across all migrant cohorts, with a similar pattern, though less pronounced, observed in the health sector for temporary visa holders (Section 2.3.1).

In addition, it becomes apparent that these highly skilled migrants often find themselves working in occupations that require lower competency scores (when considering the NSC's core competency index), compared to Australian citizens, indicating a certain degree of skill mismatch; however as mentioned above, this was particularly stark among temporary migrants who were secondary applicants. Not only do temporary migrants (both primary and secondary applicants) work in occupations associated with lower-competency scores (Figure 11) but they also earn less overall. Although the wage gap is not as significant compared to other migrant cohorts and Australian citizens, when considering education, industry, and occupations, it becomes evident that individuals with postgraduate degrees earn significantly less than Australian citizen counterparts. This was particularly the case among those holding temporary visas (Figure 16) which continues to highlight the underutilisation of this pool of highly educated temporary migrants with postgraduate degrees who experience a significant wage gap. The patterns of wage gaps also exist for temporary migrants across all occupations where those working as Machinery Operators and Drivers experienced the largest gap compared with other migrant cohorts and Australian citizens (Figure 17).

These earnings differences only disappear when all socio-demographic, industry and geographic factors are considered in estimating wages (Figure 19). It is unclear what exactly might be the reason, but it could hint at unobserved differences in skills that increased temporary migrants earnings capacity. The estimation could also be affected by the Temporary Skilled Migration Income Threshold (TSMIT), which sets a minimum market rate of pay ($53,900 in 2016) and might have raised earnings for some temporary migrants above typical levels, especially in lower wage states and territories, such as South Australia (see Cebulla and Whetton 2017).

Overall, these findings nonetheless underscore the issue of overeducation or underutilization of skills among temporary migrants relative to other migrant cohorts. The extent of overqualification among temporary migrants in specific occupations is partly explained by the fact that a significantly larger proportion of temporary visa holders hold Postgraduate degrees compared to other migrant cohorts and Australian citizens. While the literature highlights the struggles of temporary visa holders and how they face greater barriers to employment compared to their permanent counterparts (see Tan et al. 2019), the range of indicators analysed come together and form a picture that underlines how temporary visa holders are not only disproportionately

worse off when it comes to their employment rates and wages, but that they also experience a greater level of skill underutilisation in lower-spectrum occupations (i.e. Labourers, Machinery Operators and Drivers, Sales Workers, Clerical and Administrative Workers, and Community and Personal Service Workers).

3.3 Visa category and subclass analysis

As discussed, Australia is benefiting from a highly educated/qualified migrant cohort across temporary/permanent migrant categories although a measure of skill mismatch emerged with findings suggesting that these highly skilled migrants were found to be working in occupations that require lower NSC competency scores compared to Australian citizens. However, this can play out differently across the visa subclasses.

The fact permanent visa holders tend to experience better employment rates and skills match is further supported by analysis (see Figure 13) where only a handful of permanent visa subclasses were associated with occupations with higher core competency scores. Migrants on the following permanent visa subclasses, Skilled Independent (subclasses 175; 189), *Employer-sponsored* (subclasses 186; 856) and *State/Territory Sponsored Senior Executive* (subclass 856) performed comparatively well with migrants working in occupations with higher competency scores than Australian citizens which is indicative of a higher level of skills match. These findings support existing literature, indicating that employer-sponsored (Hawthorne and To 2014) and permanent visa subclasses (Tan et al. 2019) lead to better employment outcomes.

Conversely, visa subclasses beginning with '4' are associated with markedly lower core competency scores compared with the remaining subclasses. They include visa subclass 496; 489; 487; 485; 476 and 457 (see Figure 13). A common characteristic - aside from visa subclass 457 which is an employer sponsored visa (Temporary Work – Skilled) - shared among these visa subclasses is the fact that they are all temporary, with no links to employment – i.e., *State/Territory Government (or Family*) sponsored visas (subclasses 487; 489; 496) or *Non sponsored – Education former graduate visas* (subclasses 476; 485). Aggregated visa temporary visa subclasses that include additional visa subclass numbers also show that primary applicants on temporary employer sponsored visas were associated with occupations with higher core competencies compared with those on *State/Territory (or Family) sponsored* and *Non sponsored – Education former graduate visas* (Figure 14). This lends further weight to the argument that the overall temporary migration program as a whole delivers poorer outcomes and also highlights the variations that exist within the temporary migrant cohort across visa categories. Interestingly, the fact that *State/Territory sponsored (temporary) visa holders* were associated with lower core competency occupations does warrant a rethink on the role and effectiveness of such visa programs that are critical to regional defined parts of Australia – particularly larger zones such as Tasmania, the Northern Territory and South Australia that are wholly defined as regional for migration purposes.

Table 9: Summary of findings relating to Research Questions

	General overview	Labour market status/employment	Occupational Status	Wages and Salaries
RQ 1a: How prevalent is skills matching or mismatching amongst migrants to Australia compared to Australian born workers?	The analysis reported above did not account for differences in educational achievements between migrants and citizens, and thus yield little immediate insight into any prevalence skills matching or mismatching. At this aggregate level, differences were few, although the **lower median earnings of temporary migrants** should be noted (given otherwise lesser differences in terms of AUSEI06 or NSC scores, and strong representation amongst the top three [high skilled] occupation groups). Moreover, it may be argued that, whilst migrants' employment rates were nominally similar to those of Australian citizens but **could be expected to be higher** given that many migrants were holding a *working* visa.	Continuing the focus on employment rates, the statistics show notably **different experiences of primary and secondary visa applicants**, as well as between migrants categories within these two groups, when compared with Australian citizens. The differential experience was most marked for **temporary visa holders** amongst whom primary applicants recorded the highest employment rate of all (including Australian citizens), whereas secondary applicants recorded the lowest rate.	Migrants had **higher educational qualification** in each of the eight top-level ANZSCO occupational major groups than Australian citizens. Permanent residents and naturalised citizens typically had similar highest educational qualifications, across all occupation major groups, often only a little higher than those of Australian citizens. With few exceptions, **temporary migrants were most highly educated** amongst all migrant populations. After controlling for socio-demographic differences, **permanent visa holders and naturalised citizens** were **more likely to be employed in occupations with higher NSC core competency scores** than Australian citizens. Temporary migrants only held higher core competency occupations if they were primary applicants; secondary applicants tended to work in occupations with lower core competency scores than Australian citizens.	
RQ2: Are there skills matching or mismatching that are associated with visa subclasses, and how long do these take to resolve?	n/a	Employment rates tended to increase with time, measures as the period since last visa change or acquisition of Australian citizenship. The increase typically occurred in the **first one or two years**, and then plateaued. In the case of primary applicants, they moved and then remained above the level of Australian citizens, whereas for temporary migrants they remained below, albeit closing the gap.	Nominally, statistics that considered time since last visa status change showed **consistently higher occupational status** (when compared with Australian citizens) for **naturalised citizens and permanent visa holders**. Temporary visa holders' occupational status decreased from above to below Australian citizen average four to five years after their last visa status change if they were primary applicants. The occupational status of **secondary applicants of temporary visas** always stayed below the Australian citizen average. Controlling a sociodemographic and other characteristics in a regression, NSC core competencies were similar for permanent visa holders (primary applicants only) and Australian citizens. In all other instances, **migrants were employed in occupations with lower competency scores**. These **patterns were sustained in all three tax years** following the 2016 Census and also over the longer period 2010-11-2018/19 (nominal trend data only). Permanent skilled independent, senior executive or employer nomination scheme visas were the only **subclasses** associated with employment in occupations with higher core competency scores. Amongst temporary visa holders, those on **family or state/territory sponsored visas** were typically **employed in lower core competency occupations** than migrants on employer sponsored temporary visas.	
RQ3: Are there spatial components of	n/a	Migrants' employment rates are **noticeably higher** than Australian citizen's employment rates **in very remote** areas (where they are	After controlling for other variables, place of usual residence had a small effect on the core competency scores.	

	General overview	Labour market status/employment	Occupational Status	Wages and Salaries
skills matching or mismatching? This should include looking at breakdowns such as (a) State and Territories and (b) regional and metropolitan areas, and (c) remoteness classification?		also higher than for migrants in other remoteness zones).		
RQ4: Are there patterns of skills matching or mismatching by other migrant characteristics, such as industry, occupation, country of origin or education?	n/a	Employment rates were **lower for migrants of Chinese background** when compared with migrants from the UK or India. They **vary by education** with a marked drop off below the level of Certificate 3 or 4 qualification. This is **similar** for both migrants and citizens. Migrants' and citizens' employment rates more most similar at bachelor and Advanced Degree/Diploma levels.	The three main areas of migrants' qualification were **engineering and related technologies, health, and management and commerce**. Migrants and naturalised citizens were considerably more qualified than Australian in all three of those fields of qualification, albeit somewhat less so in health. Regression analysis shows statistically significant **differences in core competency scores for migrants from different countries of citizenship**.	
RQ5: Are there wage differentials between migrants and Australian born? In what industry sectors / occupations are wages differentials most pronounced? This should include breakdowns by visa type, country of origin, education and occupation.	n/a	n/a	n/a	Nominally, migrants' and naturalised citizens' **median earnings were below those of Australian born citizens at postgraduate degree level, but higher at other levels** and also higher in the top three ANZSCO occupations (major groups: managers, professionals, technicians and trades workers), with fewer differences elsewhere. Temporary visa holders also reported higher earnings as machinery operators and drivers. Migrants most likely earned higher median wages and salaries than Australian citizens when working in **Information, media and telecommunications sector**. After controlling for socio-demographics and other control variables, **migrants on temporary visas reported higher earnings** than all others and did so in each of the three post-2016 Census tax years. Permanent migrants and naturalised citizens, in contrast, earned less than Australian citizens, all else equal.

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Appendix

A.1 Statistical approach

Our statistical approach consists of three steps:

1. Data set creation
2. Descriptive analysis
3. Regression analysis

A.1.1 Data set creation

A cross-agency dataset was created, linking the ABS 2016 Census with Department of Home Affairs (DoHA) visa application data (which covers specified occupation), and DoHA visa granted data. This dataset was also linked to the Australian Tax Office (ATO) data capturing income from wages and salaries, and reported occupation[13] for each income year between 2010/11 and 2018/19.

Due to the transactional nature of visa data, only the most recently granted visa for everyone (prior to Census night 2016) is kept. In circumstances where multiple visas are granted on the same day, only the last visa granted is kept.

A.1.2 Descriptive analysis

Descriptive analysis focussed on cross-tabulating migrant status groups and indicators of interest, which included:

- Occupation
- Industry
- Location (state or territory of usual residence, remoteness)
- Country of origin/citizenship
- Highest educational qualification
- Time (years since last visa status change, tax year).

A.1.2 Regression analysis

To model employment likelihood, a binomial (logistic) regression model was used. Logistic regression models the probability of an event taking place. The binary dependent variable used is employment status where 1 indicates that an individual is employed (based on labour force status reported in the census of employed full-time, employed part-time, and employed but away from work) and 0 if an individual is not employed (based on labour force status reported in the census of unemployed looking for full-time work, unemployed looking for part time work, and not in the labour force). This regression was carried out on two samples – one with all Australian citizens, naturalised citizens, and all visa holders, and the other excluding Australian citizens. This split was carried out to identify how employment likelihood changed depending on how long visa holders had been in Australia[14].

[13] ATO reported occupation is used to identify changes in the NSC skill level of a workers reported occupation over time. However, it should be noted that occupational mobility in Australian tax data is lower than in the nationally representative HILDA data.

[14] As Australian Citizens do not have a date of visa granted they cannot be included in the analysis.

The regression analysis reveals the “all else equal” impact from a change in an independent (right hand side) variable on the dependent variable (left hand side). For a logistic regression, the coefficient measures the change in the log-odds of the dependent variable. Given that the independent variables except for age and time are categorical variables, the regression quantifies changes to log-odds compared to the base level for each category.

Regression analysis for occupational status and wages uses ordinary least squares regression.

A.2 Tabular output

Table 10: Employment rates by education level, Census 2016 (in %)

VISA TYPE	Postgraduate degree	Graduate Diploma/Graduate Certificate	Bachelor's degree	Advanced Diploma/Diploma	Certificate 3/4	Year 10+	Certificate 1/2	Year 9-
Australian Citizen	91.1	91.1	89.1	84.7	84.9	72.9	49.8	48.5
Naturalised	87.2	87.9	85.2	83.9	83.6	70.3	65.3	48.9
Permanent Visa	82.8	85.7	82.2	81.0	87.1	72.1	51.3	62.8
Temporary Visa	81.6	81.7	84.3	83.9	89.3	67.1	28.6	39.6

Legend: population aged 25-54 years old, primary and secondary visa applicants

Table 11: Employment rates, by time since latest visa/citizenship award, China, Census 2016 (in %)

VISA TYPE	<1 year	1-2 years	2-3 years	3-4 years	4-5 years	5+ years
Primary or secondary applicants						
Naturalised Citizen	*	77.2	81.0	81.5	81.0	82.6
Permanent Visa	68.6	74.4	76.5	78.7	78.1	75.9
Temporary Visa	63.4	75.6	82.8	81.3	*	*
Primary applicants only						
Naturalised Citizen	*	74.9	82.3	82.7	83.2	85.6
Permanent Visa	70.6	77.4	79.6	81.5	81.2	79.6
Temporary Visa	65.8	81.2	95.2	90.6	*	*
Secondary applicants only						
Naturalised	*	*	71.7	75.2	71.3	71.1
Permanent Visa	52.7	58.5	62.2	67.8	65.7	63.8
Temporary Visa	52.9	54.4	50.6	58.2	*	*

Legend: population aged 25-54 years old from China. * indicates cell values do not meet ABS confidentiality threshold and cannot be reported.

Table 12: Employment rates, by time since latest visa/citizenship award – UK, Census 2016 (in %)

VISA TYPE	<1 year	1-2 years	2-3 years	3-4 years	4-5 years	5+ years
Primary or secondary applicants						
Naturalised Citizen	*	92.3	90.9	91.1	91.1	89.7
Permanent Visa	89.8	91.3	90.6	90.3	90.2	87.7
Temporary Visa	89.7	92.6	92.6	91.6	*	*
Primary applicants only						
Naturalised Citizen	*	93.6	93.3	93.4	92.8	92.4
Permanent Visa	91.3	92.6	92.7	91.6	91.9	89.2
Temporary Visa	97.8	98.8	98.3	98.3	*	*
Secondary applicants only						
Naturalised	*	82.4	81.2	81.4	85.0	84.2
Permanent Visa	79.7	84.1	80.9	84.2	83.1	81.9
Temporary Visa	67.5	75.9	76.9	71.0	*	*

Legend: population aged 25-54 years old from the UK. * indicates cell values do not meet ABS confidentiality threshold and cannot be reported.

Table 13: Employment rates, by time since latest visa/citizenship award – India, Census 2019 (in %)

VISA TYPE	<1 year	1-2 years	2-3 years	3-4 years	4-5 years	5+ years
Primary or secondary applicants						
Naturalised Citizen	80.6	88.1	88.2	88.0	88.9	88.5
Permanent Visa	74.2	78.5	80.5	80.7	81.4	78.4
Temporary Visa	80.3	83.2	84.1	84.5	*	*
Primary applicants only						
Naturalised Citizen	80.6	89.4	90.1	90.0	91.4	92.6
Permanent Visa	82.0	87.0	89.3	88.9	89.9	86.1
Temporary Visa	92.6	94.8	94.4	92.6	*	*
Secondary applicants only						
Naturalised	*	82.9	81.0	81.9	81.5	78.8
Permanent Visa	54.0	62.2	65.4	68.0	67.2	65.8
Temporary Visa	52.1	58.9	60.4	62.9	*	*

Legend: population aged 25-54 years old from India. * indicates cell values do not meet ABS confidentiality threshold and cannot be reported.

Table 14: Regression analysis results (coefficients) of core competencies of occupations, by migrant status

	2016/17 Income Year		2017/18 Income Year		2018/19 Income Year	
	estimate	p.value	estimate	p.value	estimate	
Intercept	5.47	***	5.69	***	5.86	***
Visa Type / Primary Applicant Flag (Australian Citizen)						
Naturalised / Secondary Applicant	-0.23	***	-0.21	***	-0.20	***
Naturalised / Primary Applicant	-0.07	***	-0.07	***	-0.06	***
Permanent Visa / Secondary Applicant	-0.20	***	-0.19	***	-0.18	***
Permanent Visa / Primary Applicant	0.00		0.00		0.00	
Temporary Visa / Secondary Applicant	-0.43	***	-0.41	***	-0.38	***
Temporary Visa / Primary Applicant	-0.12	***	-0.11	***	-0.11	***
Wage and Salary in 2016/17	0.00	***	0.00	***	0.00	***
Industry of Employment (Accommodation and Food Services)						
Administrative and Support Services	0.05	***	0.04	***	0.03	***
Agriculture, Forestry and Fishing	-0.16	***	-0.17	***	-0.18	***
Arts and Recreation Services	0.02	***	0.00		-0.01	**
Construction	0.07	***	0.05	***	0.03	***
Education and Training	0.39	***	0.36	***	0.33	***
Electricity, Gas, Water and Waste Services	0.18	***	0.15	***	0.14	***
Financial and Insurance Services	0.22	***	0.20	***	0.18	***
Health Care and Social Assistance	0.21	***	0.18	***	0.16	***
Information Media and Telecommunications	0.30	***	0.27	***	0.25	***
Manufacturing	0.00		-0.02	***	-0.03	***
Mining	-0.11	***	-0.14	***	-0.15	***
Other Services	0.03	***	0.01	***	0.00	
Professional, Scientific and Technical Services	0.40	***	0.37	***	0.35	***
Public Administration and Safety	0.36	***	0.33	***	0.31	***
Rental, Hiring and Real Estate Services	0.36	***	0.33	***	0.30	***
Retail Trade	0.06	***	0.04	***	0.03	***
Transport, Postal and Warehousing	-0.14	***	-0.16	***	-0.17	***
Wholesale Trade	0.18	***	0.16	***	0.15	***
Lived in Australia 1 year prior to Census	-0.01	***	-0.01	***	-0.02	***
Lived in Australia 5 years prior to Census	-0.02	***	-0.03	***	-0.03	***
Non-school qualification: field of study (Natural and Physical Sciences)						
Information Technology	0.02	***	0.02	***	0.02	***
Engineering and Related Technology	-0.09	***	-0.10	***	-0.10	***
Architecture and Building	-0.18	***	-0.18	***	-0.18	***
Agriculture, Environmental and Related Studies	-0.40	***	-0.40	***	-0.40	***
Health	0.12	***	0.11	***	0.11	***
Education	-0.06	***	-0.06	***	-0.06	***
Management and Commerce	-0.02	***	-0.03	***	-0.03	***
Society and Culture	-0.09		-0.09	***	-0.09	***
Creative Arts	-0.23	***	-0.23	***	-0.22	***

Food, Hospitality and Personal Services	-0.15	***	-0.15	***	-0.16	***
Mixed Field Programmes	0.01		0.01		0.06	**
Highest Educational Attainment (Postgraduate Degree)						
Grad Diploma/Grad Certificate	-0.08	***	-0.09	***	-0.09	***
Bachelor's degree	-0.07	***	-0.07	***	-0.08	***
Advanced Diploma/Diploma	-0.38	***	-0.38	***	-0.38	***
Certificate level 3 or 4	-0.77	***	-0.77	***	-0.78	***
Year 10 or above	-0.68	***	-0.69	***	-0.70	***
Certificate level 1 or 2	-1.06	***	-1.06	***	-1.09	***
Spoken English Proficiency (Speaks only English)						
Speaks English: Very well	-0.08	***	-0.08	***	-0.08	***
Speaks English: Well	-0.31	***	-0.31	***	-0.32	***
Speaks English: Not well	-0.40	***	-0.41	***	-0.42	***
Speaks English: Not at all	-0.25	***	-0.25	***	-0.24	***
State of Usual Residence (New South Wales)						
Victoria	-0.01	***	0.00	***	0.00	***
Queensland	-0.02	***	-0.02	***	-0.02	***
South Australia	-0.02	***	-0.02	***	-0.02	***
Western Australia	-0.01	***	-0.01	***	-0.02	***
Tasmania	-0.02	***	-0.02	***	-0.02	***
Northern Territory	-0.01	**	-0.01		0.00	
Australian Capital Territory	0.12	***	0.12	***	0.13	***
Labour Force Status (Employed full-time)						
Employed part-time	-0.04	***	-0.04	***	-0.04	***
Employed away from work	0.21	***	0.19	***	0.16	***
Sex	0.09	***	0.09	***	0.09	***
Hours Worked (2016)	0.01	***	0.01	***	0.01	***
Hours Worked2 (2016)	0.00	***	0.00	***	0.00	***
Age (2016)	0.03	***	0.02	***	0.02	***
Age2	0.00	***	0.00	***	0.00	***

Legend: population aged 25-54 years old, primary and secondary visa applicants

Table 15: Regression analysis results (coefficients) of core competencies of occupations, by visa sub-class

	2016/17 Income Year		2017/18 Income Year		2018/19 Income Year	
	Estimate	p.value	Estimate	p.value	Estimate	p.value
(Intercept)	5.61	***	5.79	***	5.94	***
Visa Subclass (Base = Australian citizen)						
050	-0.53	***	-0.52	***	-0.57	***
119	-0.21	***	-0.20	***	-0.20	***
120	0.01		0.03		0.04	
121	-0.02		-0.03		-0.03	.
136	-0.13	***	-0.13	***	-0.12	***
137	-0.15	***	-0.15	***	-0.12	**
138	-0.24	***	-0.22	***	-0.20	***
139	-0.38	***	-0.38	***	-0.36	***
155	-0.02	***	-0.02	***	-0.02	***
164	0.67	***	0.65	***	0.64	***
175	0.03	***	0.04	***	0.04	***
176	-0.05	***	-0.04	***	-0.03	***
186	0.07	***	0.06	***	0.06	***
187	-0.17	***	-0.17	***	-0.17	***
189	0.02	***	0.03	***	0.04	***
190	-0.13	***	-0.11	***	-0.10	***
457	-0.03	***	-0.04	***	-0.05	***
476	-0.20	***	-0.13	**	-0.09	.
485	-0.56	***	-0.47	***	-0.42	***
487	-0.63	***	-0.66	***	-0.69	***
489	-0.61	***	-0.55	***	-0.48	***
496	-0.83	***	-0.76	***	-0.81	***
855	-0.10	*	-0.12	**	-0.15	***
856	0.02	***	0.02	***	0.02	***
857	-0.16	***	-0.15	***	-0.16	***
858	-0.22	**	-0.16	.	-0.18	*
880	-0.31	***	-0.30	***	-0.29	***
881	-0.25	***	-0.26	***	-0.25	***
885	-0.21	***	-0.20	***	-0.19	***
886	-0.24	***	-0.23	***	-0.23	***
887	-0.42	***	-0.39	***	-0.37	***
First year tax return completed (Base = 2010/11)						
2011/12	-0.05	***	-0.05	***	-0.05	***
2012/13	-0.06	***	-0.06	***	-0.06	***
2013/14	-0.07	***	-0.07	***	-0.06	***
2014/15	-0.05	***	-0.05	***	-0.05	***
2015/16	-0.04	***	-0.04	***	-0.04	***
2016/17	-0.03	***	-0.03	***	-0.04	***
Lived in Australia 1 Year Ago	-0.01	***	-0.01	***	-0.02	***

Lived in Australia 5 Years Ago	-0.04	***	-0.04	***	-0.05	***
Non-school qualification: field of study (Base = Natural and Physical Sciences)						
Information Technology	0.08	***	0.08	***	0.08	***
Engineering and Related Technology	-0.12	***	-0.12	***	-0.13	***
Architecture and Building	-0.19	***	-0.19	***	-0.19	***
Agriculture, Environmental and Related Studies	-0.45	***	-0.45	***	-0.45	***
Health	0.12	***	0.11	***	0.10	***
Education	0.04	***	0.03	***	0.03	***
Management and Commerce	-0.01	*	-0.01	*	-0.01	**
Society and Culture	-0.05	***	-0.05	***	-0.05	***
Creative Arts	-0.24	***	-0.24	***	-0.24	***
Food, Hospitality and Personal Services	-0.21	***	-0.21	***	-0.21	***
Mixed Field Programmes	0.04		0.04		0.08	**
Highest Education Attainment (Base = Postgraduate Degree)						
Grad Diploma/Grad Certificate	-0.13	***	-0.13	***	-0.13	***
Bachelor's degree	-0.13	***	-0.13	***	-0.13	***
Advanced Diploma/Diploma	-0.52	***	-0.51	***	-0.51	***
Certificate level 3 or 4	-0.97	***	-0.97	***	-0.97	***
Year 10 or above	-0.89	***	-0.89	***	-0.89	***
Certificate level 1 or 2	-1.29	***	-1.28	***	-1.30	***
Spoken English Proficiency (Base = Speaks only English)						
Uses other language and speaks English: Very well	-0.11	***	-0.11	***	-0.11	***
Uses other language and speaks English: Well	-0.39	***	-0.39	***	-0.39	***
Uses other language and speaks English: Not well	-0.52	***	-0.52	***	-0.53	***
Uses other language and speaks English: Not at all	-0.32	***	-0.32	***	-0.31	***
State of Usual Residence (Base = New South Wales)						
Victoria	-0.02	***	-0.02	***	-0.02	***
Queensland	-0.03	***	-0.03	***	-0.03	***
South Australia	-0.04	***	-0.03	***	-0.03	***
Western Australia	-0.02	***	-0.02	***	-0.02	***
Tasmania	-0.04	***	-0.05	***	-0.05	***
Northern Territory	0.03	***	0.03	***	0.03	***
Australian Capital Territory	0.18	***	0.18	***	0.19	***
Labour Force Status (Base = Employed full-time)						
Employed part-time	-0.06	***	-0.06	***	-0.06	***
Employed away from work	0.30	***	0.28	***	0.25	***
Sex	0.07	***	0.07	***	0.07	***
Hours worked	0.01	***	0.01	***	0.01	***
Hours worked2	0.00	***	0.00	***	0.00	***
Age	0.04	***	0.03	***	0.03	***
Age2	0.00	***	0.00	***	0.00	***

Legend: population aged 25-54 years old, primary and secondary visa applicants

Table 16: Results of regression of socio-demographics on core competencies, by aggregated temporary visa subclass

	Estimate	p value
(Intercept)	7.33	***
Temporary Visa Subclass Category (Base group = Employer Sponsored)		
Family/State/Territory Government Sponsored	-0.60	***
Not sponsored - Education	-0.50	***
Highest Education Attainment (Base = Postgraduate Degree)		
Grad Diploma/Grad Certificate	-0.09	***
Bachelor's degree	-0.21	***
Advanced Diploma/Diploma	-0.61	***
Certificate level 3 or 4	-1.09	***
Year 10 or above	-0.74	***
Certificate level 1 or 2	-0.75	**
Spoken English Proficiency (Base = Speaks only English)		
Uses other language and speaks English: Very well	-0.16	***
Uses other language and speaks English: Well	-0.35	***
Uses other language and speaks English: Not well	-0.44	***
Uses other language and speaks English: Not at all	-0.23	*
State of Usual Residence (Base = New South Wales)		
Victoria	-0.05	***
Queensland	-0.07	***
South Australia	-0.16	***
Western Australia	-0.14	***
Tasmania	-0.14	***
Northern Territory	-0.08	***
Australian Capital Territory	-0.07	**
Labour Force Status (Base = Employed full-time)		
Employed part-time	-0.37	***
Employed away from work	0.19	***
Sex	0.03	***
Hours Worked	0.01	***
Hours Worked^2	0.00	**
Age	-0.04	***
Age^2	0.00	***
In Australia 1 Year Ago	-0.11	***
In Australia 5 Years Ago	-0.11	***
Non-school qualification: field of study (Base = Natural and Physical Sciences)		
Information Technology	-0.03	*
Engineering and Related Technology	-0.07	***
Architecture and Building	-0.21	***
Agriculture, Environmental and Related Studies	-0.57	***
Health	0.12	***
Education	-0.33	***
Management and Commerce	-0.12	***
Society and Culture	-0.13	***
Creative Arts	-0.21	***
Food, Hospitality and Personal Services	-0.29	***
Mixed Field Programmes	-0.01	

Legend: population aged 25-54 years old, primary and secondary visa applicants.

Table 17: Regression analysis results (coefficients) for average core competency, by migrant country of citizenship, Census 2016

	Estimate	p.value
(Intercept)	5.97	***
Country of Citizenship (Base Group = India)		
All Others	0.17	***
Indonesia	0.06	***
Ireland	0.20	***
Japan	0.16	***
Malaysia	0.27	***
Nepal	-0.11	***
Philippines	-0.12	***
China	0.14	***
Korea	0.13	***
United Kingdom	0.26	***
Highest Education Attainment (Base = Postgraduate Degree)		
Grad Diploma/Grad Certificate	-0.03	***
Bachelor's degree	-0.10	***
Advanced Diploma/Diploma	-0.42	***
Certificate level 3 or 4	-0.79	***
Year 10 or above	-0.59	***
Certificate level 1 or 2	-0.97	***
Spoken English Proficiency (Base = Speaks only English)		
Uses other language and speaks English: Very well	-0.08	***
Uses other language and speaks English: Well	-0.31	***
Uses other language and speaks English: Not well	-0.47	***
Uses other language and speaks English: Not at all	-0.21	***
Visa Type (Base = Naturalised secondary applicant)		
Naturalised Primary Applicant	0.12	***
Permanent Secondary Applicant	-0.02	**
Permanent Primary Applicant	0.14	***
Temporary Secondary Applicant	-0.21	***
Temporary Primary Applicant	0.08	***
State of Usual Residence (Base = New South Wales)		
Victoria	-0.03	***
Queensland	-0.03	***
South Australia	-0.16	***
Western Australia	-0.10	***
Tasmania	0.01	
Northern Territory	-0.07	***
Australian Capital Territory	-0.05	***
Industry of Employment (Base = Accommodation and Food Services)		
Administrative and Support Services	-0.19	***
Agriculture, Forestry and Fishing	-0.25	***
Arts and Recreation Services	-0.04	***
Construction	0.04	***
Education and Training	0.46	***
Electricity, Gas, Water and Waste Services	0.39	***
Financial and Insurance Services	0.42	***
Health Care and Social Assistance	0.16	***
Information Media and Telecommunications	0.44	***
Manufacturing	0.01	
Mining	0.37	***
Other Services	-0.10	***
Professional, Scientific and Technical Services	0.56	***
Public Administration and Safety	0.33	***
Rental, Hiring and Real Estate Services	0.42	***
Retail Trade	0.03	***
Transport, Postal and Warehousing	-0.45	***

Wholesale Trade	0.24	***
Non-school qualification: field of study (Base = Natural and Physical Sciences)		
Information Technology	-0.03	***
Engineering and Related Technology	0.00	
Architecture and Building	-0.17	***
Agriculture, Environmental and Related Studies	-0.31	***
Health	0.36	***
Education	-0.18	***
Management and Commerce	-0.11	***
Society and Culture	-0.10	***
Creative Arts	-0.20	***
Food, Hospitality and Personal Services	-0.09	***
Mixed Field Programmes	0.04	
Labour Force Status (Base = Employed full time)		
Employed part time	-0.26	***
Employed, away from work	0.06	***
Remote Area Classification (Base = Major Cities)		
Inner Regional	-0.07	***
Outer Regional	-0.03	***
Remote	0.00	
Very Remote	-0.06	**
Hours Worked	0.00	***
Age	0.00	***
Sex = Female	0.05	***
In Australia 1 year ago	-0.05	***
In Australia 5 years ago	-0.05	***

Legend: population aged 25-54 years old, primary and secondary visa applicants.

Table 18: Wages and salaries (median), by highest educational qualification and migrant status, Census 2016 ($)

VISA TYPE	Postgrad	Grad Dip/Grad Cert	Bachelor	Advanced Dip/Dip	Cert 3/4	Year 10+	Cert 1/2	Year 9-
Australian Citizen	78,702	71,481	60,934	58,929	59,332	53,759	41,374	50,487
Naturalised	65,490	67,212	63,276	57,105	61,269	53,923	34,859	38,599
Permanent Visa	63,884	71,292	64,451	56,190	65,078	54,147	*	41,361
Temporary Visa	49,923	77,237	58,332	55,692	60,952	55,000	*	46,705

Legend: population aged 25-54 years old, primary and secondary visa applicants.

Table 19: Wages and salaries (median). by occupation and migrant status, Census 2016 ($)

Occupation	Australian Citizens	Naturalised Citizens	Permanent Visa	Temporary Visa
Managers	82,740	86,666	81,684	72,667
Professionals	74,709	85,624	84,751	80,160
Technicians and Trades Workers	61,409	64,105	66,283	57,716
Community and Personal Service Workers	43,653	42,111	40,492	44,992
Clerical and Administrative Workers	51,421	55,058	53,279	53,496
Sales Workers	52,695	48,955	51,508	49,301
Machinery Operators and Drivers	63,442	57,373	57,983	46,379
Labourers	44,120	42,925	41,409	43,416

Legend: population aged 25-54 years old, primary and secondary visa applicants

Table 20: Wages and salaries (median), by industry and migrant status, Census 2016 ($)

Industry	Australian Citizens	Naturalised Citizens	Permanent Visa	Temporary Visa
Accommodation and Food Services	40,177	40,411	38,544	50,845
Administrative and Support Services	48,310	51,808	48,290	50,100
Agriculture, Forestry and Fishing	50,659	46,741	49,140	55,230
Arts and Recreation Services	49,031	56,098	54,838	57,430
Construction	68,721	75,460	72,262	68,238
Education and Training	49,708	58,916	60,431	59,343
Electricity, Gas, Water and Waste Services	90,446	99,979	99,407	105,591
Financial and Insurance Services	75,363	70,828	79,621	82,476
Health Care and Social Assistance	45,673	47,956	44,908	49,557
Information Media and Telecommunications	58,566	69,489	91,131	80,769
Manufacturing	65,618	63,446	65,921	57,416
Mining	123,128	124,923	136,439	135,572
Other Services	44,851	45,474	47,256	53,471
Professional, Scientific and Technical Services	60,261	69,449	70,984	66,490
Public Administration and Safety	75,023	73,440	77,533	57,504
Rental, Hiring and Real Estate Services	59,842	61,133	56,575	55,696
Retail Trade	44,476	48,321	46,794	48,830
Transport, Postal and Warehousing	67,448	59,094	57,884	52,503
Wholesale Trade	60,637	60,099	62,585	61,615

Legend: population aged 25-54 years old, primary and secondary visa applicants

Table 21: Results of regression of socio-demographics on wages and salaries, 2016/17-2018/19, cross-sectional analysis

	2016/17		2017/18		2018/19	
	estimate	p.value	estimate	p.value	estimate	p.value
Intercept	-25,682	***	-14,842	***	-12,792	***
Sex (Base = Male)						
Sex = Female	-18,453	***	-20,992	***	-22,046	***
Age	4,390	***	4,436	***	4,762	***
Age2	-45	***	-46	***	-52	***
Hours worked	993	***	887	***	848	***
Highest Education Attainment (Base = Postgraduate Degree)						
Grad Diploma/Grad Certificate	-9,740	***	-10,862	***	-11,241	***
Bachelor's degree	-9,597	***	-10,619	***	-10,941	***
Advanced Diploma/Diploma	-24,318	***	-26,541	***	-27,786	***
Certificate level 3 or 4	-30,645	***	-33,320	***	-34,976	***
Year 10 or above	-30,844	***	-33,659	***	-35,272	***
Certificate level 1 or 2	-32,569	***	-35,496	***	-37,313	***
Remote Area Classification (Base = Major Cities)						
Inner Regional	-6,892	***	-7,231	***	-7,363	***
Outer Regional	-6,084	***	-6,314	***	-6,360	***
Remote	-1,304	***	-2,083	***	-2,129	***
Very Remote	1,097	***	-2,445	***	-5,255	***
Industry of Employment (Base = Accommodation and Food Services)						
Administrative and Support Services	12,231	***	13,210	***	13,984	***
Agriculture, Forestry and Fishing	-41		943		1,115	***
Arts and Recreation Services	8,531	***	8,717	***	8,556	***
Construction	23,642	***	25,720	***	25,895	***
Education and Training	11,626	***	11,538	***	11,568	***
Electricity, Gas, Water and Waste Services	44,650	***	45,786	***	46,400	***
Financial and Insurance Services	47,278	***	48,861	***	48,515	***
Health Care and Social Assistance	12,698	***	12,478	***	12,734	***
Information Media and Telecommunications	29,143	***	29,556	***	28,568	***
Manufacturing	22,413	***	22,541	***	22,438	***
Mining	69,958	***	72,099	***	73,637	***
Other Services	4,168	***	4,654	***	4,756	***
Professional, Scientific and Technical Services	20,337	***	21,972	***	22,565	***
Public Administration and Safety	24,554	***	24,498	***	24,692	***
Rental, Hiring and Real Estate Services	26,072	***	27,557	***	25,712	***
Retail Trade	7,585	***	7,316	***	7,055	***
Transport, Postal and Warehousing	28,817	***	29,759	***	30,336	***
Wholesale Trade	23,543	***	24,356	***	24,527	***
Occupation of Employment (Base = Managers)						
Professionals	-16,014	***	-16,094	***	-15,785	***
Technicians and Trade Workers	-25,130	***	-26,348	***	-27,102	***
Community and Personal Service Workers	-27,425	***	-27,778	***	-27,907	***
Clerical and Administrative Workers	-31,118	***	-32,100	***	-32,228	***
Sales Workers	-25,971	***	-26,566	***	-27,070	***
Machinery Operators and Drivers	-38,143	***	-38,968	***	-40,022	***
Labourers	-33,620	***	-34,305	***	-35,100	***
Spoken English Proficiency (Base = Speaks only English)						
Uses other language and speaks English: Very	-9,601	***	-10,089	***	-10,211	***
Uses other language and speaks English: Well	-19,267	***	-20,746	***	-21,555	***
Uses other language and speaks English: Not	-20,415	***	-22,223	***	-23,857	***
Uses other language and speaks English: Not	-18,394	***	-20,023	***	-20,765	***
State of Usual Residence (Base = New South Wales)						
Victoria	-5,175	***	-5,463	***	-5,360	***
Queensland	-4,585	***	-5,036	***	-5,538	***
South Australia	-8,728	***	-9,579	***	-10,354	***
Western Australia	642	***	-863	***	-1,945	***

Tasmania	-6,574	***	-7,174	***	-7,534	***
Northern Territory	9,083	***	7,670	***	4,661	***
Australian Capital Territory	677	***	698	***	1,307	***
Non-school qualification: field of study (Base = Natural and Physical Sciences)						
Information Technology	2,573	***	2,689	***	3,134	***
Engineering and Related Technology	10,191	***	11,164	***	11,751	***
Architecture and Building	-1,810	***	-854	***	-1,360	***
Agriculture, Environmental and Related Studies	-5,368	***	-5,437	***	-5,674	***
Health	9,059	***	8,944	***	8,516	***
Education	-2,577	***	-2,670	***	-3,382	***
Management and Commerce	5,947	***	6,357	***	6,223	***
Society and Culture	1,651	***	2,031	***	1,881	***
Creative Arts	-10,808	***	-11,555	***	-12,530	***
Food, Hospitality and Personal Services	2,718	***	2,682	***	2,104	***
Mixed Field Programmes	3,449	***	3,309	**	3,203	**
Visa Type (Base = Australian Citizen)						
Naturalised	-1,095	***	-780	***	-635	***
Permanent Visa	-1,081	***	-568	***	-479	***
Temporary Visa	3,916	***	4,170	***	1,890	***

Legend: population aged 25-54 years old, primary and secondary visa applicants

A.3 Graphical output

Figure 20: Indian Migrants and citizens' mean weighted educational qualification score by occupation, Census 2016

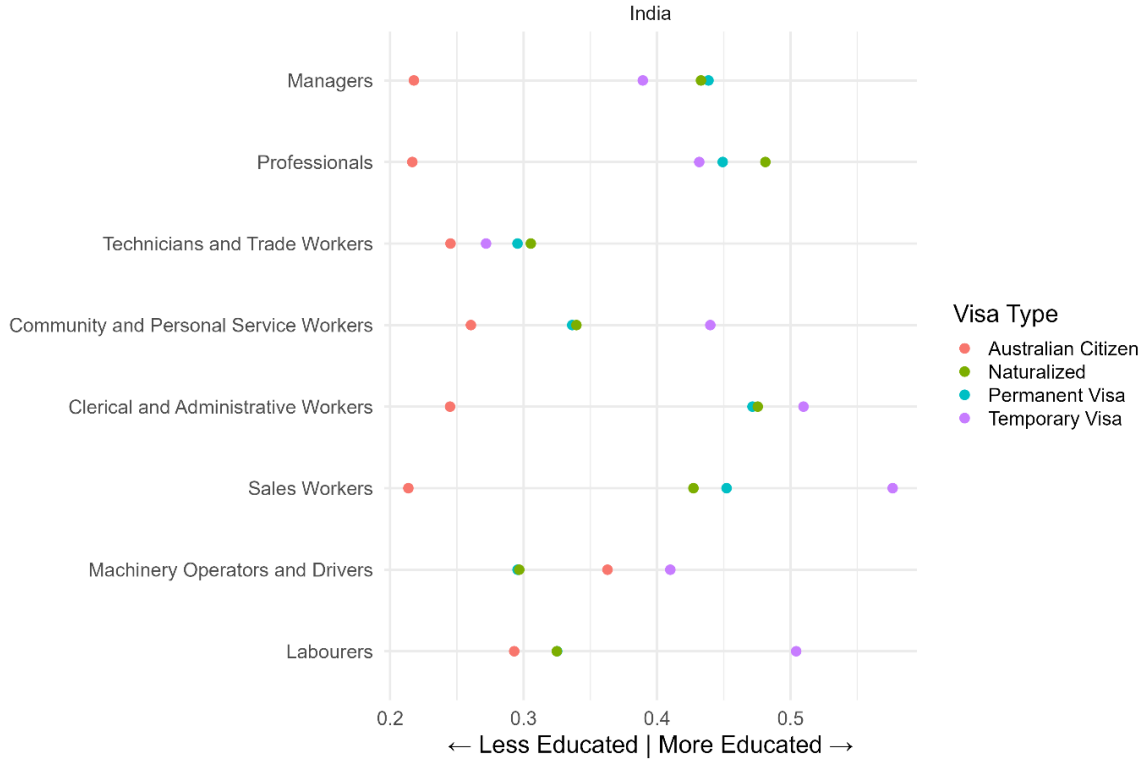


Figure 21: Malaysian Migrants and Australian citizens' mean weighted educational qualification score by occupation, Census 2016

Figure 22: Philippines Migrants and Australian citizens' mean weighted educational qualification score by occupation, Census 2016

Figure 23: China Migrants and Australian citizens' mean weighted educational qualification score by occupation, Census 2016

Figure 24: UK Migrants and Australian citizens' mean weighted educational qualification score by occupation, Census 2016

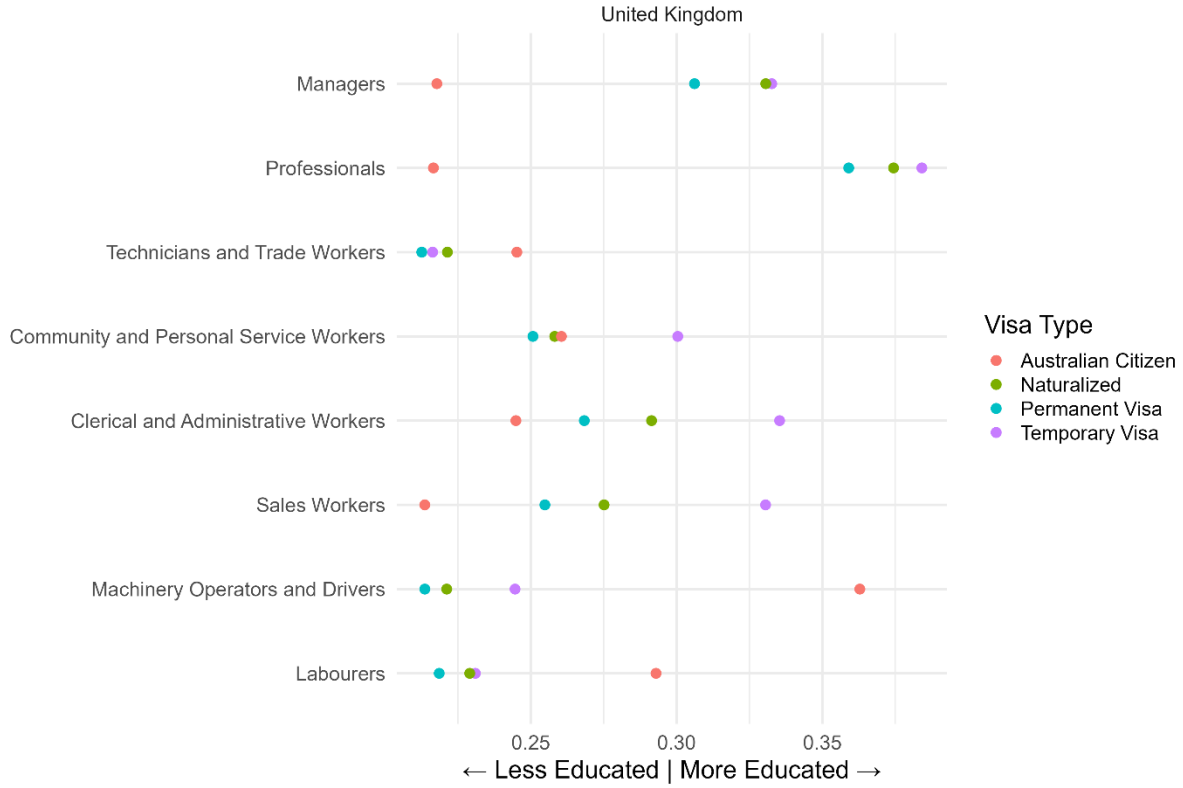


Figure 25: Migrants and Australian citizen's mean weighted educational qualification score by occupation, New South Wales, Census 2016

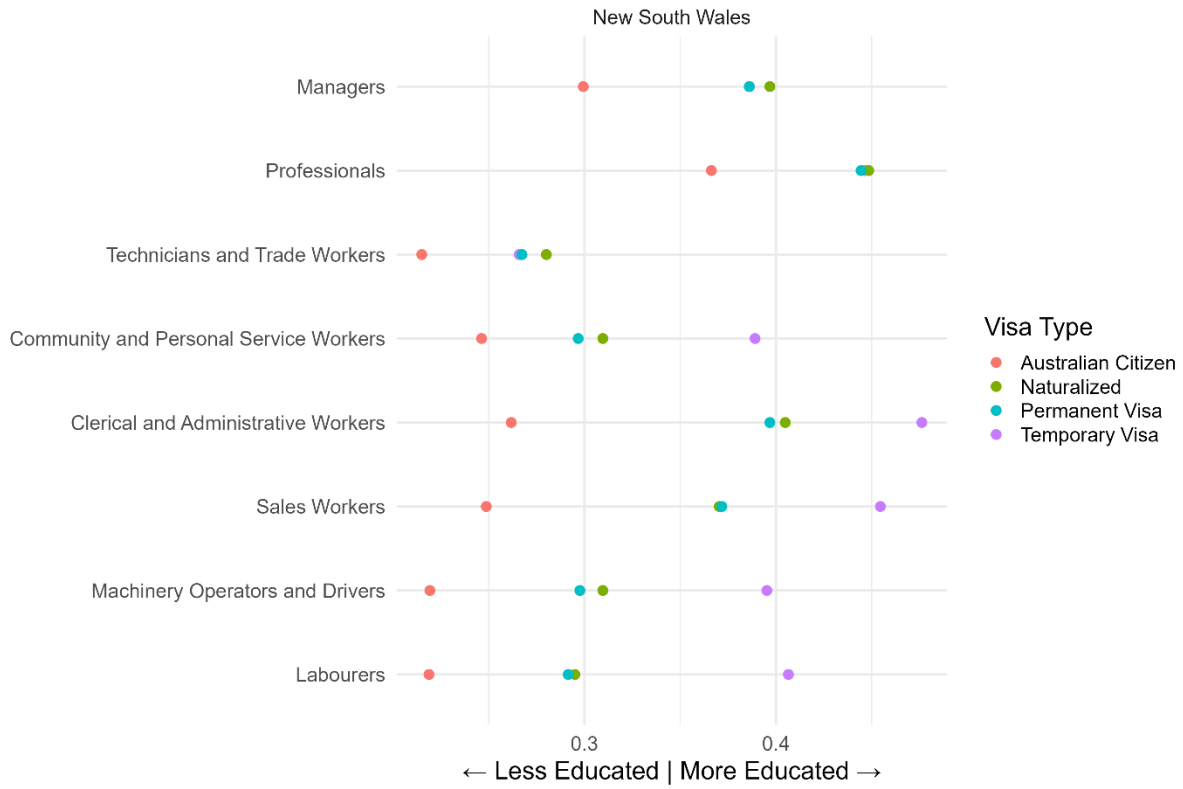


Figure 26: Migrants and Australian citizen's mean weighted educational qualification score by occupation, Victoria, Census 2016

Figure 27: Migrants and Australian citizen's mean weighted educational qualification score by occupation, Queensland, Census 2016

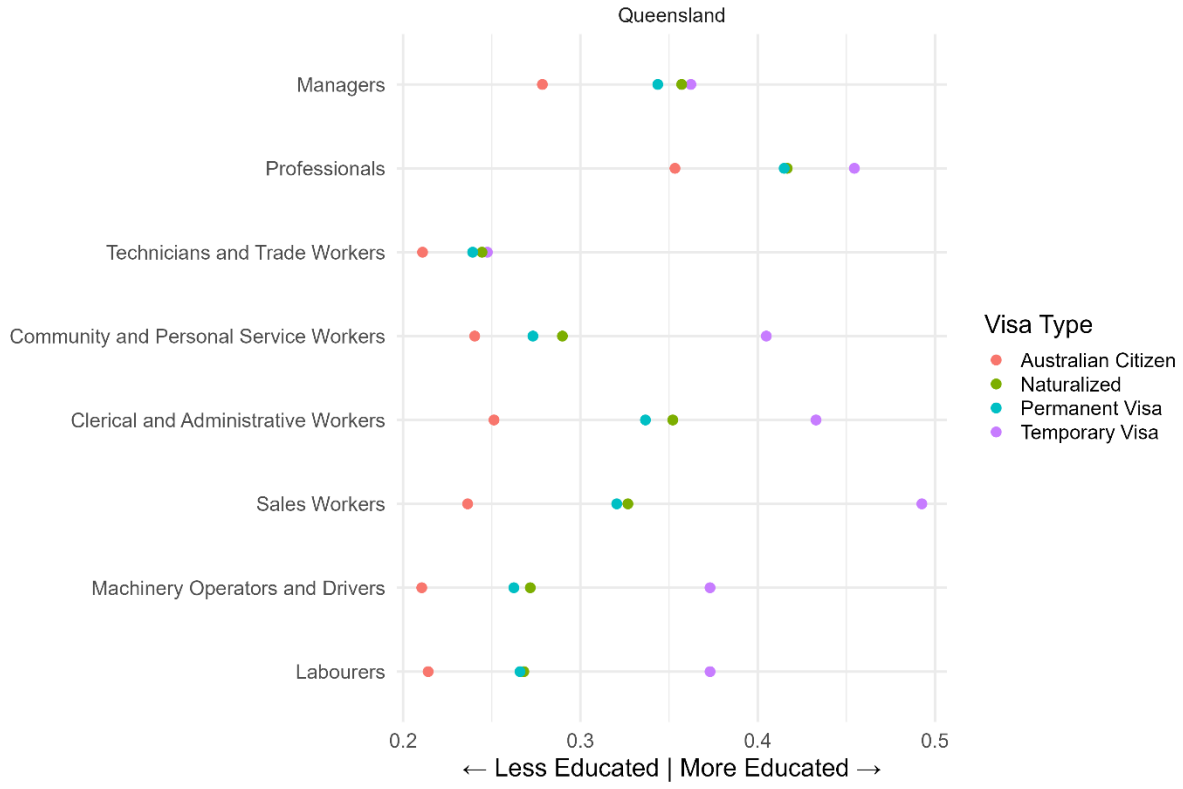


Figure 28: Migrants and Australian citizen's mean weighted educational qualification score by occupation, South Australia, Census 2016

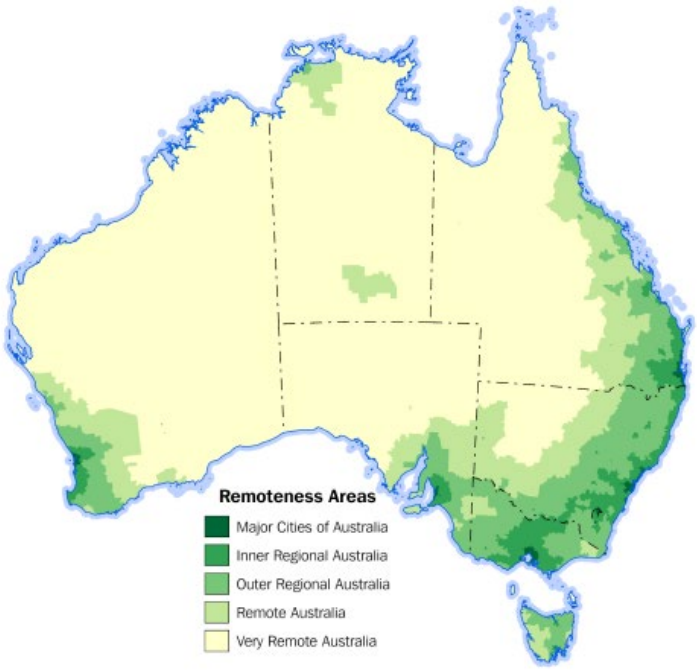
Figure 29: Migrants and Australian citizen's mean weighted educational qualification score by occupation, Western Australia, Census 2016

Figure 30: Migrants and Australian citizen's mean weighted educational qualification score by occupation, Tasmania, Census 2016

Figure 31: Migrants and Australian citizen's mean weighted educational qualification score by occupation, Northern Territory, Census 2016

Figure 32: Migrants and Australian citizen's mean weighted educational qualification score by occupation, Australian Capital Territory, Census 2016

Figure 33: Map of ASGS Edition 3 Remoteness Areas for Australia



Legend: ASGS = Australian Statistical Geography Standard
Source: https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026/remoteness-structure/remoteness-areas

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