



WORKFORCE 2020

Working across the ditch – New Zealanders working in Australia



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Acknowledgement

For this work, I gratefully acknowledge the data collection and assistance with data analysis provided by James Newell (Senior Research Associate, Monitoring and Evaluation Research Associates, www.mera.co.nz). I would also like to thank Paul Callister and Richard Bedford, and colleagues within the Department of Labour, who peer reviewed the report.

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ISBN 978-0-478-36009-7

May 2010

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EXECUTIVE SUMMARY

This report provides a descriptive analysis of the skills and labour market characteristics of New Zealand born people working in Australia. Its main aim is to compare the labour market skills and capabilities of New Zealand born people in Australia with those of the Australian workforce and the New Zealand born workforce in New Zealand. The variables covered include the type of work carried out, education qualifications and income levels. The information is collected from the latest population Census, conducted separately in both countries in 2006. The main focus is on people at prime working age, defined as 25 to 54 years.

There were a quarter of a million New Zealand born people working in Australia in 2006. Of these, 186,000 were prime aged (25 to 54 years), representing around one in six of the total New Zealand born prime aged workforce across Australasia. This report helps to increase our understanding about this large group of workers, who have the potential to considerably influence the supply of skills required by the domestic New Zealand labour market.

The key findings are as follows:

New Zealanders in Australia were more likely to work in lower skilled jobs

Contrary to the anecdotal evidence of a "brain drain", New Zealand born people in Australia, on average, were not working in occupations requiring a high level of skills. In 2006, compared with those back in New Zealand and compared with all Australians, they were relatively more likely to be working in lower skilled jobs in Australia, in particular as machinery operators and drivers. They were relatively less likely to be working in managerial and professional occupations, again compared with those in New Zealand and compared with all Australians.

Between 1986 and 2006, New Zealanders in Australia developed an occupational profile different to the wider Australian (and New Zealand) workforce. For example, there was an increase in the proportion of New Zealand born men in machinery operating roles such as truck and forklift drivers over this period.

New Zealanders in Australia were over-represented in several important industries

The industry with the highest relative share of New Zealanders in Australia was mining, followed by construction. Relative shares of New Zealanders were clearly lower in "white collar" industries like education and public administration as well as in primary sectors such as agriculture, forestry and fishing. The Australian industry in 2006 that employed the largest number of New Zealanders was manufacturing (23,093).

New Zealanders working in Australia held similar qualifications to those at home

Prime aged New Zealanders working in Australia held similar levels of post-school qualifications compared to those working in New Zealand in 2006, with 19.9% holding degrees or higher compared with 19.7% in New Zealand. They were less well qualified on average than the Australian workforce.

New Zealanders with degree or higher qualifications in Health and Information Technology were relatively more likely to work in Australia than degree holders in other subjects.

Between 2001 and 2006 there were considerable return flows to New Zealand

Census results showed that 46,186 New Zealanders working in Australia in 2006 had moved there in the previous five years. However, over this period about four New Zealand workers returned to New Zealand for every 10 going to Australia.

Occupations where people were more likely to return to New Zealand between 2001 and 2006 included managers and sales workers.

Those working as machinery operators and drivers, the occupation with the largest share of New Zealand workers in Australia, appeared less likely to return than those in other occupations.

New Zealand workers who moved to Australia between 2001 and 2006 were more highly qualified than their predecessors. Those with degree qualifications or higher were also slightly less likely to return to New Zealand in the 2001–2006 period than those with lesser qualifications.

Incomes in Australia were higher—although the income gap varied across occupations

In the 2006 Census, average incomes for prime aged workers in Australia were, on an adjusted basis, 25% higher than in New Zealand. There was substantial occupational variation in the income difference, although the largest gap occurred in some medium to lower skilled occupations such as machinery and plant operators, carers and aides, cleaners and café and restaurant workers. Income gaps, while still high, were slightly smaller in most professional jobs.

Income differences only partly explained the occupational variation in the share of New Zealanders working in Australia. Other likely contributing factors are discussed in Section 5.

In 2006, New Zealand prime aged workers in Australia on average earned higher incomes than Australians did. The income “premium” they earned over Australian workers tended to be highest in lower skilled occupations.

New Zealanders in Australia have a high rate of employment

New Zealanders in Australia were more likely to be working than the total Australian population. At ages 15–64, 83% of New Zealand born men and 70% of New Zealand born women worked, compared with 72% and 62% for the total Australian population. Compared with Australians, New Zealand workers were more likely to be aged over 25 and more likely to be male (55% of the workforce). This partly reflects the more male-oriented “blue collar” job profile apparent amongst the New Zealand workforce in Australia.

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1. TRANS-TASMAN MIGRATION

1.1 Background

New Zealanders have proportionally one of the highest rates of migration in the OECD (Poot, 2009). Over time, this has led to a comparatively large proportion of New Zealanders living overseas. However, most of New Zealand's diaspora are not that far away, with approximately three-quarters of them living across the Tasman.¹ Our Tasman neighbour, therefore, is home to our largest as well as our nearest pool of expatriates.

Substantial population flows between New Zealand and Australia have occurred from the earliest times of colonial settlement, which has been driven in part by geographical proximity as well as strong cultural similarities between the two countries. In terms of the workforces in both countries, New Zealand and Australia effectively share a 'borderless' labour market with no formal skill selection process affecting the movement of workers. This has created a long history of labour exchange at all skill levels.

At different times, each country has achieved net gains in population from the other. However, since the 1960s, migration flows have moved strongly in Australia's favour, leading to Australia becoming home to a significant accumulation of New Zealand born people. In 1966, there were around 52,000 New Zealand born living in Australia, which was only slightly more than the 43,000 Australia born living in New Zealand. Forty years later, by 2006, the number of New Zealand born people living in Australia had grown to 389,000, which was six times the number of Australia born people in New Zealand (63,000). Between 2001 and 2006 alone, the New Zealand born population in Australia grew by more than 10%.²

In economic terms, New Zealanders working in Australia represent a labour and skill resource that is a larger 'lost' asset for New Zealand than a gain for Australia. The quarter of a million New Zealand born people who worked in Australia in 2006 represent a relatively small share (about 3%) of the total Australian workforce, but a much larger share (about 17%) of the domestic New Zealand born workforce.

New Zealand emigrants are very active participants in the Australian labour market. In 2006, the employment to population ratio of New Zealanders in Australia was 77% compared with 67% for the Australian population (aged 15 to 64). This higher average rate for New Zealanders partly reflects a greater proportion who are in prime working age groups in Australia as well as their having a higher employment rate in each age group.

¹ The precise number of New Zealanders living abroad is difficult to verify. However, a recent OECD study identified 465,000 New Zealand born expatriates in 2001. Of these, no fewer than 355,000 lived in Australia (Dumont and Lemaître, 2004).

² Australian Bureau of Statistics Census – www.abs.gov.au/websitedbs/d3310114.nsf/Home/census.

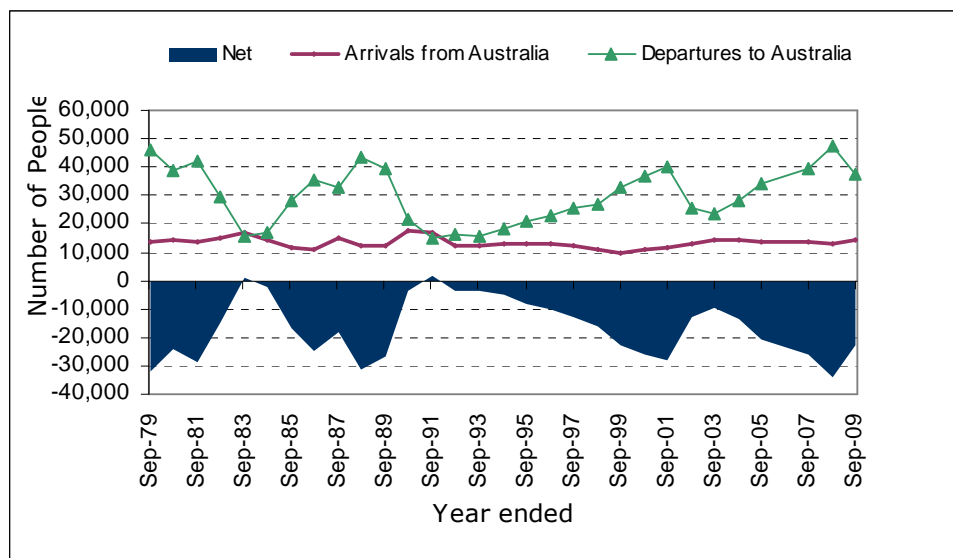
As the above figures suggest, work-related factors are a strong overall motivator of New Zealand emigration to Australia. Recent research has found that economic factors, such as greater opportunities and a higher standard of living, were seen as more important than lifestyle or family factors.³ These findings are also consistent with a recent study of Māori in Australia, which highlighted economic opportunities in Australia as a major motivation for Māori migration (Hamer, 2008).

Given the importance of economic drivers, it appears most likely that change in the relative economic conditions between the two countries over the past few decades has been the main determinant of stronger net migration losses to Australia,⁴ when combined with the geographic proximity, a natural affinity with Australia and a high degree of mobility amongst New Zealanders.⁵

1.2 A summary of trans-Tasman trends since the 1970s

Before examining the composition of New Zealanders residing in Australia in 2006, it is useful to review the recent history of migration between the two countries. Movements of all permanent and long-term arrivals (PLT) between the two countries since 1979 are shown in Figure 1.⁶

Figure 1: Permanent and long-term migration of all citizens between New Zealand and Australia 1979–2009 (year ended September)



Source: Statistics New Zealand.

³ Green, Power and Jang, 2008, p.40. They also note that the importance of economic factors increases with the age of migrants.

⁴ The relationship between increasing migration outflows to Australia and the growing Australian GDP per capita income gap is illustrated in Figure 1 of the First Report of the 2025 Taskforce (2025 Taskforce, 2009).

⁵ Poot (2009) notes that the declining real cost of air travel is another factor.

⁶ These figures are based on New Zealand's administrative permanent and long-term arrival and departure statistics.

Permanent and long-term statistics are not an exact representation of migration flows, as they are influenced by a number of coding issues such as 'category jumping'.⁷ Nevertheless, the chart clearly shows that flows of all people moving to Australia have tended to be higher and also more strongly cyclical than flows from Australia, which have been lower and more stable. Since 1991, there has been a net outflow of 297,400 people to Australia – an average of about 16,500 people each year. The annual inflow of migrants from Australia has only twice (in 1983 and 1991) matched the annual outflow. These periods both coincided with an economic recession in Australia, lowering job opportunities for New Zealanders.

A combination of factors is likely to explain the cyclical New Zealand movement to Australia, such as fluctuations in GDP growth rates, earnings relativity, employment and unemployment growth.⁸ In addition, a change in Australia's social security policies in 2001 that removed New Zealanders entitlement to employment-related benefits contributed towards a temporary rise in migration outflows.⁹ More recently, in the year to September 2009, the total number of PLT departures to Australia fell sharply to 37,362 compared with 47,166 in the year to September 2008.

To allow for a comparison with the Census-based information used in most of this report, Figure 2 focuses on Zealand born arrivals and departures.¹⁰ A similar pattern is observed, although the available data series is considerably shorter. Departures of New Zealand born people over the past eight years have tended to be nearly three times higher than arrivals and averaged about 24,000 per annum, but there has been strong variation in numbers. The impact of the recent recession has reduced the number of departures from their peak in December 2008, although it is notable that outflows to Australia still remain at around their 8-year average.¹¹ On the other hand, return flows of New Zealand born people from Australia have shown a stable, consistent trend throughout this period, averaging about 7,500 people per annum. Unlike the two earlier peaks, the most recent peak in departures to Australia did not coincide with a recession in New Zealand. Indeed, throughout the period 2001–2007, New Zealand's annual unemployment rate was below that of Australia.¹²

⁷ See Appendix C for a definition and issues that influence PLT.

⁸ An interesting phenomenon since the 1970s is a regular decadal cycle of increases in the population of New Zealanders in Australia, possibly due to demographic influences – see Poot (2009).

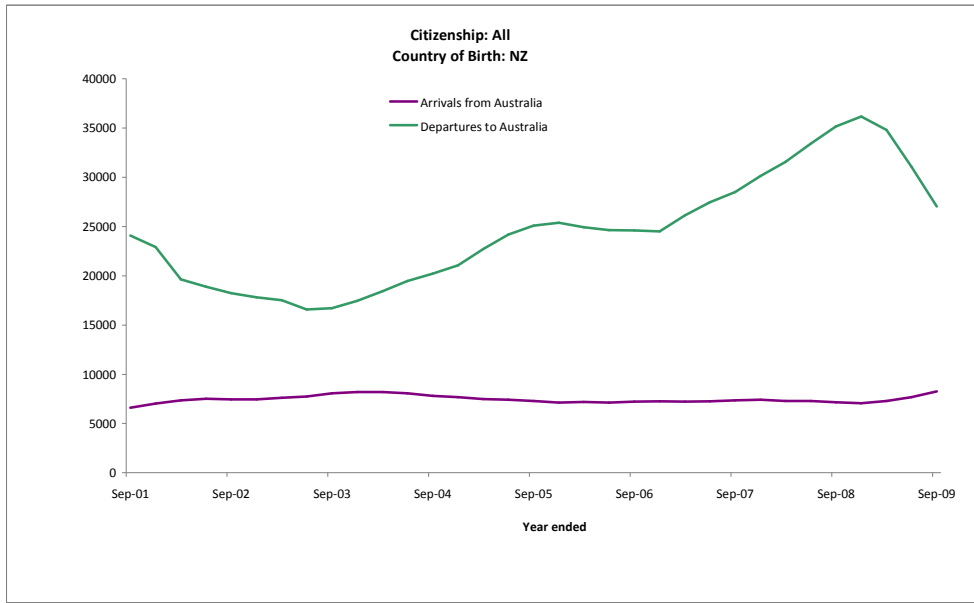
⁹ To be eligible for social welfare payments, New Zealand citizens migrating to Australia were required to apply for permanent residence, subject to the same conditions as migrants from other countries (Poot and Sanderson, 2007).

¹⁰ Note that these figures have not been adjusted by comparing with the Australian immigration dataset.

¹¹ In the year to June 2009, 8% fewer New Zealanders moved to Australia, indicating more uncertainty about opportunities abroad.

¹² Source: Statistics New Zealand tables (June years) prepared for the 2025 Taskforce, Table 10 <http://www.2025taskforce.govt.nz/background.htm>. Overall unemployment rates were similar or lower in New Zealand throughout the period 1992–2007.

Figure 2: New Zealand born migration to/from Australia (year ended September)



Source: Statistics New Zealand

Above all, PLT migration figures show that, while the size of net migration to Australia has been uneven, the balance has been in Australia's favour over the past decade, leading to an ongoing accumulation of New Zealanders working in Australia. In the five years to 30 September 2006, approximating the period covered in this study, 104,713 New Zealand born people left for Australia, which was again nearly three times higher than the number who returned (37,721). To put this differently, 3.6 people returned for every 10 who left for Australia. This resulted in a net outflow of New Zealand born migrants to Australia of 66,992 or about 13,400 per annum. Since 2006, there has been a further rise followed by a fall-off in flows to Australia, although the composition of these flows is unlikely to have changed dramatically.

2. OBJECTIVES AND STRUCTURE

2.1 Purpose and research objectives

This report aims to deepen our understanding of how the pattern of outflow of New Zealanders to Australia impacts on particular areas of the New Zealand labour market. This is especially important as the New Zealand economy resumes growth again following the recession and labour and skill shortages re-emerge. While providing a mainly descriptive profile of New Zealand born migrants in Australia, it also aims to show some of the factors that are associated with a higher likelihood of migration to Australia.

There are four broad objectives associated with this report:

- To provide a demographic and labour market profile of the New Zealand born workforce in Australia.
- To better understand which occupations, industries and skill sets are most affected by migration of New Zealand born people to Australia.
- To investigate the characteristics of more recent (2001–2006) trans-Tasman migration compared to earlier waves.
- To examine trans-Tasman occupational income differences to determine, among other influences, the strength of the relationship between income differential and emigration of New Zealanders in broad occupations.

The report uses official Census data from New Zealand and Australia to examine the key labour market features of New Zealanders in Australia. It focuses on skills in order to consider whether there have been losses in occupations like professions and trades, involving a high level of domestic investment in skills, or in lower skilled occupations such as machine operators and manual labour. Understanding this helps to better inform potential responses to trans-Tasman migration losses. Of course, skills can be difficult to measure. In some jobs experience learned on the job may be more important (and harder to replace) than measured formal educational attainment skills. There are also other important 'softer' skills that cannot be recorded such as communication skills. The earnings premium that New Zealanders achieve in particular jobs in Australia provides a broad indication of some of these unmeasured skills and the quality of match between the skills on offer and the jobs available, and this is examined in Section 4.6.

2.2 Structure of the report

The report is structured as follows:

- Section 1 includes an introduction and background.
- Section 2 provides the purpose and research aims.
- Section 3 gives an overview of the methodology.
- Section 4 contains the results.
- Section 5 includes a brief concluding discussion.
- The appendices provide additional information and data tables.

3. METHODOLOGY

3.1 Using population Census data

The information in this report draws mainly on data from the most recent five yearly population Census run in New Zealand and Australia in March and August 2006 respectively. As information is recorded in each country only about six months apart, there is an opportunity to make point-in-time comparisons. The information from each respective Census has been combined in a series of datasets, which allow comparison of common variables such as birthplace, education qualification, field of study, age and gender.

The use of both Censuses means that the snapshot taken of New Zealand migrants in Australia can be compared to both the host population (Australia) and the source country (New Zealand). The resulting picture helps to reveal in detail the longer-term cumulative effect of migration between the two countries.

This work is aided by the improved alignment of classifications that has occurred in the statistical datasets used in both countries. This means that more variables are similarly classified including occupation, industry, level of qualification and main area of study.

There are a number of advantages of Census information over PLT migration information. Firstly, the population Census provides a much more complete and detailed statistical record of the employment and demographic features of migrants, while, in comparison, the PLT data is of inferior quality and incomplete coverage.¹³ Secondly, the Census captures educational qualifications information, which provides a firmer indication of the skills transfer from New Zealand to Australia. Despite its limitations, PLT data is very important in showing immediate and longer term trends in the overall flows of migrants to and from Australia.

A drawback with Census data is that it is only available at five yearly intervals, with the latest data collection in 2006 coinciding with several years of strong economic and employment growth in both countries. Labour supply and demand factors on both sides of the Tasman will have shifted over the past three to four years due to the effects of the recent recession. However, more recent migration trends are unlikely to have fundamentally changed the overall composition of migrants in Australia.

3.2 Identifying New Zealanders

In this study, country of birth in the Census is used to identify New Zealanders because comparable country of birth data is available in both countries. Country of birth is an internationally consistent method of identifying people and provides "an unambiguous and constant prior link with a country" (Carmichael, 1993, p.55). In comparison, other markers of nationality such as residency or

¹³ In addition to the major problem of 'category jumping', PLT data undercounts many occupation groups, for example, 59.3% of outward migrants had occupations not stated or unidentifiable in the March 2008 PLT dataset.

citizenship are less identifiable (for instance, citizenship definitions vary between countries and can be influenced by legal and statistical factors). Also, given the skill focus in this report, the New Zealand born are more likely to be educated within New Zealand than people born elsewhere who gained residence entitlements at an older age.

Another reason to focus on the New Zealand born is that New Zealanders who have settled relatively recently in Australia may be considered as a potential labour resource given favourable economic conditions in New Zealand. Return migration is not as common for non-New Zealand born.¹⁴

There are disadvantages with such a definition. Obviously, it excludes the large pool of non-New Zealand born people with New Zealand residency and therefore does not represent the total trans-Tasman outflow. However, given the aim for this study to draw comparisons between two population groups, New Zealand born are considered the most reliable proxy for New Zealanders.

Another implication is that the New Zealand born population has a lower educational profile than non-New Zealand born New Zealand residents (as demonstrated in Table 3). Therefore, their migration patterns and trends are likely to be slightly different. For a more complete picture of trans-Tasman migration, further investigation of the non-New Zealand born emigrants would be needed.

The study has not focused on Australia born people living in New Zealand for two reasons. Firstly, as noted earlier, their numbers are lower and more stable over time. Secondly, research suggests they are more likely to reflect family rather than economic drivers, such as representing the children of New Zealand parents (Poot, 2009, p.6). Note that, purely for convenience, the term 'New Zealander' is used in this report to denote New Zealand born. This is not related to the 'New Zealander' ethnic group used in the 2006 New Zealand Census.

3.3 Prime age groups

Most of the analysis in this report focuses on people in prime working age groups (aged 25–54). This accounts for a well-known age bias in New Zealand migration to Australia, with a much lower proportion of the New Zealand workforce in Australia in younger and older age groups. The variation in age distribution, as well as gender, within the New Zealand workforce in Australia is shown in Figures 3 and 4. Because of the age bias, an aggregate age analysis can misrepresent underlying differences. For example, the older age bias in some occupations, especially professional and managerial ones, will overstate the representation of New Zealanders and understate them in others where there is a very young age bias, such as retail sales staff. A main focus on prime working age groups also helps to minimise the effect of migration related to non-economic and employment reasons such as study, travelling with parents and retirement and

¹⁴ New Zealand citizens not born in New Zealand are found to be less likely to return to New Zealand after migrating to Australia (Poot, 2009, p.17).

creates a more homogenous population group in which to make income comparisons.

Looking at only the prime aged workforce in the last Census reduces the number of New Zealand born in New Zealand from 1,495,900 to 965,000 and the number in Australia from 249,400 to 186,000. At prime ages, nearly one in six (16.1%) of the New Zealand born workforce in both countries works in Australia.

3.4 Other definitions and groupings

Some of the major statistical definitions and groupings used in this report are noted in Appendix C.

3.5 Limitations

As the purpose of this report is to provide a sectoral and educational analysis of New Zealanders in Australia, the analysis in this report is primarily descriptive, and comparisons between New Zealand and Australia have, in most cases, not been tested for statistical significance.

4. RESULTS

4.1 A Profile of New Zealanders working in Australia

According to the 2006 Australian Population Census, there were 349,000 New Zealand born people resident in Australia, which was equivalent to 12% of the New Zealand born population resident in New Zealand. Out of this total, 249,000 were working.

This section examines the composition of this workforce, focussing on the prime working ages, according to duration of residence, age, gender and education levels.

Overview of this section

- Over time, New Zealanders have settled in Australia in several distinct waves, reflecting the push and pull effect of different economic cycles. In 2006, 85% had been resident in Australia for over five years and two-thirds for over 10 years.
- New Zealand workers in 2006 were more likely to be prime aged compared with both the domestic and the wider Australian workforce, with relatively few youth and older workers.
- Male workers were strongly over-represented in Australia at prime ages, which partly reflects their high employment rates.
- New Zealanders working in Australia held similar or slightly higher levels of post-school qualifications compared to those working in New Zealand, although they were less well qualified on average than the Australian workforce.
- The relative difference in education attainment levels between New Zealanders in Australia and New Zealand tends to rise slightly with age.
- New Zealand males working in Australia were more likely to hold vocationally oriented qualifications (level 1–6) than degree level qualifications (level 7 and higher), while the reverse is true for females.

Duration of residence

The varying size of migration flows over time, as shown in Figure 1, is reflected in an uneven distribution in the length of time New Zealanders have resided in Australia. Table 1 shows the duration of residence of prime aged New Zealand born people in Australia in 2006 at 5-year intervals.

Two-thirds of these New Zealanders (145,340) had been resident for over 10 years, and over 40% had resided in Australia for over 20 years, which underlines the long history of movement across the Tasman. About 15% (32,607) had been resident for under five years and were therefore less likely to be fully settled. Interestingly, the effect of three distinct waves of emigration to Australia are apparent – in the late 1970s, late 1980s and again in the late 1990s. In contrast, a dip in arrivals in 1992–1996 is reflected in only 10% of the total having arrived in this period. This was a period when Australia's pull factor was much diminished.

Table 1: Duration of residence of New Zealand born in Australia aged 25–54, 2006

Year of arrival (calendar year)	Number	Proportion of total
Before 1977	23,989	11.1%
1977–1981	36,505	16.8%
1982–1986	28,632	13.2%
1987–1991	34,864	16.1%
1992–1996	21,350	9.8%
1997–2001	38,853	17.9%
2002–2006 (to Aug)	32,607	15.0%
Total¹⁵	216,800	100.0%

Source: ABS.

These results appear consistent with the data shown in Figure 1, showing peaks in the net outflows to Australia occurring in the late 1980s and again in the late 1990s.

Characteristics of New Zealand born arrivals in the last intercensal period are examined in Section 4.5.

Participation in work

The 2006 Census showed that New Zealanders living in Australia were more likely to participate in work than the total Australian population. At ages 15–64, 83% of New Zealand born men and 70% of New Zealand born women worked, compared with 72% and 62% for the comparable Australian groups. Table 2 shows that as age increases, the difference in the employment rate between the New Zealand born in Australia and the overall Australian population tends to widen, especially above the age of 55. For example, at age 55–59, 81% of male and 66% of female expatriates in Australia worked compared with an all-Australia proportion of 69% and 54% respectively. The increasing gap at higher ages may partly reflect New Zealand expatriates having lower retirement savings or this may be a continuing reflection of the fact that New Zealanders have particularly high employment rates among older people.

The overall employment rate of New Zealanders in Australia was comparable to the employment rate among those in New Zealand. By gender, Table 2 shows that 83% of all New Zealand born males in Australia were in employment, which barely exceeds the 82% of the New Zealand born employed in New Zealand, while the employment rate of females was slightly lower than in New Zealand. There are clearly gender and age-specific influences that affect the overall employment rate in Australia. New Zealand born males in Australia aged under 20 and over 50 were less likely to be working than in New Zealand. It is not entirely clear why this may be the case at younger ages. At older ages, the larger retirement income available in Australia is a factor encouraging earlier retirement (and therefore lowering the employment rate) in that country.

¹⁵ Total excludes New Zealand born residents whose date of arrival was unknown.

Interestingly, New Zealand females in Australia were less likely to be working than they were in New Zealand at all ages over 30. This may reflect the extremely high employment rate among women in New Zealand. For example, Table 2 shows the employment rate of women aged 40-44 exceeded the rate of those in Australia by 4 percentage points. It also implies that, while work is the strong drawcard for New Zealand males who go to Australia, there may be other factors influencing the females who go there. For instance, they may be married to an economic migrant.

Table 2: Employment/population ratio of the New Zealand born in Australia, by gender and age group, 15–64

Age group (years)	Males			Females		
	NZ-born in Australia	All Australia	NZ-born in NZ	NZ-born in Australia	All Australia	NZ-born in NZ
15–19	0.44	0.42	0.52	0.46	0.45	0.49
20–24	0.81	0.70	0.80	0.73	0.67	0.70
25–29	0.88	0.78	0.86	0.71	0.68	0.71
30–34	0.90	0.82	0.88	0.68	0.64	0.70
35–39	0.90	0.82	0.89	0.70	0.65	0.73
40–44	0.90	0.82	0.89	0.75	0.70	0.79
45–49	0.89	0.81	0.89	0.80	0.73	0.83
50–54	0.87	0.79	0.89	0.77	0.68	0.82
55–59	0.81	0.69	0.86	0.66	0.54	0.74
60–64	0.66	0.51	0.75	0.46	0.32	0.55
All 15–64	0.83	0.72	0.82	0.70	0.62	0.71

Source: ABS and Statistics New Zealand

The reason for the higher employment rates among New Zealanders in Australia may be due to a combination of factors such as slightly higher educational qualifications (discussed in the next section), higher motivation associated with migrant groups and (for newer arrivals) perhaps more difficulty in getting income support if unable to work. In addition, the high proportion of trans-Tasman migrants in work partly reflects a selection bias towards migration among a population that is already more engaged in the labour market. For males, the findings are consistent with the hypothesis that migrants go to Australia for labour market reasons and that, at prime ages, they find it relatively easy to match themselves with paid work (or perhaps need to apply greater relative efforts towards gaining work). For females, it suggests that non-labour market factors may influence migration over the age of about 30. Their partner could be a primary income earner, for example¹⁶. Overall, these high participation levels highlight the large economic contribution that New Zealand males and females make to Australia.

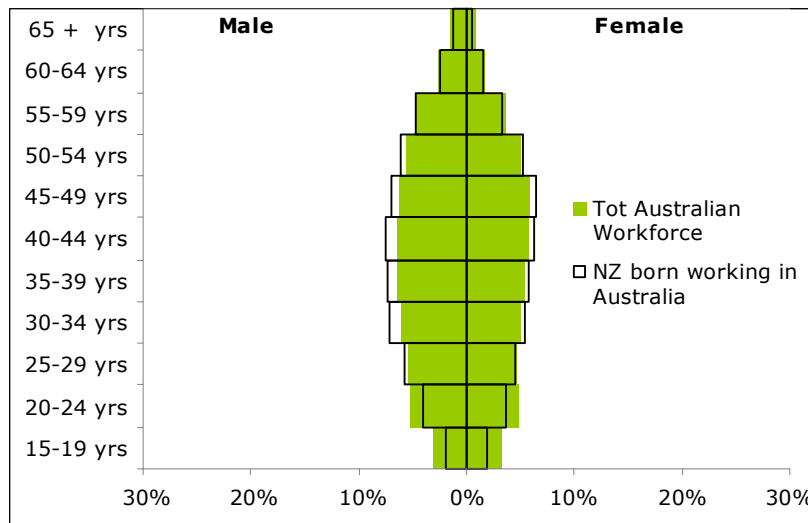
¹⁶ Carmichael (chapter 6) noted that adjusted for age, New Zealand born in Australia in 1986 were less likely to have children than Australia born, which may explain why New Zealand women in Australia have higher participation rates overall than Australian women. However, it would not explain lower participation compared to women in New Zealand. Family composition was not examined in the 2006 dataset used here.

Age and gender of the workforce

Age and gender have a strong influence on the type of work and education levels of a workforce. For example, certain occupations and industries favour females, and younger people are likely to be more highly educated. With this in mind, key features and differences in the age and sex profile of the New Zealand workforce in Australia compared to those in New Zealand at home are shown in Figure 3.

Figure 3 gives a visual impression of the age profile of the New Zealand born workforce in 2006 compared with the total Australian workforce and illustrates the ages where there is the greatest excess of males over females. The New Zealand born workforce in Australia has a slightly older age profile compared with the rest of the Australian workforce (the green-coloured blocks),¹⁷ due mainly to having fewer young males and females in the workforce. Less than 12% of the New Zealand born workforce in Australia were aged 15–24 compared with around 17% of the total Australian workforce. There was a higher proportion of males at all age groups from 30–49 than amongst the whole Australian workforce, with the difference most pronounced at 30–34. Females were slightly over-represented at age groups 30–49. Compared with the Australian workforce overall, New Zealand expatriates are less likely to be under 25 and are more concentrated in prime aged groups (25–54) amongst both males and females. Those in Australia are therefore more likely to have completed their formal education.

Figure 3: NZ born working in Australia versus the total Australian workforce



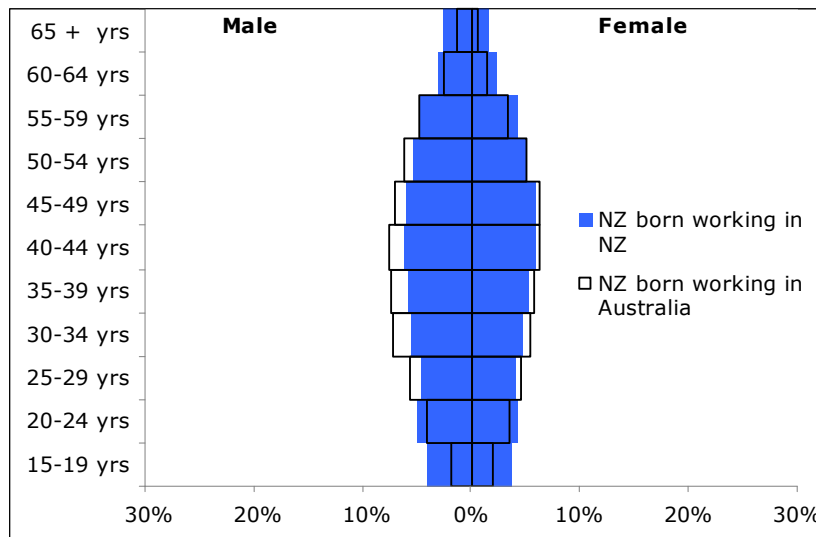
Source: ABS and Statistics New Zealand

Figure 4 compares the New Zealand born workforce in Australia with those working in New Zealand (the blue-coloured blocks). The age distribution of those working in New Zealand is more evenly spread over all age groups, but once again, those working in Australia by comparison were more concentrated in the middle-aged groups. The bulge in the number of New Zealand born males in the Australian workforce aged 25–54 is more pronounced in this comparison. Among

¹⁷ Of whom 3% are New Zealanders.

the New Zealand born in New Zealand, a far greater proportion of males and females work at the top and bottom of the age range (aged 15–19 and 65 plus).

Figure 4: NZ born working in Australia versus NZ born working in New Zealand



Source: ABS and Statistics New Zealand

An imbalance of males is a distinct feature of the New Zealand born workforce in Australia. About 55% of the workforce is male – there were about 124 New Zealand males working in Australia for every 100 working females. This gender imbalance is greater than among the New Zealand born workforce in New Zealand (111) and the entire Australian workforce (117) and is most apparent between the ages of 25–44 and in some older age groups. This gender imbalance appears to reflect a slightly more male-oriented blue collar job profile amongst New Zealanders in Australia (as will be discussed in the next section).

Educational attainment

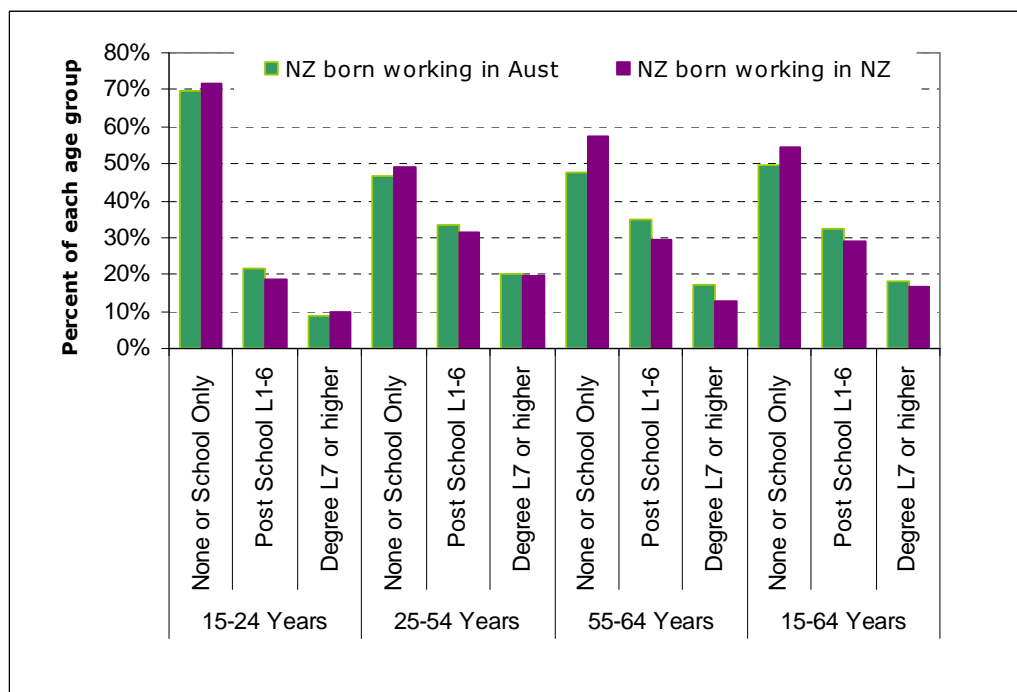
The educational attainment of the adult population is a common proxy for skills available to the population and labour force. As shown in Appendix B2, educational attainment outcomes recorded in 2006 were aggregated into three broad categories: no qualifications or qualifications achieved at school only, post-school non-degree level certificates and diplomas, and post-school degree qualifications and higher (level 7 and above).¹⁸

On this basis, Figure 5 compares the New Zealand born workforce in Australia with those working in New Zealand in three broad age groups – 15–24, 25–54 and 55–64 years, as well as 15–64 combined. Overall, New Zealanders working in Australia were slightly more likely to have qualifications gained beyond high school than New Zealanders at home. The difference grows with age, for example, at ages 55–64, 52.3% of New Zealanders in Australia had qualifications beyond those gained at school compared to 42.4% of those in New Zealand. At

¹⁸ Definitions in Appendix C. Those with undefined or missing highest qualifications have been excluded from the percentage totals.

prime ages, 53.4% of New Zealanders in Australia held post-school qualifications and 51% in New Zealand. New Zealanders in Australia at younger ages were more likely to have acquired post-school qualifications below degree level, that is, below level 7,,with the gap rising slightly again at ages 55–64. In terms of degree qualifications or higher, New Zealanders in Australia aged 15–24 were less likely to be degree qualified than those working at home, and there was no difference in prime aged groups (25–54). At higher age groups, however, a gap emerged with New Zealanders in Australia more likely to have degree level qualifications than those at home.

Figure 5: Highest qualifications of the NZ born workforce by broad age group



Source: ABS and Statistics New Zealand (percentages exclude residual values)

The reason New Zealanders working in Australia become more qualified than those working in New Zealand at older ages is unclear from Census analysis. There was no evidence that older migrants who had arrived in Australia in the last five years had higher qualifications than those at home (which might be plausible for lifestyle reasons or perhaps to gain higher returns on accumulated skills). However, there appeared to be a comparatively low return flow of more highly qualified New Zealanders at middle to older age groups. This, therefore suggests that the more highly qualified people who moved to Australia in the past have stayed there over a longer period. The pattern of higher qualifications among older, more established New Zealand born migrants in Australia has been noted in the past. In 1986 at older age groups, the New Zealand born had higher proportions with higher qualifications at all levels than the Australia born.¹⁹

¹⁹ noted in Carmichael (p203).

Table 3 compares New Zealanders working in Australia with those at home and also with all Australian and New Zealand residents. The fifth column demonstrates that the total Australian workforce is still more highly qualified than either New Zealand's expatriate or domestic workforce, with 27.8% holding degrees or higher and only 39.3% with no qualifications or school level qualifications only. The final column 'All NZ residents' shows that the proportion of males and females within New Zealand holding degree qualifications or higher exceeds the New Zealand born on either side of the Tasman at 23.8%. While not in the main scope of this paper, it indicates how foreign-born people have helped to raise the skill profile in New Zealand. Therefore, while New Zealand migration may fill niches in the Australian labour market, overall, it provides an average to lower skilled source of labour from an Australian perspective, and it is probably useful to view overall migration to Australia in this wider context.

Table 3: Distribution of highest qualifications, prime aged NZ born and Australian workforce by gender, 2006

	Highest qualification	NZ-born in Aust	NZ-born in NZ	All Aust residents	All NZ residents
All genders	None or school only	46.6	49.0	39.3	46.0
	Post-school L1-6	33.5	31.3	33.0	30.2
	Degree (L7) or higher	19.9	19.7	27.8	23.8
All genders total		100.0	100.0	100.0	100.0
Male	None or school only	44.0	48.1	36.5	45.1
	Post-school L1-6	38.7	34.6	39.1	33.2
	Degree (L7) or higher	17.3	17.4	24.4	21.7
Male total		100.0	100.0	100.0	100.0
Female	None or school only	49.9	49.9	42.6	47.0
	Post school L1-6	26.9	27.8	25.7	26.9
	Degree (L7) or higher	23.2	22.2	31.7	26.1
Female total		100.0	100.0	100.0	100.0

Source: ABS and Statistics New Zealand (percentages exclude residual values)

Table 3 also reveals gender differences. New Zealand born females in Australia were slightly more likely to hold degrees or higher qualifications than in New Zealand and slightly less likely to hold post-school qualifications below degree level. On the other hand, males were marginally less likely to hold degree qualifications or higher but considerably more likely to hold post-school qualifications below degree level.

4.2 Jobs and skills of New Zealanders working in Australia

This section looks at the proportion of the New Zealand workforce in Australia in terms of their occupations, industries, qualifications and associated study areas.

In doing so, it builds a wider picture of labour market differences between expatriate New Zealanders and those who choose to work in their home country. It is again focused on prime aged workers for reasons noted earlier.

There are a number of ways to compare the proportion of New Zealanders working in Australia. Here, a choice was made to use two different denominators in order to give different perspectives on the relative share of New Zealanders in the Australian workforce.

Firstly, the New Zealand born share of the total Australian workforce is shown. This removes some of the effect of the different industry and occupational shares of workers in Australia. For instance, compared to New Zealand, Australia has a larger share of employment in government, health care and social assistance and of course in mining. New Zealand has a much larger share of employment in agriculture, which represented 7.2% of the New Zealand workforce compared with 2.6% of the Australian workforce in 2006. Australians also appear less likely to be described as managers and more likely to be described as trades and clerical workers.

Secondly, Australia's share of the total pool of New Zealand born working throughout Australasia is examined. This helps us to understand the size of the expatriate workforce in relation to the much smaller New Zealand workforce and more closely indicates the relative importance for New Zealand in terms of the number of people in Australia in each category. Counting New Zealanders on both sides of the Tasman also helps to show the size of what may be considered the trans-national segment of our workforce.

Overview of this section

- In 2006 New Zealanders at prime ages were spread throughout all occupation groups in Australia but were relatively more likely to work in occupations like machinery operators, labourers, and technicians and trades workers.
- They were relatively less likely to be managers and professionals (especially in fields like law and education).
- The level of over-representation among New Zealanders in professional and service occupations in Australia increases at higher age groups.
- The industry containing the highest relative share of New Zealanders in Australia was mining followed by transport and then accommodation. The industry with the most New Zealanders working in it was manufacturing (23,093).
- Relative shares of New Zealanders were lower in education and training, public administration and also in agriculture, forestry and fishing.

Broad Occupations

Table 4 shows the number of prime aged New Zealanders working in Australia in 2006 in the eight broadest ANZSCO occupations. In total, they account for 3.0% of the total prime aged workforce in Australia and a much larger 16.1% of the same group of New Zealanders working across Australia and New Zealand combined. However, even at a broad occupational level, there are considerable differences.

Table 4: Main occupations of prime aged NZ born working in New Zealand and Australia, 2006

Occupation	A	B	C	NZ-born working in Australia as share of:	
	NZ-born who work in Australia	NZ-born who work in NZ	All Australia	All NZ-born working in Australasia (A/A+B)	All Australian workers (A/C)
1 Managers	24,956	189,549	884,484	11.6%	2.8%
2 Professionals	33,862	196,719	1,397,122	14.7%	2.4%
3 Technicians and Trades Workers	27,935	118,113	881,297	19.1%	3.2%
4 Community and Personal Service Workers	15,337	71,559	514,052	17.6%	3.0%
5 Clerical and Administrative Workers	28,007	127,164	974,474	18.0%	2.9%
6 Sales Workers	12,806	72,273	445,880	15.1%	2.9%
7 Machinery Operators and Drivers	18,848	58,284	432,192	24.4%	4.4%
8 Labourers	21,169	94,212	581,826	18.3%	3.6%
Total	185,873	965,052	6,213,565	16.1%	3.0%

Source: ABS and Statistics New Zealand

The relatively less skilled occupation group of machinery operators and drivers stands out as a popular occupation for New Zealanders in Australia. One in four New Zealand born machinery operators and drivers working across Australasia worked in Australia, compared with one in six across all occupations. In terms of their share of the total Australian workforce, they were 4.4% compared with 3.0% overall.

The next most over-represented group in Australia was technicians and trade workers at 19.1% of the New Zealand born workforce working in Australia, and 3.2% of the whole Australian workforce. These require higher levels of educational qualifications, although usually below degree level.

The occupation with the lowest proportion of New Zealand born workers resident in Australia was managers, with just 11.6% of the total working in Australasia. These include farm managers who, like all agricultural occupations, represent a significant group in New Zealand but not in Australia, but after taking out this group, New Zealand managers were still under-represented in Australia. It is possible that self-employment – an important feature among New Zealand managers – may make them less mobile given their required links to a business. There is also a greater tendency for people recorded in the New Zealand Census to be coded as managers (noted in Appendix C), but this does not explain their smaller share of the total Australian workforce.

Professionals were the largest single occupation group of New Zealand workers in Australia, but in relative terms they were under-represented (14.7% and 2.4% respectively). It was notable that even taking out teaching and legal professionals, New Zealand professionals were still under-represented. This may reflect barriers to people without Australian citizenship in the relatively large

public administration sector in Australia,²⁰ or other factors, some of which will be explored in Section 4.6.

Detailed occupations

Table B1 (Appendix B) breaks down occupational differences at a more detailed (ANZSCO 2-digit) level.²¹ In terms of the New Zealand born share of the Australian workforce, the three detailed occupation groups where New Zealanders were most under-represented in Australia include farmers and farm managers (1.4% of the Australian workforce), teachers (1.5%) and legal representatives (2.3%). New Zealand farmers have historically been under-represented in Australia, (discussed in Section 4.6), while for other groups this may reflect possible institutional barriers to New Zealanders, limiting openings in these professions.

Whilst New Zealanders overall were relatively less likely to work as professionals in Australia, there were two professional occupations, health and ICT, where New Zealanders were slightly over-represented as a proportion of the total New Zealand born population in Australasia but under-represented in terms of their share of the Australian workforce. This is because these occupations employ a larger share of the Australian workforce than they do in New Zealand, which highlights why both measures of relative shares are needed.

There may be a variety of reasons for lack of New Zealand representation in some white collar law and teaching jobs in Australia. Formal barriers to New Zealanders tend to be limited, as most professions have a mutual recognition agreement, leading over time towards a growing alignment in the recognition of qualifications between most New Zealand and Australian professional and trade associations. It is possible, however, that legal, institutional or local knowledge constraints may make it harder for New Zealanders to occupy more professional positions in Australia.

New Zealanders were over-represented at the more detailed (2-digit) occupation level in all trades occupations, particularly construction-related ones. Overall, however, the 2-digit occupations in which New Zealanders were relatively more likely to be working were construction and mining labourers and mobile plant operators. These are both semi-skilled occupations and are relevant to the mining industry.

Looking more closely at the group where New Zealanders were most over-represented, machinery operators and drivers (ANZSCO group 7), New Zealanders were strongly over-represented in all four subgroups under both percentage measurements as shown in Table 5.

²⁰ New Zealand citizens may not work in Australia in areas involving national security or in the federal public service until they become Australian citizens.

²¹ An in-depth examination of 2006 Census data at a considerably more detailed 3-digit occupational level is provided by Newell (2009).

Table 5: Share of NZ born machinery operators and drivers working in New Zealand and Australia, 2006

2-Digit Occupation group	% of all NZ-born working in Australasia	% of all Australian workers
71 Machine and Stationary Plant Operators	24.5%	4.2%
72 Mobile Plant Operators	26.4%	5.3%
73 Road and Rail Drivers	21.5%	3.9%
74 Storepersons	27.8%	4.9%

Source: ABS and Statistics New Zealand

What might make these occupations more popular in Australia? Machinery operators and drivers cover a wide range of occupations associated with operating, controlling and monitoring vehicles, forklifts and industrial machinery. This is sometimes characterised as 'blue collar' work more likely to require practical experience and skills and an intermediate qualification like a trade certificate. The biggest single subset of New Zealanders in this occupation group was road and rail drivers, with 6,448 prime aged New Zealanders. Their tasks included driving trucks and to a lesser extent cars, buses, coaches, trains and trams. Their indicative skill level is a level 2 or 3 qualification, which equates in ANZSCO skill terms to level 4 (on a scale of 1–5). This represents a relatively low formal skill level required for this work, supplemented by on-the-job training, although experience is important. A salient feature of this kind of work is that job knowledge is readily transferable and initial barriers to entry are likely to be low.

Differences in occupational share by age

In some occupations, the pattern of representation among New Zealanders varied by age. For example, their share of professional occupations, although relatively low overall, were slightly skewed towards those aged over 35. This is consistent with the earlier finding that, at older age groups, New Zealanders in Australia were comparatively more likely to be degree or higher qualified than those at home. For example, among health professionals (where New Zealanders working in Australia were slightly over-represented at 19.1% of the total), the over-representation begins at ages above 40. Professionals in ICT have an average level of representation in Australia overall, but it becomes higher above the age of 35. It may be worth investigating why comparatively fewer younger newly qualified health and IT professionals work in Australia. One reason could be that professional job opportunities and rewards in Australia begin to magnify as skills develop at higher ages. Another explanation could be that Australia is a preferred option relatively further on in the typical career path of a professional than at younger ages for lifestyle reasons. At younger ages, these professionals are more likely to either remain in New Zealand or travel more widely, perhaps on their 'OE'. From a manager's perspective, the risk of losing skilled staff to Australia, or having them not return, may therefore be greater amongst more experienced workers.

Age based variation also occurred in some lower skilled occupations. For example, among the lower skilled sales worker occupation (ANZSCO group 6), New Zealanders under 25 tended to be greatly under-represented. However,

interestingly, at most ages over 25, New Zealanders were over-represented. This partly reflects the more youthful age structure of this occupation in Australia where nearly 40% of the workforce in 2006 were under 25. However, given the relatively large number of unskilled New Zealanders in younger age groups in Australia, it seems surprising that this occupation does not feature more strongly.

There was little variation in the relative shares in each occupation when examined by gender. For example, New Zealanders were over-represented among construction trades workers, labourers and machinery operators at all age groups and among both males and females, although females overall had a smaller share of these occupations.

Industries

Now turning to industries, Table 6 shows the proportion of New Zealand people employed in each industry group in Australia.

Table 6: Main industries of the prime aged NZ born working in New Zealand and Australia, 2006

Industry	A	B	C	NZ-born working in Australia as share of:	
	NZ-born who work in Australia	NZ-born who work in NZ	All Australia	All NZ-born working in Australasia A/A+B	All Australian workers A/C
A Agriculture, Forestry and Fishing	3,550	71,628	162,362	4.7%	2.2%
B Mining	4,478	2,643	83,915	62.9%	5.3%
C Manufacturing	23,093	110,070	688,575	17.3%	3.4%
D Electricity, Gas, Water and Waste Services	1,776	5,703	67,971	23.7%	2.6%
E Construction	19,712	81,783	494,323	19.4%	4.0%
F Wholesale Trade	9,761	51,843	286,765	15.8%	3.4%
G Retail Trade	15,314	78,414	563,304	16.3%	2.7%
H Accommodation and Food Services	9,707	34,140	282,487	22.1%	3.4%
I Transport, Postal and Warehousing	11,325	43,746	311,366	20.6%	3.6%
J Information Media and Telecommunications	4,123	19,389	130,805	17.5%	3.2%
K Financial and Insurance Services	7,905	34,734	270,361	18.5%	2.9%
L Rental, Hiring and Real Estate Services	3,460	26,565	98,671	11.5%	3.5%
M Professional, Scientific and Technical Services	12,537	79,713	437,660	13.6%	2.9%
N Administrative and Support Services	7,474	31,509	200,056	19.2%	3.7%
O Public Administration and Safety	9,558	47,676	472,339	16.7%	2.0%
P Education and Training	9,073	75,393	517,943	10.7%	1.8%
Q Health Care and Social Assistance	19,234	79,989	697,007	19.4%	2.8%
R Arts and Recreation	2,679	15,399	80,367	14.8%	3.3%
S Other Services	6,333	38,865	221,684	14.0%	2.9%
All industries	185,866	965,040	6,213,573	16.1%	3.0%

Source: ABS and Statistics New Zealand

Numerically, the three largest industries employing New Zealanders in Australia were manufacturing (23,093), construction (19,712) and health care and social services (19,234).

However, the industry containing the highest relative share of New Zealanders was Australia's mining industry. New Zealanders accounted for 5.3% of the Australian workforce, and a very high 62.9% of all New Zealanders working in mining across Australasia. It was the only industry in which the number of New Zealand born working in Australia exceeded the number of New Zealand born working at home (4,478 versus 2,643). This is partly a reflection of the greater level of employment in mining in Australia, but proportionally, New Zealanders were more over-represented in mining than any other industry. Mining accounted for 8% of Australia's GDP²² and was beginning to move into a sustained period of growth in 2006. A feature of mining is that most employment is in remote, sparsely populated areas well removed from main urban centres. The prominence of the New Zealand expatriates in mining is of considerable interest given the recent focus on expanding New Zealand's domestic mining activity. Petroleum and mineral extraction and development is seen as one of the five New Zealand priority sectors for attracting and developing skills and boosting productivity.²³ There is potentially a large pool of people with relevant skills who could be attracted back to New Zealand under the right conditions. Mining contains some highly skilled and specialised roles, like geologists, but also has many opportunities for people with more limited skills.

New Zealanders were notably under-represented in education, public administration and safety, and agriculture. The agriculture result is supported by earlier research showing fewer New Zealanders worked in this area (Carmichael, 1993), although the severe rural drought in Australia in this period would also have reduced the attractiveness of this sector. New Zealanders also had a slightly smaller share of Australia's growing health care and social assistance workforce (2.8%). However, it is important to note that, because the industry, along with public administration and safety, is proportionately larger in Australia, it actually employs an above-average share of the total New Zealand born workforce (19.4%). This contrast is even greater in the gas and electricity service industry, where the New Zealand born comprise a relatively small share of Australian employment, yet nearly a quarter (23.7%) of all the New Zealand born in this industry work across the Tasman.

The opposite effect occurs in rental, hiring and real estate. New Zealanders had a comparatively large share of the Australian workforce (3.5%), but a small share (11.5%) of all New Zealand born worked in this industry, thanks to its relatively large size in New Zealand.

Industries where New Zealanders were comparatively highly represented under both measures include construction, accommodation and food services, transport and warehousing, and information and telecommunications. Accommodation and food services is of particular interest as this encompasses the tourism sector, which is one of the five high priority sectors noted earlier. Enabling the relatively

²² MiningCareers.com. (2010).

²³ The other sectors included in the Economic Growth Agenda Framework (EGA) are food and beverage, high value manufacture (e.g. marine), ICT and tourism (including the Rugby World Cup).

large pool of talented people in this industry to participate in the 2011 Rugby World Cup remains an important medium-term government goal.

A more detailed industry breakdown is shown in Appendix B2. This appendix shows, for example, that the coal mining industry (a component of the Economic Growth Agenda), is considerably impacted by trans-Tasman migration. In 2006 734 New Zealand born people aged 25-54 years worked in coal mining in Australia. This was about 50% more than the number working locally in this industry.

Occupational skills summary

ANZSCO is a skill-based classification and assigns each occupation to a broad skill level from 1 (typically representing managers and professionals) to 5 (involving more labouring and elementary occupations). Mapping the earlier results for ANZSCO 2-digit occupations against these five skill levels provides a broad summary of the skills of New Zealanders working on both sides of the Tasman, (Table 7).²⁴

Table 7: Skills of the prime aged NZ born working in New Zealand and Australia, 2006

ANZSCO skill level	A	B	C	NZ-born working in Australia as share of:	
	NZ-born who work in Australia	NZ-born who work in NZ	All Australia	All NZ-born working in Australasia A/A+B	All Australian workers A/C
1 (Highly skilled)	51,125	352,488	2,008,338	12.7%	2.5%
2 (Skilled)	17,900	79,350	616,539	18.4%	2.9%
3 (Medium skilled)	31,228	141,702	973,903	18.1%	3.2%
4 (Low - medium skilled)	51,171	208,434	1,548,293	19.7%	3.3%
5 (Elementary)	31,496	145,899	964,254	17.8%	3.3%
Total²⁵	185,873	965,052	6,213,565	16.1%	3.0%

Source: ABS and Statistics New Zealand

Under both measures of representation used, New Zealanders were under-represented in the high skilled jobs in Australia and over-represented in the four lower skill levels. For example, whereas 16.1% of prime aged New Zealanders worked in Australia, only 12.7% worked in highly skilled jobs (level 1) while Australia accounted for 19.7% or one in five of those working in low to medium skilled jobs (level 4). People coded to level 1 include most managers and include all professional occupations.²⁶ The over-representation in level 4 skills mainly reflects the effect of machinery operators being coded to this skill level.

²⁴ Appendix A1 breaks down the skill level that each 2-digit ANZSCO occupation has been assigned to.

²⁵ The total includes persons without a skill level assigned.

²⁶ It is of course debatable whether all managers are highly skilled, as many people in this category are simply self-employed and/or owner operators.

4.3 Occupational change among New Zealanders in Australia since 1986

This section looks at whether there is evidence of long-term change in the composition of New Zealand migrants in Australia. To make this comparison, an earlier study using 1986 Australian Census data was used. This study compared the occupational distribution of the New Zealand born and the Australia born in Australia and concluded that the differences were quite small. Bearing in mind some caveats in comparing these datasets, a comparison of occupational distribution has been made between the 1986 data and the 2006 data, this time focussing specifically on the Australia born, to see if this conclusion still stands. The results (Table 8) show the occupational distribution of New Zealand born expatriate males and females in all age groups in 2006 and the percentage point change in distribution between 1986 and 2006. The change in the occupational distribution of the Australia born population is also shown, to give a contextual comparison.

Table 8: Occupational distribution of NZ born in Australia compared with Australia born, at all ages, 2006 versus 1986 ²⁷

Occupation	2006 percentage distribution of Australian and NZ-born in Australia			
	Males		Females	
	NZ-born	Aust-born	NZ-born	Aust-born
Managers	15.0%	16.7%	10.5%	10.2%
Professionals	14.9%	16.4%	20.3%	22.6%
Technicians and Trades Workers	23.3%	23.7%	5.0%	4.6%
Clerical and Administrative Workers	5.6%	6.5%	26.4%	26.0%
Service and Sales workers	10.7%	12.9%	24.7%	28.0%
Machinery Operators and Drivers	15.9%	11.2%	2.9%	1.2%
Labourers	14.6%	12.7%	10.3%	7.4%
All occupations	100.0%	100.0%	100.0%	100.0%

Occupation	Percentage point change 1986–2006			
	Males		Females	
	NZ-born	Aust-born	NZ-born	Aust-born
Managers	1.9	0.7	4.7	2.2
Professionals	-2.4	-1.9	0.3	2.5
Technicians and Trades Workers	-1.6	1.1	1.0	0.9
Clerical and Administrative Workers	0.8	-1.6	-7.1	-8.0
Service and Sales workers	1.1	4.4	3.8	7.3
Machinery Operators and Drivers	3.3	-0.3	-0.3	-1.0
Labourers	-3.1	-2.3	-2.3	-3.9

Source: ABS data 1986 and 2006.

Table 8 firstly confirms that considerable changes in job distribution in Australia have occurred over this 20-year period. This is as a result of the global trend

²⁷ 1986 data is shown in Carmichael (1993, p.202). As all ages were used in 1986, the 2006 figures also use all ages. Residuals are excluded from percentages. The 1986 dataset used an older Australian occupation classification system, ASCO, which is approximately similar at a broad level, although some occupation groups have changed. To facilitate comparisons, some occupational groups were combined in two of the groupings in Table 8, professionals and "service and sales workers".

towards an increasing demand for higher skilled jobs and a decreasing demand for lower skilled jobs. For example, there has been a reduction in the proportion of males and females in labouring and clerical occupations and an increase in the proportion working in managerial fields. Alongside this there has been strong growth in jobs in the services sector, such as retail and accommodation. There have also been considerable gender shifts over time as well, with females in general increasing their share of higher skilled jobs.

However, within these broader trends, the New Zealand born have experienced a discernable change in their workforce distribution. The bigger changes in relation to that of the Australia born are shown in Table 8 in bold. Most notably, an increase occurred in the proportion of New Zealand born men in machinery operating roles over the 20-year period, up 3.3 percentage points to 15.9%. In comparison, the proportion of Australia born male machinery operators remained relatively unchanged at 11.2%. Effectively the proportion of Australia born males in this occupation is only about two-thirds as large as the proportion of New Zealand born males.

At the higher skilled end, the combined share of Australia born males working in managerial, professional and technical jobs held steady, whereas the combined share of New Zealand born males in these jobs has declined. This implies there has been either a decline in relative skill levels or a change in occupational preferences among New Zealand born male migrants towards blue collar jobs, most likely in mining, manufacture or infrastructure-related areas.

A contrasting pattern occurred among females. For example, 35.8% of New Zealand born females were in managerial, professional and technical jobs in 2006, which is not far off the 37.4% share of Australia born females in similar jobs, and the gap has narrowed over this period. In particular, there was a considerable increase in the proportion of New Zealand born females in managerial positions in the past 20 years, up 4.7 percentage points to 10.5%. This is much larger than the proportional increase in Australia born females in management, with the result that New Zealand born women in 2006 were more likely to be in management positions than Australia born women. However, female as well as male Australians were still more likely to be in professional positions than New Zealanders, with a gap of 1.5 percentage points among men and 2.3 percentage points among women in 2006.

Finally, it appears that the shift among Australians towards the hybrid occupation "service and sales workers" has not been as marked among the New Zealand workforce over there. It is possible that the under-representation of young New Zealanders in Australia coupled with the large proportion of young Australians working in this area influences this.

Overall, Table 8 provides evidence pointing to a shift among New Zealand born males away from higher skilled towards lower skilled occupations, especially plant and machinery-related occupations. This trend does not occur among New Zealand born females, however.

The male results may reflect the fact that the period of the late 1980s and 1990s coincided with restructuring and job losses in many New Zealand primary industries, dislodging many males in particular from lower skilled jobs. Alternatively, New Zealanders may have gradually moved into these jobs from other jobs in Australia rather than move directly into this work from New Zealand. It may also partly reflect pay differentials (explored in Section 4.6). Irrespective of the reason, New Zealanders in Australia can probably no longer be regarded as having an occupational profile similar to that of the Australia born population, despite their growing numbers across the Tasman.²⁸

4.4 Education qualifications among New Zealanders working in Australia

This section looks at the share of New Zealanders in Australia according to their educational attainments and broad study areas. The focus will mainly be on the acquisition of post-school qualifications, as these provide probably the most reliable indicators of formal skill levels on both sides of the Tasman.

Overview of this section

- While Australia did not take a disproportionate share of New Zealand's pool of prime aged graduates (16.0% compared with 16.1% of all workers) in 2006, it attracted a relatively high share of them in key subject areas related to health and information technology.
- A relatively large share of New Zealand's pool of intermediate qualified people worked in Australia (16.8%). The key subject areas were hospitality, engineering and construction-related.

Why look at post-school qualifications?

The outflow to Australia of New Zealanders with graduate and post-graduate qualifications is usually seen as more problematic than losses among the lower skilled.

Firstly, these people are considered to be more productive and therefore better able to contribute to desired economic growth rates than the lower skilled, and secondly, their skills will have largely been acquired via the publicly funded New Zealand education system.

Adding field of study allows us to identify the type as well as the level of formal skills expatriates have acquired and how this may differ from those in New Zealand and the overall Australian population.

New Zealanders in Australia with graduate qualifications

Table 9 shows the graduate qualified prime aged New Zealand workforce in Australia (with qualifications at level 7 or higher) by main field of study. This uses the same method of share analysis used before, i.e. examining their relative

²⁸ This result is supported by observing the qualification profile of the New Zealand born population in Australia in 1986 (Carmichael p 203). This indicates that they were higher qualified relative to the Australia born, in contrast to 2006 (although some qualification measures have changed over time).

share of both the total Australasian New Zealand born and the total Australian population.

At prime ages, New Zealand degree holders were no more likely to be working in Australia than less qualified workers. Australia captured a share of New Zealand born degree holders similar to its share of the entire New Zealand born workforce (16.0% compared with 16.1%).

New Zealanders working in Australia comprised a relatively low share of Australia's degree qualified workforce (2.1% of degree qualified workers compared with 3.0% of the Australian workforce), due to having a less qualified workforce as noted earlier.

Table 9: Main study area of prime aged NZ born with degree qualifications and higher, working in New Zealand and Australia, 2006

Main field of study	A	B	C	NZ-born working in Australia as share of:	
	NZ-born who work in Australia	NZ-born who work in NZ	All Australia	All NZ-born working in Australasia A/A+B	All Australian workers A/C
01 Natural and Physical Sciences	2,744	16,227	115,775	14.5%	2.4%
02 Information Technology	1,221	5,085	86,380	19.4%	1.4%
03 Engineering and related Technologies	1,875	9,297	127,517	16.8%	1.5%
04 Architecture and Building	587	3,288	30,748	15.1%	1.9%
05 Agriculture, Environmental and Related Studies	561	4,845	28,655	10.4%	2.0%
06 Health	6,186	22,707	241,321	21.4%	2.6%
07 Education	3,666	22,497	263,964	14.0%	1.4%
08 Management and Commerce	8,043	37,206	338,753	17.8%	2.4%
09 Society and Culture	6,631	44,943	259,064	12.9%	2.6%
10 Creative Arts	1,689	8,364	70,822	16.8%	2.4%
11 Food, Hospitality and Personal Services	53	258	2,821	17.0%	1.9%
All degree holders²⁹	33,896	177,663	1,599,682	16.0%	2.1%
Total workforce	185,871	965,049	6,213,563	16.1%	3.0%

Source: ABS and Statistics New Zealand

Are New Zealanders who have graduated in particular subject areas more likely to work in Australia? Firstly, we can see that the most over-represented fields of study are health and IT (under both types of share analysis used). Graduates in these fields made up 21.4% and 19.4% respectively of the share of the total working in Australasia with those qualifications. These are skills that are more likely to be in shortage within New Zealand, for example, jobs requiring health and IT qualifications are prominent in New Zealand's skill shortage lists. While New Zealand graduates accounted for a relatively large share of Australia's health

²⁹ Subtotals and total in this table include people with field of study grouped or unspecified.

graduate workforce (2.6%), this was less apparent for IT. In the field of IT, New Zealanders made up a relatively minor 1.4% share of the Australian IT graduate workforce. This is because Australia's domestic supply of IT graduates is larger.

In comparison, those with the management field of study were numerically the largest group of New Zealand graduates in Australia, but they accounted for only a slightly above-average share of the total workforce in Australasia (17.8%). Apart from agriculture, which has special conditions as noted earlier, the most under-represented group of New Zealand graduates were those in society and culture, with only 12.9% of the total workforce in Australasia. To put this differently, it was the most common field of study among New Zealand born graduates working in New Zealand, but only the third most common for those working in Australia, (after health and management).

Below degree level qualifications

Table 10 focuses on the prime aged New Zealand workforce in Australia holding intermediate (below degree level) qualifications, again by main field of study.

Those holding below degree level qualifications were much more common than degree holders (57,017 versus 33,896). They accounted for 16.8% of all New Zealand born working in Australasia and were therefore slightly over-represented. These qualifications are likely to more closely reflect the kind of intermediate skilled jobs in Australia such as drivers and machinery operators that New Zealanders have become more prevalent in.

Table 10: Main study area of prime aged NZ born with post-school highest qualifications below degree level working in New Zealand and Australia, 2006

Main field of study	NZ-born who work in Australia	NZ-born who work in NZ	All Australia	NZ-born working in Australia as share of	
				All NZ-born working in Australasia	All Australian workers
01 Natural and Physical Sciences	389	3,891	12,705	9.1%	3.1%
02 Information Technology	1,317	6,501	47,257	16.8%	2.8%
03 Engineering and Related Technologies	16,615	75,231	597,355	18.1%	2.8%
04 Architecture and Building	7,734	31,704	217,109	19.6%	3.6%
05 Agriculture, Environmental and Related Studies	1,766	14,268	63,212	11.0%	2.8%
06 Health	4,325	27,384	126,002	13.6%	3.4%
07 Education	1,687	19,518	71,009	8.0%	2.4%
08 Management and Commerce	8,851	43,284	327,795	17.0%	2.7%
09 Society and Culture	3,887	18,441	132,121	17.4%	2.9%
10 Creative Arts	1,936	9,858	54,480	16.4%	3.6%
11 Food, Hospitality and Personal Services	6,495	22,647	183,581	22.3%	3.5%
All post-school below degree	57,017	282,294	1,898,252	16.8%	3.0%
Total workforce	185,871	965,049	6,213,563	16.1%	3.0%

Source: ABS and Statistics New Zealand

Among workers in Australia holding post-school qualifications below degree level, Table 10 also shows that food, hospitality and personal services, architecture and building, followed by engineering and related technologies were the three most over-represented fields of study. Graduates in food, hospitality and personal services made up 22.3% of the total New Zealand born workforce in Australasia with those qualifications. Therefore, people with this tourism-related study area were relatively more likely to work in Australia than people with other study areas at a below graduate level. Numerically, however, people who majored in engineering and related technologies were the largest group in Australia and also the largest group in New Zealand.

The most under-represented group of New Zealanders with below degree level qualifications in Australia were those who studied natural and physical sciences and education (9.1% and 8.0% respectively).

It is notable that people with below degree level qualifications in health and information technology were also under-represented in Australia, in contrast to those with graduate or post-graduate qualifications in these fields. A conclusion to draw from this might be that both are fields of study where incentives and opportunities for work in Australia become greater as the level of educational attainment rises. Natural and physical sciences is also a category in which this occurs, although at both degree and below degree level, New Zealanders with this study area were under-represented in Australia.

By gender, the differences in patterns of study were broadly similar. In other words, the over or under-representation was similar across different fields of study among both males and females, bearing in mind that New Zealand females, overall, are far more likely to study areas like health and less likely to study areas like engineering.

Are skills matched with jobs?

As a relatively high proportion of New Zealanders in Australia worked in machinery operating and labouring jobs, it is likely that some graduates may be working in areas that do not require high formal skill levels. Subjects and qualifications were not cross-tabulated with work areas in this study so this cannot be proven, although this would be interesting for future analysis. For instance, with the greater scope and rewards for job specialisation in Australia, do New Zealanders in Australia move away from their formal skill sets more than they do in New Zealand, and is this any different to the career pathways that Australians follow? Because only prime ages are included, there is less likelihood of identifying students taking short-term 'holiday' jobs in Australia or older workers reducing responsibilities as they move towards retirement in Australia.

It would be understandable for some New Zealanders to move into mining, construction or long-distance driving jobs when they move to Australia because of the income, even if they are capable and qualified to do 'better' jobs. They may be going to Australia specifically for a change of scene or to meet short-term earning and saving goals. Another more concerning reason would be that New Zealanders faced greater difficulty in finding work in New Zealand after investing in more specialised skill sets, such as specialised health or engineering areas. Another explanation, explored in Section 4.6, is the apparently larger income gains in Australia compared with New Zealand for these types of manual work, which may encourage some graduates towards this work. In some cases there may be a gain for both countries if an excess supply of some workers in New Zealand is able to be matched to a higher demand for particular skills in Australia.

4.5 Trans-Tasman flows among New Zealanders working in Australia

This section looks at the characteristics of New Zealand born people moving to Australia and of those who returned to New Zealand in the period between 2001 and 2006. The main focus will again be on their skills.

Movements in both directions are important to consider, given the level of return migration of New Zealanders from Australia is quite high. For example, a recent study showed that about one-third of all New Zealanders migrating to Australia and intending to settle permanently return within four years. This study also found evidence that lower skill levels were associated with higher attachment to Australia, which supports the Census-based findings here that there are higher concentrations of lower skilled workers in Australia (Poot and Sanderson, 2007).

To consider the level of movements in both directions, the 2006 Census question that asks people where they were residing five years earlier is used. This is asked

in both countries' Census form. As it collects information at a single point in time, Census information does not easily lend itself to examining the dynamics of the movement of people³⁰ but has the advantage of identifying the labour market features, such as occupation or qualification, of recent and longer-term arrivals. A drawback with Australian Census data is that it does not code the country that people lived in five years earlier. An assumption is therefore made that New Zealanders in Australia living elsewhere five years earlier were located in New Zealand. This will slightly overstate the apparent movement from New Zealand to Australia between 2001–2006 given some New Zealanders will have moved there from third countries such as the UK and USA. The New Zealand Census form, on the other hand, does identify the country of previous residence, so specific movements from Australia back to New Zealand between 2001–2006 are counted.

When using the Census to show apparent migration flows, it is important to bear in mind that the Census does not tell what job someone did five years earlier. This analysis therefore assumes that migrants tend to stay in similar occupations. This is probably more likely to apply to higher than lower skilled occupations, given people in higher skilled occupations have invested more in acquiring formal work-related skills.

Overview of this section

- In 2006, around 46,000 (18.5%) of all New Zealand born workers in Australia had migrated there in the preceding five years.
- Comparing the two Censuses indicates around four workers returned to New Zealand between 2001 and 2006 for every 10 going to Australia. This return flow from Australia was slightly greater than the PLT data (Section 1.2) indicates.
- There was considerable variation in the pattern of arrivals and departures in terms of occupational skills between 2001 and 2006.
- People in management occupations stood out as being proportionately most likely to return to New Zealand in this period.
- Amongst medium to lower skilled occupations in Australia, especially machinery operators and drivers, there was a lower return ratio of New Zealanders from Australia.
- Over time, a lower return ratio of blue collar workers is likely to reinforce the observed trend towards low to medium skilled emigration to Australia.
- The level of trans-Tasman mobility varied at different ages, with generally lower flows to Australia at higher age groups.
- In regard to educational qualifications, New Zealanders arriving in Australia between 2001 and 2006 were more highly qualified than their predecessors.
- Over this period, New Zealanders with degree level or higher qualifications were also slightly less likely to return to New Zealand than those with lesser qualifications.

³⁰ For instance it won't count New Zealand trans-Tasman migrants who arrived and left within the inter-Census period.

- Between 2001 and 2006, relatively high losses to Australia were experienced among people with degree or higher qualifications in areas such as IT and health where known skill shortages exist in New Zealand.

Movement by occupation and industry

The New Zealand born workforce who arrived in or returned from Australia in the period 2001–2006, by age and gender, is shown in Table 11. In total, 46,186 New Zealanders working in Australia in 2006 at all ages had resided overseas five years earlier.³¹ This was over twice the number of working New Zealanders identified in the New Zealand Census in the same year who had lived in Australia five years before (19,527). This gives a derived net outflow to Australia of about 27,000 over this five year period, which is far less than the 67,000 net migration outflow noted in Section 1.2. However, this is not too surprising as the PLT migration collection includes people making repeat movements, people who are not working and 'category jumpers' who change their minds and return to New Zealand or go elsewhere after less than 12 months away.

It is, however, interesting to note that the ratio of people returning was higher as well, at around 4.2 for every 10 departures compared with 3.6 for every 10 departures using the PLT statistics. While many complicating factors are involved, this provides some indirect evidence that there was a slightly higher return rate among New Zealand workers in this period than the PLT data would suggest.

Overall, the recent arrivals in 2001–2006 (shown in the fifth column) amounted to 18.5% of all New Zealanders working in Australia in 2006. Broken down by age, the younger age groups had the highest proportion of recent migrants to Australia in both genders, with those aged 15–24 years containing highest proportion of recent arrivals (34.8%). Within each age group, the percentage of male and young female recent arrivals was almost identical. Because of higher youth mobility, higher levels of migration at younger ages would be expected, although relatively high levels at higher ages are also apparent.

Table 11 shows a strong relationship between age and trans-Tasman mobility, with generally lower flows to Australia at higher ages. This pattern was evident across all broad occupation groups, which therefore means that occupations such as IT and hospitality workers with a younger age profile tend to show a higher level of trans-Tasman 'churn'. Even within the younger (25–34) prime aged groups, there is still evidence of strong churn.

The sixth column (Return ratio) shows the ratio of recent returnees to New Zealand in relation to recent arrivals. As noted above, across all age groups about four workers returned to New Zealand over this period for every 10 going to Australia.

Looking at the return ratio among the large 15–24 year old age segment for males and females, the low ratio showed a largely one-way flow to Australia. At

³¹ This result differs slightly from that shown in Table 1, because it uses a different Census question (location 5 years earlier rather than length of residence) and the periods are not identical.

ages above the mid-30s, there was a reasonable return flow of workers to New Zealand. For example, among females aged 35–44, the ratio was 0.55, and for males it was 0.53, so there appeared to be a noticeably higher level of return migration in this age group.

The apparently high return ratio for New Zealanders over 55 may reflect the greater likelihood of people in this age group to still be working in New Zealand, and therefore to be counted in a comparison of working people only. Females at most ages and in particular aged over 55 were slightly more likely to return than males.

Table 11: Movement of NZ born workers to and from Australia by all age groups and gender, 2001–2006

Gender	Age (in 2006)	Moved to Australia 2001–2006	Returned to NZ 2001– 2006	% of NZ-born in Australia who moved 2001–2006 ³²	Return ratio
Male	15–24	5,018	942	34.1%	0.19
	25–34	9,880	4,269	30.7%	0.43
	35–44	5,871	3,108	15.8%	0.53
	45–54	3,256	1,488	9.9%	0.46
	55–64	1,463	771	8.1%	0.53
	65+	171	147	5.6%	0.86
	All ages		25,659	10,725	18.6%
Female	15–24	4,890	915	35.5%	0.19
	25–34	7,454	3,456	29.9%	0.46
	35–44	4,207	2,331	14.0%	0.55
	45–54	2,868	1,359	10.0%	0.47
	55–64	1,032	675	8.2%	0.65
	65	76	63	5.2%	0.83
	All ages		20,527	8,802	18.4%
All genders	15–24	9,908	1,863	34.8%	0.19
	25–34	17,334	7,722	30.3%	0.45
	35–44	10,078	5,436	15.0%	0.54
	45–54	6,124	2,847	9.9%	0.46
	55–64	2,495	1,449	8.2%	0.58
	65+	247	210	5.5%	0.85
	All ages		46,186	19,527	18.5%

Source: ABS and Statistics New Zealand

Table 12 breaks down the same information by occupation, focusing on prime aged New Zealanders. The overall five year return ratio is slightly higher (0.48) because it excludes younger workers who appear less likely to return (in the short term). By occupation, the highest return ratio was among managers (0.71). This may reflect the high degree of mobility amongst higher educated, higher earning people, and it is encouraging to note that trans-Tasman losses in this occupation seem less likely to be permanent. On the other hand, among professionals, who are more likely to be highly qualified than managers, the return ratio was far

³² For example, this column shows that 34.1% of New Zealand born males working in Australia aged 15–24 in 2006 had lived in New Zealand 5 years earlier.

lower at 0.44. This was higher than the ratio for machinery operators and drivers of 0.31 who were, therefore, three times as likely to move to Australia as they were to return from Australia in 2001–2006. All other broad occupation groups had return ratios between 0.41 and 0.71.

Table 12: Movement of prime aged NZ born to and from Australia by ANZSCO 1-digit occupation, 2001–2006

Occupation	Moved to Australia 2001–2006	Returned to NZ 2001–2006	% of NZ-born in Australia who moved 2001–2006	Return ratio
1 Managers	4,189	2,958	17.5%	0.71
2 Professionals	6,933	3,078	20.8%	0.44
3 Technicians and Trades Workers	4,775	2,448	17.3%	0.51
4 Community and Personal Service Workers	2,439	1,191	15.9%	0.49
5 Clerical and Administrative Workers	4,621	1,908	16.5%	0.41
6 Sales Workers	2,193	1,266	17.2%	0.58
7 Machinery Operators and Drivers	3,400	1,041	18.3%	0.31
8 Labourers	4,002	1,641	19.3%	0.41
All occupations	33,543	16,008	18.0%	0.48

Source: ABS and Statistics New Zealand

Table 12 also shows that newer prime aged arrivals from New Zealand were spread relatively evenly across most occupation groups. The large professional occupation group contained the highest proportion of newer arrivals, with 20.8% of them having arrived since 2001 compared to an overall average of 18.0%. On the other hand, only 15.9% of community and personal service workers working in 2006 had arrived in the previous five years.

Table B3 (Appendix B) examines recent trends at a more detailed occupational level. This tabulation shows that a variety of high, medium and low skilled occupations experienced relatively large outflows of New Zealanders in 2001–2006. For example, alongside the relatively large number of more skilled engineering, ICT and business professionals who moved to Australia in the five years to 2006, there were large movements of lower skilled storepersons and factory process workers.

One very skilled occupation with an extremely low recent outflow to Australia was executive managers and general administrators (ANZSCO 11 – shaded). Here, only 14.6% of the workforce had arrived and, more surprisingly, arrivals were exceeded by the return flow to New Zealand in this five-year period. For every 10 executive managers working in Australia in 2006 who had been in New Zealand in 2001, there were 16 in New Zealand who had been in Australia five years earlier.

This unexpectedly favourable result for New Zealand only partly reflects the general tendency for skilled people to be more mobile. For instance, the return ratio is far lower in other skilled occupations. A more plausible explanation is that relatively more of the New Zealand workforce are coded to this category, which is

noted in Appendix C. Another hypothesis is that this movement might represent New Zealand born executives returning to take up managerial responsibilities within sectors, such as banks and utilities, with a high level of Australian ownership in New Zealand.

While the pattern of arrivals in the 2001-2006 period is variable and may not closely reflect the over-representation of New Zealanders in lower skilled jobs noted earlier, the outflow of less skilled New Zealanders to Australia in 2001–2006 was more likely to be one-way traffic. The 10 occupations with the lowest return ratios were all occupation groups with a skill level of 4 or 5. Return ratios of 0.3 are observed among factory workers, clerks, food processing assistants and machinery operators and just 0.2 for storepersons. A greater likelihood of non-return among the more blue collar New Zealand workforce is likely, over time, to reinforce the trend of low to medium skilled emigration to Australia.

Migrants take time to adjust to a new labour market and may initially accept jobs below their skill level. If this was to occur in Australia, lower skilled jobs might be expected to contain a relatively large share of newer migrants. However, lower skilled jobs did not in 2006 have a high share of recently arrived New Zealanders. For example, Table 12 shows that 19.3% of New Zealand labourers in Australia had arrived within the previous five years compared with 20.8% of professionals.

The pattern of arrivals and departures among Australian industries is shown in Table 13, although job switching is probably more likely at an industry level.

The industries containing the highest proportion of recently arrived New Zealanders were financial and insurance services followed by accommodation and food services, information media, and administration and support services. An extremely low return ratio of New Zealanders in mining and utilities suggests that the one-way flows noted earlier are very strongly associated with these industries.

Table 13: Movement of prime aged New Zealanders by ANZSIC 1-digit industry, 2001–2006

Industry	Moved to Australia 2001–2006	Returned to NZ 2001–2006	% of NZ-born in Australia who moved 2001–2006	Return ratio
A Agriculture, Forestry and Fishing	748	879	21.1%	1.2
B Mining	822	96	18.4%	0.1
C Manufacturing	4,309	1,647	18.7%	0.4
D Electricity, Gas, Water and Waste Services	332	81	18.7%	0.2
E Construction	3,262	1,848	16.5%	0.6
F Wholesale Trade	1,894	822	19.4%	0.4
G Retail Trade	2,468	1,287	16.1%	0.5
H Accommodation and Food Services	2,183	1,029	22.5%	0.5
I Transport, Postal and Warehousing	1,978	717	17.5%	0.4
J Information Media and Telecommunications	887	396	21.5%	0.4
K Financial and Insurance Services	1,889	702	23.9%	0.4
L Rental, Hiring and Real Estate Services	617	444	17.8%	0.7
M Professional, Scientific and Technical Services	2,605	1,395	20.8%	0.5
N Administrative and Support Services	1,603	654	21.4%	0.4
O Public Administration and Safety	1,079	663	11.3%	0.6
P Education and Training	1,300	783	14.3%	0.6
Q Health Care and Social Assistance	3,102	1,200	16.1%	0.4
R Arts and Recreation Services	484	324	18.1%	0.7
S Other Services	1,061	537	16.8%	0.5
All industries	33,536	16,005	18.0%	0.5

Source: ABS and Statistics New Zealand

Movements by qualification and study area

Finally, this section considers the trans-Tasman mobility of prime aged New Zealanders in terms of their skill level (whether they are degree qualified) and in terms of what they have studied (their fields of study).

Overall, looking at the qualification profile of the 33,500 prime aged New Zealanders who crossed the Tasman over the period 2001–2006, it is clear that they were more highly qualified than their predecessors. For instance, of those who arrived between 2001 and 2006 with identifiable qualifications, 27.8% held a bachelor's degree or higher, compared with 19.9% of the total prime aged New Zealand born workforce in Australia in 2006. The proportion of new arrivals with a degree or higher also exceeded the proportion of the similarly qualified workforce at home (19.7%). The relatively high share of new arrivals with degrees partly reflects the rapid growth in degree holders in New Zealand. The number of degree holders in New Zealand grew by nearly half between 2001 and 2006³³.

³³ Educational Attainment of the NZ population in intercensal periods sourced from http://www.educationcounts.govt.nz/statistics/tertiary_education/retention_and_achievement

Table 14 shows migrants with degree level qualifications and higher, (Level 7 and above), according to their main field of study.

This table shows, firstly, that a relatively high proportion of New Zealand degree holders working in Australia were recent arrivals. About one in four (24.8%) of prime aged graduates working in Australia in 2006 had moved there within the previous five years. This is higher than the proportion of all prime aged New Zealanders who had moved to Australia in this period, (18.0%). In addition, these degree holders had a slightly lower return ratio than all New Zealanders, (0.4 compared with 0.5).

By field of study, we can see that creative arts (28.8%), agriculture (27.6%) and management (27.5%) had the largest proportion of graduates who were recent arrivals, excluding the very small number of hospitality graduates.

Table 14: Movement of prime aged NZ born degree holders by main field of study, 2001–2006

Main field of study	Moved to Australia 2001–2006	Returned to NZ 2001–2006	Share of NZ-born in Australia who moved 2001–2006	Return ratio
01 Natural and Physical Sciences	713	303	26.0%	0.4
02 Information Technology	327	108	26.8%	0.3
03 Engineering and Related Technologies	486	192	25.9%	0.4
04 Architecture and Building	131	57	22.3%	0.4
05 Agriculture, Environmental and Related Studies	155	96	27.6%	0.6
06 Health	1,416	480	22.9%	0.3
07 Education	688	225	18.8%	0.3
08 Management and Commerce	2,209	879	27.5%	0.4
09 Society and Culture	1,626	711	24.5%	0.4
10 Creative Arts	486	225	28.8%	0.5
11 Food, Hospitality and Personal Services	24	NA	NA ³⁴	0.1
All degree holders	8,414	3,351	24.8%	0.4

Source: ABS and Statistics New Zealand

Looking at the return ratio column, for degree holders, the highest return ratio in this latest five year period was in agricultural and environmental sciences, although overall numbers were quite small (just 96 graduates had been in Australia five years earlier). This reflects a degree of trans-Tasman churn in the agriculture industry which has a high return ratio as noted earlier in this section. The lowest return ratios were for IT, health and education studies. This supports earlier information showing that the pull factor to Australia among graduates with

Between 2001 and 2006 the number of New Zealand residents aged 15+ who were degree qualified increased by about 50% (155,691)

³⁴ Figures for this group are too small to be considered reliable

fields of study in health and IT is relatively strong, and suggests that low return ratios are a strong feature.

4.6 Occupational income differences between New Zealand and Australia

This section investigates annual income in Australia and New Zealand across related occupations. It aims to identify if there are any links at an occupational level between higher earnings in Australia, compared with New Zealand, and stronger representation of New Zealanders.

Earnings differentials between New Zealand and Australia at occupational level are important because economic factors have been identified as an important pull factor for New Zealanders. It is useful to consider whether occupations with higher income differentials draw more New Zealanders to Australia than those with lower income differentials.

In order to conduct a complete trans-Tasman analysis of income differences, the 2006 Census datasets from both countries were used. The datasets show the average annual incomes of people in each occupation group at the time of the 2006 Census and provide comprehensive coverage across all occupations, both skilled and unskilled.

To bring the income measures in both countries to a comparable footing, the Census data was adjusted using a Statistics New Zealand methodology developed through their OECD-Eurostat Purchasing Power Parity (PPP) project. Further details of this are listed in Appendix C.

Even after this adjustment, this comparison based on gross income should be treated as only approximate. Differences in hours worked are not accounted for. Other factors such as inter-country differences in tax rates and thresholds, income support provisions, insurance levies and other deductions can also have a big impact.

The income data used was for people at prime ages,³⁵ given the possible effect of different age structures on the pay differences in the two workforces, and because people at older and younger ages may be more likely to move to Australia for reasons other than income.

Taking this all into account, the resulting comparison between New Zealand and Australian annual incomes at a 2-digit occupation level is shown in Table 15. On average, Australian incomes in 2006 exceeded those in New Zealand by 25.0%.³⁶ There was, however, a wide occupational variation in the size of the income gap.

³⁵ In this section, prime working age covers a younger age grouping (25–44 years) rather than according to the age breakdown 25–54 to make use of available data. Comparative data shown in Figure 6 has also been adjusted.

³⁶ This income gap was similar in both prime aged and older age groups, but amongst youth aged 15–24, the income gap was more than 40%. Whether this is because youth in New Zealand are more

Table 15 shows that the five occupations with the greatest trans-Tasman income disparity (all in excess of 40%) were machinery and plant operators, carers and aides, health and welfare workers, cleaners and restaurant workers. None of these are highly skilled occupations.

The greatest gap is in machinery and plant operators (ANZSCO 71) where workers in Australia earned on average almost a 60% higher income level than their counterparts in New Zealand. This is also an occupation linked to the cyclically buoyant mining industry, which, by 2006, was beginning to prosper greatly from a resources boom as noted earlier.

While none of the top five were highly skilled occupations, there was an above average income gap in some skilled occupation groups such as ICT technicians (39.8%) and chief executives, general managers and legislators (38.6%).

The occupations with the lowest income disparity (all less than 20%) were farmers and farm managers (with lower incomes on average than in New Zealand); sales assistants and salespersons; sports and personal service workers; other technicians and trades workers; numerical clerks; farm, forestry and garden workers; and factory process workers. Again, these tend to be middle to lower skilled occupations. The relatively low average adjusted income for Australian farmers may reflect, as well as the drought, the greater prevalence of specialised high-value employment in New Zealand agriculture such as dairying.

likely to work in casual part-time jobs, youth minimum pay rates are higher in Australia or for other reasons is unclear.

Table 15: New Zealand versus Australian difference in average income among workers aged 25 to 44 in 2006³⁷

Occupation	Aust income (AUD)	NZ income PPP adjusted	Aust income minus adjusted NZ income	% difference
11 Chief Executives, General Managers and Legislators	\$84,767	\$61,178	\$23,589	38.6%
12 Farmers and Farm Managers	\$35,415	\$39,231	-\$3,816	-9.7%
13 Specialist Managers	\$74,525	\$57,155	\$17,370	30.4%
14 Hospitality, Retail and Service Managers	\$47,525	\$38,316	\$9,209	24.0%
21 Arts and Media Professionals	\$48,388	\$38,774	\$9,614	24.8%
22 Business, Human Resource and Marketing Profs	\$67,240	\$55,143	\$12,097	21.9%
23 Design, Engineering, Science and Transport Profs	\$64,555	\$50,113	\$14,442	28.8%
24 Education Professionals	\$48,153	\$36,579	\$11,574	31.6%
25 Health Professionals	\$57,449	\$47,644	\$9,805	20.6%
26 ICT Professionals	\$74,272	\$57,520	\$16,752	29.1%
27 Legal, Social and Welfare Professionals	\$62,991	\$47,461	\$15,530	32.7%
31 Engineering, ICT and Science Technicians	\$55,724	\$39,871	\$15,853	39.8%
32 Automotive and Engineering Trades Workers	\$50,796	\$38,957	\$11,839	30.4%
33 Construction Trades Workers	\$48,408	\$36,945	\$11,463	31.0%
34 Electrotechnology and Telecommunications Trades	\$55,024	\$43,346	\$11,678	26.9%
35 Food Trades Workers	\$33,858	\$26,245	\$7,613	29.0%
36 Skilled Animal and Horticultural Workers	\$33,106	\$27,526	\$5,580	20.3%
39 Other Technicians and Trades Workers	\$38,147	\$33,287	\$4,860	14.6%
41 Health and Welfare Support Workers	\$40,221	\$28,257	\$11,964	42.3%
42 Carers and Aides	\$25,379	\$16,918	\$8,461	50.0%
43 Hospitality Workers	\$25,614	\$20,484	\$5,130	25.0%
44 Protective Service Workers	\$54,450	\$44,169	\$10,281	23.3%
45 Sports and Personal Service Workers	\$34,805	\$30,452	\$4,353	14.3%
51 Office Managers and Program Administrators	\$51,166	\$38,134	\$13,032	34.2%
52 Personal Assistants and Secretaries	\$39,520	\$32,830	\$6,690	20.4%
53 General Clerical Workers	\$34,650	\$27,891	\$6,759	24.2%
54 Inquiry Clerks and Receptionists	\$32,661	\$24,782	\$7,879	31.8%
55 Numerical Clerks	\$39,439	\$34,293	\$5,146	15.0%
56 Clerical and Office Support Workers	\$34,303	\$27,434	\$6,869	25.0%
59 Other Clerical and Administrative Workers	\$45,750	\$36,579	\$9,171	25.1%
61 Sales Representatives and Agents	\$54,738	\$40,054	\$14,684	36.7%
62 Sales Assistants and Salespersons	\$29,833	\$27,160	\$2,673	9.8%
63 Sales Support Workers	\$29,782	\$21,673	\$8,109	37.4%
71 Machine and Stationary Plant Operators	\$52,255	\$32,921	\$19,334	58.7%
72 Mobile Plant Operators	\$43,692	\$35,482	\$8,210	23.1%
73 Road and Rail Drivers	\$41,903	\$34,110	\$7,793	22.8%
74 Storepersons	\$35,650	\$28,166	\$7,484	26.6%
81 Cleaners and Laundry Workers	\$24,499	\$16,461	\$8,038	48.8%
82 Construction and Mining Labourers	\$46,316	\$34,293	\$12,023	35.1%
83 Factory Process Workers	\$33,496	\$28,623	\$4,873	17.0%
84 Farm, Forestry and Garden Workers	\$29,469	\$25,605	\$3,864	15.1%
85 Food Preparation Assistants	\$22,188	\$15,455	\$6,733	43.6%
89 Other Labourers	\$32,209	\$26,520	\$5,689	21.5%
All occupations	\$47,910	\$38,339	\$9,571	25.0%

Source: ABS and Statistics New Zealand

³⁷ Income from all sources, not adjusted for hours worked.

It is interesting to note that, amongst health professionals (ANZSIC code 25), the trans-Tasman income gap was relatively small (20.6%), while the differentials for the more mid to lower skilled health occupations of 42 (carers and aides) and 41 (health and welfare support workers) was well above average (42.3% and 50.0% respectively).

A different pattern can be observed in the numerically large sales workforce. Here the income gap was relatively small (9.8%) for 63 (sales assistants) who represent people with lower entry level skills, but the gap was greater for those with higher sales skills, such as 61 (sales representatives and agents).

In general, within the wide variations in income differential, the size of the income gap with Australia did not rise according to the skill level required. Some of the lowest skilled jobs showed the largest trans-Tasman income differential. This raises the question, given the open-door migration policy between the two countries, do occupational income variations themselves help to explain the bias among New Zealand expatriates towards lower skilled occupations in Australia?

To investigate this further, the relationship between income and the likelihood of emigration to Australia was examined. Figure 6 plots the adjusted income difference on the x axis against the proportion of New Zealand born people aged 25-44 working in Australia on the y axis. This is identified and plotted for each 2-digit occupation group.³⁸

Figure 6: The average (unweighted) income differential compared with the share of Zealanders (aged 25-44) in each occupation group



Source: ABS and Statistics New Zealand

³⁸ Figure 6 uses the 25-44 years age group, and excludes occupations with fewer than 500 New Zealanders. The proportion of NZ workers in Australia at the 2-digit occupation level is shown in appendix B1.

As would be expected, there was a positive correlation between the two. In other words, a greater trans-Tasman income gap increases the incidence of New Zealanders in the Australian workforce, and a lower income gap decreases it. The correlation coefficient is, however, only moderate at +0.31, which suggests that income differentials are only fairly weakly associated with occupational shares in Australia. The results are shown for New Zealanders aged 25–44, although they did not differ greatly for different age groups. The correlation was still positive but lower for younger ages. Slightly different proportional measures of PPP-adjusted income difference and of the prevalence of New Zealanders in the Australian workforce were tested, but the results shown in Figure 6 gave the best fit.³⁹

While the data in Figure 6 shows a positive correlation, the scatter plot reveals it is not a clean linear relationship. There is a stretched cluster of occupations where the share of New Zealand born people working in them is around the average (16.4%) yet with an income gap varying from 10–50% (the average income gap is 25%). The three occupation groups that stand out with the highest proportion of New Zealand born working in Australia were construction and mining labourers, storepersons and mobile plant operators (labelled). All are medium to lower skilled occupations and characterised by people working in the mining, utilities and infrastructure workforce. All display an average or higher income differential, whilst the occupation with the fourth highest share of New Zealanders in Australia – machinery and plant operators – shows the largest (nearly 60%) income differential.

Looking only at these top four would suggest that people in lower skilled occupations have had a higher probability of emigration to Australia in response to the “pull effect” of higher income. However, the data also shows a number of anomalies. For example, there is a numerically very large lower skilled occupation – carers and aides – whose Australian workforce received a very high income differential (50.0%) yet had a barely above average share of New Zealand born (17.1%). This result may possibly be due to the New Zealand workforce containing a high proportion of females working on a more casual part-time basis. However, this is projected to become a strong area of employment growth in New Zealand, and it faces a relatively high risk from the “pull factor” of Australia.

Another notable exception is 11 (chief executives and managers), which had a large income differential of 38.6% but appears in the bottom right quadrant with a far below average share of the New Zealand born workforce working in Australia. Managers tend to be more skilled and mobile and so might be expected to be especially responsive to positive price signals in Australia. However, they appeared to have a relatively high attachment to the New Zealand side of the Tasman. This was also an occupation that appeared to have high trans-Tasman mobility and a surprisingly strong return flow of New Zealanders, with possible reasons noted earlier.

³⁹ A higher correlation would be obtained if outliers were removed or the population was split into two sub-groups.

It is also surprising to see another skilled occupation group with a high income differential – the engineering and ICT technician group (39.8%) – with only an average share of the New Zealand born workforce (16.7%).

The point far on the lower left is farmers and farm managers, an occupation where average incomes were actually lower than in New Zealand and there was a lower share of New Zealand born. Agriculture is an important sector for New Zealand, and it has been suggested that a lower proportion of New Zealanders work in agricultural occupations in Australia due to historic links to the land making these workers relatively less mobile (Carmichael, 1993, p.102). These results suggest that relatively low incomes among Australian farmers and farm managers were also a factor, with it being the only broad occupation where there was an income advantage in New Zealand.

Census data also shows that, on average, as well as earning more than those at home, New Zealanders in Australia earned more than their Australian counterparts. Table B4 (Appendix B) compares the income of New Zealanders in Australia with the income of all Australians, at prime working ages at the 2-digit occupation level. On average, New Zealand workers earned 3.5% more than all Australian workers. As demonstrated earlier, this was not due to them having higher qualifications on average than Australians. One factor is probably the over-representation of males who tend to work longer hours and earn higher incomes. Another is the higher level of human capital, productivity and motivation that is generally associated with migrant workers.⁴⁰

However, Table B4 also shows that the occupations where New Zealanders gained a large income premium over Australian workers were mostly lower skilled. For example, no professional occupation appeared in the top 10. On the other hand, there were three professional occupations (health, education, and arts and media professionals) where the income of the New Zealand born was the same as or below the rest of the Australian population. If income measures capability, productivity and the best fit for the job, then the areas where New Zealanders in Australia do well in tend to be lower skilled blue collar or service-related occupations.

Income is unlikely to be the only factor influencing occupational choices in Australia. Some groups of workers such as youth may be more mobile than others, irrespective of the pay rates on offer. There may be hidden impediments to New Zealanders in areas such as education, where relatively higher entry requirements are needed or where Australian-based experience or qualifications are desirable. Further factors influence these results, such as the timing, transparency of wage signals and the conditions, such as remote locations, associated with the work. The results do however suggest that income differences provide some explanation for the unusually high concentration of New Zealanders in machinery and plant-related occupations.

⁴⁰ For example, Chiswick (1999) discusses the economic theory and evidence concerning the favourable selectivity of migrants

In summary, changes in relative income levels in Australia are one of the factors that draw New Zealanders across the Tasman, but more detailed statistical analysis is required to more clearly examine the relationship for different occupation groups. It appears that a high income differential enhances Australia's attraction only for certain groups of New Zealand workers. The reasons may require further examination, but the evidence suggests that those with more easily transferable trade and machinery oriented skill sets are particularly responsive to higher income signals in Australia.

5. DISCUSSION AND IMPLICATIONS

While the outflows of workers to Australia and related “pull factors” are well known at an aggregate level, some important sectoral influences are perhaps less well understood. This report helps to identify the gaps in the broad picture by identifying New Zealand’s “migration rate” to Australia at an occupation, industry and educational level.

Overall there are a number of findings in this report which have implications that will be discussed further.

New Zealanders are over-represented in lower skilled work in Australia

The fact that there is an orientation towards lower skilled employment is an important and perhaps overlooked feature of the New Zealand workforce in Australia. In 2006, people from New Zealand were more likely to be working in medium to lower skilled jobs of the blue collar variety, such as trades, technical and machinery workers, or as labourers. On the other hand they were under-represented in professional occupations as well as fast growing service related occupations in sales and retailing.

Many reasons for the gradual pattern towards lower skilled, more manually based employment in Australia are likely. It is probable that higher skilled New Zealanders tend to have more choice of countries to migrate to, whereas the lower skilled, outside those in younger age groups, face more limited choices for long-term work in places like Europe and America.⁴¹

However, there are other reasons to consider:

- There may be impediments to New Zealanders working in some of the higher skilled white collar jobs like law and education in Australia, which require a higher level of locally acquired knowledge and skills.
- In contrast, in many low skilled occupations in Australia, local New Zealand knowledge is readily transferable and initial barriers to entry are likely to be low.
- Trans-Tasman pay differences are greater in some lower skilled jobs, especially those associated with ‘boom’ industries like mining.
- The historic effects of large scale restructuring in the utilities and manufacturing sectors disrupted many New Zealand workplaces in the 1980s and 1990s (although more recent 2001–2006 low skilled outflows have remained strong).
- There may be stronger signalling about the relative benefits, or more active recruitment occurring among particular Australian employer groups.
- The continuance of an award system and union bargaining amongst particular groupings of lower skilled staff in Australia, which may favour groups who

⁴¹ A similar exercise across other OECD country datasets would be needed to confirm whether higher skilled New Zealanders are in fact over-represented in other OECD countries.

have had in New Zealand (since the early 1990s) relatively low bargaining power with employers.⁴²

- The importance of qualitative employment factors such as non-remunerative benefits, lifestyle factors or other reasons may be more strongly associated with some lower skilled occupations.

While there are several plausible reasons for an outflow of lower skilled workers to Australia, it is an important area for New Zealand recruitment and training policies to consider at a firm and sectoral level. While losses of highly skilled workers are often cited as the biggest concern, there is also a need to promote the attraction and/or retention of the 'local' workforce at the lower end of the skills spectrum as well. In particular, the higher proportion of New Zealanders working in these occupations in Australia co-exists with skills shortages and identified shortages of trainees in many of the same occupations such as the building trades in New Zealand. This suggests that imbalances are not occurring because domestic industry or tertiary sector training provides an oversupply of people with the relevant skills in this area.

Losses of lower skilled workers are also important to consider in terms of government policy, as our overall immigration strategy is influenced by the composition of workers moving to and staying in Australia. New Zealand has a traditional focus on attracting permanent migrants to meet shortages of skilled people in high skill jobs and meeting shortages of lower skilled workers via the provision of temporary work permits. If a higher proportion of permanent departures to Australia continue to be lower skilled, this presents challenges to this approach in the longer term.

Some New Zealand industries with strong economic growth prospects may be especially vulnerable to outflows to Australia

Industries such as mineral extraction, utilities and transport infrastructure form a central part of New Zealand's economic growth agenda. While such industries are important drivers of future growth in New Zealand, these are also areas where Australia has gained a disproportionate share of New Zealand's labour resources. In future, to avoid outflows to Australia undermining the growth potential of these sectors, there is a need for planning strategies and policy advice that:

- helps reverse some of the differences in the pull factor of Australia at a sectoral level, and
- enables New Zealand industry to better manage its workplace and future skills supply.

⁴² OECD data (2006) shows that, whilst Australia and New Zealand have a broadly similar union density rate, about 75% of the Australian wage and salary workforce are covered by collective bargaining agreements compared with about 25% in New Zealand.

A lower skilled expatriate workforce in Australia is not associated with a low education profile

From an occupational perspective, prime aged New Zealanders in Australia appear relatively low skilled compared to those in New Zealand. However, in terms of educational qualifications, they have a similar if not higher educational profile to those at home. Measured by educational qualifications, New Zealand therefore appears to be losing many of its higher skilled people to Australia – and at ages above those associated with 'OE' travel among the highly mobile youth segment. This is concerning given the large increase in graduate numbers New Zealand achieved between 2001 and 2006. However, their over-representation in lower skilled occupations implies that many New Zealanders, even disregarding the youth segment, are working in jobs in Australia that do not fully use their formal qualifications.

It is reasonable to assume that some opt to work in intensive manual jobs in lucrative areas such as the mining industry on a temporary basis. However, this finding highlights the importance of ensuring that tertiary education meets domestic skill demand, and enhances opportunities for graduates to find skilled New Zealand-based employment.

Conclusions

This report has given a descriptive analysis of the skills and labour market characteristics of New Zealand born people working in Australia. By comparing the labour market skills and capabilities of New Zealand born people in Australia with the characteristics of those at home, it has broadened our understanding of the sectors and occupations that New Zealanders work in across the Tasman.

This report has noted some limitations with the data used. To better inform research and workforce planning in New Zealand, further research would be valuable on:

- New Zealand citizens born outside New Zealand, who are not easily identifiable in Australia. Future research into the diaspora in Australia should try to include this segment as they comprise a significant part of our labour force, their education levels are different and their employment outcomes in Australia may differ.
- Longitudinal data covering what happens to New Zealand migrants when they enter the Australian labour market. This constrains the kind of analysis that can be carried out, such as explaining how skills and other factors influence occupational choice.
- Providing a more global context, information about the skills and occupations of the New Zealand diaspora in other countries would be useful to compare and contrast with those in Australia.

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APPENDIX A: SKILL GROUPINGS

Table A1: Mapping broad skills to detailed occupations

2-digit ANZSCO Occupation group	Skill level
10 Managers, nfd	1
11 Chief Executives, General Managers and Legislators	1
12 Farmers and Farm Managers	1
13 Specialist Managers	1
14 Hospitality, Retail and Service Managers	2
20 Professionals, nfd	1
21 Arts and Media Professionals	1
22 Business, Human Resource and Marketing Professionals	1
23 Design, Engineering, Science and Transport Professionals	1
24 Education Professionals	1
25 Health Professionals	1
26 ICT Professionals	1
27 Legal, Social and Welfare Professionals	1
30 Technicians and Trades Workers, nfd	3
31 Engineering, ICT and Science Technicians	2
32 Automotive and Engineering Trades Workers	3
33 Construction Trades Workers	3
34 Electrotechnology and Telecommunications Trades Workers	3
35 Food Trades Workers	3
36 Skilled Animal and Horticultural Workers	3
39 Other Technicians and Trades Workers	3
40 Community and Personal Service Workers, nfd	4
41 Health and Welfare Support Workers	2
42 Carers and Aides	4
43 Hospitality Workers	4
44 Protective Service Workers	4
45 Sports and Personal Service Workers	4
50 Clerical and Administrative Workers, nfd	4
51 Office Managers and Program Administrators	2
52 Personal Assistants and Secretaries	3
53 General Clerical Workers	4
54 Inquiry Clerks and Receptionists	4
55 Numerical Clerks	4
56 Clerical and Office Support Workers	5
59 Other Clerical and Administrative Workers	4
60 Sales Workers, nfd	5
61 Sales Representatives and Agents	3
62 Sales Assistants and Salespersons	5
63 Sales Support Workers	5
70 Machinery Operators and Drivers, nfd	4
71 Machine and Stationary Plant Operators	4
72 Mobile Plant Operators	4
73 Road and Rail Drivers	4
74 Storepersons	4
80 Labourers, nfd	5
81 Cleaners and Laundry Workers	5
82 Construction and Mining Labourers	5
83 Factory Process Workers	5
84 Farm, Forestry and Garden Workers	5
85 Food Preparation Assistants	5
89 Other Labourers	5
99 Not Stated or Unidentifiable	Not coded

Table A2: Mapping trans-Tasman highest educational qualifications

NZ highest qualification (for 2006 Census)	Australia highest qualification (for 2006 Census)	Final grouping (NZ)	Final grouping (Aus)	Grouping used in report
No qualification	No qualification	04 No post-school qualification	04 No post-school qualification	None or school only
Level 1 certificate (at school)	N/A	03 Cert L1-3	04 No post-school qualification	Post-school L1-6
Level 2 certificate (at school)	N/A	03 Cert L1-3	04 No post-school qualification	Post-school L1-6
Level 3 certificate (at school)	N/A	03 Cert L1-3	04 No post-school qualification	Post-school L1-6
Level 1 certificate (post school)	Certificate I (post-school)	03 Cert L1-3	03 Cert L1-3	Post-school L1-6
Level 2 certificate (post-school)	Certificate II (post-school)	03 Cert L1-3	03 Cert L1-3	Post-school L1-6
Level 3 certificate (post-school)	Certificate III (post-school)	03 Cert L1-3	03 Cert L1-3	Post-school L1-6
Level 4 certificate (post school)	Certificate IV (post-school)	02 Cert L4-6	02 Cert L4-6	Post-school L1-6
Level 5 diploma/certificate	Diploma level	02 Cert L4-6	02 Cert L4-6	Post-school L1-6
Level 6 graduate certificate, level 6 diploma/certificate	Advanced diploma and associate degree level	02 Cert L4-6	02 Cert L4-6	Post-school L1-6
Bachelor's degree, level 7 graduate diploma/certificate, level 7 diploma/certificate	Bachelor's degree	01 Degree	01 Degree	Degree (L7) or higher
Post-graduate diploma/certificate, bachelor honours	Graduate diploma and certificate	01 Degree	01 Degree	Degree (L7) or higher
Master's degree	Master's degree	01 Degree	01 Degree	Degree (L7) or higher
Doctorate degree	Doctoral or post-graduate degree	01 Degree	01 Degree	Degree (L7) or higher
Response unidentifiable	Response unidentifiable	Unknown or inadequately described	Unknown or inadequately described	Unknown or inadequately described
Not stated	Not stated	Unknown or inadequately described	Unknown or inadequately described	Unknown or inadequately described

APPENDIX B: DETAILED DATA TABLES

Table B1: Detailed groupings and relative shares of prime aged workers by detailed occupation

2-digit ANZSCO Occupation group	NZ-born who work in Australia	NZ-born who work in NZ	All Australia	NZ-born working in Australia as share of:	
				All NZ-born working in Australasia	All Australian workers
11 Chief Executives, General Managers and Legislators	2,158	37,158	64,168	5.5%	3.4%
12 Farmers and Farm Managers	1,318	34,836	95,255	3.6%	1.4%
13 Specialist Managers	12,736	83,775	416,216	13.2%	3.1%
14 Hospitality, Retail and Service Managers	7,693	33,780	273,268	18.6%	2.8%
21 Arts and Media Professionals	1,639	9,288	50,472	15.0%	3.2%
22 Business, Human Resource and Marketing Professionals	9,272	46,692	343,677	16.6%	2.7%
23 Design, Engineering, Science and Transport Professionals	4,781	27,225	188,697	14.9%	2.5%
24 Education Professionals	4,630	47,388	303,802	8.9%	1.5%
25 Health Professionals	7,618	32,238	270,282	19.1%	2.8%
26 ICT Professionals	3,232	15,369	124,064	17.4%	2.6%
27 Legal, Social and Welfare Professionals	2,187	18,519	97,136	10.6%	2.3%
31 Engineering, ICT and Science Technicians	3,733	17,784	127,136	17.3%	2.9%
32 Automotive and Engineering Trades Workers	6,230	26,745	198,142	18.9%	3.1%
33 Construction Trades Workers	6,497	24,636	178,310	20.9%	3.6%
34 Electrotechnology and Telecommunications Trades Workers	2,744	10,419	111,877	20.8%	2.5%
35 Food Trades Workers	2,873	10,167	84,283	22.0%	3.4%
36 Skilled Animal and Horticultural Workers	2,061	11,229	57,857	15.5%	3.6%
39 Other Technicians and Trades Workers	3,443	17,133	111,553	16.7%	3.1%
41 Health and Welfare Support Workers	2,049	8,004	68,496	20.4%	3.0%
42 Carers and Aides	5,557	27,642	207,489	16.7%	2.7%

2-digit ANZSCO Occupation group	NZ-born who work in Australia	NZ-born who work in NZ	All Australia	NZ-born working in Australia as share of:	
				All NZ-born working in Australasia	All Australian workers
43 Hospitality Workers	2,669	9,528	74,269	21.9%	3.6%
44 Protective Service Workers	2,728	14,919	93,441	15.5%	2.9%
45 Sports and Personal Service Workers	2,317	11,466	69,813	16.8%	3.3%
51 Office Managers and Program Administrators	4,425	19,782	147,639	18.3%	3.0%
52 Personal Assistants and Secretaries	2,808	12,474	97,220	18.4%	2.9%
53 General Clerical Workers	4,907	33,231	181,174	12.9%	2.7%
54 Inquiry Clerks and Receptionists	3,948	14,382	129,652	21.5%	3.0%
55 Numerical Clerks	6,027	22,185	221,453	21.4%	2.7%
56 Clerical and Office Support Workers	1,739	8,313	59,070	17.3%	2.9%
59 Other Clerical and Administrative Workers	4,068	16,797	135,212	19.5%	3.0%
61 Sales Representatives and Agents	4,218	28,899	122,522	12.7%	3.4%
62 Sales Assistants and Salespersons	6,862	36,363	264,157	15.9%	2.6%
63 Sales Support Workers	1,663	7,011	57,797	19.2%	2.9%
71 Machine and Stationary Plant Operators	5,295	16,299	125,074	24.5%	4.2%
72 Mobile Plant Operators	3,690	10,305	69,992	26.4%	5.3%
73 Road and Rail Drivers	6,448	23,526	165,580	21.5%	3.9%
74 Storepersons	3,136	8,154	64,029	27.8%	4.9%
81 Cleaners and Laundry Workers	4,446	16,713	141,636	21.0%	3.1%
82 Construction and Mining Labourers	4,862	8,316	82,765	36.9%	5.9%
83 Factory Process Workers	5,289	21,204	144,510	20.0%	3.7%
84 Farm, Forestry and Garden Workers	1,925	22,062	59,120	8.0%	3.3%
85 Food Preparation Assistants	1,082	3,054	45,765	26.2%	2.4%
89 Other Labourers	3,087	22,863	94,688	11.9%	3.3%
All occupations	185,873	965,052	6,213,565	16.1%	3.0%

Table B2: Detailed industries of prime aged NZ born working in New Zealand and Australia, 2006

Industry (2-digit ANZSIC)	NZ-born who work in Australia	NZ-born who work in NZ	All Australia	NZ-born working in Australia as share of:	
				All NZ-born working in Australasia	All Australian workers
A01 Agriculture	2,705	55,779	138,394	4.6%	2.0%
A02 Aquaculture	64	654	2,442	8.9%	2.6%
A03 Forestry and Logging	189	3,687	5,035	4.9%	3.8%
A04 Fishing, Hunting and Trapping	109	1,344	4,481	7.5%	2.4%
A05 Agriculture, Forestry and Fishing Support Services	460	10,164	11,030	4.3%	4.2%
B06 Coal Mining	734	507	21,398	59.1%	3.4%
B07 Oil and Gas Extraction	272	189	7,334	59.0%	3.7%
B08 Metal Ore Mining	1,907	321	28,030	85.6%	6.8%
B09 Non-Metallic Mineral Mining and Quarrying	269	1,032	6,154	20.7%	4.4%
B10 Exploration and Other Mining Support Services	927	594	14,540	60.9%	6.4%
C11 Food Product Manufacturing	4,279	29,076	112,082	12.8%	3.8%
C12 Beverage and Tobacco Product Manufacturing	699	2,523	21,788	21.7%	3.2%
C13 Textile, Leather, Clothing and Footwear Manufacturing	919	8,121	31,567	10.2%	2.9%
C14 Wood Product Manufacturing	1,080	10,812	33,027	9.1%	3.3%
C15 Pulp, Paper and Converted Paper Product Manufacturing	696	2,721	18,336	20.4%	3.8%
C16 Printing (including the Reproduction of Recorded Media)	1,066	5,712	31,296	15.7%	3.4%
C17 Petroleum and Coal Product Manufacturing	194	729	5,035	21.0%	3.9%
C18 Basic Chemical and Chemical Product Manufacturing	1,220	2,994	33,058	29.0%	3.7%
C19 Polymer Product and Rubber Product Manufacturing	1,243	5,040	33,332	19.8%	3.7%
C20 Non-Metallic Mineral Product Manufacturing	1,052	3,441	29,855	23.4%	3.5%
C21 Primary Metal and Metal Product Manufacturing	1,861	2,409	57,357	43.6%	3.2%
C22 Fabricated Metal Product Manufacturing	1,568	11,253	45,107	12.2%	3.5%
C23 Transport Equipment Manufacturing	1,901	6,111	69,531	23.7%	2.7%
C24 Machinery and Equipment Manufacturing	2,125	13,173	76,328	13.9%	2.8%
C25 Furniture and Other Manufacturing	1,075	5,955	31,490	15.3%	3.4%
D26 Electricity Supply	773	2,226	33,797	25.8%	2.3%

Industry (2-digit ANZSIC)	NZ-born who work in Australia	NZ-born who work in NZ	All Australia	NZ-born working in Australia as share of:	
				All NZ-born working in Australasia	All Australian workers
D27 Gas Supply	109	369	3,748	22.8%	2.9%
D28 Water Supply, Sewerage and Drainage Services	281	915	15,891	23.5%	1.8%
D29 Waste Collection, Treatment and Disposal Services	588	2,193	13,686	21.1%	4.3%
E30 Building Construction	6,260	24,978	153,170	20.0%	4.1%
E31 Heavy and Civil Engineering Construction	1,831	10,923	39,263	14.4%	4.7%
E32 Construction Services	10,832	45,882	287,578	19.1%	3.8%
F33 Basic Material Wholesaling	1,834	9,828	56,372	15.7%	3.3%
F34 Machinery and Equipment Wholesaling	2,295	14,523	69,786	13.6%	3.3%
F35 Motor Vehicle and Motor Vehicle Parts Wholesaling	597	3,891	19,718	13.3%	3.0%
F36 Grocery, Liquor and Tobacco Product Wholesaling	1,911	8,781	50,814	17.9%	3.8%
F37 Other Goods Wholesaling	2,288	13,047	65,413	14.9%	3.5%
F38 Commission-Based Wholesaling	113	1,773	4,427	6.0%	2.6%
G39 Motor Vehicle and Motor Vehicle Parts Retailing	1,507	8,883	50,645	14.5%	3.0%
G40 Fuel Retailing	572	3,348	20,277	14.6%	2.8%
G41 Food Retailing	4,113	18,876	156,512	17.9%	2.6%
G42 Other Store-Based Retailing	7,999	44,526	298,431	15.2%	2.7%
G43 Non-Store Retailing and Retail Commission-Based Buying and/or Selling	182	2,781	3,902	6.1%	4.7%
H44 Accommodation	3,430	11,757	74,261	22.6%	4.6%
H45 Food and Beverage Services	6,273	22,383	207,905	21.9%	3.0%
I46 Road Transport	5,930	17,856	147,919	24.9%	4.0%
I47 Rail Transport	529	975	26,278	35.2%	2.0%
I48 Water Transport	223	723	5,252	23.6%	4.2%
I49 Air and Space Transport	1,047	4,800	31,374	17.9%	3.3%
I50 Other Transport	167	1,602	3,781	9.4%	4.4%
I51 Postal and Courier Pick-up and Delivery Services	1,104	7,923	42,215	12.2%	2.6%
I52 Transport Support Services	1,337	7,215	35,318	15.6%	3.8%
I53 Warehousing and Storage Services	788	2,652	14,226	22.9%	5.5%
J54 Publishing (except Internet and Music Publishing)	1,203	5,055	34,318	19.2%	3.5%
J55 Motion Picture and Sound Recording Activities	358	3,225	11,237	10.0%	3.2%
J56 Broadcasting (except Internet)	526	2,907	16,636	15.3%	3.2%
J58 Telecommunications Services	1,588	4,443	53,272	26.3%	3.0%

Industry (2-digit ANZSIC)	NZ-born who work in Australia	NZ-born who work in NZ	All Australia	NZ-born working in Australia as share of:	
				All NZ-born working in Australasia	All Australian workers
J59 Internet Service Providers, Web Search Portals and Data Processing Services	234	1,803	7,243	11.5%	3.2%
J60 Library and Other Information Services	119	1,929	5,398	5.8%	2.2%
K62 Finance	3,651	21,012	135,696	14.8%	2.7%
K63 Insurance and Superannuation Funds	1,698	4,854	52,822	25.9%	3.2%
K64 Auxiliary Finance and Insurance Services	2,370	8,868	76,748	21.1%	3.1%
L66 Rental and Hiring Services (except Real Estate)	1,125	6,657	26,095	14.5%	4.3%
L67 Property Operators and Real Estate Services	2,326	19,908	72,363	10.5%	3.2%
M Professional, Scientific and Technical Services	12,537	79,713	437,660	13.6%	2.9%
N72 Administrative Services	4,335	19,482	110,740	18.2%	3.9%
N73 Building Cleaning, Pest Control and Other Support Services	3,133	12,027	89,097	20.7%	3.5%
O75 Public Administration	5,499	25,254	309,391	17.9%	1.8%
O76 Defence	963	4,911	48,689	16.4%	2.0%
O77 Public Order, Safety and Regulatory Services	3,031	17,511	111,418	14.8%	2.7%
P80 Preschool and School Education	4,880	52,617	335,538	8.5%	1.5%
P81 Tertiary Education	2,725	13,422	121,100	16.9%	2.3%
P82 Adult, Community and Other Education	1,123	9,354	47,402	10.7%	2.4%
Q84 Hospitals	6,339	21,450	236,807	22.8%	2.7%
Q85 Medical and Other Health Care Services	5,115	29,757	196,788	14.7%	2.6%
Q86 Residential Care Services	3,103	13,413	98,067	18.8%	3.2%
Q87 Social Assistance Services	3,880	15,369	140,989	20.2%	2.8%
R89 Heritage Activities	300	3,006	11,200	9.1%	2.7%
R90 Creative and Performing Arts Activities	547	2,688	15,888	16.9%	3.4%
R91 Sports and Recreation Activities	1,244	8,409	35,062	12.9%	3.5%
R92 Gambling Activities	474	1,296	15,201	26.8%	3.1%
S94 Repair and Maintenance	2,978	17,148	107,532	14.8%	2.8%
S95 Personal and Other Services	3,309	21,708	113,198	13.2%	2.9%
All industries	185,866	965,040	6,213,573	16.1%	3.0%

Table B3: Trans-Tasman mobility of prime aged workers by detailed occupation

2-Digit ANZSCO occupation group	Moved to Australia 2001-2006	Returned to NZ 2001-06	Share of NZ-born in Australia who moved 2001-06	Return ratio
11 Chief Executives, General Managers and Legislators	316	501	14.6%	1.6
12 Farmers and Farm Managers	317	273	24.1%	0.9
13 Specialist Managers	2,304	1,545	18.1%	0.7
14 Hospitality, Retail and Service Managers	1,252	639	16.3%	0.5
21 Arts and Media Professionals	275	201	16.8%	0.7
22 Business, Human Resource and Marketing Professionals	2,016	843	21.7%	0.4
23 Design, Engineering, Science and Transport Professionals	1,166	489	24.4%	0.4
24 Education Professionals	753	438	16.3%	0.6
25 Health Professionals	1,604	576	21.1%	0.4
26 ICT Professionals	733	297	22.7%	0.4
27 Legal, Social and Welfare Professionals	386	234	17.6%	0.6
31 Engineering, ICT and Science Technicians	571	288	15.3%	0.5
32 Automotive and Engineering Trades Workers	1,103	459	17.7%	0.4
33 Construction Trades Workers	1,059	669	16.3%	0.6
34 Electrotechnology and Telecommunications Trades Workers	493	168	18.0%	0.3
35 Food Trades Workers	658	345	22.9%	0.5
36 Skilled Animal and Horticultural Workers	288	237	14.0%	0.8
39 Other Technicians and Trades Workers	603	282	17.5%	0.5
41 Health and Welfare Support Workers	265	120	12.9%	0.5
42 Carers and Aides	711	363	12.8%	0.5
43 Hospitality Workers	665	294	24.9%	0.4
44 Protective Service Workers	299	174	11.0%	0.6
45 Sports and Personal Service Workers	499	240	21.5%	0.5
51 Office Managers and Program Administrators	743	282	16.8%	0.4
52 Personal Assistants and Secretaries	446	213	15.9%	0.5
53 General Clerical Workers	732	489	14.9%	0.7
54 Inquiry Clerks and Receptionists	798	243	20.2%	0.3
55 Numerical Clerks	1,002	336	16.6%	0.3
56 Clerical and Office Support Workers	215	123	12.4%	0.6
59 Other Clerical and Administrative Workers	685	222	16.8%	0.3
61 Sales Representatives and Agents	798	531	18.9%	0.7
62 Sales Assistants and Salespersons	1,095	645	16.0%	0.6
63 Sales Support Workers	300	90	18.0%	0.3
71 Machine and Stationary Plant Operators	814	288	15.4%	0.4
72 Mobile Plant Operators	663	207	18.0%	0.3
73 Road and Rail Drivers	1,201	393	18.6%	0.3
74 Storepersons	722	153	23.0%	0.2
81 Cleaners and Laundry Workers	772	237	17.4%	0.3
82 Construction and Mining Labourers	925	240	19.0%	0.3
83 Factory Process Workers	1,258	315	23.8%	0.3
84 Farm, Forestry and Garden Workers	346	357	18.0%	1.0
85 Food Preparation Assistants	177	45	16.4%	0.3
89 Other Labourers	524	447	17.0%	0.9
All occupations	33,543	16,008	18.0%	0.5

Table B4: Relative difference in Census income between NZ born and all residents working in Australia, (aged 25-44) 2006⁴³

2-Digit ANZSCO Occupation group	All Australian residents (AUD)	NZ-born Australian residents (AUD)	% income difference (income of NZ born v all Australian residents)
85 Food Preparation Assistants	\$22,188	\$25,897	16.7%
71 Machine and Stationary Plant Operators	\$52,255	\$59,417	14.2%
82 Construction and Mining Labourers	\$46,316	\$52,342	13.7%
36 Skilled Animal and Horticultural Workers	\$33,106	\$37,208	12.9%
12 Farmers and Farm Managers	\$35,415	\$39,886	12.7%
43 Hospitality Workers	\$25,614	\$28,495	11.6%
35 Food Trades Workers	\$33,858	\$37,455	10.8%
73 Road and Rail Drivers	\$41,903	\$46,115	10.4%
52 Personal Assistants and Secretaries	\$39,520	\$43,385	10.0%
89 Other Labourers	\$32,209	\$35,236	9.7%
81 Cleaners and Laundry Workers	\$24,499	\$26,659	9.0%
62 Sales Assistants and Salespersons	\$29,833	\$32,509	9.0%
84 Farm, Forestry and Garden Workers	\$29,469	\$32,024	8.9%
39 Other Technicians and Trades Workers	\$38,147	\$41,453	8.8%
33 Construction Trades Workers	\$48,408	\$52,537	8.7%
45 Sports and Personal Service Workers	\$34,805	\$37,588	8.1%
32 Automotive and Engineering Trades Workers	\$50,796	\$54,523	7.4%
31 Engineering, ICT and Science Technicians	\$55,724	\$59,626	7.1%
26 ICT Professionals	\$74,272	\$79,445	7.1%
72 Mobile Plant Operators	\$43,692	\$46,457	6.6%
55 Numerical Clerks	\$39,439	\$41,602	5.5%
11 Chief Executives, Gen Mgrs & Legislators	\$84,767	\$88,871	4.9%
63 Sales Support Workers	\$29,782	\$31,250	4.9%
27 Legal, Social and Welfare Professionals	\$62,991	\$65,931	4.6%
42 Carers and Aides	\$25,379	\$26,444	4.3%
54 Inquiry Clerks and Receptionists	\$32,661	\$34,000	4.1%
22 Business, Human Resource and Marketing Professionals	\$67,240	\$69,566	3.5%
14 Hospitality, Retail and Service Managers	\$47,525	\$49,134	3.3%
83 Factory Process Workers	\$33,496	\$34,596	3.3%
56 Clerical and Office Support Workers	\$34,303	\$35,340	3.2%
53 General Clerical Workers	\$34,650	\$35,664	2.9%
13 Specialist Managers	\$74,525	\$76,701	2.9%
23 Design, Engineering, Science and Transport Professionals	\$64,555	\$65,820	1.9%
34 Electrotechnology and Telecommunications Trades Workers	\$55,024	\$56,001	1.7%
61 Sales Representatives and Agents	\$54,738	\$55,455	1.2%
51 Office Managers and Program Administrators	\$51,166	\$51,798	1.1%
74 Storepersons	\$35,650	\$36,007	1.0%
25 Health Professionals	\$57,449	\$57,842	0.5%
59 Other Clerical and Administrative Workers	\$45,750	\$45,375	-0.9%

⁴³ Income from all sources, not adjusted for hours worked.

2-Digit ANZSCO Occupation group	All Australian residents (AUD)	NZ-born Australian residents (AUD)	% income difference (income of NZ born v all Australian residents)
24 Education Professionals	\$48,153	\$47,508	-1.4%
41 Health and Welfare Support Workers	\$40,221	\$38,894	-3.5%
21 Arts and Media Professionals	\$48,388	\$46,134	-4.8%
All occupations	\$47,910	\$49,666	3.5%

APPENDIX C: STATISTICAL DEFINITIONS

Labour force

This is defined in both Australia and New Zealand as people aged 15 years and over currently employed for more than one hour a week. The proportion of the resident population identified in the Census who worked more than one hour a week in the reference period is identified in this report as the employment rate.

Industry classification

Industries in the dataset are coded according to the Australia and New Zealand Standard Industry Classification (ANZSIC06). Level 2 classification is the most detailed grouping used in this report. This enables the identification of 105 industry groups excluding those not elsewhere included.

An industry is defined as the type of activity undertaken by the organisation, enterprise, business or unit of economic activity within which a person aged 15 years or over is employed.

Occupation classification

An occupation is defined as a set of jobs that require the performance of similar or identical tasks. Occupations in the dataset are coded according to a skill-based occupation classification – the Australia and New Zealand Standard Classification of Occupations 2006 (ANZSCO6). Both Australia and New Zealand used this common occupational classification in 2006. Level 2 is the most detailed classification used in this report, which enables the identification of 43 occupation groups excluding those not elsewhere included. A feature of the ANZSCO occupation grouping is that it is skill-based and assigns each occupation to a skill level of 1–5. More detailed occupation classifications are available in both Australia and New Zealand, and trans-Tasman differences at more detailed levels are examined by Newell (2009).

There is a considerable difference in the size of the residuals in the New Zealand occupational classification, with 5.7% of the usually resident New Zealand workforce but only 1.7% of the usually resident Australian workforce unclassified to any occupation on the respective Census nights. This difference is due to Australia using more rigorous occupational capture and coding methods as well as making more assumptions regarding the occupation a worker might belong to.

Although Statistics New Zealand and the Australian Bureau of Statistics (ABS) both use the aligned ANZSCO classification, there remain some differences in defining occupations in both countries. In addition, the ABS use different methods to code responses and use several more flexible categories not used in the New Zealand Census such as '10 – Managers not further defined'. This meant that 3,769 New Zealanders working in Australia in 2006 (1.5% of the total New Zealand born workforce) were classified into categories that were not used in New Zealand at the 2-digit level. These were not included in detailed occupation-based comparisons. There is a slightly greater tendency for people recorded in the New Zealand Census to be coded as managers.

Rounding and Percentages

Rounding is used in all Census datasets, therefore grouped totals are not always identical. Percentages that exclude missing values from the population denominator are noted.

Highest qualification achieved

A qualification is a formally recognised award for education and training attainment. In New Zealand and Australia, each secondary school and post-school qualification is assigned to one of 10 levels on the National Qualifications Framework, with the level depending on the complexity of the skills and knowledge that are being recognised. Level 1 qualifications are the least complex and are open-ended downward to capture all learning. Level 10 is the most complex. The levels do not equate to years spent learning but reflect the content of the qualification.

The highest qualification achieved used in this report comes from both Censuses. A detailed definition of which New Zealand qualifications are coded to each level in New Zealand is in the Statistics New Zealand website at:

http://www.stats.govt.nz/methods_and_services/surveys-and-methods/classifications-and-standards/classification-related-stats-standards/qualifications/appendix-1.aspx.

The derivation of the three broad groupings used to compare New Zealand and Australian qualifications is shown in Table A2 (Appendix A).

The groupings have been made broad to allow for considerable trans-Tasman differences in the educational systems and the way the data is collected. For example, some New Zealand qualifications acquired beyond school but below degree level appear more likely to be coded to levels 1–3 whereas, in Australia, they tend to be at level 4. In addition, not all certificates gained at school were able to be separated from those gained post-school. As a result, qualifications achieved at levels 1–3 and 4–6 are grouped together as post-school qualifications. The N/A cells in Table A2 indicate an incongruence where there was no equivalent entry in the Australian dataset.

Field of study

The field of study represents the main topic or field of study of a qualification. Education field of study is a hierarchical classification of three levels. Excluding residuals, level 1 (broad fields) has 13 categories, level 2 (narrow fields) has 72 categories and level 3 (detailed fields) has 379 categories.

The grouping used in this report are at the level 1 (broad) level, based on the New Zealand Standard Classification of Education – Field of Study v1.0 which is very similar to the broad grouping used in Australia. 'Subject' applies to a post-school qualification, not to a secondary school qualification. There are 11 standard outputs and 78 detailed for post-school subjects used in both Australia and New Zealand. Only standard outputs are shown here.

Ethnicity

This study does not include ethnicity as a variable among the New Zealand born. However, findings tend to support those of other studies that show a strong Māori dimension to emigration to Australia, given Māori are over-represented in lower to medium skilled occupations where New Zealanders are more likely to be working in Australia.

Skill level groupings

The ANZSCO occupation coding defines five skill levels based on formal education and training, previous experience and on-the-job training. In general, growth in the range and complexity of the tasks involved, the amount of formal education, previous experience and on-the-job training required to perform the tasks increases the skill level. Table A1 (Appendix A) shows the skill level given to each 2-digit ANZSCO occupation, with 1 being the highest and 5 being the lowest. In a few cases, a composite or average skill level is shown if variable skill levels were allocated at a 2-digit occupational level.

Permanent and long-term arrivals and departures

Permanent and long-term arrivals and departures are the official measure of New Zealand's migration flows. It includes people who arrive in New Zealand intending to stay for a period of 12 months or more, plus New Zealand residents returning after an absence of 12 months or more. Included in the former group are people with New Zealand residency as well as students and holders of time-limited work permits. The PLT departures include New Zealand residents intending to depart for 12 months or more plus overseas visitors departing New Zealand after a stay of 12 months or more. The PLT series that identifies New Zealanders by country of birth is available back to 2001. As noted in Section 1.2, figures are affected by 'category jumping', which occurs when some New Zealanders heading for Australia change their category from permanent and long-term to short-term or vice versa after leaving the country. These impact on the reliability of trans-Tasman migration data. Some studies suggest that this led to an understatement of migrant return flows to New Zealand in 2002–2006 in particular.

Census income and purchasing power parity (PPP)

Total annual personal income is collected from the Census in both New Zealand and Australia. It shows annual gross income earned from all sources, such as dividends and superannuation, not just from wages and salaries. Income by occupation is the average earned for all members of the group regardless of hours worked. Occupations where a higher proportion are employed full-time are therefore more likely to receive higher incomes. People employed on a full-year basis also tend to have higher incomes than those employed part-year.

Purchasing power parities (PPPs) provide an internationally recognised way of converting different countries' measures into a common currency unit and price. The PPPs are a measure of the relative domestic prices of the components that form GDP in each country. Because prices are directly observed rather than inferred through exchange rates, more meaningful comparisons can be made between the volumes of goods and services purchased in different countries. It

therefore accounts more robustly for differences in the relative cost of living in different countries. The 2005 benchmark year results – the PPP indexes for final expenditure on household final consumption – were calculated as 139 and 152 for Australia and New Zealand respectively (OECD = 100).⁴⁴

To compare Australian income with New Zealand income, the two indices are divided, i.e. an income of NZ\$30,000 multiplied by a ratio of 139/152 equals A\$27,434 in Australian household consumption terms. Conversely, an income of A\$30,000 multiplied by 152/139 represents an income of NZ\$32,806 in New Zealand household consumption terms.

While a PPP measure of relative incomes is imperfect, it is superior to exchange rate-based comparison, which is influenced by external factors such as terms of trade. The chosen benchmark year was the 2005 calendar year, which is likely to be the best match against 2006 Census data, as the New Zealand Census asks for income in the 12 months ending on 31 March 2006 whereas, for Australia, it was the 12 months ending on 8 August 2006. A weekly income comparison would have been preferred, but while the Australian form collects weekly income, the New Zealand form does not.

The PPP adjustments to gross annual incomes do not account for inter-country differences in tax, social assistance and income support provisions, insurance levies and other deductions and therefore should be interpreted with caution. There are many important differences in taxation between the two countries. For example, there is greater progressivity in the personal income tax scale in Australia – lower marginal tax rates at lower incomes and higher tax rates at much higher incomes (New Zealand Institute of Economic Research, 2006). Another factor to consider is the very large variation in wage levels that occurs across geographical locations in both New Zealand and Australia.

⁴⁴ For more discussion on the Eurostat PPP methodology used by Statistics New Zealand, see <http://www.stats.govt.nz/Publications/Prices/purchasing-power-parities.aspx>.

