LEAVING SO SOON?
SKILLED MIGRANTS IN NEW ZEALAND:
WHO STAYS AND WHO GOES?

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Abstract

New Zealand's ability to attract the migrants it needs is crucial to maximising the contribution migration makes to the economy. However, an area of equal importance is how well New Zealand retains the migrants it attracts. This paper presents findings from an analysis of data from administrative sources and the Longitudinal Immigration Survey: New Zealand (LisNZ). We explore which factors are associated with the retention of skilled migrants in their first years after taking up residence in New Zealand – that is, 'who stays and who goes?'.Among other results, we find that more educated migrants are generally less likely to stay in New Zealand. However, this effect is stronger for Asians and South Africans than for other migrants.

Introduction

The importance of immigration to the New Zealand labour market is well established, with research consistently highlighting the enormous benefits migrants make to the New Zealand economy (for example, Slack, Wu and Nana 2008, Nana, Sanderson and Hodgson 2009). In 2006 a quarter of New Zealand's workforce was born outside of New Zealand, and between 2001 and 2006, more than half of New Zealand's workforce growth came from permanent and temporary migrants (Nana and Sanderson 2008). Recent research from the Department of Labour has also highlighted the significant contribution migrants make to the New Zealand economy. The net inflow of around 20,000 migrants annually in recent years is estimated to add around $1.9 billion per year to GDP (Nana et al 2009).

New Zealand's ability to attract the migrants it needs is crucial to maximising the contribution migration makes to the economy. However, an area of equal importance is how well New Zealand retains the migrants it attracts. This is reinforced by recent research that shows employment rates of migrants only catch up to those of their New Zealand-born counterparts after approximately 10 to 15 years in New Zealand (Stillman and Maré 2009). Better retention of migrants has the potential to transform more of the short-term economic contribution noted above into a sustained, long-term contribution. Nana and Sanderson (2009) note that "a focus should be on the qualifications of migrants and their retention (ie ensuring they stay in New Zealand)", also noting "the importance of further study to establish and understand the determinants of outmigration such as policy, migrant characteristics or the buoyant economy".

Since the 1990s New Zealand has increasingly sought to use migration to alleviate skills shortages in the labour market. Compared to other countries in the OECD New Zealand has not only a relatively large and highly skilled overseas-born population, but also a relatively large and highly skilled diaspora (see, for example, Dumont and Lemaître 2005, Stillman and Velamuri 2010). The introduction of three new 'Work to Residence' work permits in 2002 and subsequent implementation of the Skilled Migrant Category (SMC) in 2003 marked a conscious shift towards encouraging the retention of highly skilled temporary migrants (Merwood 2006). Prospective migrants are given additional points under the SMC points system for a job offer, New Zealand work experience and/or New Zealand qualifications. Skilled migrants have been the main source of residence approvals for many years, and recent figures show that in 2008/09 SMC made up 59% of approvals (IMSED Research 2010).

In considering the implications of migrants leaving New Zealand, it is important to have some understanding of the opportunity cost involved. What were the skills and experience that these migrants took with them when they left? Of particularly interest is the question of whether New Zealand is losing the 'best and brightest', ie the most skilled and qualified migrants, or rather simply those who have failed to settle happily in New Zealand and (should they have stayed) may have always struggled to settle happily here. This paper makes a start at understanding issues of skilled migrant retention in New Zealand, by answering the question 'who stays and who goes?' through analysis of longitudinal administrative and survey data.

An early departure cannot always be viewed as a failure – the migrant may have achieved their migration objectives, and made a worthwhile contribution to both their employer and to the New Zealand economy in their time in New Zealand. Nevertheless, an early departure from New Zealand could be viewed as at best an under-utilisation of that migrant's skills and resources, and at worst a failure for the migrant, the employer and/or New Zealand itself.

International context

The increased international movement of migrants, particularly skilled migrants, is a feature of the "age of migration" (Castles and Miller 2003, Hugo 1999). Globalisation, improved and cheaper international transport, and opened borders, coupled with increased international competition for skilled migrants have contributed to increased mobility among skilled international migrants. As Steven Vertovec (2002: 2) has noted, for the highly skilled:

> 'migration' may not now be the most accurate term. Instead, 'movement' or 'mobility' may be more apt terms ... because migration has connotations of permanency or long-term stay, whereas the movement of many highly skilled persons tends, today, to be intermittent and short-term.

So it can no longer be expected that skilled migrants granted residence in a country will stay for the up to 10 or more years they may need to achieve (if ever) labour market parity with their native-born counterparts (see, for example, Borjas 1999, Chiswick and Miller 2008, Stillman and Maré 2009, Winkelmann and Winkelmann 1998).

Given the amount of movement and ongoing competition for skills, research has increasingly been focused on skilled migrants' outward migration. Overseas studies (for example, Aydemir and Robinson 2008, Borjas and Bratsberg 1996, Dustmann and Weiss 2007, Jensen and Pedersen 2007, Longva 2001, Nekby 2006, Reagan and Olsen 2000, Ruddick 2008) identify a clear positive relationship between levels of education and return and onward migration; the more education and higher the qualifications the greater the propensity to leave.

Country of origin, the geopolitical location of host countries, and immigration policies can affect the relative employment opportunities and benefits associated with onward or return migration. For example, Ruddick (2008) found outmigration rates from Canada of migrants from both the United States and Hong Kong were "abnormally high" compared with the national outmigration rate of just over 13%. Only in the United States has research failed to find higher out-migration of migrants with higher qualifications and earnings (Reagan and Olsen 2000). While migrants with college degrees were more likely in general than those with lower levels of education to leave the United States, those with college degrees plus higher earning power were less likely to leave (Reagan and Olsen 2000).

Given the overseas findings and the emphasis on skilled migrants in migration policies, it is not surprising that circular, onward and return mobility is common among migrants to New Zealand. Using census data, Winkelmann and Winkelmann (1998) identified the rising proportions of migrants with university qualifications, the shift towards non-traditional source countries, and the high percentage of arrivals who had left within two, five and 10 years of arrival. Shortland (2006) found that nearly a quarter of migrants granted permanent residence under the General Skills Category between 1998 and 2004 had spent a quarter or more of their time absent from New Zealand.

In a discussion of New Zealand's immigration future in a global context, Bedford and Ho (2006) noted the outflow of non-citizen permanent residents from New Zealand and the "burgeoning competition between countries for labour, especially skilled labour". They observed that "skilled labour is in demand in the labour markets of most economies [including China], not just those in the more developed countries", and warned that "if we think the current competition is stiff then we have a major surprise awaiting us in the future." (Bedford and Ho 2006: 51).

Who stays and who goes: Evidence from administrative data

Building an understanding of which migrants are more likely to leave New Zealand at particular points in time (particularly during the first few years) has the potential to help policymakers in a number of ways. Firstly, it gives insights into which migrants might need more help in terms of settlement support services. Secondly, it provides information about which migrants may be more likely to make a long-term, sustained contribution to the New Zealand economy, and for whom greater investment in promotion and/or attraction may be warranted. Finally, through an improved understanding of what drives migrants to leave, it may tell policymakers what might be done to better encourage migrants to stay in New Zealand.

We constructed a dataset which included information for all principal SMC applicants who took up permanent residence in New Zealand between 1 January 2005 and 31

December 2008 (a total of 44,350 people). The data was extracted from Immigration New Zealand's Application Management System (AMS), and included a range of information related to the administration of SMC, including basic demographic information, and the points applicants are granted under various criteria. This provides insights into the skills and resources migrants bring to New Zealand, and consequently the skills and resources that New Zealand loses when migrants leave. Information is linked under a single identifier for each individual to information relating to other permits and visas they have applied for and/or been granted, as well as information on arrivals to and departures from New Zealand. Essentially, this presents a longitudinal picture of each migrant's entries and exits from New Zealand, as well as of their interactions with the immigration system. The main variables collected for skilled migrants in AMS are listed in Table 1 below.

Table 1: Selected SMC applicant information collected in AMS

Information available	Notes
Age	Points reduce with age. The maximum age is 55 years under SMC.
Gender	-
Occupation	Applicants are asked to provide their main occupation. This is defined as "the job you spent most hours doing in the last 12 months", or as a previous occupation if they have not worked in the last 12 months, but have worked in the past five years.
Nationality	Derived from passport.
Onshore/offshore application	Derived from the location of the branch at which the application was lodged.
Current employment and/or job offer points	Additional points are given for a current job held for 12 months or more. Bonus points are also available.*
Work experience points	Points given for years of experience. Additional criteria relate to relevance of experience to qualifications and current employment, and the requirement for experience to be earned in a comparable labour market.+
Qualifications points	Points given for a recognised basic qualification (this includes trades qualifications, diplomas, bachelor's degrees, and bachelor's degrees with honours). Additional points are given for a postgraduate qualification (Masters or Doctorate). Bonus points are also available.*
Family support	Points for close family already in New Zealand.
* Bonus points are awarded for (amongst other things) employment or qualifications in a growth area or area of skills shortage, or employment outside of Auckland. + Note that all nationalities analysed separately below are currently considered as being comparable labour markets except Fiji, China and India.	

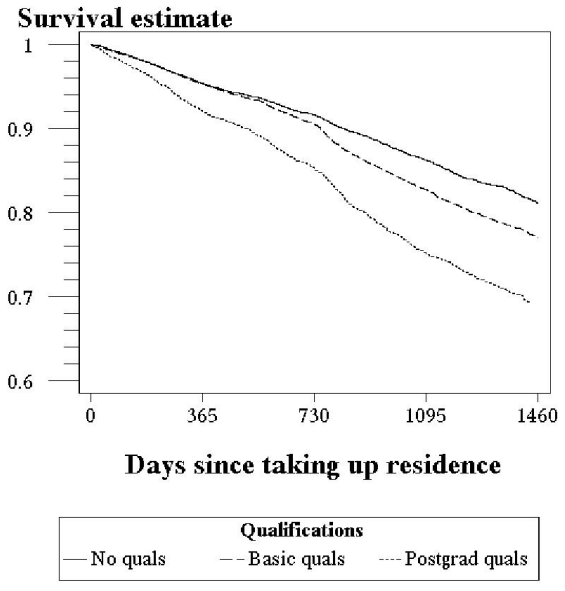
Factors associated with leaving

The availability of information about qualifications, occupation and experience of skilled migrants allows us to determine whether potentially more in-demand highly skilled migrants are more likely to leave New Zealand than other skilled migrants. Rather than looking at any departure from New Zealand, we are only interested in those departures which are sustained for a length of time. For the purpose of the analysis in this paper we are interested in the "hazard" of leaving New Zealand for six months or more, which we refer to as a "long-term absence".

Administrative data on educational qualifications of migrants is limited to that defined in Table 1 above: essentially whether applicants claimed points for a basic qualification or a postgraduate qualification. While this is likely to be a reasonable proxy for the highest qualification held, it nevertheless has important limitations. This is partly because applicants may not claim all of the points to which they are entitled if they already have enough points to gain residence, and partly because the variable is extremely broadly defined, with only two levels of qualification, as indicated in Table 1 above.

Figure 1 below plots the time to a first long-term absence as a survival function, which is essentially the probability of not having experienced a long-term absence at any time. This is broken down by whether or not the applicant was granted points for qualifications, and if so, whether points were granted for a postgraduate qualification. Twenty-two percent of applicants claimed no points for qualifications, 69% claimed points for a basic qualification and 9% claimed points for a postgraduate qualification.

Figure 1: Survival curve of skilled migrants by qualification points claimed



While there is no observable difference in the retention of migrants with basic qualifications from those with no qualifications in the first year, the lines begin to diverge from that point. Migrants with postgraduate qualifications are clearly more likely to leave at any point in time, however. Four years after taking up residence, around 30% of postgraduate-qualified skilled principal migrants had had a long-term absence, while around 20% of

migrants with no qualifications or basic qualifications had been long-term absent.

Another indication of skills is the occupation recorded in an applicant's SMC expression of interest. While this is coded at a detailed level, in this paper we report a crude classification of 'professionals', against other occupations, which captures much of the available explanatory power. While a more detailed classification highlights occupations with particularly poor retention (for example, IT professionals, architects, doctors, and nurses), this level of detail has been excluded from the current paper for reasons of simplicity.

While we have shown that more highly educated migrants (or at least those who claim points for qualifications) are more likely to leave New Zealand, it remains to be seen whether this effect holds if we control for other factors. To do this, we constructed a proportional hazards regression model (Cox, 1972) incorporating other factors which could be influencing the link between qualifications and migrant retention. Table 2 summarises the key results. More detailed results, including model coefficients, are available on request from the first author.

Table 2: Summary of significant effects of principal skilled migrants leaving New Zealand from AMS

Variable (with comparison value)	Groups significantly more likely to leave	Groups significantly less likely to leave
Occupation (compared to other occupations)	• Professional	
Current employment or job offer (compared to no job offer)	• None significant	• Current employment 12 months or more • Current employment < 12 months • Job offer
Nationality (compared to Great Britain)	• Canada • Germany • Ireland • USA • Japan * • Other *+	• Fiji • Philippines • South Africa
Age (compared to 30–39 years)	• 20─29 years	• 40─49 years*
Arrival year (compared to 2008)	• 2005 • 2006 *	• None significant
Qualifications (compared to no qualifications)	• Postgraduate quals	• None significant
Other factors	• Offshore application	• Close family in New Zealand
All variables were significant at the 1% level except for those marked with a *, which were significant at the 5% level. + 'Other countries' excludes the countries listed in this table, as well as India, Malaysia, South Korea, Netherlands and China, which are not significantly different from Great Britain.		

The indicator for postgraduate qualifications was highly significant in the model, with a p value of <0.0001. Interestingly, however, the parameter estimate for basic qualifications was not significant. This may be due to observed differences in Figure 1 being captured by other variables (such as occupation) included in the model.

Does it matter where the migrant comes from?

Exploratory analysis identified strong differences in the relationship between education and retention for people of different nationalities. For this reason, an interaction effect was also added to the model. Table 3 summarises the significant results for qualifications and nationality, with the interaction effects included. While this model also included the other variables listed above in Table 2, the effects were unchanged and these variables are therefore excluded from Table 3.

The addition of interaction effects resulted in qualifications no longer being independently significantly associated with time to a long-term absence. Most interaction terms were also not significant in the model, indicating that the effects of qualifications on retention appear to be country-specific. Interestingly, the addition of interaction effects also caused some nationalities which were significant in the main effects model to no longer be significant (Canada, Japan and Other). One country, India, which was previously not significant, became significant in the new model.

Table 3: Summary of significant main effects and interaction effects for qualifications and nationality

Variable	Groups significantly more likely to leave	Groups significantly less likely to leave
Qualifications (compared to no qualifications points claimed)	• None significant	• None significant
Nationality (compared to Great Britain)	• Germany • Ireland • USA	• Fiji • India • Philippines • South Africa • South Korea *
Nationality by qualifications interaction	• Fiji with basic quals • Fiji with postgraduate quals • India with basic quals* • India with postgraduate quals • South Africa with postgraduate quals • Other countries with postgraduate quals +	• Germany with basic quals
All variables were significant at the 1% level except for those marked with a *, which were significant at the 5% level. + 'Other countries' excludes the countries listed in this table, as well as India, Malaysia, South Korea, Netherlands and China, which are not significantly different from Great Britain.		

Interaction effects are complex to interpret, however, the following general conclusions can be drawn. Compared to migrants of British nationality, with no qualifications:

- Fijians with basic qualifications and (to a greater degree) no qualifications were less likely to leave
- Indians with no qualifications were less likely to leave, while those with postgraduate qualifications were more likely to leave

- South Africans with no qualifications or basic qualifications were less likely to leave

- Germans with no qualifications or postgraduate qualifications were more likely to leave.

Migrants from Ireland and the USA were more likely to leave than Britons, and Filipinos less likely to leave, regardless of qualifications. Qualifications seem to be more important predictors of departure for South African, Fijian or Indian migrants, than for those from elsewhere.

Who stays and who goes: Evidence from LisNZ

The Longitudinal Immigration Survey: New Zealand (LisNZ), a joint Department of Labour and Statistics New Zealand survey, was designed to trace the settlement patterns of migrants approved for permanent residence between November 2004 and October 2005. Migrants were interviewed at around six months (wave 1), 18 months (wave 2) and 36 months (wave 3) after taking up permanent residence in New Zealand. For more information on the sampling frame and survey, see the technical notes accompanying Statistics New Zealand's LisNZ Hot Off The Presses at www.stats.govt.nz. A total of 7,137 migrants were interviewed at wave 1, representing a 66% response rate (Masgoret, Merwood and Tausi 2009).

Data from the LisNZ enables us to gain a better insight into why highly educated skilled migrants might be leaving New Zealand, by allowing more detailed exploration of education as a factor predicting departure, as well as enabling new variables to be incorporated, such as reasons for coming to New Zealand. As with the analysis of administrative data earlier in the paper, the LisNZ analysis focuses on migrants granted residence through the Skilled Migrant Category. They were the largest group of migrants surveyed (58%), reflecting the size of this group in the New Zealand Residence Programme. In addition to the principal applicants included in the earlier analysis, secondary applicants aged 16 years or over (mainly partners) granted residence under an SMC application were surveyed for the LisNZ, and are included below.

Factors associated with leaving

The determinants for skilled migrants from the LisNZ leaving New Zealand are shown in the proportional hazards regression table, Table 4. The sample is all skilled migrants who were interviewed at wave 1. As in the administrative analysis above, the "hazard" is leaving New Zealand for six months or more. The period covered is approximately 4.5 years from the residence approval date or arrival. A positive value for a coefficient estimate indicates a positive association between the variable in question and the likelihood that respondents left New Zealand.

Table 4: Model of determinants of skilled migrants in LisNZ leaving New Zealand

	Coefficient	Standard error
Years of education	0.065	0.011***
Applied offshore	0.205	0.095*
Is primary applicant	-0.122	0.078
Nationality		
UK/Ireland	(ref)	
Rest of Europe	0.393	0.165*
South Africa	0.130	0.162
North America	1.025	0.161***
Asia	0.569	0.098***
Pacific	-0.432	0.211*
Other	0.213	0.151
Female	-0.121	0.068
Age group		
16-34	(ref)	
35-54	-0.084	0.082
55+	0.139	0.322
Has child	-0.161	0.085
Reason for coming to NZ		
Lifestyle	-0.072	0.075
Opportunities	-0.042	0.077
Family	-0.100	0.089
Security	-0.122	0.072
Study	0.097	0.094

Stars on the standard errors indicate that the estimate is significantly different from zero at conventional levels of statistical significance: *significant at 5% level; **significant at 1% level; ***significant at 0.1% level. The dependent variable is the hazard of leaving New Zealand.

Years of education is a significant factor in the likelihood of skilled migrants leaving New Zealand. This variable measures years of school or tertiary study completed before the respondent was granted permanent residence in New Zealand, and is thus a more refined and detailed measure of skills than the qualifications variable available from administrative data. Based on individual years of education, the results indicate that there is a positive relationship between years of education and the likelihood of leaving New Zealand. Even after controlling for other variables, the predictive value holds: the more years of education a skilled migrant has completed before being approved for permanent residence in New Zealand, the more likely he or she is to have departed New Zealand.

Nationality also appears as an important determinant for skilled migrants leaving within the first five years of residence. Migrants from the United Kingdom and Ireland constitute a traditional source of migrants to New Zealand and the largest source region for skilled migrants between November 2004 and October 2005. They made up 41% of skilled principal migrants and 45% of skilled secondary migrants in the LisNZ sample, and are used as the reference category. Skilled migrants from the rest of Europe (including Russia), North America, Asia, South

Africa and Other sources were more likely to leave – those from North America and Asia, and to a lesser extent the rest of Europe, significantly so – than those from the UK and Ireland. Skilled migrants from the Pacific were significantly less likely to leave.

Whether a skilled migrant applied for residence from onshore or offshore was also significant. Only a minority of skilled migrants applied for residence from offshore at the time the LisNZ sample was recruited, and even fewer tend to do so now. The results for the "Applied offshore" variable imply that those who did apply offshore were less likely to remain in New Zealand than those who were already in New Zealand when they applied for permanent residence.

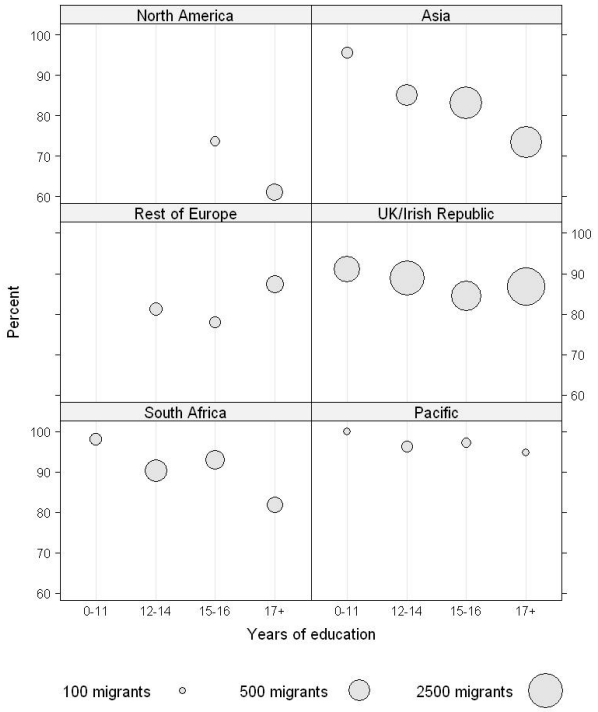
Results for sex and for age suggest that females are slightly less likely to depart New Zealand than males, and that people aged 35–54 years are less likely to leave than those under 35. However, neither relationship reaches statistical significance. Indeed, there seems to be surprisingly little variation by sex and age. Having a dependent child also lowers the propensity to leave, but again the coefficient does not attain statistical significance.

The final set of variables in the table summarises people's reasons for coming to New Zealand. The "lifestyle" variable, for instance, indicates that the respondent nominated a lifestyle-related reason such as a clean, green environment or friendly people. The derivation of these variables is described in Bryant and Merwood (2008). The results hint at a possible relationship between being motivated to migrate for lifestyle, opportunities or safety and staying, but none of these variables attains statistical significance. Nor is there more than a weak relationship between coming for family reasons and staying, though family is commonly identified as a positive factor for settlement. Study is the only reason in this final set of variables to have a positive association with leaving, but again does not attain statistical significance as a determinant of staying or leaving.

Figure 2 provides additional detail on the relationship between education and the probability of remaining in New Zealand by nationality. Each panel shows the percentage of people in New Zealand four years after residence approval, broken down by grouped years of education. The size of the dots is proportional to the weighted number of respondents. The large dots for the United Kingdom and Ireland, for instance, reflect the large numbers of migrants from these countries.

The relationship between education and remaining in New Zealand seems to differ across regions, and is generally consistent with the earlier administrative analysis. While the results for North America are based on too small a sample to allow any definite conclusions, there are some interesting trends for migrants from other regions.

Figure 2: Percentage of respondents still in New Zealand four years after approval for residence, by nationality and years of education



Note: Values based on small sample size have been suppressed.

For Asians there is a strong negative relationship between education and time in New Zealand. Those with 17 or more years of education have the lowest chance (74%) of still being in New Zealand after four years. The relationship between education and time in New Zealand is weaker for South Africans, with a smaller group with 17 or more years of education and a slightly higher outmigration for migrants with 12-14 years of education than those with 15-16 years. The association is weaker again for British and Irish, and for migrants from the Pacific. For these two groups the education differentials are relatively minor. Among Other Europeans, the relationship between education and time in the country is positive, belying the trend for the more highly educated to leave. However this is a relatively small group.

Conclusions

This study has used administrative data and survey data in a complementary way. The administrative data allows us to uncover interesting and significant effects for relatively small groups of migrants, while the LisNZ data provides the potential for broader analysis of factors not captured administratively.

The findings outlined in this paper are generally in line with previous research both in New Zealand and internationally. Migrants with the highest qualifications are generally more likely to leave New Zealand. This highlights the fact that New Zealand faces a considerable challenge in keeping hold of its most highly skilled migrants. We have raised questions about whether this

effect holds across all migrants of all nationalities, however, with both survey and administrative sources showing differential effects for some groups.

In particular, the following may be noted:

- The association between departure and qualifications (more highly educated being more likely to depart) seems to hold predominantly for migrants from the Asia region (in particular India) and from South Africa. A similar effect was found for Fijians in the administrative data; however this was not strongly evident in the LisNZ data (examining skilled migrants from the Pacific region more generally).

- There is some evidence from LisNZ of a decreased likelihood of departure for highly educated migrants from continental Europe. This is backed up to some degree by a significant negative association between basic qualifications and departure for German migrants.

- There is little evidence of a link between qualifications and retention for migrants from countries not mentioned above.

Beyond looking at education and qualifications, we have outlined a range of other factors which are linked to migrant retention, including nationality, age, New Zealand connections and experience. Future work will incorporate time-varying covariates into the administrative and LisNZ models. This will enable a better understanding of factors affecting retention over time (for example, milestones such as reaching indefinite right of return or citizenship eligibility, or changing economic conditions). Time-varying covariates can also be added into the LisNZ model to capture intermediate outcomes which could act as predictors of risk of exit, or provide information about what could be driving departure (such as indicators of dissatisfaction with life in New Zealand).

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