

NEW ZEALAND'S INTERNATIONAL PHD STRATEGY:

In 2005, New Zealand implemented a bold strategy to offer domestic tuition fees to international students, full work rights to them and their partner, and domestic school fees to their children. This strategy was developed to increase international PhD enrolments, thereby contributing to New Zealand universities' rankings and to the country's innovation economy. This paper will review available data over the first decade of this strategy and address three main questions: 1. Has the strategy increased international PhD enrolments in New Zealand? 2. Has it enhanced our research output? 3. Has it contributed to NZ's innovation economy?

*A holistic analysis
2005-2015*

Brett Berquist

New Zealand's PhD tuition strategy for international students 2005-2015, a holistic analysis

This paper updates a presentation given at the IEAA Research Roundtable in Melbourne, 18 October 2016

INTRODUCTION

The theme of the 2016 Australian International Education Conference (AIEC) was *Connectivity – at the heart of international education*. Early government engagement with international education, in the United States and in Australia, particularly, focused on international education as a tool for public diplomacy. Later, we began to think about the economic benefit to our societies and our ability to conduct business with other countries. This is the aim of a recent strategy in New Zealand to establish Centres for Asia Pacific Excellence¹ to prepare New Zealanders for effective business engagement with this high growth region. For some time now, internationalization has also been an important strategy to raise the profile of our universities and empower our research efforts. In Australia, there is a more recent emphasis on employability gains for the individual with the Work Integrated Learning Strategy. These strategies build on previous drivers for internationalization. International collaboration is part of the DNA of universities. Many of us who work within them have experienced the benefits of international education personally and see the benefit of acquiring a different perspective as part of the core value of higher education. In New Zealand, a country with a long history of immigration, a land mass larger than the UK, and a population the size of Melbourne, we understand how connected our economy is to the world. How does an island nation removed from everyone except its nearest cousin, compete in this industry? As former Prime Minister, Rt Hon John Key, liked to say about free trade, “we’re not going to get rich by selling to ourselves.” In Auckland, which attracts two-thirds of New Zealand’s IE enrolments², nearly 40% of the population³ was born in another country. International education is now New Zealand’s fourth largest export, as shown in Figure 1 below. It’s been an interesting journey for me to try to understand the role of international education in New Zealand. From a rural upbringing on the American Great Plains, I began my career as an academic in Europe as the Erasmus programme was building steam, eventually moving over to the administration of IE. I followed that with a decade in Michigan, one of the powerhouses of IE in the US. At the University of Auckland, I work in a top 100 university in one of the world’s most cosmopolitan cities.

¹ Joyce, S. (16 June 2016). \$34.5 million for new Centres of Asia-Pacific Excellence. Retrieved from <https://www.beehive.govt.nz/release/345-million-new-centres-asia-pacific-excellence>

² Education New Zealand. (2016). New Zealand International Education Snapshot. 2015 Full Year Report. Retrieved from <https://www.enz.govt.nz/assets/Uploads/2045-ENZ-SnapShot-Full-Year-Report-VISUAL.pdf>

³ Immigration New Zealand (2015). Migration and Labour Force Trends Auckland Overview 2015. Retrieved from http://www.mbie.govt.nz/info-services/immigration/migration-research-and-evaluation/migration-and-labour-force-trends/document-and-image-library/INZ_Migrant.pdf

NZ IE market value 2015

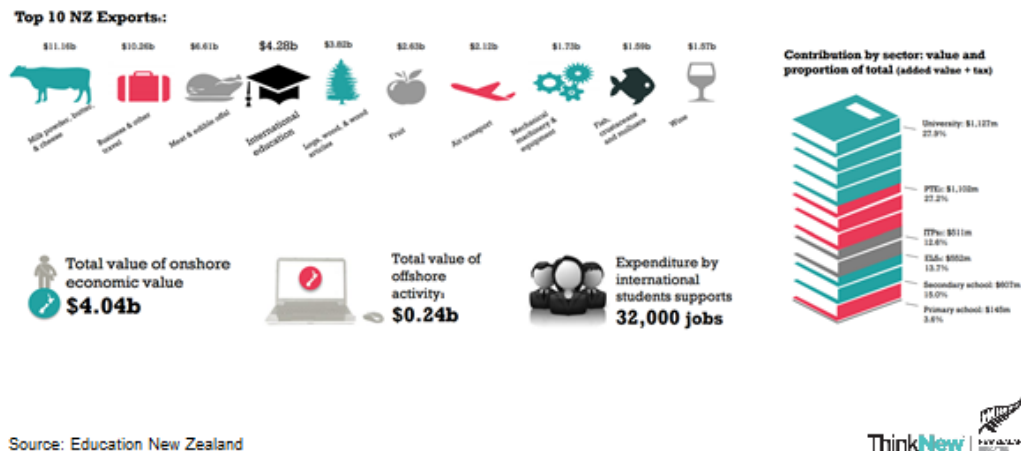


Fig. 1 NZ IE market value 2015

Despite my personal experience with Auckland and New Zealand as a very welcoming place, there is a wind blowing in the sails of a backlash against New Zealand's wider immigration policies fuelled by housing, transport and employment issues. This has spilled into the IE sector. In the UK, since visa restrictions were imposed by moving international students into immigration counts in 2011, the British economy has lost an estimated 8bnGBP in revenues⁴. Likewise, for the US, in a survey of 40,000 prospective international students in 118 countries mid-2016, FPP Edu Media and INTEAD found that 60% would be less likely to choose the US if Trump were elected president⁵. While our own kiwi brand of nationalism is more moderate than the US, the UK, or perhaps even Australia, the New Zealand First leader Rt Hon Winston Peters has often correlated the total number of international students in New Zealand with the total number of unemployed youth, to push the idea that one is displacing the other from job opportunities⁶. This is not specifically aimed at the university sector as the current tension is focused on a spike in enrolments into Private Training Establishments. It is, however, very much connected to a concern shared throughout the main English speaking destination markets that governments are defunding public higher education through the increase in international enrolments at higher fees.

In our international education industry, where many people have chosen this line of work from a deep personal conviction or experience, we sometimes seem to assume that the general public shares our logical views, even if they've not had our personal experiences of what a powerful and beneficial force international education can be. We spend too much of our time preaching to the choir and not cultivating a deeper public understanding of just how connected internationalization is to the very core of our education enterprise. It is so much more than a

⁴ Falling international student numbers 'cost UK 8billion'. *Times Higher Education*. (2016 30 June) p.11.

⁵ Jones, L. (2016 July). Why educators fear the Trump effect on US education exports. *The PIE News*. Retrieved from <https://thepienews.com/analysis/why-educators-fear-the-trump-effect-could-damage-the-uss-education-exports/>

⁶ Winston Peters criticises foreign student numbers. (2015, January 27). *New Zealand Herald*. Retrieved from http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11392652

revenue strategy allowing governments to save money on funding higher education but there is a lack of shared understanding of the role of export education. It has a deep reach into overall economic strategies. It underpins internationalization through education and shared experiences in the classroom and lecture theatre and through to laboratories. It enhances research capability and builds research, business and government connections. New Zealand has learnt this through its investment in the Colombo Plan.⁷ The general public understands the revenue side but not necessarily how international students contribute to their children's educational experience and to society in general, beyond the dollars.

A little over a decade ago, the New Zealand Government launched a bold new initiative to subsidize international PhD students at the same level as domestic candidates. In addition to domestic tuition fees for PhD students, NZ offers work rights to them⁸ and their partner, and domestic school fees to their children. This strategy was developed to increase international PhD enrolments, thereby contributing to New Zealand universities' research output and to the country's innovation economy. A decade later, with nationalism on the rise globally and our own elections in September 2017, it is a useful time to examine the effectiveness of this strategy. This paper will review available data over the first decade of this strategy and address three main questions:



CONTEXT

Let's start with the context in which this strategy was launched. New Zealand opened the university sector to international enrolments in a series of education reforms in 1989/90, two years after Australia. In the early naughts, New Zealand had been experiencing phenomenal international student growth from China when a series of security incidents and the collapse of some private providers essentially shut down the market overnight in 2003-04, as illustrated in

⁷ The Colombo Plan was established on 1 July 1951 by Australia, Canada, India, Pakistan, New Zealand, Sri Lanka and the United Kingdom and currently has expanded to include 26 member countries including non-Commonwealth countries and countries belonging to regional groupings such as ASEAN (Association of South-East Asian Nations) and SAARC (South Asian Association for Regional Cooperation). Plan objectives include; to promote interest in and support for the economic and social development of Asia and the Pacific; to promote technical cooperation and assist in the sharing and transfer of technology among member countries.

⁸ Full-time work rights since 2013.

figure 2 below. Those who were in the IE field in New Zealand at the time tell some interesting stories about those days. Australia experienced its own version of rapid market response later that decade with the Indian crisis. Prime Minister Rt Hon Helen Clark's Labour Government had come into power in the very last month of the century and was interested in strategies to support a knowledge economy and export education growth. Some leaders from the University of Auckland and others put forward a strategy that was intended to help drive our competitiveness, our innovation economy, and empower a sophisticated talent acquisition strategy. The IE field was not unanimously behind the idea, with Education New Zealand, in its initial form co-funded by the universities, officially opposing the scheme in preference for a dedicated scholarship fund.

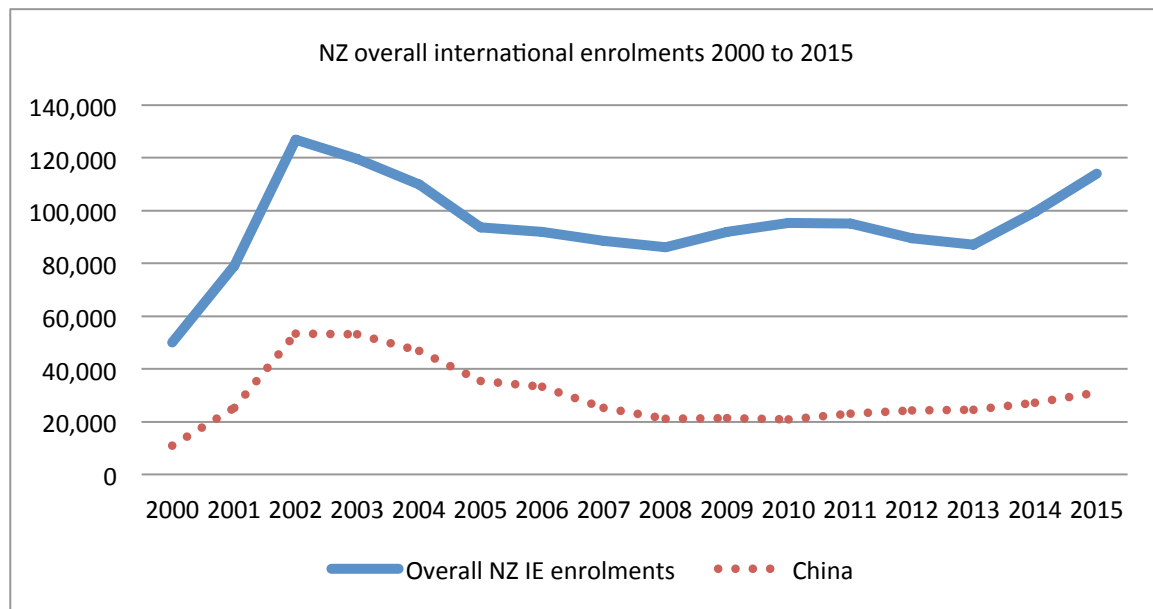


Figure 2. NZ international enrolments 2000-2015

Hon Trevor Mallard was known as a 'take no nonsense' Minister of Education during Labour's time in power and announced the initiative in April 2005 focusing on competitiveness, innovation, and talent acquisition:

This initiative is designed to lift the quality of research in New Zealand and improve the long-term links between our universities and international research institutions around the world.

*There will be direct benefits to universities, particularly as it will help **raise the quality and output of academic research**. Some of these students may want to stay on and work in New Zealand when they have finished their studies, which will also **significantly raise our research and educational capabilities**.⁹*

Government funding for PhD students was extended to provide the same level of subsidy for all PhD students regardless of citizenship status. Universities agreed not to charge supplementary fees. At that point, international PhD tuition fees dropped from NZD\$20,000 to NZD\$3,000. In

⁹ Mallard, T. (2005 June 3). Press release. Retrieved from <https://www.beehive.govt.nz/release/nz-first039s-xenophobia-showing>

addition, work rights were extended to the student and their partner, and their children would not have to pay international school fees, an average of \$9,700 in 2005¹⁰. This strategy was intended to put New Zealand research firmly on the map and position us to attract some of the world's best minds to help drive the development of our economy and society. Initial government modelling forecast the cost of extending the subsidy but did not set clear metrics or a timeframe for measuring the success of the initiative.

RESULTS

The centre-right came back into power a few years after the strategy was launched and maintained the policy, setting further ambitious growth targets for export education. A decade later, it's useful to take a look at how the strategy has contributed to the country's export education targets and its potential larger benefits.

Enrolments

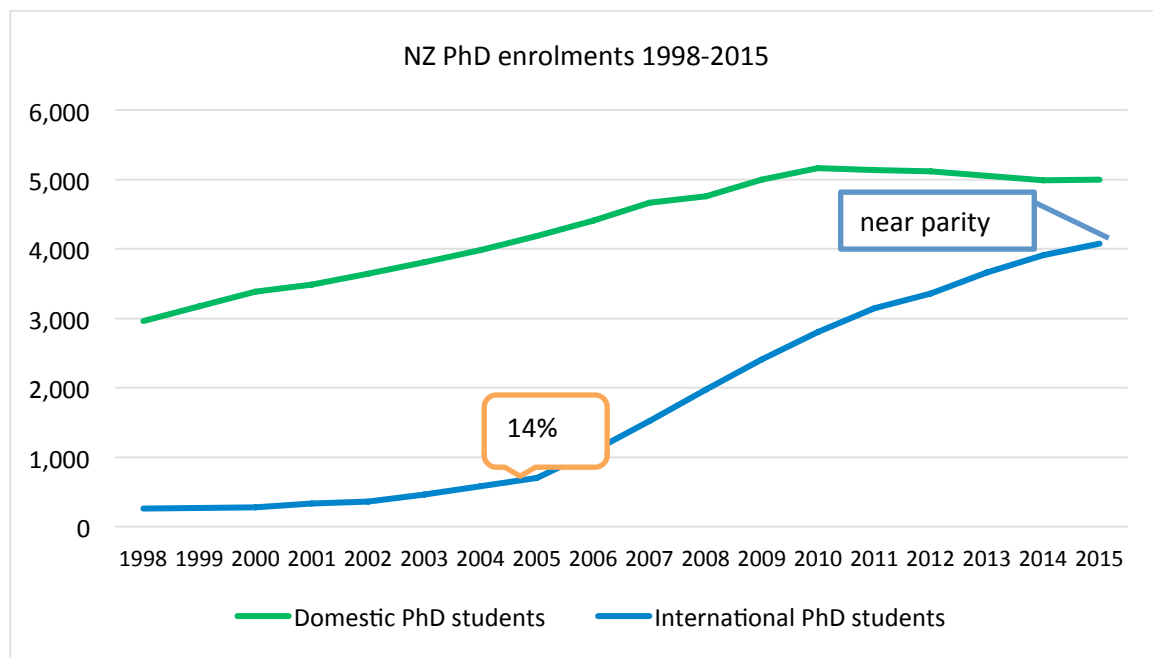


Figure 3. NZ PhD enrolments 1998-2015

Prior to this initiative, international PhD enrolments had been relatively stable at about 10% of total. Figure 3 illustrates strong growth from the implementation of the strategy in 2005 rising from 14% international in 2005 to near parity today (45% 2015)¹¹. As the graph illustrates, the international strategy has been the primary growth factor for PhD enrolments as domestic enrolments have been stagnant since 2009. If we factor in other government data on transition to permanent residency during previous study, we can extrapolate that international PhD enrolments are on par with domestic enrolments. Clearly, the strategy has made a significant

¹⁰ Young, A. (2005, April 20). Foreign brains wooed with lower university fees. *The New Zealand Herald*. Retrieved from http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10121444

¹¹ Profile & Trends. New Zealand's Tertiary Education Research 2015. (2016). Ministry of Education. Retrieved from http://www.educationcounts.govt.nz/_data/assets/pdf_file/0007/176551/2015-pt-research-final.pdf

impact on attracting PhD level talent to New Zealand. At the largest conference on international education in the world, assembling more than 10,000 IE professionals for the NAFSA conference in Denver last May, our ambassador to the US, Hon Tim Groser, gave the opening welcome to 6,000 seated delegates. When he highlighted New Zealand's welcoming PhD policy, the audience's reaction was palpable.

Comparisons

Using a slightly different timeline from the OECD 2007-2014 data, we see that Switzerland and the UK had the highest percentage of international PhD students. In 2014, Switzerland continues to lead the pack with more than 50% international PhD students, as shown in Figure 4. New Zealand has by far the strongest growth trajectory over this period, from 9% in 2003 to near parity by 2015. With near parity between international and domestic enrolments, New Zealand sits well above the OECD average of 27% international among PhD enrolments.

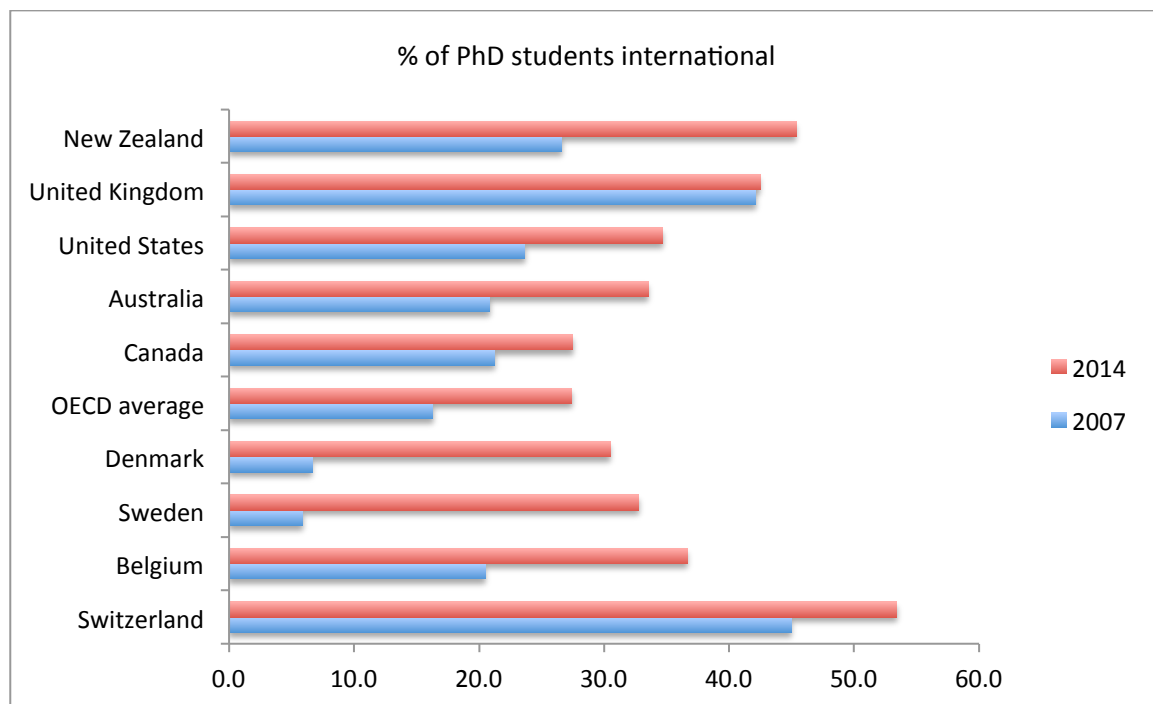


Figure 4. Percentage of international PhD enrolments in main IE markets 2007-2014.

Source: OECD Education at a glance 2009 and 2016¹²

As Dr. Education, Rahul Choudaha, noted in a recent op-ed in the Huffington Post¹³, there is significant room for growth in the US market with 35% international PhD enrolments, but New Zealand has surpassed growth rates in the US for this segment.

¹² France is not included in the graph due to absence of 2007 comparison data in the OECD report. France is at 40% and Germany 7%.

¹³ Choudaha, R. (2016, 15 September). American Higher Education Has Untapped Potential for Attracting International Students: Latest OECD Data. *Huffington Post*. Retrieved from http://www.huffingtonpost.com/entry/american-higher-education-has-untapped-potential-for_us_57dac05de4b04fa361d994c1

The data tells a very clear story that this strategy has proven successful in terms of enrolment gains. Let's take a look at how it has benefited the research efforts of NZ universities.

Research impact

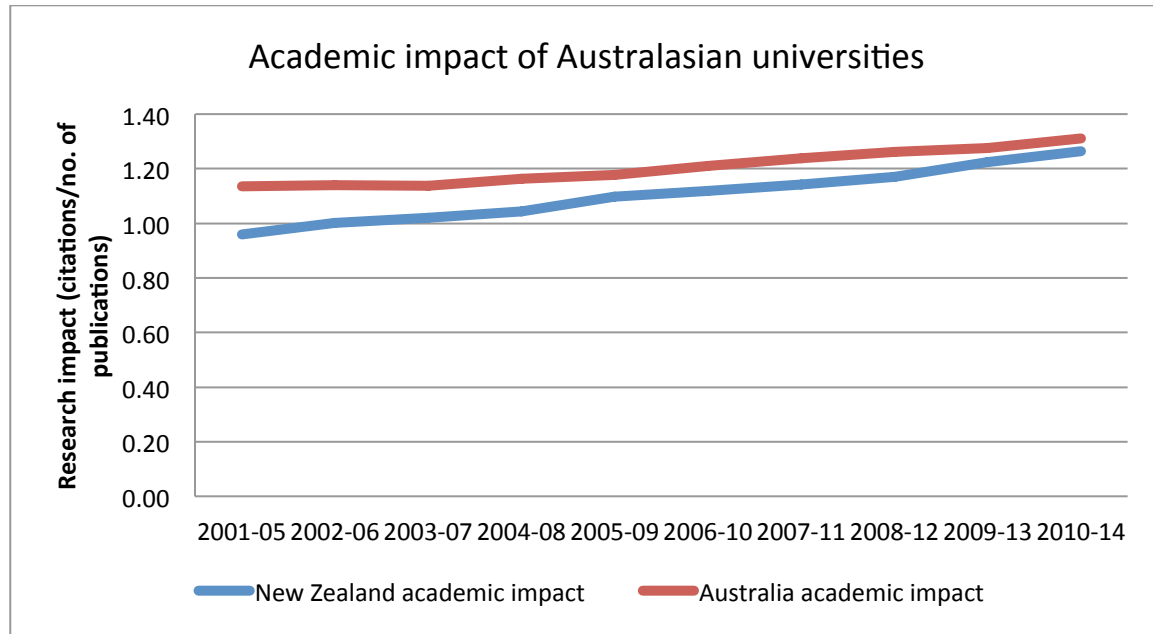


Figure 5. Academic impact of NZ and Australian universities

Source: NZ Ministry of Education, OECD Education at a glance.

PhD students contribute to the research output of New Zealand universities. At the University of Auckland, with 45% international, on average, each international PhD student produces 2.7 authored or co-authored papers, 1.1 authored or co-authored book chapters, and 3 authored or co-authored conference papers. While there is no data to analyse the impact of PhD student research directly as a distinct subset of publications, it is clear that doubling the number of PhD students in New Zealand has helped the country increase its research output.

The New Zealand Ministry of Education has reported on two key components to measuring the impact of our research enterprise. One is to measure the rate of citation of research in indexed journals. Prior to this strategy, the rate of citation of NZ research was 0.96 percent of the world average. For the period 2010-2014, we had risen to 1.26 times the world average for rate of citation¹⁴, clearly strong gains for the visibility of New Zealand research.

Another approach is to compare the academic impact of research from New Zealand to that of Australia, which has 30+ more universities than New Zealand. Over the last decade, the impact for both New Zealand and Australia has been rising but more quickly for New Zealand, essentially almost closing a gap of 18 points down to only five points for the 2010-14 period, as illustrated in Figure 5 above.

¹⁴ Profile & Trends. New Zealand's Tertiary Education Research 2015. (2016). Ministry of Education. Retrieved from http://www.educationcounts.govt.nz/_data/assets/pdf_file/0007/176551/2015-pt-research-final.pdf

Rankings

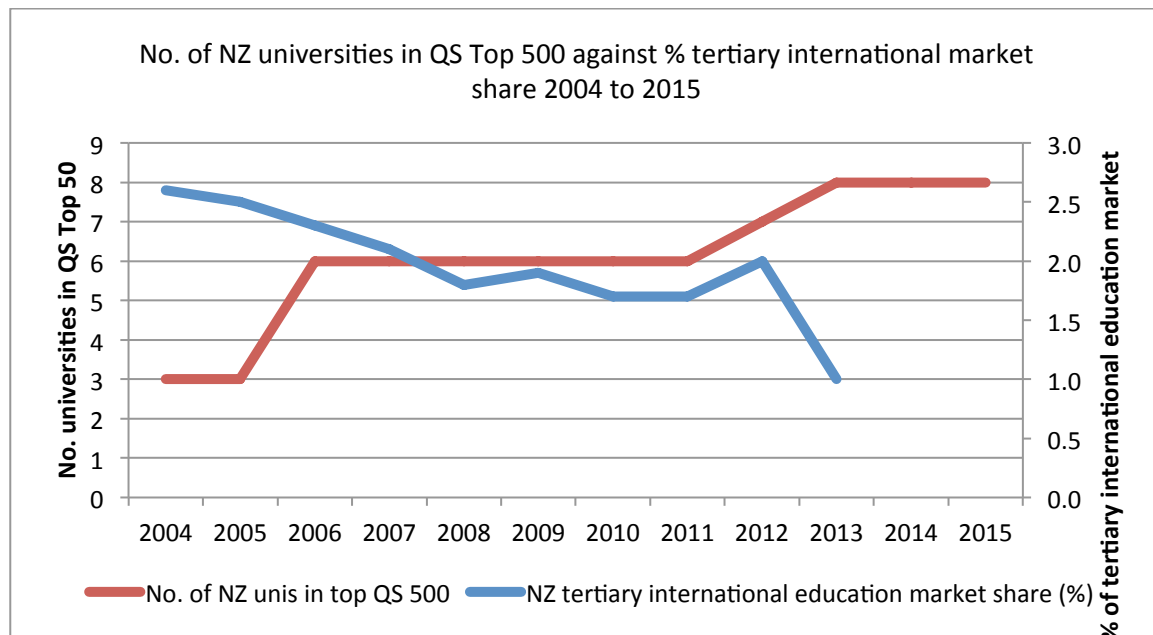


Figure 6. NZ university QS rankings compared to % of tertiary IE market share

Over this same timeframe, New Zealand universities have moved up in global rankings, despite a declining share of the increasingly competitive International Education market. While a direct link to international rankings may not have been part of the business case in 2004, increasing international enrolments in PhD studies correspond to a period of rising rankings for NZ universities. The Government is fond of pointing out that the New Zealand higher education system is uniquely strong because all of our universities rank in the top 3% (QS 2016). We are unable to evidence a direct causation but clearly the increase in our research output and its impact has helped this growth.

We have seen now that this strategy has produced strong growth in international PhD enrolments, empowered the output and impact of our research enterprise, and contributed to the overall rise in rankings for New Zealand's universities. How has the initiative contributed to our innovation economy and become part of the national talent acquisition strategy?

TALENT ACQUISITION

In a 2016 conference presentation in Auckland, Emily Fabling, International Director from the Ministry of Education, previewed a major study on stay rates for international students in New Zealand. She began by reminding us how the export education strategy intersects with the talent acquisition strategy, quoting the government's leadership statement:

As well as strengthening our education system, international education is expected to contribute to our goals for research, innovation, trade and tourism. International education also **encourages the immigration of highly skilled people**, and helps to

grow links with our major trading partners in Asia, Europe and the Pacific. These links are crucial to our ongoing success.

Immigration policies can encourage the entry of students into high quality courses which equip graduates to take up **genuine skilled work opportunities after completion**. The need for such young and skilled migrants is expected to continue...¹⁵

Stay rates

A significant new study has now been released “Moving Places – Destinations and earnings of international graduates¹⁶.” In it, the Ministry of Education cross-references information from several government databases. It set out to look at international students from their first year of study up to eight years after completion. For data and policy wonks, this is a landmark study that is only possible in a small country with strong information systems, such as New Zealand. The usual approach to tracking international student outcomes is to survey alumni and hope for a 15-20% response rate and accept the challenge of controlling for bias in the data sample. This study surveyed no-one; rather it analysed government information sets for eight study cohorts 2003-2011, as shown in Figure 7, to cross reference the following information: student visa, Single Data Return (the government reporting system for educational institutions), tax returns, the benefits register, and subsequently, census data. Even though it excludes institutions that don't report in the SDR (44% of total international enrolments), the very large sample size of 132,415 is unusual for our sector.

Cohorts	Years post study	Tax years	Data sources for study
2010 and 2011	1	2012 and 2013	International student visa
2009 and 2010	2	2012 and 2013	Single Data Return
2008 and 2009	3	2012 and 2013	Tax returns
2007 and 2008	4	2012 and 2013	Benefits register
2006 and 2007	5	2012 and 2013	Census data
2005 and 2006	6	2012 and 2013	
2004 and 2005	7	2012 and 2013	
2003 and 2004	8	2012 and 2013	

Figure 7. Methodology for Moving Places report 2017

Stay rates are a tricky area of strategy and policy because our field does not have many solid studies to track this. This makes it particularly challenging to determine if the glass is half-empty or half-full. In general, many of the major IE markets observe a 20-30% stick rate for international students after graduation. The New Zealand study is exemplary for the wealth of data to digest across multiple parameters.

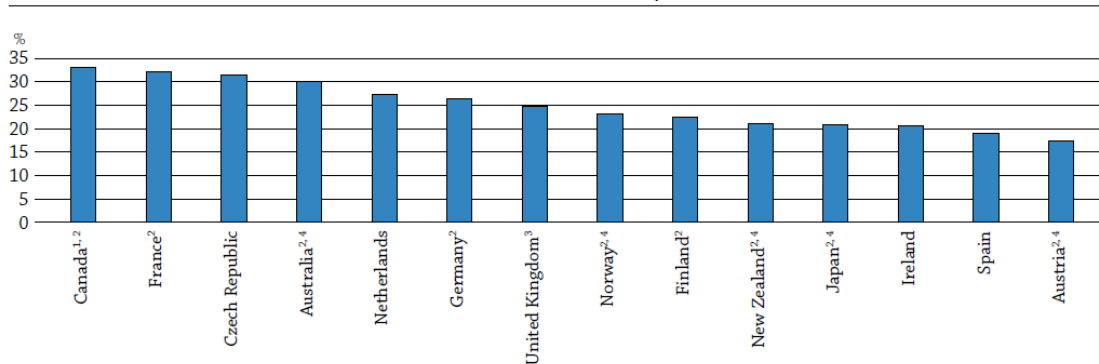
¹⁵ Leadership Statement for International Education. (2011 September 20). Retrieved from <https://enz.govt.nz/assets/Uploads/Leadership-Statement-for-International-Education.pdf>

¹⁶ Park, Z. (2017). Moving places – Destinations and earnings of international graduates. Wellington: New Zealand Ministry of Education.

In the aggregate, one in three of all international students is still in New Zealand five years after their first student visa. This is roughly on par with Australia, a country with much larger IE ambitions. In a 2011 report based on the 2008 cohort, the OECD observed an average 25% stay rate¹⁷ among the countries illustrated in Figure 8 below.

Chart C3.5. Percentage of international students changing status and staying on in selected OECD countries, 2008 or 2009

Percentage of students who have changed their status (whether for work, family or other reasons) among students who have not renewed their permits



Note: For European countries, covers only students from outside the European Economic Area.

1. Data for Canada include changes from student to other temporary statuses.

2. Year of reference 2008.

3. Student stocks from visa sources.

4. Student stocks calculated from *Education at a Glance*.

Source: OECD (2011a).

StatLink  <http://dx.doi.org/10.1787/888932461598>

For Australia, a recent study presented at the IEAA research roundtable, (October 2016, Melbourne) observed that 52% of international graduates exited the country in the first year following their degree completion¹⁸. 33% were still in Australia four years after their studies.

Stay rates are an important issue beyond our region. The Netherlands is focusing on increasing international student enrolments and strategies for 'binding' or retaining them after graduation. A 2012 analysis reported a 740 million euro gain for the Dutch economy if they could retain 20% of their international graduates.¹⁹ A subsequent study in 2016 reported that 38% of the 2008 2009 cohort were in NL five years after graduation.²⁰

Germany has returned to fully subsidized tuition fees for international students as part of its economic development strategy. In the UK, the issue has been cast as a negative. The opposite holds true for Canada where stay rates range from 20% to 27%. Many IE professionals feel that Canada is poised to reap the strongest market gains from the turmoil in the UK and the US. The OECD average post-graduate stay rate is 25%. At 30% overall, New Zealand is faring well. However, there are many nuances in the various studies that report on these statistics.

¹⁷ OECD. (2011). *Education at a Glance*.

¹⁸ Banks, M. (2016). Employment outcomes: international graduates from Australian universities. IEAA research roundtable. Retrieved from <http://www.ieaa.org.au/documents/item/904>

¹⁹ Wereldwijd talent rendeert. (2012, May 18). *Science Guide*. Retrieved from <http://www.scienceguide.nl/201205/wereldwijd-talent-rendeert.aspx>

²⁰ Netherlands: 38% of students remain five years after graduation. (2016, August 5). *The PIE News*. Retrieved from <https://thepienews.com/news/netherlands-38-of-students-remain-five-years-after-graduation/>

The Moving Places 2017 report offers several analyses for stay rates for many different categories of international student and compares these to previous work from MBIE based primarily on visa status. Overall, the data observes a higher exit rate for higher-level qualifications, reflecting the prevalence of permanent immigration as a driver for the sub-university market.

New Zealand Stay Rates

Overall

OECD average	25%
NZ	30% 5-yrs post-degree*

NZ international PhD graduates

1 yr post-degree	41%
5 yrs	25%

Employment in NZ

NZ international PhD <30

1 yr post-degree	48%
5 yrs	16%

Figure 8. New Zealand stay rates

Source: Moving Places MoE 2017 except *MBIE 2015

For the purposes of this paper, we are focused on PhD graduates. In order to mirror the approach for a previous series of reports on outcomes for domestic students, the Moving Places report analysed 'young international students' under 30 years of age. For PhD students this focus includes only 21-30% of the cohort. This is a serious flaw in the statistical relevance of the findings as it severely restricts the sample size, as shown in Figure 9 below. Without applying standard tests of statistical relevance, it is intuitively evident that the extremely low sample size of international PhD graduates under 30 cautions against policy evaluation based solely on this data set.

At the University of Auckland, over the last five cohorts, 62-78% of international students submitting their PhD thesis were over 30 years old. During the same time frame, the average age for international students commencing their PhD studies was 30. The study will permit serious analysis of post-degree behaviours for international PhD students only when it examines the full data set, rather than the small percentage of students finishing at less than 30 years old.

Stay rates and employment analysis is likewise biased by this age filter because a sizeable portion of younger PhD graduates have been funded by their home governments or other sponsoring bodies, often with a requirement to return to their home country after graduation. The Ministry of Education has signaled its intention to undertake additional analyses on the larger data set in the future as it updates the results to include the 2 most recent cohorts. We encourage the Ministry to analyse the findings for PhD graduates without the age filter for analyses. This will be more useful to New Zealand universities and the field of international education in general.

Qualification level	Number of graduates (2 cohorts)							
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
	2010/11	2009/10	2008/09	2007/08	2006/07	2005/06	2004/05	2003/04
Level 1-4 certificates	3,900	3,400	3,100	2,600	2,300	2,500	3,600	5,400
Level 5-7 certificates and diplomas	5,400	4,300	3,500	2,900	3,000	3,800	4,400	4,200
Bachelors degrees	4,400	4,200	4,700	6,000	7,400	7,000	5,100	3,300
Graduate certificates and diplomas	1,600	1,500	1,200	910	710	730	900	1,000
Postgraduate	3,600	3,600	3,200	2,900	2,600	2,500	2,400	1,900
PhD	190	200	140	65	60	50	35	25

Figure 9. Moving Places report sample size²¹. Number of young, international graduates in each destination one to eight years after study by qualification level.

Despite this limitation, the consequence of mirroring the approach in a series of studies on domestic students, there are several observations in the document which report the statistic when the age filter is eliminated. The Moving Places study found that for 'young international PhD graduates' 52% remained in New Zealand in their first year after graduation, falling to 21% by their fifth year after completion. Correspondingly, 48% were employed in NZ in their first year after completion falling to 16% in their fifth year, as shown in Figure 8 above. If we remove the age filter, the Ministry of Education reports that 41% of all international PhD graduates remain in New Zealand in their first year after graduation, with 25% still here five years after completion. For me, an interesting observation from this landmark Moving Places study was that if we compare international graduate stay rates to domestic, the comparison is not against an assumed 0%, as my American experience might have cast it. It is common and encouraged for PhD graduates to undertake a post-doc or fellowship experience overseas and build their international network. In a similar study in 2015²², the Ministry of Education observed that only 55% of domestic PhD graduates under 30 were in New Zealand five years after graduation. Consequently, the gap between the stay rate of international and PhD students is not 75% but only 39%, when compared with the exit rates for young domestic PhD graduates²³. Even then, with the more common sponsorship requirement for young international PhD graduates to return home, this is an apples and oranges type of comparison. While the study is remarkable for its sample size for students below the PhD level, it does not offer sufficient data for strong conclusions for international PhD graduates in its current form. An important component to factor into the study, but likely not available in the government data sets analysed, is whether the PhD student's sponsorship requires a return to their home country.

Net migration

²¹ Park, Z. (2017). Moving places – Destinations and earnings of international graduates. Wellington: New Zealand Ministry of Education. Earnings and Destinations Summary retrieved from <https://www.educationcounts.govt.nz/publications/80898/moving-places-destinations-and-earnings-of-international-graduates>

²² New Zealand Ministry of Education (2015). Profile & Trends: Tertiary Education Outcomes and Qualification Completions. Wellington: Tertiary Sector Performance Analysis.

²³ 55% domestic PhD graduates under 30 in NZ 5 years after graduation vs. 16% for international

Overall, more than 30% of domestic university graduates exit New Zealand within this same time frame. As noted frequently in the New Zealand media, the strong kiwi tradition of the Overseas Experience (OE) plays a significant role in the country's overall welcoming attitude towards immigration as well as the actual counts themselves with a recent trend of more New Zealanders returning than exiting²⁴, as shown in Figure 10 below.

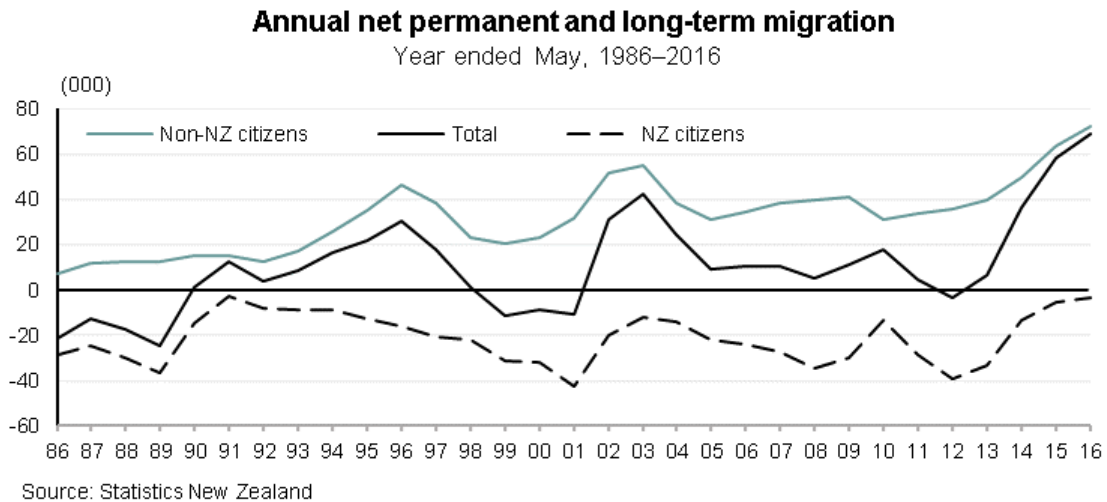


Figure 10. NZ net migration patterns

This overall flow in both directions plays a very significant role in talent acquisition and in the wider economy for a nation of 4.5million people. The inflow of students and other immigrants combined with the tradition for young graduates to develop their career overseas for several years impacts the country's overall labour supply, housing availability, and can impact our social cohesion. This has been more pronounced during the current 24 months as more New Zealanders have returned home and fewer have left New Zealand to live in other countries. A particular concern in New Zealand, in this period leading up to national elections in September 2017, is the relatively recent spike in immigration-oriented enrolments from India in Private Training Establishments, up 89% in 2014. Policy adjustments have produced a marked decline in this segment since this peak but regulators are continuing to tighten up this part of the IE sector while ongoing issues are frequently raised in the NZ media.

Innovation

The New Zealand government supports innovation through several programmes, e.g. the Catalyst Fund to support “activities that initiate, develop and foster collaborations leveraging international science and innovation for New Zealand’s benefit.”²⁵ New Zealand’s National Statement of Science Investment 2015-2025 sets the goal of “continuous improvement in New Zealand’s international standing as a high-quality R&D destination, resulting in the attraction, development and retention of talented scientists, and direct investment by multinational

²⁴ Statistics New Zealand (2016). The kiwi factor in record net migration. Retrieved from http://www.stats.govt.nz/browse_for_stats/population/Migration/international-travel-and-migration-articles/kiwi-factor-migration

²⁵ Ministry of Business Innovation and Development (2016). Retrieved at <http://www.mbie.govt.nz/info-services/science-innovation/investment-funding/current-funding/catalyst-fund>

"Those students who return overseas continue to provide value through increased academic linkages, as advocates for New Zealand, and potential business" opportunities.

Paul Goldsmith 2017

organisations."²⁶ This document goes on to observe the value of mobile researchers and our relative success in attracting scientists with a net positive inflow. The Ministry of Business, Innovation and Employment observes the NZ OE tradition among the scientific community with "77% of NZ researchers having moved out of New Zealand at least once."²⁷ Based on findings from a report by SciVal and Elseviers, the Ministry goes on to claim that New Zealand is a particularly productive environment for academic citation, as noted in the previous section on the impact of our research.

The culturally diverse research environment for PhD study is beneficial to our domestic students as well. The ability to work in and lead culturally diverse teams is a skill sought by today's employers, as referenced in multiple studies.

While there is no direct evidence that the international PhD tuition strategy has produced this environment, it is clear that as the international enrolments grew from 700 at the launch of the programme to the current levels nearly at par with the stagnant domestic PhD enrolments of 5,000, the overall research enterprise of the country has benefited from this strategy. This is particularly evident at the University of Auckland, which enrolls one in four of New Zealand's international PhD students. The University was recently named the most innovative university in New Zealand and Australia by the inaugural Reuters Top 75: Asia's Most Innovative Universities rankings²⁸. To compile this ranking, Reuters evaluated tertiary institutions on 10 different metrics which included the number of basic and global patents filed by the universities, and the percentage of all articles that were written in collaboration with industry.

Holistic Value of International Education

The initial strategy development for New Zealand's international PhD tuition programme in 2004-2005 did not quantify a target stay rate and we cannot reference a firmly established success marker in the field of international education. However, The stay rates for NZ international PhD graduates are within the norm observed for other major markets overall. The largest benefit appears to be the increase in research output, its impact on rankings, and how the graduates carry the New Zealand flag back to their home country or a post in a new country. This softer concept of 'brand ambassador' is often referenced at international education conferences. Minister Goldsmith echoed these sentiments in response to an interview on the new stay rates report stating, *"those students who return overseas continue to provide value through increased academic linkages, as advocates*

²⁶ Ministry of Business Innovation and Development (2015). National Statement of Science Investment 2015-2025. P. 10. Retrieved at <http://www.mbie.govt.nz/info-services/science-innovation/pdf-library/NSSI%20Final%20Document%202015.pdf>

²⁷ Idem. P. 49

²⁸ Retrieved from <http://www.reuters.com/article/asiapac-reuters-ranking-innovative-unive-idUSL1N1BA15E>

for New Zealand, and potential business opportunities.²⁹

At the University of Auckland, we have developed a simple infographic to reflect the broad benefits of international students to our learning community, as shown in Figure 11 below. We have sufficient clarity on their economic impact but not enough on a broad holistic benefit.

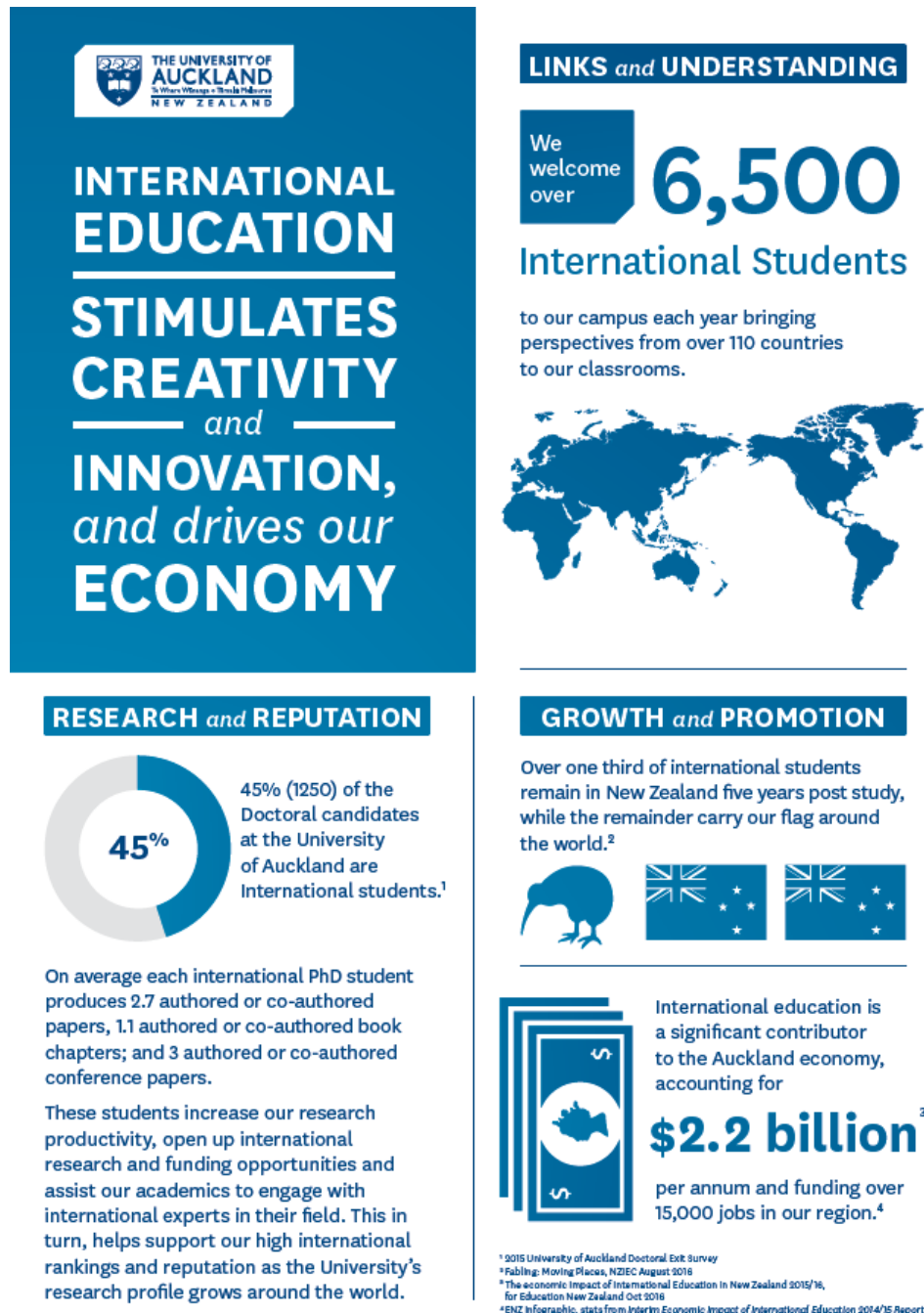


Figure 11. University of Auckland infographic on the value of international education

²⁹ Radio New Zealand interview 23 February 2017. Retrieved from <http://www.radionz.co.nz/news/national/325154/foreign-phd-students-least-likely-to-stay-in-nz>

The New Zealand study on international student stay rates is an interesting example for the IE field through its depth of data and large sample size, except for international PhD graduates. We need further work in the field of international education and policy to establish a common approach across countries to measure stay rates with widely shared terms of reference to set a replicable benchmark for success. For international PhD enrolments and outcomes, further work is needed on the New Zealand data set as well as further analysis of students' funding requirements and the impact on their post-graduation behaviour.

Conclusion

In this paper, we have seen how New Zealand's innovative strategy has boosted international PhD enrolments very significantly. This paper explores how the associated increase in research output and impact has contributed to our rise in the rankings despite a declining overall share of the IE market, and how PhD graduates contribute to the development of New Zealand society with nearly one in two international PhD graduates working in New Zealand immediately following graduation and one in four staying here for the long term. Those that leave carry the University of Auckland and New Zealand brands to their home country or a new country. This reinforces the cycle of internationalization, building connectedness and further contributing to the University's brand strength and rankings, collaborative research output, and recruiting more bright students to the University. From our perspective, New Zealand's international PhD tuition strategy delivers significant benefits while leaving us understanding that the glass is definitely more than half-full.

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