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Equity in New Zealand university graduate outcomes: Māori and Pacific graduates

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Abstract

Higher education confers significant private and social benefits. Māori and Pacific peoples are under-represented within New Zealand universities and have poorer labour market outcomes (e.g., lower wages, under-represented in skilled professions). A New Zealand tertiary education priority is to boost Māori and Pacific success in an effort to improve outcomes for these graduates, their communities and society in general. Using information collected in the Graduate Longitudinal Study New Zealand, we compared Māori and Pacific university graduate outcomes with outcomes of other New Zealand graduates. Data were collected when the participants were in their final year of study (n=8719) and two years post-graduation (n=6104). Employment outcomes were comparable between Māori, Pacific and other New Zealand graduates at two years post-graduation; however, Māori and Pacific graduates had significantly higher student debt burden and financial strain over time. They were significantly more likely to help others (e.g., family) across a range of situations (e.g., lending money), and reported higher levels of volunteerism compared to their counterparts. Boosting higher education success for Māori and Pacific students has the potential to reduce ethnic inequalities in New Zealand labour market outcomes and may result in significant private benefits for these graduates and social benefits as a result of their contribution to society.

Key words: Equity; graduate outcomes; higher education; indigenous; longitudinal; Māori; Pacific Island; university.

Equity in higher education is important for social justice, cohesion and prosperity. Higher education confers private benefits for individuals, including increased earnings, and social benefits for their communities like increased civic participation (Baum, Ma, & Payea, 2013); therefore, any inequalities in access to higher education will have long-term implications. A number of ethnic minority groups, including indigenous students, are less likely to access, participate in and complete tertiary education, particularly post-graduate studies (Centre for the Study of Higher Education, 2008). This is despite increased participation worldwide and the universally acknowledged importance of high-quality tertiary education for social and economic development (Santiago, Tremblay, Basri, & Arnal, 2008).

Indigenous peoples living within developed Western democracies experience multiple and interacting disadvantages in labour market participation and related financial consequences (Norris, 2001). Little is known, however, about the labour market and financial outcomes of indigenous university graduates as few studies include, or focus on, indigenous graduates in their samples. There is some suggestion, though, that individuals or groups who are less likely to pursue higher education experience greater benefits from it than do more traditional students (Bland & Xie, 2010; Hout, 2012). Higher education may also reduce employment and earnings gaps between indigenous and non-indigenous peoples, particularly at higher levels of study. For example, research with Australian Aboriginal university graduates has shown that they were more likely to be employed, were more positive about the benefits of their degree for work and career goals (Edwards & Coates, 2011) and had similar earnings compared to their non-indigenous peers (Li, 2014). Similarly, Indigenous Canadian graduates have also been found to have comparable earnings outcomes at two years post-graduation compared to both their minority and non-minority counterparts, although slightly lower employment rates¹ (Walters, White, & Maxim, 2004).

¹ Possibly due to returning to reserves where fewer employment opportunities exist.

Many non-indigenous ethnic minority groups also experience labour market inequality and related lower standards of living (United States Bureau of Labor Statistics, 2014). Higher educational attainment may reduce these inequalities. For example, minority graduates in the United States were found to have similar earning-to-debt ratios to those of their White counterparts (Thomas, 2000). Connor and colleagues (2004) also found that ethnic minority groups in the United Kingdom did less well than White graduates in the labour market initially, but were more likely to participate in further education and training.

To date, researchers have focused more on the private versus social benefits of higher education (Bloom, Hartley, & Rosovsky, 2007). In addition to private benefits, higher education has been associated with increased social capital – a greater number of active connections with people; participation in, and a greater understanding of, civic affairs; more tolerance for diversity; higher trust in others; and more time spent helping others in the community (Bloom et al., 2007; Putnam, 2000). There is limited quantitative research on the social benefits of higher education for ethnic minority and indigenous students. Although few researchers examine variation in social returns to education across different ethnic groups (cf. Bland & Xie, 2010), there is some evidence from the United States of comparable rates of voting and higher rates of volunteerism amongst ethnic minority graduates compared to their peers (Bradburn, Nevill, & Cataldi, 2006; Perna, 2005). In addition, qualitative research has shown that indigenous and ethnic minority students aspire to contribute to, and build, a better future for their communities (Barney, 2013; DiGregorio, Farrington, & Page, 2000).

The New Zealand context

Māori are New Zealand's indigenous population comprising 14.9% of the total population. Pacific Peoples, made up largely of Polynesian immigrants from 22 Pacific Island nations, comprise 7.4% of the total population. Māori and Pacific communities have greater

unemployment, lower incomes, fewer assets and poorer health than do other New Zealanders (Ministry of Health, 2010; Perry, 2013; Statistics New Zealand, 2002, 2013; Statistics New Zealand and Ministry of Pacific Island Affairs, 2011). These inequalities result from factors such as economic hardship, political exclusion, historical trauma and societal injustice (Human Rights Commission, 2012; Novak, 2007; United Nations: Economic and Social Council, 2006). Educational disparities for Māori and Pacific begin early in life and continue throughout formal schooling (Bishop, Berryman, Cavanagh, & Teddy, 2009). The percentage of Māori with a bachelor's degree or higher nearly doubled from 2005 to 2015 (5.6% to 9.9%) as did the percentage for Pacific (5.4% to 8.9%), yet these figures remain substantially below those of Europeans (20.7%) and other ethnic groups (35.2%) (Ministry of Education, 2015). Like tertiary participation rates, completion rates are also increasing for Māori and Pacific, with 62% and 58%, respectively, completing qualifications at bachelor degree level or above within five years of starting full-time study. These figures also remain below the total population completion rate of 74% (Tertiary Education Commission, 2014).

Little is known about Māori and Pacific university graduate outcomes. Recent research suggests that gaining a tertiary qualification, particularly a higher qualification, may reduce disparities in earnings and employment between young Māori or Pacific and their peers. Specifically, higher education is associated with a greater earnings premium (the difference or return on study) for Māori graduates at 1 year and 5 years post-graduation compared to non-Māori graduates when their incomes were compared to national median earnings for Māori and non-Māori, respectively (Mahoney, 2014a). This finding was similar for Pacific graduates (Mahoney, 2014b). In the first two years after graduation, Māori and non-Māori graduates had comparable employment rates and earnings. Compared to non-Māori graduates, Māori graduates had significantly lower (except for doctoral graduates) earnings at five years post-graduation. Pacific graduates, in contrast, generally earned more 5

years post-graduation than did non-Pacific graduates. Other studies have shown that Māori and Pacific university students are more likely to take out student loans and take longer to repay them compared to other New Zealanders (N. Chen & Webster, 2013), suggesting that some financial disparities persist after study completion.

The present study

The Graduate Longitudinal Study New Zealand (GLSNZ) is an ongoing, longitudinal project investigating the outcomes of graduates from all eight New Zealand universities. Our aim here is to provide a description of a broad range of potential benefits (private and social) of attaining a university education for Māori and Pacific university graduates compared to other graduates in New Zealand.

Methods

Participants

Participants were members of the GLSNZ (for detailed information see Tustin et al., 2012). The GLSNZ conducted baseline sampling across all eight New Zealand universities between July and December 2011. A randomly-selected², representative sub-sample of all potential graduates that year was identified (approximately 30% of the expected total) and invited to participate in an online survey and three follow-up surveys over the following decade (in 2014, 2017 and 2022). All international PhD students and all students from the smallest university (Lincoln) were invited to participate. Participants were those in a study programme allowing them to graduate with a bachelor's degree or higher after the successful completion of their studies in 2011. We achieved a 72% participation rate, which included individuals who did not complete the survey. A conservative criterion of survey completion (400+ questions) was required for ultimate inclusion in the sample (founding cohort of $N=8719$) with $n=626$ (7% of the sample) affiliating with Māori ethnicity and $n=365$ (4%) with Pacific Island ethnicity.

The first follow-up survey was administered in 2014, approximately 2.5 years after the baseline survey (Tustin et al., 2015). A total of 6104 respondents (70% of the baseline cohort) participated, including $N=455$ Māori (7% of the sample) and $N=253$ (4%) Pacific.

The New Zealand Multi-region Ethics Committee approved the baseline survey and the University of Otago Human Ethics Committee approved the survey at two years post-graduation.

Measures

Ethnicity

² Stratified by university.

Ethnicity was self-reported at both surveys using a New Zealand Census question, which allows multiple ethnic identities to be selected. Māori participants were those who reported Māori ethnicity³. All participants who reported Pacific Island ethnicity were classified as Pacific. All other participants were classified as being non-Māori non-Pacific (referred to hereafter as NMNP).

Socio-demographics and university study

Self-reported information on age, gender and parenthood at two years post-graduation was used for analyses. Self-reported information on the education level of the participants' parents/caregivers was collected in the final year of study. Universities supplied information on degree level (e.g., undergraduate) and domain of study (e.g., Science) in the final year of study.

Employment and further study

Information on current employment and tertiary study was collected in both surveys. Those not enrolled in tertiary study at two years post-graduation were asked if they had wanted to enrol since 2011 and their reasons for not doing so.

Finances

At both surveys, information on income, student loan debt and assets was collected using scales that went up in approximately \$5000 increments to \$40,000, then \$10,000 increments. Having regular financial commitments were rated from 0 to 10 commitments. Financial strain data were collected using questions adapted from the Iowa Youth and Family Project (Wave B 1990) (Conger et al., 1989–1992) based on work by Pearlin and Lieberman (1979). A financial strain summary score (between 5 and 25)⁴ was calculated based on the five individual strain questions.

³ Participants reporting Māori and Pacific ethnicity (n=31) at two years post-graduation were counted in both ethnic groups.

⁴ Lower scores=higher financial strain.

Social benefits

At two years post-graduation, participants reported if they had helped family, friends or others (work colleagues, neighbours or acquaintances) in the last 12 months, in eight different types of situations. These questions were adapted from the Special Eurobarometer N°223 (European Commission, 2005). Summary scores for family, friends or others were calculated as the sum of the ‘yes’ answers in the eight categories. A total summary score (for all three groups of people) was then calculated to represent an overall ‘average’ score. Participants reported voting behaviour and participation in social groups/associations in the past year. In both surveys, social capital was assessed using 15 items from the Social Capital Questionnaire (Onyx & Bullen, 2000) comprising three subscales: participation in the local community, agency/proactivity in a social context and tolerance of diversity.

Statistical analyses

Due to oversampling of international PhD and Lincoln University students, sample weights⁵ were applied for analyses. Descriptive findings are displayed in tables alongside results from univariate analyses of ethnic group comparisons between (i) Māori and NMNP graduates, and (ii) Pacific and NMNP graduates, using SPSS v22. *Post-hoc* Holm-Bonferroni corrections were used to control for multiple comparisons in these analyses and a critical value of no more than .002 determined a significant finding.

Multivariable analyses controlled for participants’ age, gender, parenting, the highest education level of participants’ highest-educated parent, international citizenship, an undergraduate versus postgraduate degree and domain of study (see also Table 1) and were performed using SAS v.9.4. If data were available on outcome measures from both surveys, repeated-measures multivariable analyses were conducted. Logistic and Poisson regressions

⁵ Weighted to reflect total 2011 baseline sample.

were performed for categorical outcome measures (e.g., regular financial commitments) and findings are reported as odd ratios (OR) or relative risks (RR), respectively. OR and RR are widely used in epidemiological studies but less commonly used in educational research. They are indexes of effect size and indicate whether the likelihood of an event is the same or differs across groups. OR of 1.46, 2.50 and 4.14 and RR of 1.22, 1.77 and 3.15 are considered equivalent to Cohen's $d = .2$ (small), $.5$ (medium), and $.8$ (large), respectively (H. Chen, Cohen, & S. Chen, 2010). Linear regression analyses were performed for continuous outcome measures and results are reported as coefficients. If the outcome measure was skewed (i.e., non-normal), a log-transform was applied and results are reported as ratios (transformed coefficients).

Results

Sample characteristics

Both Māori and Pacific graduates were more likely to be parents, had fewer parents with university qualifications and had studied different domains (e.g., more likely to study Humanities) compared to NMNP graduates ($p < .002$) (Table 1). Māori graduates were also significantly more likely than were NMNP graduates to be studying for an undergraduate versus post-graduate degree at baseline. Pacific graduates were significantly older than were NMNP graduates ($p < .001$). Māori graduates were also older ($p = .04$), but this difference did not reach statistical significance after applying Holm-Bonferroni correction ($p > .002$).

Table 1. Characteristics and background of participants at the 2014 first follow-up (2-years post-graduation) survey.

Characteristic (%[†])	Māori	Pacific Island	NMNP[‡]
Male	29.6*	29.8	38.2
A parent	37.8*	35.9*	22.8
International Citizenship	0*	8.1	10.4
Undergraduate Degree (2011 qualification) [§]	68.2*	59.7	58.7
Highest education level of highest-educated parent [§]	*	*	
No secondary school	3.3	6.3	1.7
Some/all secondary	31.3	36.8	20.1
Vocational Certificate	18.8	18.0	16.0
Undergraduate	26.7	22.6	34.8
Postgraduate	19.9	16.3	27.4
Study Domain	*	*	
Science	12.8	9.0	22.8
Humanities	55.7	58.8	45.1
Health	14.6	16.1	12.9

Commerce	16.8	16.1	19.2
Age [Mean [†] (SD [†])]	31.6 (9.8)	32.0 (9.4) [*]	30.6 (9.5)

^{*} $p \leq .002$ (critical value for Holm-Bonferroni correction): chi-square comparisons or Mann Whitney U Test (Age) between (i) Māori versus NMNP (ii) and Pacific Island versus NMNP. Note: asterisks(^{*}) reflect a significant overall chi-square comparison above a group of multiple options compared to NMNP group. [†]Analyses used weighting to reflect total 2011 sample. [#]Non-Māori Non-Pacific. [§]Data collected in 2011.

Employment and further study

Māori and Pacific graduates had similar rates of employment in their final year of study and two years post-graduation to NMNP graduates (Table 2). Neither Māori nor Pacific graduates differed from NMNP graduates in their rates of tertiary study enrolment at two years post-graduation. Of those not enrolled in tertiary study, both Māori and Pacific were significantly more likely than NMNP graduates to have wanted to pursue further study. Compared to NMNP graduates, Māori graduates were more likely to state that changes to the student allowance scheme were a reason for not enrolling ($p=.04$), whereas Pacific graduates were more likely to state other financial reasons ($p=.04$); however, these differences did not reach statistical significance after applying Holm-Bonferroni correction.

Table 2. Employment and further study of participants.

Variable (%[†])	Māori	Pacific Island	NMNP[‡]
Employed – final year of study			
Full-time	22.1	27.2	21.0
Part-time	37.5	31.5	36.4
Self-employed	2.5	1.2	2.4
Employed – 2 years post-graduation – Of whom[§]:			
Full-time	86.5	84.6	85.8
Part-time	74.0	80.6	77.4
Self-employed full-time	20.7	18.8	19.1
Self-employed part-time	3.1	1.5	2.9
Self-employed part-time	6.1	3.0	4.9
Enrolled in tertiary study – 2 years post-graduation			
University	27.7	26.4	24.3
Polytechnic	21.8	21.7	20.8
Another provider	2.1	2.8	1.2
Another provider	3.7	2.0	2.3
Desire to enrol in further study since 2011[¶]			
	37.6*	46.9*	28.1

Variable (% [†])	Māori	Pacific Island	NMNP [‡]
Reasons for not enrolling (<i>those not enrolled</i>)			
Lack of time	49.5	36.4	47.4
Changes to student allowance scheme	21.2	19.5	15.6
Other financial reasons	49.0	57.6	48.0
Geographical location	9.1	12.7	12.3

* $p \leq .002$ (critical value for Holm-Bonferroni correction): chi-square comparisons between (i) Māori versus NMNP and (ii) Pacific Island versus NMNP. Note: asterisks(*) reflect a significant overall chi-square comparison above a group of multiple options compared to NMNP group.

[†]Analyses used weighting to reflect total 2011 sample. [‡]Non-Māori Non-Pacific. [§]Multiple responses allowed. [¶]3 categories: (i) Yes, (ii) No, (iii) N/A.

Finances

The income levels of Pacific graduates who were employed in their final year of study differed significantly from those of NMNP graduates in univariate analyses, but this difference was no longer significant after performing repeated-measures multivariable analyses (ratio=1.00, 95% CI 0.95, 1.05) controlling for potential confounders (all of the variables shown in Table 1). Although income levels at two years post-graduation were comparable for all groups, Māori and Pacific graduates reported significantly worse financial circumstances across a range of measures than did NMNP graduates (Table 3). Repeated measures analyses adjusting for potential confounders showed that, compared to NMNP graduates, Māori graduates had nearly twice the odds of taking out a student loan (OR=1.95, 95% CI 1.3, 2.94), 15% higher levels of student loan debt (RR=1.15, 95% CI 1.09, 1.22), increased odds of having regular financial commitments (OR=1.36, 95% CI 1.11, 1.65) and significantly worse overall financial strain⁷ (ratio=0.98, 95% CI 0.96, 1.00). After adjusting for potential confounders (Table 1), compared to NMNP graduates, Pacific graduates had nearly twice the odds of taking out a student loan (OR=1.82, 95% CI 1.02, 3.25), 17% higher levels of student loan debt (RR=1.17, 95% CI 1.08, 1.26), more than twice the odds of having regular financial commitments (OR=2.34, 95% CI 1.84, 2.98), worse overall financial strain (Ratio=0.94, 95% CI 0.92, 0.97) and were approximately 30% less likely to have higher levels of assets (RR=0.71, 95% CI 0.63, 0.8) based on repeated-measures analyses.

⁷ Lower scores=higher strain.

Table 3. Financial circumstances (NZ\$) of participants in their final year of study and 2 years post-graduation.

Variable (% [‡])	Māori		Pacific Island		NMNP [†]	
	Final year	2 years	Final year	2 years	Final year	2 years
Current income (of those employed)[§]			*			
Loss-\$15,000	28.2	9.9	22.1	10.7	36.4	8.7
\$15,001-\$35,000	32.4	17.1	27.9	16.1	26.1	18.4
\$35,001-\$70,000	27.6	55.4	35.3	57.7	23.6	53.5
\$70,001-\$100,000	8.5	14.7	11.8	10.7	9.6	12.6
\$100,001+	3.3	2.9	2.9	4.7	4.4	6.8
Took out student loan	91.5*	91.8*	92.3	93.2*	85.1	84.2
Current student loan[§]	*	*		*		
No	12.7	23.3	12.7	17.8	20.1	35.5
\$1-\$25,000	48.7	25.7	52.7	22.5	45.4	20.1
\$25,001+	38.6	51.1	34.5	59.7	34.5	44.5
Regular financial commitments	*	*	*	*		
Zero	66.6	65.6	58.6	56.3	79.1	76.0

1	14.0	14.5	14.8	18.6	10.1	12.7
2	8.8	9.9	10.5	10.0	5.2	6.2
3+	10.6	10.1	16.0	15.2	5.5	5.0
Amount of assets				*		
Zero-\$25,000	69.0	44.0	78.2	63.8	70.8	45.2
\$25,001-\$50,000	8.0	19.3	6.8	14.5	8.5	19.7
\$50,001-\$100,000	4.8	10.5	4.1	5.3	3.8	8.5
\$100,001-\$250,000	3.2	4.3	1.8	2.9	3.0	5.4
\$250,001+	15.1	22.0	9.1	13.5	13.8	21.3
Financial Strain						
<i>Disagree/strongly disagree they have enough money for:</i>						
Accommodation	15.3	8.6	22.7*	17.3*	13.4	7.8
Clothing	18.8*	9.7	21.4*	14.3*	13.9	6.8
Food	13.0*	5.7	15.6*	11.3*	7.0	3.9
Leisure	38.9*	26.2*	37.2	25.7	30.4	19.2
<i>Agree/strongly agree they had difficulty with:</i>						

Financial commitments (12 mths)	36.8*	27.0*	38.5*	28.3*	26.6	18.9
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* $p \leq .002$ (critical value for Holm-Bonferroni correction): chi-square comparisons between (i) Māori versus NMNP and (ii) Pacific Island versus NMNP. Note: asterisks(*) reflect a significant overall chi-square comparison above a group of multiple options compared to NMNP group.

†Non-Māori Non-Pacific. ‡Analyses used statistical weighting to reflect total 2011 sample. §Excludes international students.

Social benefits

At two years post-graduation, both Pacific and Māori graduates were significantly more likely than NMNP graduates to report having helped family, friends or others (colleagues, neighbours and acquaintances) in the last 12 months across a range of situations (Figure 1), including occasional care of dependent members of their household, help with personal care, help with official matters, lending money and helping those who had been threatened or harassed.

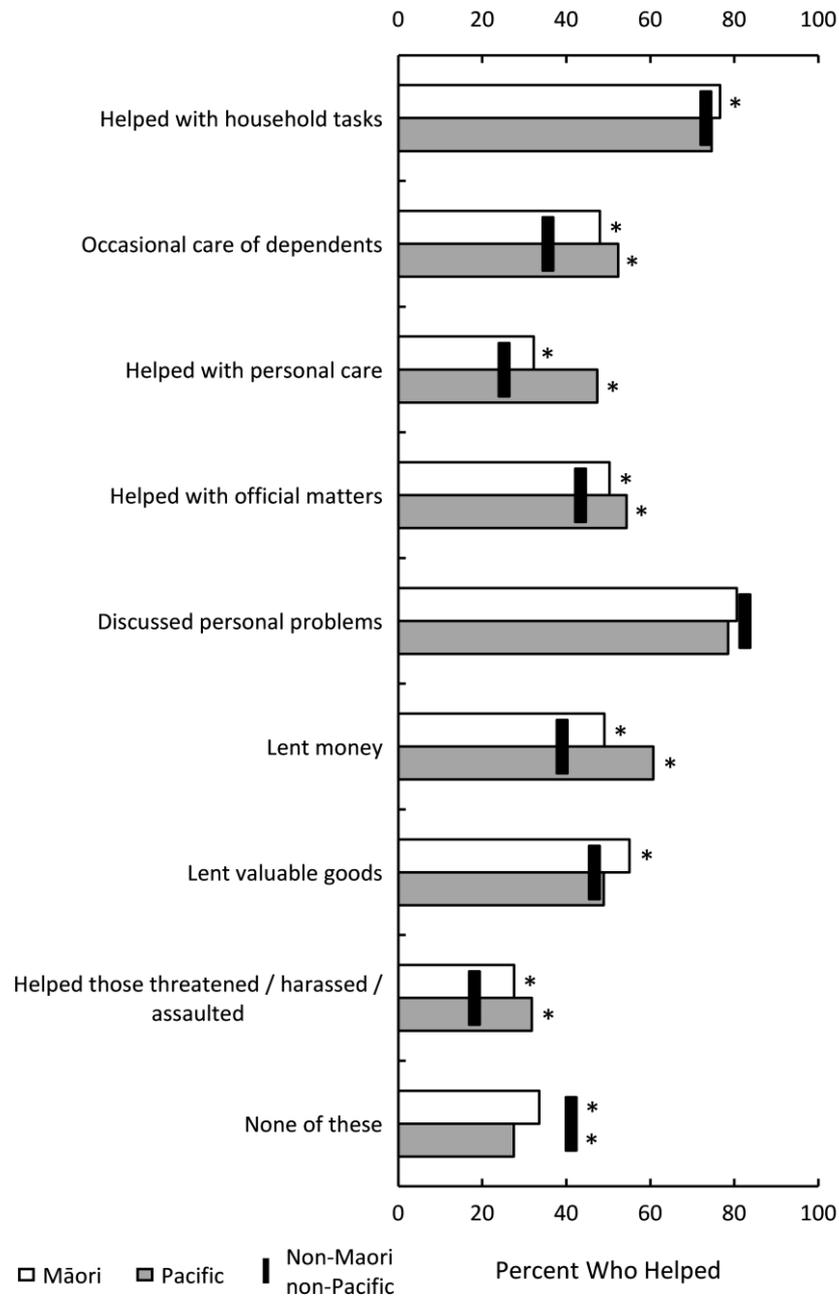


Figure 1. Percentage of Māori, Pacific and non-Māori non-Pacific graduates who reported at two years post-graduation having provided help to family, friends and others (work colleagues, neighbours, acquaintances) in the last 12 months.

Note: group differences displayed as * $p \leq .002$ (critical value for Holm-Bonferroni correction).

After controlling for potential confounders (Table 1), Māori graduates were significantly more likely than NMNP graduates to have helped family (coefficient=0.58, 95% CI 0.38, 0.77), friends (coefficient=0.39, 95% CI 0.22, 0.56), and others (coefficient=0.14, 95% CI 0.04, 0.24), as well as all three of these groups combined (coefficient=0.43, 95% CI 0.18, 0.61) in the last 12 months (Figure 2). Pacific graduates were also significantly more likely than NMNP graduates to have helped family (coefficient=1.34, 95% CI 1.05, 1.62), friends (coefficient=0.41, 95% CI 0.16, 0.66), others (coefficient=0.31, 95% CI 0.16, 0.45) and all three groups combined (coefficient=0.65, 95% CI 0.34, 0.97) (Figure 2).

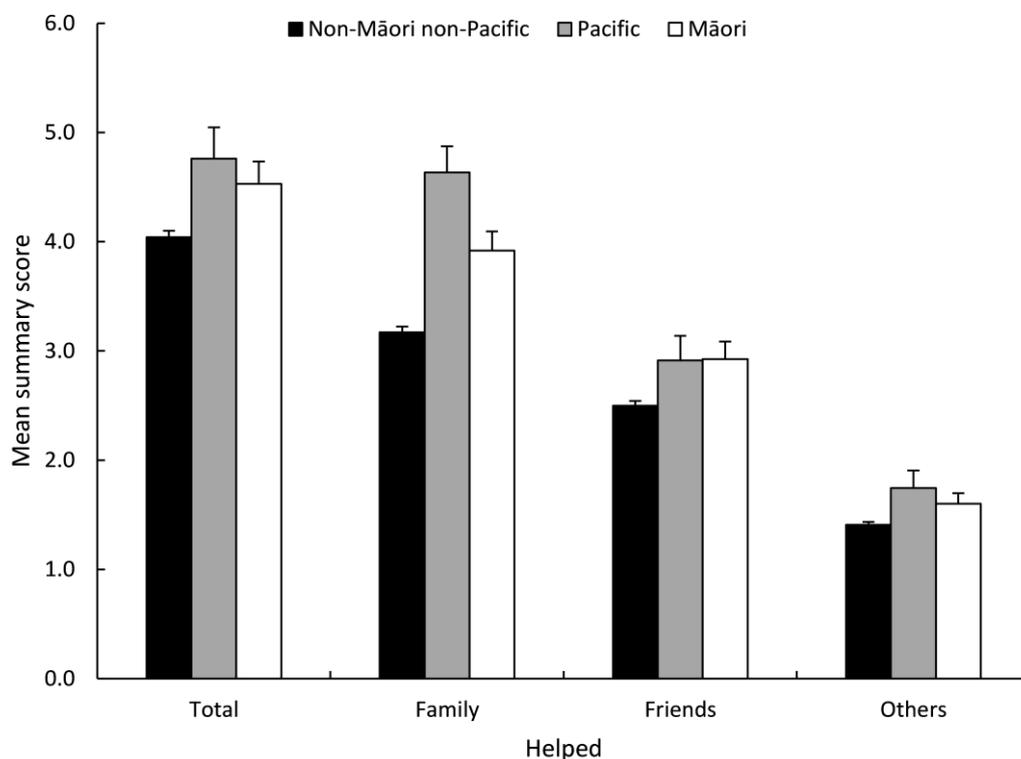


Figure 2. Group mean scores at 2 years post-graduation (+1 standard error) where Māori, Pacific and non-Māori non-Pacific graduates provided help (in the last 12 months) to friends, family or others (work colleagues, neighbours and acquaintances).

Supplementary analyses⁶ were undertaken to determine if higher levels of lending money and/or valuable goods accounted for the differences in financial circumstances between ethnic groups (Table 3). When these two variables were added to multivariable models that also controlled for other potential confounders (Table 1), there were no significant changes to the results. Higher levels of lending, therefore, did not account for ethnic differences in financial circumstances.

With regard to civic participation, Māori and Pacific graduates were as likely as NMNP graduates to always or usually vote in both local and national elections (Table 4). Both Māori and Pacific graduates were significantly more likely to participate in a number of community organisations (e.g., charities) compared to NMNP graduates. In addition, Māori and Pacific graduates had significantly higher mean scores for social capital (Table 4) in their final year of study and two years post-graduation than did NMNP graduates. Compared to NMNP graduates, repeated measures analyses showed that these differences in social capital (summary score) remained significant after controlling for potential confounders (Table 1) for Māori (coefficient=0.15, 95% CI 0.11, 0.2) and Pacific graduates (coefficient=0.25, 95% CI 0.19, 0.32).

⁶ Data not shown.

Table 4. Civic participation and social capital of participants in their final year of study and 2 years post-graduation.

Variable (% [‡])	Māori		Pacific Island		NMNP [†]	
	Final year	2 years	Final year	2 years	Final year	2 years
Voting [§] – Always/usually (vs. sometimes/never)						
Local elections		58.1		64.4		56.6
National elections		88.5		79.7		85.5
Participation (last 12 months)						
Political party/club/association		16.7*		15.2*		8.7
Trade union/professional association		29.7*		27.2		23.5
Church/religious organisation		23.2		53.8*		20.7
Sports group, hobby, leisure club		56.1		50.2		51.5
Charitable organisation/group		34.8*		37.5*		27.6
Neighbourhood association/group		10.0		12.5		7.4
Social Capital [Mean [‡] (SD) [‡]]						
Local community participation	2.02 (0.8)*	1.97 (0.7)*	2.27 (0.8)*	2.21 (0.8)*	1.82 (0.7)	1.75 (0.7)
Agency/proactivity in a social context	3.23 (0.5)*	3.22 (0.5)*	3.17 (0.5)*	3.15 (0.5)	3.02 (0.5)	3.09 (0.5)

Tolerance of diversity	3.36 (0.6)*	3.40 (0.6)	3.55 (0.6)*	3.48 (0.6)*	3.26 (0.7)	3.31 (0.7)
<i>Summary score</i>	2.68 (0.5)*	2.66 (0.48)*	2.80 (0.5)*	2.75 (0.5)*	2.49 (0.5)	2.49 (0.4)

* $p \leq .002$ (critical value for Holm-Bonferroni correction): chi-square comparisons except for participation in local community and tolerance of diversity (Mann-Whitney) and agency and summary score (t -test) between (i) Māori vs NMNP and (ii) Pacific vs NMNP for (i) final year only and (ii) 2 years only. †Non-Māori Non-Pacific. ‡Analyses were weighted to reflect total 2011 sample. §Excludes international students.

Discussion

Monitoring graduate outcomes can provide an evidential basis for policy, planning and practice (e.g., teaching) by identifying ways to improve outcomes for groups where there are entrenched patterns of marginalisation and disadvantage and by showing how educational success might transform life opportunities and reduce inequalities (Edwards & Coates, 2011).

Although previous studies in this area have given us some important insights into graduate outcomes for ethnic minority and indigenous students (Connor et al., 2004; Edwards & Coates, 2011; Li, 2014; Mahoney, 2014a), there remain some limitations that need to be addressed, including low response rates, using cross-sectional versus longitudinal data and not controlling for potential confounders. In the present paper, we address some of these previous issues (specifically, low response rates and controlling for confounders) in our examination of outcomes for Māori and Pacific graduates using data from the first two waves of a longitudinal national study of graduate outcomes.

Our overarching finding is that a New Zealand university education is associated with a broad range of benefits for Māori and Pacific graduates. Moreover, our findings underscore the importance of equity in higher education for New Zealand's social and economic development. At two years post-graduation, Māori and Pacific graduates' employment and income outcomes were comparable to those of other New Zealand graduates. This finding suggests that higher education reduces ethnic disparities in New Zealand labour market outcomes, given that overall unemployment rates in New Zealand are 12% for Pacific peoples and 13% for Māori compared to the overall national average of 6% (Ministry of Business, Innovation and Employment, 2015).

Beyond these private benefits of higher education success for Māori and Pacific graduates, the social benefits for their families, communities and society in general appear to be substantial. Māori and Pacific peoples in the general population are less likely to vote than

are other New Zealanders⁷ (Statistics New Zealand, 2014a). Our findings suggest that higher education may reduce these differences in voting behaviour, resulting in increased civic participation. Furthermore, Māori and Pacific graduates were more likely to have helped their family, friends and acquaintances across a range of situations, and had higher levels of volunteerism and social capital compared to their peers. In the general population, Māori and Pacific peoples participate in unpaid work (e.g., work for non-profit organisations) at higher levels than do other New Zealanders (Statistics New Zealand, 2011). This type of work may reflect cultural obligations and duties, reciprocity and a focus on collective benefit for Māori and Pacific Peoples in New Zealand and the wider Pacific region (Tamasese, Parsons, Sullivan, & Waldegrave, 2010). Māori and Pacific graduates are also currently in short supply, so could be in high demand for civic service within their communities because of their skill sets.

In New Zealand, Māori and Pacific individuals have lower median annual incomes compared to the national median (Statistics New Zealand, 2014b) and are more likely to live in households affected by poverty (defined as less than 60% of median income) (Perry, 2013). As a consequence, Māori and Pacific students are likely to enter into universities with poorer financial circumstances than their counterparts. We found that Māori and Pacific graduates disproportionately took on state-sponsored debt to participate in higher education, while experiencing poorer financial circumstances during their studies compared to their peers; however, two years post-graduation there were fewer differences in self-reported financial strain (e.g., not having enough money for food) between Māori and non-Māori non-Pacific graduates. In contrast, significant differences in self-reported financial strain between Pacific and non-Māori non-Pacific graduates remained over time. Pacific graduates also reported lower levels of asset accumulation at two years post-graduation. Follow-up surveys

⁷ Except for Asian peoples, which may be due to the large migrant population from Asia.

will determine whether these differences decrease over time, given the comparable earnings between the groups at two years post-graduation. Alternatively, some disparities may persist because of factors such as the greater social and financial family and community responsibilities that Pacific and Māori graduates have.

Boosting Māori and Pacific achievement is a New Zealand tertiary education priority. In the present study, of those who had not enrolled in further tertiary education at two years post-graduation, more than a third of Māori and nearly half of Pacific graduates expressed a desire to undertake more study compared to 28 percent of other graduates. The government provides institutions with equity funding to improve access to higher education and the achievement of Māori and Pacific students at higher levels. How this funding is spent to achieve these goals is left to the discretion of the institutions based on their individual plans and strategies. Other government policies and policy changes occurring at the time that our participants were in their final year of study, however, could actually increase financial hardship for Māori and Pacific students. These changes have included increasing student fees, fewer student allowance entitlements due to changes in parental income definitions, increased required student loan repayments and the removal of the voluntary loan repayment bonus (Mayeda, Keil, & Mills, 2012; The Treasury, 2012). In 2012, student allowances stopped being available after a four-year period, affecting post-graduate students (The Treasury, 2012).

The United Nations Special Rapporteur's Report recommended that to redress historical and contemporary marginalisation and increase Māori participation in degree-level study, the government should lower student fees and increase allowances (United Nations: Economic and Social Council, 2006). Other potential solutions to financial disparities include financial aid in the form of non-repayable grants, scholarships and financial support particularly for post-graduate studies for under-represented groups (Institute for Higher

Education Policy, 2001). University officials describe tension between current low levels of government funding for universities and maintaining quality as measured by indicators such as international rankings (McCutcheon, 2012). In addition, the government restricts the level at which universities can increase tuition fees. Providing support for students constrained by their economic circumstances while not constraining costs for all students is one option to enable institutions to maintain quality (McCutcheon, 2012).

While financial support can contribute to the participation in, completion and experience (e.g., part-time versus full-time study) of university study, it is not the only factor associated with Māori and Pacific student success. Within higher education, focusing on successful transitions from school to tertiary education via culturally-relevant and appropriate engagement is considered important. For example, developing strong relationships between universities and schools focused on encouraging students to aspire to tertiary education and providing information, guidance and support to students and their families can all help (Tertiary Education Commission, 2012). Promoting the private and social benefits of higher education to students, their families, and communities is also important. Families often attain information about post-secondary education from other members of their family or friends rather than from ‘official’ information sources (Usher, 2005). The general population and particularly those from lower income families tend to underestimate the future value of a university education (e.g., the income differential between high school and university graduates) while overestimating the costs of attending university (Usher, 2005).

The need for institutions to work with families to support student participation and achievement within higher education institutions is also crucial and families should feel welcome on campus (Tertiary Education Commission, 2014). First-year experiences are important because Māori and Pacific students are more likely to be first-generation students and may have less access to role models who have attended and completed higher education,

support in gathering information and help when making educational choices (e.g., subject) (Nikora, Levy, Henry, & Whangapirita, 2002). Research on current best practice within universities also shows the need to effect change in a number of key domains as follows: (a) increase culturally relevant curricula, teaching practices and activities and include indigenous and Pasifika concepts, knowledge and methodologies across academic departments/divisions; (b) have strong, indigenous and Pacific leadership and role models including increased numbers of Māori and Pacific staff and (c) support culturally safe spaces/havens and tutorials that facilitate group work, cooperative learning and interactions between staff and students (Airini et al., 2009; Mayeda et al., 2012; Nikora et al., 2002; Tertiary Education Commission, 2012).

The present study has a number of strengths. Information was collected at two time points on multiple outcome measures in a nationally-representative graduate study. We identified socio-demographic and university study differences between ethnic groups and we controlled for these differences in multivariable analyses. Limitations of the present study must also be considered. While potential benefits of higher education were identified, the associations may not be causative. Although our study is longitudinal in nature, two time points are insufficient to determine trends over time. Future GLSNZ research will determine whether differences in outcomes, including disparities, remain beyond two years post-graduation or whether differences appear over time (i.e., sleeper effects).

Conclusion

Boosting higher education success for Māori and Pacific students may reduce ethnic inequalities in labour market outcomes in New Zealand and may result in substantial social benefits for graduates' families, communities and society.

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Conflicts of Interest/Disclosure

The authors declare no conflicts of interest.

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