

Post-school choices – high achieving students

This fact sheet looks at the transition of high achieving students from school to tertiary education. It supplements a recent Ministry of Education report on the post-school choices¹ of school leavers. That report focused on answering the question of how well academic achievement at secondary school predicts the tertiary education choices of all school leavers. This study builds on the statistical model used in *Post-school choices* but narrows the focus to look at high achieving students by providing additional information about the post-school choices of school leavers who have attained NCEA qualifications at level 2 or above².

The main findings of *Post-school choices* included:

- Higher achievement in the National Certificate of Educational Achievement (NCEA) is associated with higher participation in tertiary education.
- Higher achievement in NCEA is strongly associated with participation in bachelors-level study but less so with industry training.
- Those students who attained an NCEA qualification at level 2 or above had a solid base in which to transition into tertiary education. They had a wider choice of tertiary education available to them because they were more likely to hold the prerequisite qualifications.

Given the last of these findings, it is likely that the set of factors associated with post-school choice for high achieving school leavers will differ from lower achieving school leavers.

Figure 1 shows that the post-school choices of high achieving students differed from the overall cohort of school leavers. High achieving students were more likely to participate in higher-level tertiary study, particularly bachelors-level study. Of the high achieving students, 39 percent participated in bachelors-level study directly after leaving school in 2004, 6 percent in industry training and 34 percent in the labour market, compared with 23 percent, 7

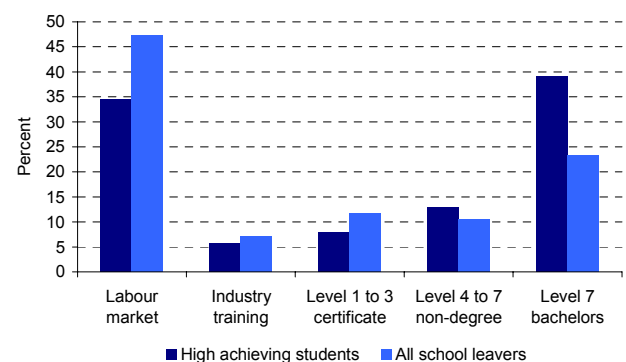
As in *Post-school choices* a statistical model using generalised multinomial logistic regression was used to analyse the association between participation in various types of tertiary education and the study variables. The study was based on the Ministry of Education/NZQA schools to tertiary longitudinal unit-record level dataset. The underlying assumptions of this study and the description of variables are similar to those discussed in *Post-school choices*.

The analytical approach used in this study was slightly different to that used in *Post-school choices*. The variable for the highest school qualification attained by school leavers (HSQ) was removed from the model because that was the variable used to define the specific group analysed in this study. Consequently, the interaction variables including HSQ were also removed and replaced with interaction variables using the expected percentile, the measure that summarises students' results (achieved, merit, excellence) in level 1 NCEA achievement standards.

This study used bachelors-level study as the reference category of the dependent variable (CHOICE), where *Post-school choices* used the labour market. This change was made because bachelors-level study is the most popular post-school choice of high achieving school leavers and it is against this choice that the best comparisons can be made for this group.

percent and 47 percent respectively of all school leavers.

Figure 1: Post-school choices of 2004 school leavers



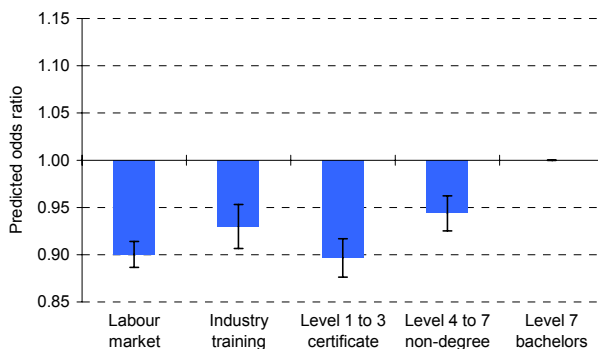
¹ Ussher, S. (2008) *Post-school choices: how well does academic achievement predict the tertiary education choices of school leavers?* Wellington: Ministry of Education.

² From here on these students are referred to as high achieving students.

The model used in this study explained about 32 percent of the variability in the dependent variable – the post-school choice of high achieving school leavers. This was considerably less than the explanatory power of the model used in *Post-school choices* for all school leavers (48 percent). The fall in the explanatory power of the model was due to the removal of highest school qualification from the model, emphasising its strong association with the post-school choices of school leavers.

Figure 2 shows that attaining better results in NCEA level 1 standards – as measured by the expected percentile – was positively associated with participating in bachelors-level study rather than other post-school choices. The association between the expected percentile and the post-school choice of high achieving school leavers was stronger than that shown for all school leavers in *Post-school choices*. However, this was likely to be because of the removal of highest school qualification from the model leaving the expected percentile as the only variable measuring academic achievement.

Figure 2: Predicted odds ratios³ of the post-school choice of high achieving students by expected percentile



Notes:

1. The reference category for the dependent variable of post-school choice was bachelors-level study.
2. Error bars represent the 95% confidence interval of the predicted odds ratios. If an error bar does not overlap with a point estimate we are 95% confident that there was a difference in the predicted odds ratios.
3. The predicted odds ratios represent the change in odds for each 1 percent increase in the expected percentile.

The expected percentile was also strongly associated with the choice of industry training over the labour market for high achieving school leavers. An increase in the expected percentile increases the likelihood of a high achieving school leaver participating in industry training rather than the labour market. This is in contrast to the finding presented in *Post-school choices* where, for all school leavers an increase in the expected percentile did not result in an increase in the likelihood of a school leaver choosing to participate in industry training rather than the labour market.

A further difference from the model of all school leavers presented in *Post-school choices* was that the expected percentile was not significantly associated with participation in level 1 to 3 certificate study at a tertiary education provider rather than the labour market. Therefore attaining better results in NCEA standards did not decrease the likelihood of high achieving students participating in level 1 to 3 certificate study as it did for all school leavers.

Two interaction variables involving the expected percentile were statistically significant in the model. The expected percentile was associated differently with the post-school choices of Asian high achieving school leavers compared with the other ethnic groups. In particular, an increase in the expected percentile for Asian high achieving school leavers increased their likelihood of participating in bachelors-level study to a lesser degree than for the other ethnic groups. This interaction effect was similar to what occurred in the *Post-school choices* model and reflects the fact that Asians are more likely participate in bachelors-level study regardless of how well they achieve at school.

Similarly, an increase in the expected percentile for school leavers from high decile schools increased their likelihood of participating in bachelors-level study rather than entering the labour market to a lesser degree than that of other school leavers. This interaction effect did not occur in the *Post-school choice* model and this effect was therefore unique to high achieving students.

Gender was associated with the post-school choice of high achievers in much the same way as it was for the overall cohort of school leavers in *Post-school choices*. That is, gender was strongly associated with participation in industry training only. Male high achieving students were more likely to participate in industry training rather than bachelors-level study than female high achieving students. While the gender bias in industry training is now well documented, this finding suggests that this bias is solely associated with gender and is not due to lower academic achievement by males at school compared with females.

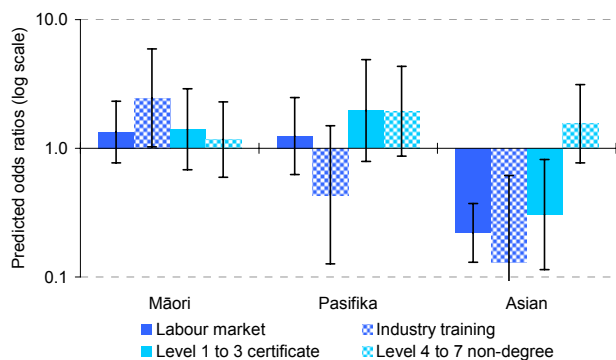
Figure 3 shows that Asian school leavers were more likely than other ethnic groups to participate in bachelors-level study rather than other post-school choices. This is different to the model of the whole cohort of school leavers in *Post-school choices*, which found no significant difference in the post-school choices of Asian school leavers. This means for high achieving students, after adjusting for the different levels of academic achievement at

³ For a full explanation of predicted odds ratios refer to Ussher (2008).

secondary school, Asian high achieving school leavers were more likely than other ethnic groups to participate in bachelors-level study.

High achieving Māori school leavers were more likely to participate in industry training rather than bachelors-level study compared with European and Asian school leavers. This is interesting because overall, European school leavers were more likely to participate in industry training than Māori school leavers.⁴ The *Post-school choices* model found no significant difference between Māori and European for all school leavers in their participation in industry training rather than bachelors-level study. Māori school leavers were however, more likely to participate in industry training than Asian school leavers.

Figure 3: Predicted odds ratios of post-school choice for Māori, Pasifika and Asian high achieving students compared with European high achieving students



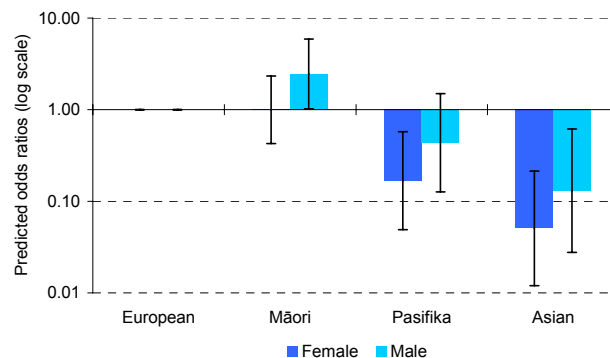
Notes:
 1. The reference category for the dependent variable of post-school choice was bachelors-level study.
 2. The reference category for ethnic group was European.
 3. Ethnic group was measured using the prioritised method of reporting.
 4. Error bars represent the 95% confidence interval of the predicted odds ratios. If an error bar does not overlap with a point estimate we are 95% confident that there was a difference in the predicted odds ratios.

The interaction effect between ethnic group and gender was significant for participation in industry training rather than bachelors-level study. Figure 4 shows that Māori male high achieving school leavers were more likely to participate in industry training rather than bachelors-level study while for females, there was no significant difference between Māori and European high achieving school leavers.

For high achieving Pasifika school leavers, the interaction effect between ethnic group and gender had a quite different association. Female Pasifika school leavers were less likely to participate in industry training rather than bachelors-level study compared with their European counterparts. There was no significant difference for male Pasifika school

leavers. Both male and female Asian high achievers were less likely to participate in industry training rather than bachelors-level study than European and Māori high achievers.

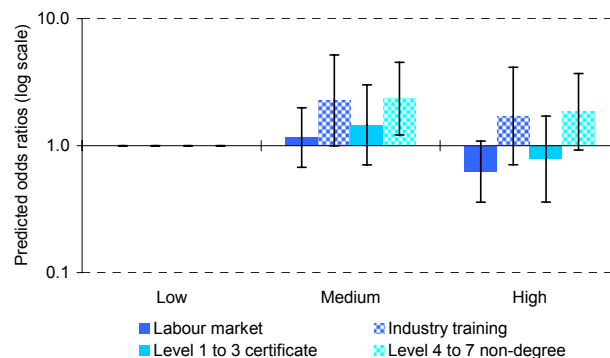
Figure 4: Predicted odds ratios of high achieving students choosing industry training rather than bachelors-level study by gender and ethnic group



Notes:
 1. The reference category for the dependent variable of post-school choice was bachelors-level study.
 2. The reference category for ethnic group was European.
 3. Ethnic group was measured using the prioritised method of reporting.
 4. Error bars represent the 95% confidence interval of the predicted odds ratios. If an error bar does not overlap with a point estimate we are 95% confident that there was a difference in the predicted odds ratios.

The decile of the school last attended by high achieving students was associated with their post-school choice. However, this association occurred only in relation to participation in level 4 to 7 non-degree study at a tertiary education provider. As shown in figure 5, high achieving students from medium decile schools were more likely to participate in level 4 to 7 non-degree study at a tertiary education provider rather than bachelors-level study compared with high achieving students from low decile schools.

Figure 5: Predicted odds ratios of post-school choice for high achieving students from medium and high decile schools compared with high achieving students from low decile schools



Notes:
 1. The reference category for the dependent variable of post-school choice was bachelors-level study.
 2. The reference category for school decile was low.
 3. Error bars represent the 95% confidence interval of the predicted odds ratios. If an error bar does not overlap with a point estimate we are 95% confident that there was a difference in the predicted odds ratios.

⁴ Refer to Ussher, S. (2007) *Tertiary education choices of school leavers*, Wellington: Ministry of Education.

This result means that there was no significant difference in participation in industry training rather than bachelors-level study between high achieving students from schools of different deciles. *Post-school choices* found that there was a significant difference for school leavers; therefore this association between school decile and participation in industry training is removed when just considering high achieving students.

Other results from this study were very similar to those found in *Post-school choices*. The influence of peers' post-school choices had a strong association with the post-school choices of high achieving students. But as *Post-school choices* found, generally, the influence of peers was less for high achieving students than it was for students who left school with no or low qualifications. High achieving students from areas remote from tertiary education provision were not disadvantaged when it came to participating in tertiary education.

Table 1: Generalised multinomial logistic regression results

		Post-school choices (reference = bachelors-level study)			
		Odds ratios (likelihood of participating in indicated type of tertiary education over bachelors-level study)			
Explanatory variables	Categories	Labour market	Industry training	Level 1 to 3 certificate	Level 4 to 7 non-degree
EXP ²		0.900**	0.930**	0.897**	0.944**
GENDER	Female	REFERENCE CATEGORY			
	Male	0.995	4.624**	1.068	1.045
ETHNIC	European	REFERENCE CATEGORY			
	Māori	1.338	2.460*	1.403	1.167
	Pasifika	1.245	0.435	1.965	1.940
	Asian	0.220**	0.130*	0.305*	1.551
	Other	0.464	0.165	0.759	0.565
DECILE ³	Low	REFERENCE CATEGORY			
	Medium	1.158	2.268	1.454	2.346*
	High	0.624	1.708	0.783	1.847
PRIVATE	State	REFERENCE CATEGORY			
	Private	1.233**	0.865	0.890	0.984
ROLL		1.004	0.995	0.996	1.016**
PEER_INF ⁴		0.924**	0.951**	0.948**	0.979**
ACCESS		1.000	0.994**	0.998**	0.999
UNEMPLOY		0.879**	0.769**	0.785**	0.813**
EXP x ETHNIC	EXP x Māori	1.003	0.993	1.011	1.012
	EXP x Pasifika	0.998	1.018	0.990	1.000
	EXP x Asian	1.029**	1.026*	1.010	0.995
	EXP x Other	1.027**	1.029*	0.991	0.997
EXP x PEER_INF		1.000**	1.000	1.000	1.000*
GENDER x ETHNIC	Male x Maori	1.224	0.406**	0.862	0.892
	Male x Pasifika	1.261	0.386**	0.927	0.908
	Male x Asian	0.856	0.388**	1.225	0.633**
	Male x Other	1.007	0.655	1.148	0.871
ETHNIC x DECILE	Māori x Medium	0.919	0.873	0.598*	0.605**
	Māori x High	0.892	1.179	0.569*	0.543**
	Pasifika x Medium	0.892	1.461	0.721	0.640*
	Pasifika x High	1.399	1.046	1.257	0.669
	Asian x Medium	0.600**	0.838	0.391**	0.482**
	Asian x High	0.774	0.324*	0.497*	0.411**
	Other x Medium	0.739	1.023	1.136	1.445
	Other x High	0.638	1.307	0.788	1.253
EXP x DECILE	EXP x Medium	1.005	0.990	1.002	0.992
	EXP x High	1.017**	0.995	1.013	0.997
Pseudo R ²		0.323			
N		28,053			

Notes:

1. *, ** represents significant at the 5 percent and 1 percent levels of significance, respectively.
2. The expected percentile is represented in the model by the variable EXP.
3. The decile of a school leaver's last secondary school is represented in the model by the variable DECILE.
4. The proportion of school leavers from a student's school and year level that participated in tertiary education is represented by the variable PEER_INF.