

Post-school choices – unit standards

This fact sheet looks at how the number of unit standard credits students attain while at secondary school is associated with their post-school choices. It looks at how many unit standards credits a school leaver attained by the number of level 1 unit standard credits attained as a percentage of total level 1 standard credits attained by a school leaver.¹

The analysis in this fact sheet is intended to supplement a recent Ministry of Education report on the post-school choices of school leavers.² That report focused on answering the question of how well academic achievement at secondary school predicts the tertiary education choices of school leavers.

The main findings of the study included:

- Higher achievement in the National Certificate of Educational Achievement (NCEA) is associated with higher participation in tertiary education.
- Higher achievement in NCEA achievement standards is strongly associated with participation in bachelors-level study but less so with industry training.

The *Post-school choices* analysis could be taken as implying that achievement at secondary school is linked most strongly to academic tertiary study. This raises a question about whether there are other schooling factors, not included in the *Post-school choices* model, that are associated with participation in vocational training.

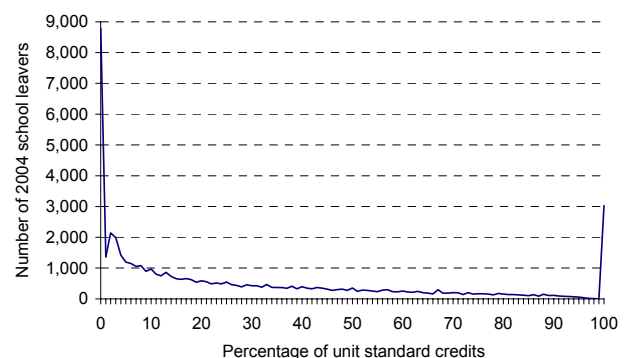
Achievement standards in NCEA are usually associated with academic subjects, while unit standards are often associated with vocational subjects. We might therefore explore whether school leavers who participate in vocational types of tertiary education, such as industry training, would be more likely to have taken unit standards at secondary school than those participating in bachelors-level

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*.

In addition to the variables included in the logistic regression model in *Post-school choices*, one further variable was added to this model. The number of level 1 unit standard credits achieved as a percentage of total level 1 standard credits achieved was represented in the model by the variable UNIT. No interaction effects including UNIT were included in the model because they were either not statistically significant or not theoretically relevant.

study. The NCEA achievement measure used in *Post-school choices* – the expected percentile – was not strongly associated with participation in industry training. It is possible that this was because school leavers who participated in industry training focused more on unit standards than on achievement standards.

Figure 1: Distribution of 2004 school leavers by the percentage of level 1 unit standard credits attained to total level 1 standard credits attained



For 2004 school leavers, the median percentage of level 1 unit standard credits attained was 15 percent. Figure 1 shows that a large number of school

¹ From here on this measure is referred to as the percentage of unit standard credits.

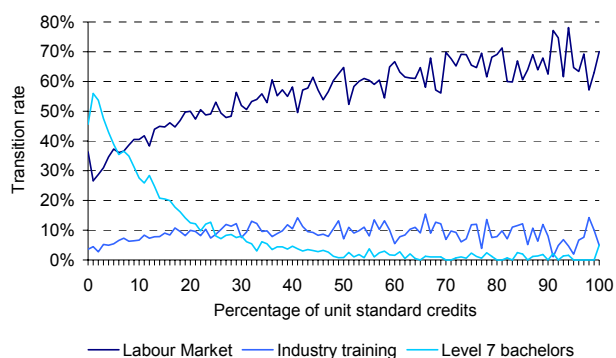
² Ussher, S. (2008) *Post-school choices: how well does academic achievement predict the tertiary education choices of school leavers?* Wellington: Ministry of Education.

leavers sit at either extreme of the distribution. 17 percent of 2004 school leavers did not attain any level 1 unit standard credits, while 6 percent achieved all their credits through unit standards.

The distributions were very different for those school leavers who chose the different post-school destinations. Those school leavers who participated in bachelors-level study had a median percentage of unit standard credits of 3 percent, compared with 26 percent for those who entered the labour market and 29 percent for those who participated in industry training. So, on average, school leavers who participated in the labour market or industry training had attained a greater percentage of level 1 credits through unit standards than those who participated in bachelors-level study.

The transition rates of 2004 school leavers into bachelors-level study were high for students who took a low (or no) percentage of unit standard credits and falls away as the percentage increased (Figure 2). The opposite was true for those school leavers who entered the labour market, with the transition rate increasing as the percentage of unit standard credits increased. So there was a clear relationship between the percentage of unit standard credits and participation in bachelors-level study and the labour market.

Figure 2: Transition rates of 2004 school leavers by the percentage of level 1 unit standard credits attained to total level 1 standard credits attained



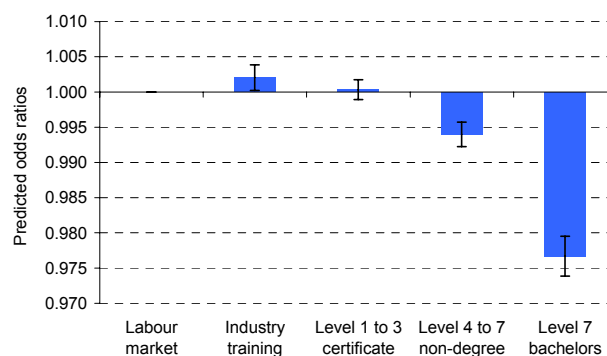
However, the transition rates into industry training remained relatively constant at about 10 percent for all school leavers no matter what percentage of unit standard credits they attained. The one exception to this is that there was a slight drop off for those school leavers who took a low percentage of their credits through unit standards. This would suggest that there was a weak relationship between the percentage of level 1 unit standards taken and participation in industry training, which is a somewhat unexpected observation.

To look at these relationships more closely, this study repeated the logistic regression modelling of *Post-school choices*.

The model used in this study explained about 48 percent of the variability in the dependent variable – the post-school choice of school leavers. This is very similar to the explanatory power of the model used in *Post-school choices*. Therefore, adding the additional variable of the percentage of unit standard credits has not added to the explanatory power of the post-school choices model. This is likely to be because academic achievement explains the post-school choices of school leavers only so much and this explanatory power is shared between the academic achievement variables included in the model – in this case three.³

Figure 3 shows that attaining a greater percentage of credits through unit standards was positively associated with participating in industry training rather than other post-school choices except level 1 to 3 certificate study at a tertiary education provider. This suggests that, when holding all other factors constant, students who attained a large percentage of credits through unit standards were more likely to participate in industry training than students who attained a lesser percentage of credits through unit standards. This is interesting because it was not what the transition rates in Figure 2 suggested.

Figure 3: Predicted odds ratios⁴ of post-school choice by the percentage of level 1 unit standard credits attained to total level 1 standard credits attained



- Notes:
1. The reference category for the dependent variable of post-school choice was the labour market.
 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 percentage of unit standards.

The percentage of unit standard credits was also strongly associated with participation in bachelors-

³ Highest school qualification attained, expected percentile and the percentage of unit standard credits.
⁴ For a full explanation of predicted odds ratios refer to Ussher (2008).

level study rather than other post-school choices, however in the opposite way. When holding all other factors constant, students who attained a high percentage of standards through unit standards were less likely to participate in bachelors-level study than students who attained a lower percentage of standards through unit standards.

This finding confirms that students who undertake a higher proportion of unit standards while at secondary school are more likely to participate in vocational-based tertiary education such as industry training. However, the interaction variable between the percentage of unit standard credits and the expected percentile was not statistically significant in the model. This suggests that the association between the post-school choice of school leavers and the expected percentile was similar for students who undertook a high percentage of unit standards and those who undertook a low percentage of unit standards.

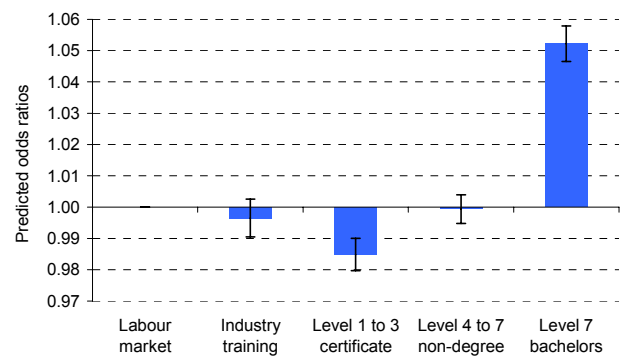
Therefore, a student focused more on unit standards did not necessarily have worse academic achievement – as measured by the expected percentile – than a student who focused more on achievement standards. This finding alters the earlier suggestion that the reason that *Post-school choices* found that the expected percentile was not strongly associated with participation in industry training was that school leavers who participated in industry training may have focused more on unit standards than achievement standards.

A point to consider in the context of these findings is that research⁵ has shown that many students make their post-school choice early on at secondary school.⁶ Therefore students who decide early on that they would like to participate in industry training will most likely to choose to undertake a higher percentage of unit standards than a student who decides to participate in bachelors-level study.

The association between the post-school choice of school leavers and the expected percentile did change slightly however, in the model compared to the model presented in *Post-school choices*. Figure 4 shows that the key difference is that the expected percentile was no longer significantly associated with participation in level 4 to 7 non-degree study in a tertiary education provider rather than the labour

market or industry training. All other post-school choices remained similar; in particular, an increase in the expected percentile was associated with an increase in the likelihood of a school leaver participating in bachelors-level study. A change in the expected percentile was not significantly associated with participation in industry training rather than the labour market.

Figure 4: Predicted odds ratios of post-school choice by expected percentile



Notes:

1. The reference category for the dependent variable of post-school choice was the labour market.
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.

Aside from these findings, the model was very similar to that presented in *Post-school choices*. Demographic, schooling and peer related variables such as gender, school decile and the influence of peers changed very little in their association with the post-school choice of school leavers with the addition of the percentage of unit standards in the model.

⁵ For example Harker, D., Slade, P. & Harker, M. (2001) Exploring the decision process of 'school leavers' and 'mature students' in university choice, *Journal of Marketing for higher Education*, Vol. 11(2), pp. 1-20 and Leach, L. & Zepke, N. (2005) *Student decision-making by prospective tertiary students*, Wellington: Ministry of Education.

⁶ Harker et al. (2001) found that more than half of students had made the decision to attend university in year 11 or before.

Table 1: Generalised multinomial logistic regression results

		Post-school choices (reference = labour market)			
		Odds ratios (likelihood of participating in indicated type of tertiary education over the labour market) ¹			
Explanatory variables	Categories	Industry training	Level 1 to 3 certificate	Level 4 to 7 non-degree	Level 7 bachelors
UNIT ²		1.002*	1.000	0.994**	0.977**
EXP		0.997	0.985**	0.999	1.052**
HSQ ³	None	0.177**	0.283**	0.238**	0.026**
	Level 1	0.474**	0.538**	0.769	0.266
	Level 2			REFERENCE CATEGORY	
	Level 3	1.053	0.529	7.287**	29.635**
GENDER	Female			REFERENCE CATEGORY	
	Male	3.905**	0.963	0.986	0.983
ETHNIC	European			REFERENCE CATEGORY	
	Māori	0.995	1.135	1.187	0.909
	Pasifika	0.745	1.088	1.691**	1.252
	Asian	0.562	0.562*	2.019**	1.489
	Other	0.221	0.630	0.453	0.591
DECILE	Low			REFERENCE CATEGORY	
	Medium	1.899**	1.527*	2.067**	0.685
	High	1.975**	1.034	2.225**	1.057
PRIVATE	State			REFERENCE CATEGORY	
	Private	0.734*	0.777*	0.809*	0.738**
ROLL		0.991*	1.000	1.010**	0.989**
PEER_INF		1.012**	1.018**	1.035**	1.054**
ACCESS		0.995**	1.000	1.001	1.001
UNEMPLOY		0.901*	1.003	0.930	1.135**
UNIT x HSQ	UNIT x None	1.013**	1.018**	1.009	0.988
	UNIT x Level 1	1.013**	1.006	1.000	0.982
	UNIT x Level 3	0.986*	0.984**	0.962**	0.975**
HSQ*ETHNIC	None x Māori	0.861	0.800*	0.857	1.746
	None x Pasifika	0.988	1.065	0.425**	-
	None x Asian	0.837	0.808	0.697	2.012
	None x Other	0.736	0.771	1.438	-
	Level 1 x Māori	0.716*	0.816	0.688**	1.569
	Level 1 x Pasifika	0.769	0.760	0.491**	0.444
	Level 1 x Asian	0.737	0.986	0.617**	0.673
	Level 1 x Other	0.735	1.258	0.930	-
	Level 3 x Māori	1.026	1.226	1.008	0.826
	Level 3 x Pasifika	2.020	0.935	0.758	1.012
	Level 3 x Asian	1.753	0.367**	0.449**	0.506**
	Level 3 x Other	0.961	0.474	0.467**	0.694
HSQ*DECILE	None x Medium	0.836	0.990	0.743	0.447
	None x High	0.858	1.283	0.705	0.287
	Level 1 x Medium	0.673**	0.788*	0.513**	0.996
	Level 1 x High	0.724*	0.890	0.559**	1.229
	Level 3 x Medium	0.528**	0.905	0.856	1.117
	Level 3 x High	0.505**	0.754	0.606**	0.977
PEER_INF x HSQ	PEER_INF x None	1.023**	1.018**	1.013**	1.049**
	PEER_INF x Level 1	1.014**	1.014**	1.010**	1.003
	PEER_INF x Level 3	1.009	1.014*	0.999	0.991**
GENDER x ETHNIC	Male x Māori	0.450**	0.744**	0.744**	0.879
	Male x Pasifika	0.308**	0.711**	0.717**	0.720
	Male x Asian	0.617	1.576**	0.851	1.211
	Male x Other	0.748	0.801	0.796	1.118
ETHNIC x DECILE	Māori x Medium	0.969	0.856	0.722**	0.963
	Māori x High	1.288	0.860	0.702*	0.993
	Pasifika x Medium	1.233	0.836	0.793	0.953
	Pasifika x High	0.615	0.711	0.441**	0.598*
	Asian x Medium	0.888	0.994	0.742	1.657*
	Asian x High	0.191**	0.621	0.445**	1.128
	Other x Medium	2.526	1.080	1.795	1.379
	Other x High	3.284	0.928	1.689	1.396
PEER_INF x DECILE	PEER_INF x Medium	0.991*	0.991**	0.989**	0.999
	PEER_INF x High	0.990*	0.997	0.989**	0.992
Pseudo R ²	0.481				
N	45,626				

Notes:

1. *, ** represents significant at the 5 percent and 1 percent levels of significance, respectively.
2. The percentage of unit standards achieved to total standards achieved was represented in the model by the variable UNIT.
3. For definitions of all other variables in the model refer to Ussher (2008).