

Does the student loan scheme discourage students from returning to study?

Report:

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This report forms part of a series called *Learners in tertiary education*. Other topics covered by the series are access, pathways, support, participation, retention and qualification completions.

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Table of Contents

List of Tables	5
List of Figures	5
1 Executive summary	6
2 Introduction	7
3 Theoretical background	7
4 Data and methodology.....	9
5 Profile of combined leaving cohorts and returning populations.....	11
6 Results: Who is likely to return to tertiary study?	15
7 Discussion	19
8 Conclusion	20
9 Appendix A: Likelihood estimates for models.....	22
10 References	23

List of Tables

Table 1. Variables included in the model.....	10
Table 2. Returning trends by leaving cohorts	12
Table 3. The demographic profile of combined leaving cohorts and the population of returning students	13
Table 4. Educational profile of populations	14

List of Figures

Figure 1: The populations of leaving cohorts	11
Figure 2: Distribution of returning students by their student loan debt prior to return	15
Figure 3: The likelihood for return for student loan borrowers	16
Figure 4: The likelihood of return after a break of one year for cohorts	16
Figure 5: The likelihood of return after a break of two years for cohorts.....	16
Figure 6: The likelihood of return for individuals who have completed their previous qualifications	17
Figure 7: The likelihood of return by type of provider and qualification.....	17
Figure 8: The likelihood of return by field of study.....	18

This report has been initiated by the Ministry of Education in order to gain an insight into educational pathways and the aspirations of former tertiary students who return to study. By establishing a demographic, educational and borrowing profile of returning students, this report aims to identify the factors affecting student return to study. In particular, the study focuses on the impact of an individual's student loan borrowed for previous studies on their return.

1 Executive summary

The Student Loan Scheme was launched by the New Zealand Government in 1992. The scheme was intended to improve access to tertiary education for New Zealanders who satisfy certain eligibility criteria. The strategic objective of the government is to ensure maximum educational opportunity for all New Zealanders and the Student Loan Scheme serves as a mechanism that facilitates this process.

A previous empirical study on the Student Loan Scheme indicated that the higher likelihood of borrowers declared being overseas is associated with a higher leaving loan balance¹ (Smart, 2006). The current study adds to the existing knowledge on the behaviour of student loan borrowers and aims to assess the impact of a student loan on an individual's likelihood of returning to study.

The populations of returning students over the period from 1997 to 2005 are compared with the populations of non-returning former tertiary² students who had the same opportunity to return. Such comparisons are conducted for students who have returned after having a break of one to seven years (seven comparison groups).

Based on the results of a series of analyses, a profile of returning students has been created. Accordingly, the returning students who have the highest likelihood of returning are likely to be former students that fit into the following categories:

- have an outstanding student loan prior to their return borrowed for previous tertiary studies
- did not complete the qualifications studied previously
- undertook degree level study at universities

- studied towards qualifications in health, education, society and culture rather than management and commerce fields.

The major finding of this study is that a student loan debt does not discourage students from future studies. This suggests that the burden of the loan does not have negative effect on students, possibly due to their confidence to repay the loan on completion of their studies.

This study also suggests that policy decisions were likely to trigger short-term increases in returning behaviour and that the most affected populations were likely to be those who left tertiary education in the year when the policy decisions were announced.

Furthermore, when both borrowing and educational factors are controlled, the effects of demographic factors such as ethnicity, age and gender on the returning pathways of students are found to be negligible.

This study suggests follow-up studies to monitor the returning behaviour in the tertiary education sector in New Zealand and the effect of educational policies on individuals' behaviour.

¹ The nominal balance of student loan at the time they left the tertiary education system

² In this report tertiary education refers to formally assessed qualifications of more than one week of duration provided by tertiary institutions, but excludes all industry training and targeted training courses.

2 Introduction

Since 1989, successive governments in New Zealand have embarked on major reforms of the country's tertiary education sector. The emphasis of these reforms has shifted over time. Until 2000, an overriding goal was to increase participation in tertiary education. More recently the government has sought to improve the quality and relevance of tertiary education. However, access to tertiary education remains an important underlying objective of the system.

This report aims to shed more light on factors that affect the decision of former tertiary students to re-enter the tertiary education system. For this, a profile of returning tertiary students is created using individuals' demographic, educational and borrowing characteristics. The association of these factors with the likelihood of former students re-entering tertiary education is then assessed over time. Specific focus is given to the impact of any individual's student loan balance in the year prior to the decision to return.

In 2006, the Ministry of Education conducted a study on Student Loan Scheme borrowers. The findings of this study suggested that the higher likelihood of borrowers declared being overseas is associated with a higher leaving loan balance (Smart, 2006). The statistical model used in that study had low explanatory power, which indicated that other factors beyond the scope of the study may be the main drivers of borrowers' behaviour. This report answers the question of whether an outstanding student loan-related debt prior to return, incurred from previous tertiary studies, deters former students from further participation in the tertiary education.

In 2000 the government of New Zealand implemented a major policy decision exempting borrowers from incurring interest on their loan balance while they studied full-time or studied part-time on a low income (Ministry of Education, 2003). It is assumed that this policy has had some effect on the behaviour of students, on their persistence and on pathway decisions. Observing the returning behaviour of several consecutive leaving cohorts that have been fully or partially exposed to this policy allows an assessment to be made as to whether this policy decision has triggered some behavioural changes in the attitudes of cohorts to returning to tertiary education.

Previous studies on returning phenomena in higher education are reviewed in order to develop the model tested herein, to understand the limitations and strengths of this study, and to justify its contribution to the literature on returning behaviour in higher education. The report describes the data utilized and the methodology employed, and discusses the population studied. Following the presentation of results, the findings are discussed and conclusions drawn.

3 Theoretical background

Leaving or exiting the tertiary education system is a well-researched topic among educational researchers. It is accepted that individuals making multiple entries into tertiary education during their lifetime are a common phenomenon, but surprisingly, only a small proportion of the literature is dedicated to exploring the returning pathways of former tertiary education participants. To some extent, the limited literature on the determinants of return in tertiary education can be explained by the unavailability of longitudinal data for educational research, making it impossible to track former tertiary students and identify whether they re-enter tertiary education.

The returning pathway of *stop-outs*, or students who are taking a break between studies, has been relatively well studied by educational researchers. Despite the population in these studies being returning students, these analyses have identified reasons for leaving study rather than exploring the reasons for return. For instance, using a sample of 4226 individuals from a NCES survey, Stratton, O'Toole, & Wetzel (2005) designed a multinomial logit model to identify the determinants of students' continuation, drop-out and stop-out. In this study, drop-out behaviour is defined as non enrolment for a period of at least three academic semesters, while individuals are classified as stop-outs if they leave but then return after no more than a year absence (Stratton, O'Toole, & Wetzel, 2004). The results showed that the family situation is a critical determinant of a student's stop-out pathway. In particular, women with a child under the age of six, married men, and individuals with a high self reported Grade Point Average are more likely to stop-out rather than drop-out.

Some educational researchers have attempted to define pathways outcomes in higher education more precisely and have also focused on determinants of departure from studies. For instance, Hoyt and Winn, (2004) stress the importance of distinguishing between drop-outs, stop-outs, opt-outs and transfer-outs. Their study focuses on the leaving pathway of students and, as a result, sub-populations have been profiled by their reasons for discontinuation. In this study, drop-outs are more precisely defined as those students who do not return to the college in which they enrolled, have no definite plans to return, and do not transfer to another institution of higher education. Stop-outs, on the other hand, include students who do not complete their plan of study within the normal time schedule, having skipped a term or more and then returned to college (Hoyt & Winn, 2004). The authors of this study also defined opt-outs and transfer-outs. Opt-outs were defined as individuals who leave college because they accomplished what they came to do, even though they have not completed a certificate or degree; and transfer-outs are individuals who begin their college career at one college and then transfer to another institution (Hoyt & Winn, 2004). According to Hoyt and Winn (2004), both stop-outs and drop-outs are more likely to be mature students with dependents, work part-time and have conflicts between work and study, compared with transfer-outs. Drop-outs are more likely to be mature students with family responsibilities and single students experiencing academic difficulty, whereas stop-outs are more likely to be part-time students and single students experiencing temporary financial difficulties and supported by parents.

The results of a literature search on returning students in higher education have revealed a lack of empirical studies that identify the factors affecting the return to study of former tertiary students. Only two studies have looked at the determinants of returning to study within tertiary education. Pascarella et al (1987) assessed the intention to return to tertiary studies of 611 male and 560 female students who dropped out from colleges and universities in the USA before gaining a degree or certificate. Their model assessed the impact of initial undergraduate experiences, characteristics of their employers, early career experiences and other factors on individuals' intentions to re-enter higher education. The results indicated that the intention of men and women to resume their college education is strongly influenced by their previous college experiences, the nature of the organisations in which they are employed, and the rewards and satisfaction they derive from their early career experiences. Spanard (1990), drawing on the study by Pascarella et al (1987), developed a descriptive model illustrating the path of problem-solving and thinking that led adults to re-enter college, their retention, and completion of a college degree. Adult university graduates who completed traditional campus programmes were surveyed three to five years following their graduation and questioned as to why they were re-entering college. According to Spanard (1990), the primary goal of this group of returning students was to develop a new career, to have the satisfaction of completing a degree, and to become a better educated person.

Both of these studies considered different populations by limiting the studied populations either by their demographic characteristics or educational and pathway choices. More specifically, Pascarella et al (1987) focused on drop-outs only and measured the intention to return of students who left tertiary study without qualifications rather than their actual returning behaviour, while Spanard (1990) analysed the population of adult students who studied bachelors degree programmes only. This study aims to address the limitations of previous studies by expanding the populations studied to all domestic tertiary students who participated in the tertiary education in New Zealand from 1997 to 2003. Although the empirical model used in this analysis does not include employment or career factors, the individual demographic, educational and borrowing factors included enables profiles of returning students to be created. The predictability of these factors is measured and assessed.

The model designed for this study contributes to the educational research literature by considering both the leaving and returning pathways of students in one conceptual framework and develops a robust and dynamic quantitative model that helps to identify the predictors of return. It also tests their predictability over time. No international studies have been traced that have looked at the pathway of returning students on a national scale or assessed the impact of individuals' student loan on pathway choices in tertiary education. The practical aspect of this study is that it will enable monitoring of the behaviour of leaving cohorts in order to assess the impact of government policies on pathways within the tertiary education system. The model will provide policy makers with effective quantitative tools that could be used in forecasting and modelling student enrolments and educational expenditure, as well as the valuation of the Crown's student loan assets.

4 Data and methodology

The student loan integrated dataset, maintained by Statistics New Zealand³, brings together data from three government institutions: the Ministry of Education; Inland Revenue and the Ministry of Social Development. This integrated dataset contains educational data of all tertiary students who studied from 1997 to 2005, together with their student loan balance, student allowance and income data of those who borrowed from the Student Loan Scheme since 1997, or received student allowances since 1999.

For this study the longitudinal dataset comprises 915,540 domestic⁴ students from seven consecutive leaving cohorts (cohorts 1997 to 2003), regardless of whether they were student loan borrowers or non-borrowers. A break is defined as non-enrolment in tertiary studies for the duration of at least of one year. For students who exited and re-entered the tertiary education system more than once, the first exit and entry has been considered. The definition of a break leads to the definition of cohorts. In this study, cohorts of students are defined by the last year of enrolment prior to the break. For students who studied several programmes consecutively before leaving tertiary studies, the most recent enrolment was selected. For students who were enrolled in more than one programme on leaving and on return, the highest qualification enrolled in was selected

The model identifies the likelihood of former students returning to tertiary studies. This model is built upon seven binary logistic regressions. The populations of returning students who returned after having a one-year break are compared with the population of students who had the chance to return but did not return. These comparisons are conducted for every sub-group of returning students: i.e. those who returned after having a break of one to seven years. Table 1 presents the variables included in the model with brief explanations. The dependent variable in this model is a binary variable, reflecting the pathway choice of students at a specific point in time. The pathway choice is between return and non-return after one, two, three, etc. years of break.

The model incorporates three types of explanatory variables: demographic, educational and loan-related variables. Demographic and educational variables are measured at the time when individuals left their tertiary studies. The only variable that is measured in the year prior to an individual's decision to return or not is the individual's student loan balance outstanding from previous tertiary studies; it is assumed that the outstanding student loan balance in the year prior to return can explain more of the returning behaviour than the student loan balance at the time of leaving tertiary studies.

Demographic variables include age, ethnicity and gender. The age of the student was calculated at the time the student left tertiary study. Information about the ethnic background of students was sourced from the Ministry of Education and the Ministry of Social Development. The most frequently reported ethnicity across institutions was used. In the cases where individuals reported different ethnicities to the two organizations, prioritised ethnicity was applied⁵. Ethnic groups such as European, Māori, Pasifika, Asian and Others were identified; highest priority was assigned to Māori, followed by Pasifika, Asian, European and Others. The European ethnic group was chosen as the reference group since it is the dominant ethnic population in tertiary education in New Zealand.

³ Statistics New Zealand website www.stats.govt.nz.

⁴ Domestic students are defined as NZ permanent residents and NZ citizens. Only NZ permanent residents and NZ citizens are eligible for student loan.

⁵ Although multiple response is now the preferred metric, this does not fit well with this sort of model as only one ethnic group would be permitted.

Table 1: Variables included in the model

Variables	Explanations
Dependent variable:	
Pathway choice	A choice between returning and not returning.
Independent variables:	
Age	Age of students when they first left the tertiary education sector (within the timeframe specified in the study).
Ethnicity	Students' self-reported ethnicity identified as European, Māori, Pasifika, Asian and Others. European is the reference group.
Gender	Gender of students. Females are the reference group.
Cohort	Identified by the year students left the tertiary education sector for the first time. Within each regression model, the latest cohort is the reference group.
Completion	Indicator of completion of qualification studied prior to return. Individuals who left tertiary studies without completion of qualification are the reference group.
Qualification studied and provider attended	Qualification studied towards at a particular provider prior to leaving tertiary studies (Degree and non-degree qualifications at private training establishments, at polytechnics and universities). The reference group are degree qualifications at universities
Field of study	Field of study studied on leaving. Management and Commerce is the reference group.
Student loan	Categories of student loan balance in the year prior to return (at the end of the fiscal year). Individuals with no outstanding student loan balance the year prior to return are the reference group.

There are three educational variables that shape the profile of individuals, all of which are related to previous studies undertaken in tertiary education. These are: the completion status, the level of qualification studied at a particular provider type, and the field of study. The educational outcome of students at the time they left a tertiary sector was defined as completion or non-completion of a qualification. Tertiary providers are classified into three broad categories: universities, polytechnics and private training establishments (PTEs). Wānanga⁶ are included within polytechnics due to the nature of the programmes offered by these institutions. Qualifications offered by tertiary providers are grouped into two broad categories, namely degree and non-degree qualifications. Degree qualifications include qualifications at bachelors level and above. In the case where qualifications are offered by specific types of providers, the provider type and qualification variables are combined into one categorical variable that represents both qualification group and type of educational provider. For example, degree qualifications at universities, or non-degree qualifications at polytechnics etc. (see Appendix A for all combinations of qualifications and provider types established). Field of study classification follows NZSCED⁷. In addition to these educational variables, an identifier for cohorts has been included in the model to control for differences between leaving cohorts. As discussed above, cohorts are defined by the last year of enrolment prior to a break and the latest cohort has been used as the reference group.

The variable of student loan balance prior to return is a categorical variable; it indicates the level of the outstanding nominal balance of a student loan at the end of the fiscal year before the year of return to study. For non-returning individuals who had a maximum of eight years to return but did not return to study, the outstanding student loan balance has been measured seven times (after one to seven years of break).

The statistical software SAS (version 8.2) was used for all data mining, manipulation and statistical analysis. A series of binominal regressions based on the stepwise selection method have been estimated in assessing the models.

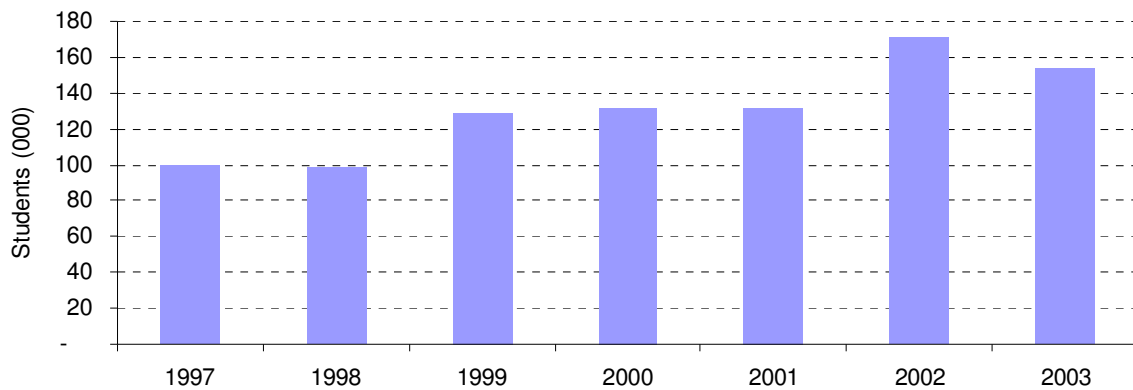
⁶ A wānanga is a public tertiary institution that provides programmes with an emphasis on the application of knowledge regarding ahuatanga Māori (Māori traditions) according to tikanga Māori (Māori custom).

⁷ New Zealand standard classification of education

5 Profile of combined leaving cohorts and returning populations

This section provides an overall view of the studied population. It provides a descriptive picture of the demographic and educational profile of the combined leaving cohorts (returning and non-returning populations of students), as well as some information about the student loan balance of returning students prior to their return. It is important to note that this section of the report provides statistical description of combined cohorts, whereas in further sections of the statistical analysis, the selection criteria have been applied to the population of combined cohorts. As a result seven sub-groups of the population have been created and analysed. Hence, the population of non-returning students (i.e. those who did not return at their expected time for return), is included in several sub-groups of population, as they had opportunity to return for up to seven years after leaving their study. Figure 1 illustrates the composition of the leaving cohorts in terms of the size of leaving cohorts.

Figure 1: The populations of leaving cohorts



The population of combined leaving cohorts comprised seven consecutive leaving cohorts (1997 to 2003), totalling 915,540 individuals, of whom about twelve percent (N=107,667) had returned to tertiary studies by 2005. Each cohort did not have an equal time for return; that is, the earliest cohort (cohort 1997) had seven years for return and the most recent cohort (cohort 2003) had only one year for return.

Table 2 presents trends in return across cohorts as cohorts have one to seven years of break from tertiary studies. The trend across cohorts is consistent, which leads to the estimate of about 17 percent of leaving cohorts returning to tertiary studies within eight years.

Table 2: Returning trends by leaving cohorts

Leaving cohorts	Returned students	Years of break							Total
		1	2	3	4	5	6	7	
1997 (N=99,117)	N (000)	7,209	3,030	2022	1428	1152	837	702	16,380
	%	7.3%	3.1%	2.0%	1.4%	1.2%	0.8%	0.7%	16.5%
1998 (N=98,673)	N (000)	6837	3,513	2259	1689	1290	963		16,551
	%	6.9%	3.6%	2.3%	1.7%	1.3%	1.0%		16.8%
1999 (N=128,961)	N (000)	7956	3,930	2742	1917	1383			17,928
	%	6.2%	3.0%	2.1%	1.5%	1.1%			13.9%
2000 (N=131,592)	N (000)	8655	4,470	2700	1881				17,706
	%	6.6%	3.4%	2.1%	1.4%				13.5%
2001 (N=132,027)	N (000)	8154	4,020	2604					14,778
	%	6.2%	3.0%	2.0%					11.2%
2002 (N=170,952)	N (000)	9372	4,698						14,070
	%	5.5%	2.7%						8.2%
2003 (N=154,218)	N (000)	10266							10,266
	%	6.7%							6.7%

Note: % is a proportion of individuals that returned.

It is apparent from Table 2 that the majority of those who return do so after a break of one year (approximately six to seven percent). After a seven year break almost 17 percent of leaving cohorts are found to be involved in tertiary studies once again.

Table 3 presents the gender, ethnic and age composition of combined leaving cohorts at the time they left tertiary studies and at the end of 2005, disaggregated into two groups: returned and non-returned. In terms of gender composition, there were more females than males in the population of combined leaving cohorts (56 percent versus 44 percent). Almost two thirds of all leaving cohorts combined (64 percent) were European, compared with 18.7 percent Māori, 7.9 percent Asian and 5.2 percent Pasifika. About 42 percent of all combined leaving cohorts were under 25 years of age at the time of leaving tertiary education.

The gender and ethnic characteristics of those who returned to tertiary education after having a break of at least one year are similar to those of the population at large. Although the combined population of returning students comprises only 12 percent of the combined leaving cohorts, and considering that leaving cohorts have not been given equal time for return, the proportion of return for each gender and ethnic group was approximately 11 to 13 percent. Slight differences in the proportion of return are noticeable across age groups. According to Table 3, the proportion of return for the age group 35 years and over was relatively low compared to younger age groups.

Table 3: The demographic profile of combined leaving cohorts and the population of returning students

	As at the end of 2005							
	Combined leavers		Returning students		Proportion that returned	Non returning individuals		Proportion did not return
	N (000)	%	N (000)	%		N (000)	%	
By gender								
Male	404.6	44.2	47.9	44.5	11.8	356.7	44.2	88.2
Female	510.9	55.8	59.7	55.4	11.7	451.2	55.9	88.3
Total	915.5	100.0	107.7	100.0	11.8	807.8	100.0	88.2
By ethnicity								
European	586.9	64.1	70.5	65.5	12.0	516.4	63.9	88.0
Māori	170.9	18.7	19.6	18.2	11.5	151.3	18.7	88.5
Pasifika	47.9	5.2	5.7	5.3	11.9	42.2	5.2	88.1
Asian	72.6	7.9	8.2	7.6	11.3	64.4	8.0	88.7
Others	6.5	0.7	0.9	0.8	13.8	5.6	0.7	86.2
Total	915.5	100.0	107.7	100.0	11.8	807.8	100.0	88.2
By age groups								
Under 25	385.2	42.1	48.2	44.8	12.5	337.0	41.7	87.5
25-35	230.2	25.1	28.6	26.6	12.4	201.6	25.0	87.6
Over 35	300.1	32.8	30.9	28.7	10.3	269.2	33.3	89.7
Total	915.5	100.0	107.7	100.0	11.8	807.8	100.0	88.2

The educational profile of the combined leaving cohorts and the returning population of students sheds some light on the educational aspirations, choices and attainment of the studied populations. In particular, the level of qualification studied at a particular type of tertiary provider, the field of study chosen, and the completion status of the qualification studied at departure. Table 4 illustrates the educational profile of the combined leaving cohorts at the time they left tertiary studies (combined leavers) and at the end of 2005, disaggregated into two groups: returned and non-returned. In terms of educational attainment, about 27 percent of the combined leaving cohorts left tertiary studies with a qualification. In addition, the proportion of return for individuals who completed their previous qualifications was almost the same as for non-completers (note that the leaving cohorts did not have equal time to return).

Table 4: Educational profile of populations

	As at the end of 2005							
	Combined leavers		Returned students		Proporti on that returned (%)	Non returning individuals		Proporti on that did not return (%)
	N	%	N	%		N	%	
By completion of previous qualification								
Not Completed	669.9	73	80.1	74	12	589.8	73	88
Completed	245.6	27	27.6	26	11	218.0	27	89
Total	915.5	100	107.7	100	12	807.8	88	88
By qualification and type of educational provider								
Degree qualifications at Universities	203.2	22	32.2	30	16	171.0	21	84
Non-degree qualifications at Universities	42.0	5	4.0	4	10	38.0	5	90
Degree qualifications at Polytechnics	52.0	6	6.5	6	13	45.5	6	88
Non-degree qualifications at Polytechnics	432.3	47	50.0	47	12	38.2	47	9
Degree qualifications at PTEs	23.8	3	3.0	3	13	20.9	3	88
Non-degree qualifications at PTEs	161.8	18	11.9	11	7	150.0	19	93
Total	915.5	100	107.7	100	12	807.8	88	88
By field of study								
Natural and Physical Sciences	28.5	3	4.7	4	16	23.8	3	84
Information Technology	52.3	6	5.2	5	10	47.1	6	90
Engineering and Related Technologies	81.3	9	9.8	9	12	71.5	9	88
Architecture and Building	25.6	3	2.9	3	11	22.7	3	89
Agriculture, Environmental and Related Studies	38.5	4	3.8	4	10	34.7	4	90
Health	50.3	6	6.4	6	13	43.9	5	87
Education	72.2	8	8.9	8	12	63.3	8	88
Management and Commerce	221.9	24	26.9	25	12	195.0	24	88
Society and Culture	159.6	17	22.6	21	14	137.0	17	86
Creative Arts	31.2	3	4.9	5	16	26.3	3	84
Food, Hospitality and Personal Services	30.3	3	4.4	4	15	25.9	3	85
Mixed Field Programmes	122.1	13	6.9	6	6	115.2	14	94
Total	915.5	100	107.7	100	12	807.8	88	88

Note: N = number of students in thousands

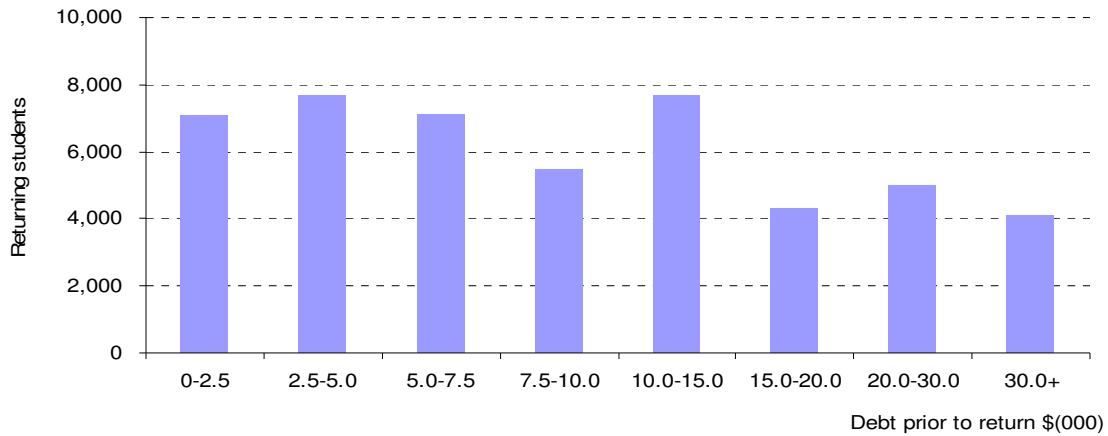
Approximately 47 percent of combined leavers studied non-degree qualifications at polytechnics and 22.2 percent studied degree qualifications at universities. The highest proportion of return is noticed for individuals who studied degree qualifications at universities, followed by degree qualifications at PTEs, and degree and non-degree qualifications at polytechnics (see Table 4).

In terms of field of study, the highest proportion of leaving cohorts studied management and commerce, and society and culture. However, the rate for return for fields such as natural and physical sciences, creative arts and food, hospitality and personal service is relatively high compared to other fields.

The student loan balance adds another dimension to the demographic and educational profile of individuals who have studied. The Student Loan Scheme is open to all domestic students who are enrolled in government-funded programmes. Even though not all students take out a student loan to finance their studies, having a student loan balance outstanding from previous studies can influence an individual's pathway choices. It is important to note that the following part of this report discusses the outstanding student loan balance of returned students only. As for non-returning students, the balance of their student loan was measured immediately prior to their expected return time (i.e. return after having 1 to 7 years break) in each regression model.

Out of 107,664 returned students, about 55 percent of students are returning students who had no student loan prior to return (N=59,268). This includes individuals who have repaid their educational loan and individuals who have did not take advantage of student loan scheme to finance their previous tertiary studies. Figure 2 presents the distribution of returning students who had an outstanding student loan debt prior to return, which comprises 45 percent of all returning students, by the amount of loan balance.

Figure 2: Distribution of returning students by their student loan debt prior to return



Approximately 72 percent of returning students have debt balances less than \$15,000 and only 28 percent of returning students have student loan balance over \$15,000. However, further comment concerning outstanding student loan of returning students needs to be made in relation to what programmes were studied, how much time these students had after leaving study for repayment, and other factors that can potentially influence the amount of debt prior to return.

6 Results: Who is likely to return to tertiary study?

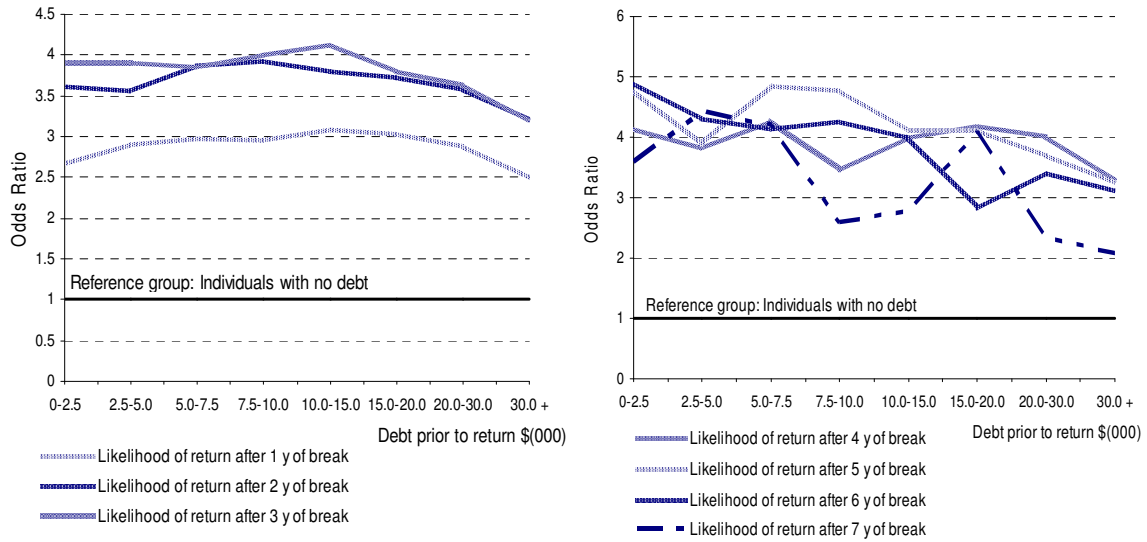
Individuals with a student loan prior to return are more likely than individuals without a student loan balance to return to tertiary education. Having a student loan was found to be the most powerful factor of all the factors included in the model to increase the chances of returning to tertiary studies. A relatively steady trend of likelihood of return is noticeable by categories of outstanding loans, especially for likelihood of return after one to five years. Figure 3 shows the likelihood of return after 1 to seven years of break by established categories of loan balance. According to Figure 3, the likelihood of returning after two and three years of break is much higher than the likelihood of returning after having one year of break. However, due to the decreasing number of populations and cohorts, the models for return after six to seven years of break become much more volatile and this is reflected in the likelihood trend. Figure 3 also suggests that the likelihood of return does not differ for different categories of student loan. This suggests that the size of the loan is not a factor for earlier or later return. The odds ratios⁸ for return after a break of one to seven years can be found in Appendix A.

⁸ Odds ratio- is a ratio of the probability that an event will occur versus the probability that the event will not occur. In general, it refers to the ratio of the odds of an event occurring in the exposed group versus the unexposed group.

Figure 3: The likelihood for return for student loan borrowers

(a) with break of 1 to 3 years

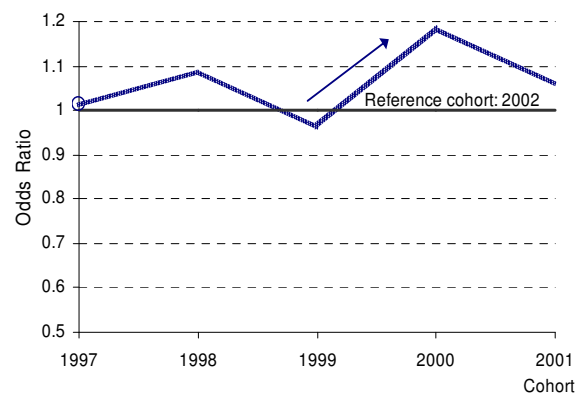
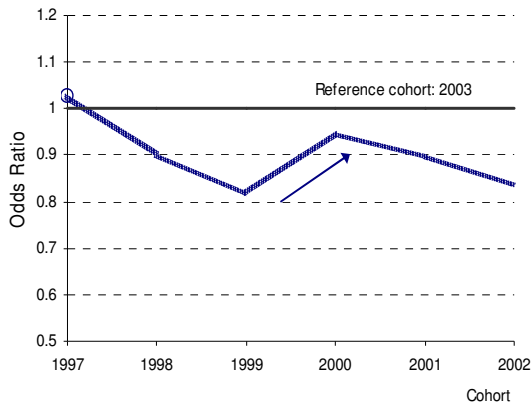
(b) with break of 4 to 7 years



The chances of returning differ across cohorts when other factors included in the model are controlled. Given two years for return, the leaving cohorts 1998 to 2002 are less likely to return than the most recent cohort, cohort 2003 (see Figure 4). However, given three years for return, earlier cohorts are more likely to return than the most recent cohort, cohort 2002 (see Figure 5). It is apparent too that the leaving cohort 2000 stands out from other cohorts. Figures 4 and 5 show that cohort 2000 triggers the shift in the likelihood trend of cohorts. Cohort 2000 clearly showed changes in returning behaviour to the 'no interest while studying' policy decision. However, follow up studies should explore this further.

Figure 4: The likelihood of return after a break of one year for cohorts

Figure 5: The likelihood of return after a break of two years for cohorts



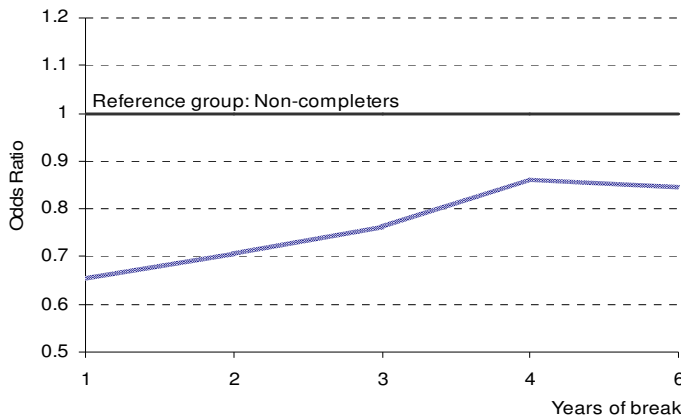
Note: ○ - not statistically significant at 5% level

Note: ○ - not statistically significant at 5% level

Individuals who have completed their studies on leaving are less likely to return than non-completers. Individuals who have completed their previous studies take a longer break than non-completers and their chances of returning increase as they spend more time outside the tertiary sector (see Figure 6).

According to Figure 6 the gap in the likelihood of returning between completers and non-completers, measured by their odds ratios, closes as the break from study lengthens.

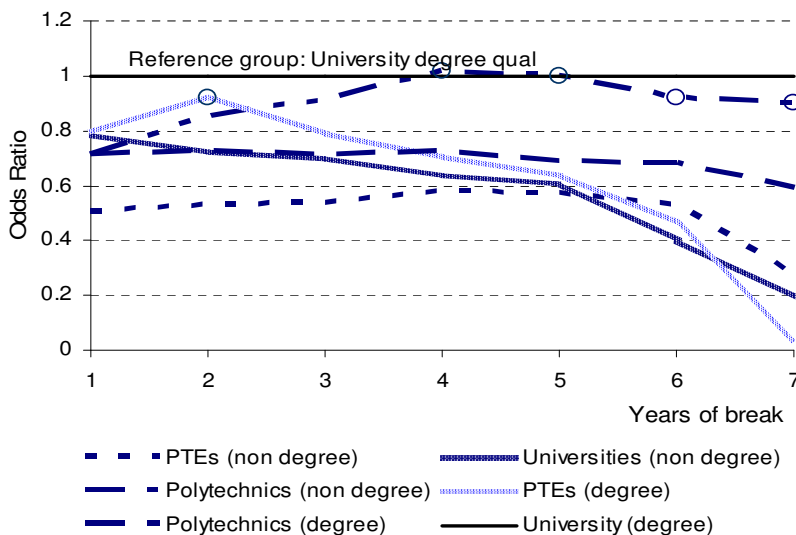
Figure 6: The likelihood of return for individuals who have completed their previous qualifications



Individuals who studied towards degree qualifications at universities are more likely to return than students who studied towards degree and non-degree qualifications at polytechnics and other tertiary providers. Individuals who studied non-degree qualifications, regardless of the type of provider attended, are less likely to return than individuals who studied degree qualifications at university (see Figure 7). However, among individuals who pursued non-degree qualifications, the chances of returning are much greater for individuals who attended polytechnics than for individuals who pursued non-degree qualifications at universities and other tertiary providers (see Figure 7 and Appendix A for more details).

There is strong evidence to suggest that leavers with degree qualifications attending other tertiary providers are less likely to return and become even less likely to return as they spend more time outside the tertiary sector (see Figure 7). In general, the likelihood to return drops substantially for students who studied at other tertiary providers, and for individuals who studied non-degree qualifications at universities. It is also apparent from Figure 7 that the likelihood of return by type of provider and qualification studied drops considerably after five years of break.

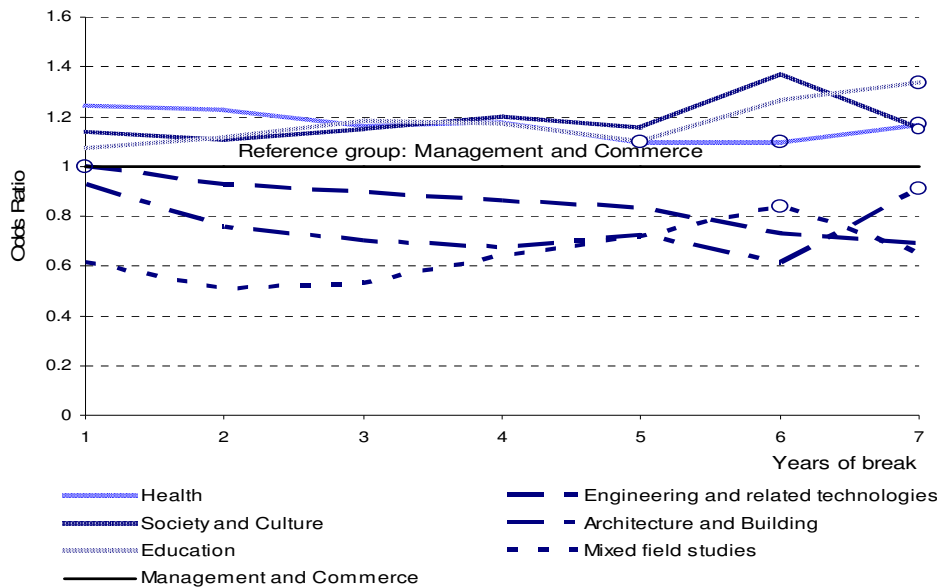
Figure 7: The likelihood of return by type of provider and qualification



Note: ○ - not statistically significant at 5% level

Tertiary leavers who studied health, education, and in the society and culture fields are more likely to return than students studying in management and commerce fields (see Figure 8). Individuals who studied engineering and related technologies, information technology, and architecture and building fields have less chance of returning than management and commerce leavers. Figure 8 shows that the profile of returning students by field of study is a dynamic profile that changes over time. As leavers spend more time outside the tertiary education system, the chances of returning also change. The likelihood of return for individuals who studied engineering and related technologies, architecture and building (rather than management and commerce) decreases as these individuals spend more time outside tertiary education. A slight upward trend in the odds ratio is noticeable for the society and culture field of study, indicating the increasing likelihood of return for students who have been studying in these fields as they spend more time outside the tertiary sector. More detailed information about the likelihood of return for other fields can be found in Appendix A.

Figure 8: The likelihood of return by field of study



Note: o - not statistically significant at 5% level

Most of the demographic variables included in the model did not survive the selection criteria of stepwise method of regression. However, when educational and student loan factors are controlled for the following small differences in the likelihood of returning were observed: (i) younger students are more likely to take a short break of one year and (ii) females are more likely to return after a break of three years than males (see Appendix A for odds ratios). It is assumed that a one year break taken by younger people is a planned break, perhaps time taken for travel, practical work or overseas experience.

Seven regression models designed for this study explained about 4 to 6 percent of the variance, which is mostly explained by the individual's student loan balance and educational factors related to previous tertiary studies (see Appendix A for an explanation of the variance). This suggests that there are other factors that are not included in this model that, have a predictive power to explain returning behaviour in tertiary education.

7 Discussion

The major finding of this study relates to the student loans of tertiary leavers and the effect of the loan on their return to study. It was impossible to find previous studies that measured the effect of a student loan on the patterns of those returning to tertiary education. Nevertheless, having a student loan prior to return has been found to be the most significant factor, among the educational and demographic factors included in the model, to affect the returning pathways of students within the New Zealand tertiary education system. It seems that having borrowed for previous tertiary study does not discourage students from participating further in tertiary education. In fact, the likelihood of return is increased for those who have an outstanding student loan prior to return. This highlights the fact that the loan scheme is not a barrier to further tertiary education participation. This also suggests that the burden of the loan does not have negative effect on students, possibly due to their confidence to repay the loan on completion of their studies. It is still unknown, however, how borrowing factors affect the attrition of students during their tertiary studies in New Zealand. Further research in this area is recommended.

Another important finding of this study relates to the effect of policy on the behaviour of cohorts. It is suggested that the “no interest while studying” policy, introduced in 2000, triggered changes in response towards returning, especially among students of cohort 2000. To date, the effects of such policies on students’ behaviour have not been fully researched and, although the results of this study provide some evidence supporting this conclusion, it is suggested that follow up studies be conducted. Such studies will potentially enable better understanding of students’ behaviour and their reaction to major policy decisions and provide valuable knowledge for policymakers.

The factors that were used to describe individuals’ educational experiences prior to return are completion of previous studies, type of provider attended, qualification pursued and field of study. These factors provide information about students’ previous educational choices and attainment; more specifically, the choice of type of tertiary institution, the qualification group and field of study, and completion or non-completion of qualification, rather than specific educational or institutional experiences of returning students. The findings of this study suggest that these educational factors do affect the decision of former students to return to some extent. Moreover, these associations were stronger than for those found between individual demographic variables and the likelihood of return. This study also argues that the effect of educational factors related to previous studies weakens as tertiary leavers spend more time away from tertiary study, suggesting that other factors such as career and employment-related factors can be the determinants of an individual’s decision to return, especially when former students spend a long time away from tertiary studies. According to Pascarella et al (1987) and Spanard (1990) career and employment related factors are significant determinants of return for adults.

The educational profile of combined leaving cohorts suggests that the proportion of students returning to study after completion is almost equal to the proportion of returning students among the non completers (see Table 3). However, when individuals have equal time to return and when their student loan balance, demographic and other educational factors are controlled, non-completers are more likely to return than completers. However, this effect steadily weakens over time. This study aligns with other studies that acknowledge the fact that non-completion of previous studies is one of the significant factors explaining returning student behaviour (Pascarella et al. 1987; Spanard, 1990). It recommends, therefore, that tertiary education providers monitor their leaving cohorts, and look further at individuals’ reasons for return. This may help to develop effective mechanisms for retaining current students in the system as well as facilitating their return in future.

Former tertiary students who have pursued degree qualifications at universities were more likely to return. The descriptive analysis of combined leaving cohorts, returning and non-returning populations, suggests that the proportion of returning students among individuals who studied degree qualifications at PTEs is higher than among individuals who studied degree or non-degree qualifications at polytechnics. However, when individuals have equal time to return and when demographic, other educational variables and student loan are controlled, individuals who studied degree qualifications at PTEs are less likely to return than individuals who studied at polytechnics.

The descriptive analysis suggests that among different fields of study, the proportion of return is higher among individuals who studied natural and physical sciences, and the proportion of return among those who studied engineering and related technologies, architecture and building is almost the same as the proportion of return in the health and education fields. However, when individuals have equal time to return and when demographic, educational and student loan factors are controlled, there are clear differences in the likelihood of return between these fields of study. Individuals who studied health, education, society and culture are more likely to return than individuals who studied engineering and related technologies, architecture and building.

The educational profile of returning students might be associated with the dynamics and characteristics of relevant industries. It is suggested that the smaller likelihood of return for individuals who studied information technology, engineering and architecture might be explained by the growth, dynamics and workforce demands of these industries. It is also unknown whether these industries acknowledge and recognize the individual's work experience over educational accomplishments or whether individuals who stay in the industry satisfy their learning needs through on-job training rather than through formal tertiary education. As mentioned above, the profile of returning students by field of study is also a dynamic profile that changes as students spend more time outside tertiary education. Therefore, further exploratory studies focusing on students who study particular programmes (as identified above) is suggested in order to better understand the factors affecting the likelihood of these particular students returning to education. Associating these behaviours to the labour market would be an advantage.

It is important to note that when educational and individual borrowing factors were considered along with demographic characteristics of individuals, the demographic characteristics had negligible effect on their pathway choices. High drop-out rates of under-represented ethnic groups such as Māori and Pasifika students in higher education have already been discussed in the New Zealand educational literature (Ministry of Education, 2006b; Scott, 2006). Previous studies on the cost of education argue that low income families and minorities are more likely than others to make use of loans to finance their higher education or to be more sensitive to the cost of education, thus suggesting an association between borrowing and the socioeconomic status of individuals (Christou & Haliassos, 2005; Schwartz, 1985). It is possible that when the borrowing factor, which reflects the socio-economic status of individuals, is controlled, the impact of demographic characteristics on returning pathways becomes negligible. On the other hand, the Student Loan Scheme is not confined to students from lower socio-economic status. Some individuals may consider the opportunity to borrow for their education a smart financial decision. Therefore, in the light of this study, it is recommended that further research in this area should incorporate demographic variables as well as a dynamic variable of the individual's socio economic status, which together will be able to shed more light on the factors affecting return to tertiary education by those groups who are traditionally under-represented in the New Zealand tertiary education system.

8 Conclusion

Compared with demographic and education related factors, the outstanding student debt of individuals immediately prior to return appears to be the most significant predictor of returning behaviour in tertiary education in New Zealand. The finding of this study indicates that an outstanding debt *does not* discourage former students from re-entering tertiary studies. However, more qualitative investigation is needed to gain in-depth knowledge of what encourages these students back to tertiary education, what educational experiences and employment problems they face being in the labour market, or personal family circumstances that affect their choice of pathway. The findings of this study also suggest that policy decisions related to student loans trigger short-term behavioural changes towards returning to tertiary study among leaving cohorts and that the most affected populations are likely to be those who left tertiary education when the policy decisions were announced. Continuing with follow-up studies is recommended.

It is apparent that non-completion of previous studies is another important factor for re-entering tertiary education. This finding is important for policy-makers as well as researchers since it suggests the definition of cohorts and what constitutes a break rather than a stop-out should be carefully considered. Returning students are likely to be former tertiary students who pursued degree

qualifications at universities, and specializing in the health, education, society and culture related fields. The educational characteristics of individuals' previous studies appear to be better predictors of return than individuals' demographic characteristics. This study shows that as former students spend more time outside the tertiary education system, the influence of these factors wanes and it is likely that employment and career factors can better predict an individual's pathways. Nevertheless, tertiary providers need to have a clear understanding of the factors that affect the departure and return of their students and establish effective mechanisms that facilitate and encourage their return.

This study has been conducted by the Ministry of Education in order to gain insight into the pathways of students in tertiary education in New Zealand and assess the impact of government policies on the returning pathway of individuals.

This study makes a contribution to the knowledge of returning pathways to tertiary education. It also contributes to the knowledge of the effects of individuals' demographic characteristics on their educational pathway choices. It seems that demographic characteristics are not a significant determinant of educational pathways when educational and especially borrowing factors are considered. In other words, male and female tertiary leavers, Māori and Pasifika tertiary leavers and individuals belonging to other minority ethnic groups, mature and relatively young tertiary leavers have equal chances of return, when their educational and student loan-related factors are considered.

The explanatory power of the seven models designed in this study is relatively low. This finding suggests that there are other important factors outside those tested in these models that may also predict the returning behaviour of students. More research is needed in this area to increase our understanding of what other factors affect students returning to education as well as how these factors relate to student loans.

This study suggests that the Student Loan Scheme does not serve as a significant barrier to students' participation in tertiary education in New Zealand. It also suggests that policy decisions appeared to trigger only a short-term behavioural changes towards returning among leaving students, particularly affecting students who left at around the time when the policy decision was announced.

9 Appendix A: Likelihood estimates for models

Reference group	Variables	Likelihood to return (Odds Ratios)						
		After 1y break	After 2y break	After 3y break	After 4y break	After 5y break	After 6y break	After 7y break
European	Ethnicity: Māori	x	x	x	x	x	x	0.913
	Ethnicity: Pasifika	x	x	x	x	x	x	1.146
	Ethnicity: Asian	x	x	x	x	x	x	0.704
	Ethnicity: Other	x	x	x	x	x	x	1.663
Females	Gender: Males	x	x	0.942	x	x	x	x
	Age	0.998	0.998	x	x	x	x	1.01
Non-completion	Completion	0.656	0.709	0.764	0.861	x	0.847	x
University degree qualification	Non-degree qualifications at PTEs	0.504	0.527	0.537	0.579	0.575	0.527	0.283
	Degree qualifications at PTEs	0.789	0.918	0.783	0.701	0.633	0.461	0.044
	Non degree qualifications at Polytechnics	0.71	0.855	0.914	1.016	0.998	0.92	0.903
	Degree qualifications at Polytechnics	0.714	0.722	0.713	0.722	0.69	0.683	0.589
	Non degree qualifications at Universities	0.779	0.716	0.696	0.634	0.606	0.398	0.188
Management and Commerce	Natural and Physical Sciences	1.076	1.002	0.952	0.938	1.021	0.91	0.761
	Information Technology	0.817	0.882	0.953	0.928	0.882	0.939	0.698
	Engineering and Related Technologies	0.998	0.927	0.892	0.863	0.834	0.726	0.691
	Architecture and Building	0.929	0.755	0.698	0.673	0.723	0.612	0.91
	Agriculture, Environmental and Related Studies	0.845	0.812	0.843	1.001	1.068	1.093	0.88
	Health	1.245	1.228	1.165	1.179	1.097	1.103	1.17
	Education	1.069	1.112	1.178	1.169	1.1	1.264	1.333
	Society and Culture	1.135	1.105	1.149	1.195	1.152	1.367	1.146
	Creative Arts	1.036	1.128	1.082	1.133	0.995	1.102	1.362
	Food, Hospitality and Personal Services	0.909	1.031	0.975	1.024	0.932	0.982	1.137
	Mixed Field Programmes	0.611	0.508	0.528	0.64	0.718	0.837	0.653
Latest cohorts	Cohort 1997	1.027	1.013	x	0.955	1.101	x	NA
	Cohort 1998	0.902	1.089	x	1.037	1.141	NA	NA
	Cohort 1999	0.817	0.957	x	0.948	NA	NA	NA
	Cohort 2000	0.945	1.187	x	NA	NA	NA	NA
	Cohort 2001	0.897	1.063	NA	NA	NA	NA	NA
	Cohort 2002	0.836	NA	NA	NA	NA	NA	NA
Individuals with no outstanding student loan balance prior to return	Debt 0-2,500 NZD	2.674	3.614	3.92	4.147	4.781	4.905	3.578
	Debt 2,500-5,000 NZD	2.909	3.567	3.911	3.833	3.873	4.325	4.407
	Debt 5,000-7,500 NZD	2.983	3.875	3.853	4.259	4.845	4.142	4.186
	Debt 7,500-10,000 NZD	2.955	3.942	4.012	3.462	4.779	4.264	2.586
	Debt 10,000-15,000 NZD	3.089	3.806	4.128	4.005	4.131	3.996	2.782
	Debt 15,000-20,000NZD	3.034	3.731	3.799	4.186	4.113	2.83	4.108
	Debt 20,000-30,000NZD	2.885	3.585	3.639	4.034	3.713	3.419	2.307
	Debt over 30,000 NZD	2.51	3.212	3.203	3.303	3.258	3.11	2.081
Maximum R square (%)	5.75	6.32	5.75	5.05	4.93	4.45	4.02	
Number of individuals who had the chance but did not return (0)	812,850	652,224	491,736	373,614	261,681	156,237	81,135	
Number of individuals who returned (1)	55,395	22,362	11,640	6,480	3,600	1,698	687	

Note: x = dropped out from the equations after stepwise selection
 NA = not applicable

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