An Examination of Rural Secondary Students' Post-Secondary Education Decisions

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Abstract

Canadian post-secondary education policies are increasingly oriented toward increasing the educational participation and attainment levels of under-represented groups such as rural populations. To better understand how rural students' post-secondary education decisions are influenced, this study utilizes logistic regression analyses in an examination of survey data from 1,169 graduating rural students at 72 rural schools across the province of Newfoundland and Labrador. We observed that rural students' decisions to continue education at the post-secondary level are strongly influenced by academic factors, and that first-generation students and students who do not consider student loans to be a funding option for them are at a particular disadvantage. The results also suggested that the choice between university and non-university studies is significantly impacted by academic factors, gender, and after school activities, but less dependent on rural students' sources of financial support.

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Increasingly, the success of the Canadian economy and its citizens is predicated on a high-skills/high-wage economic strategy – a strategy which presumes the availability of a large pool of post-secondary educated workers. Figures cited by the Government of Canada and the Canadian Council on Learning confirm that the number of jobs requiring post-secondary education and training are increasing on an annual basis and that upwards of two-thirds of all job openings over the next ten years will be in occupations requiring some form of post-secondary education (Canada, 2007; Canadian Council on Learning, 2007). With the demographic reality of the baby boom generation moving toward their retirement years and high school graduate populations in decline in a number of provinces, a larger proportion of Canada's young adults will need to complete post-secondary education and training if the country's future workforce requirements are to be met.

Although the degree to which educational attainment can facilitate upward social mobility is to some extent limited, post-secondary education remains the primary mechanism by which low-income and disadvantaged groups can rise above the socio-economic position of their families and more fully participate in the public sphere. The existing research literature provides relatively few details about how Canadian secondary school students consider and choose their post-graduation destination, be it the workforce or further study. As is the case with many topics in post-secondary education research, considerable study has been given to students' college choices in the United States (Lapan, Tucker, & Kim, 2003). This body of research has been directed toward gaining a better understanding of how students make decisions about their post-secondary education opportunities. Important influencing factors include student academic ability; encouragement, expectations and educational attainment of parents; parental income and socio-economic status; teachers and guidance counsellors; race and ethnicity; and gender (Hossler, Schmit, & Vesper, 1999; Liu et al., 2004; McMahon & Patton, 1997; McDonough, 1997; Sandefur, Meier, & Campbell 2006).

Student choices about post-secondary education are strongly correlated with parental educational attainment (Barr-Telford, Cartwright, Prasil, & Shimmons, 2003; Butlin, 1999; Choy, 1999, 2001; Hango & de Broucker, 2007; Lowe & Krahn, 2000) and the family income levels (Bell & Anisef, 2005; Butlin, 1999; Corak, Lipps, & Zhao, 2003; University of Alberta, 2001). Lower parental educational attainment levels and household incomes tend to reduce the probability of post-secondary participation. In her study of the relationship between participation in post-secondary education and family background, Drolet (2005) concluded that, "when taking account of both parental education and parental income, university participation rates are more strongly associated with parents' level of education than with their income" (p. 4).

As Deschenes (2007) points out, there is a "strong correlation between the educational attainment of parents and children, which may contribute to the transmission of socio-economic status and inequality across generations (p. 271)." Research has shown that the higher the socio-economic status of parents, the "higher" their children's educational plans extend. Students from more affluent backgrounds are more likely than lower-status youth to pursue post-secondary studies, and when they do go on to participate in post-secondary study higher-status youths are more likely to attend university rather than other types of post-secondary education such as community colleges or private training institutes (Butlin, 1999; Christofides, Cirello, & Hoy, 2001; Corak et al., 2003; Hossler et al., 1999; Looker & Lowe, 2001; McDonough, 1997).

Rural Youth

It is generally understood that urban youth in Canada are more likely to attend university than rural youth. This finding has been substantiated by numerous studies of youth transition from high school (Butlin, 1999; Finnie, Las-

celles, & Sweetman, 2005; Frenette, 2004, 2006, 2007b; Hango & de Broucker, 2007; Looker, 1993: Looker & Dwyer, 1998; Shaienks & Gluszynski, 2007; University of Alberta, 2001). Various explanations for this rural/urban participation disparity have been put forward including the effect that proximity to a post-secondary institution has on secondary students' decisions to enrol in further studies. One possible reason for this is that rural students necessarily incur additional living expenses associated with living away from home. Students who move away from home to complete a 4-year degree often pay an estimated $20,000 more than those who can continue to live with their parents while studying (Barr-Telford et al.; 2004; Finnie, 2002).

A number of studies have demonstrated that rural students have "lower" educational and occupational aspirations than those of urban students (Bajema, Miller, & Williams, 2002; Conrad, 1997; Haller & Virkler, 1993; Jeffery, Lehr, Hache, & Campbell, 1992). There is also evidence to suggest that rural youths who do choose to continue their education at the post-secondary level are more likely to attend a community college (or other non-university type of institution) rather than a university (Newfoundland and Labrador, 1998; Shaienk & Gluszynski, 2007). These differences have been attributed to the socio-economic conditions in rural communities (Conrad, 1997; Dupuy, Mayer, & Morissette, 2000; Haller & Virker, 1993), the relatively smaller numbers of higher status role models in rural areas compared to that of urban communities (Cahill, 1992; Jeffery, Lehr, Hache, & Campbell, 1992), and differences in the career development and aspirations of rural and urban individuals (Bajema, et al, 2002; Conrad, 1997; Haller & Virkler, 1993; Marshall, 2002). While few specifics are known about the types of information sources that rural students in Canada utilize during the post-secondary choice process, previous research has shown that Canadian youth tend to rely on parents, friends, teachers and guidance counsellors for career advice and help with post-secondary educational plans (Bell & Bezanson, 2006; Looker & Lowe, 2001; Sharpe & Spain, 1991; Sharpe & White, 1993).

Conceptual Approaches

Social Reproduction Theory

Differences in the post-secondary participation behaviours between youths of differing socio-economic backgrounds have been accounted for using the theories of cultural and social capital. Bills (as cited in Pascarella, Pierson, Wolniak, & Terenzini, 2004) frames cultural capital as the "degree of ease and familiarity that one has with the 'dominant' culture of a society" (p. 252). Cultural capital, conveyed from parents to children, is the sum total of all of the intangible goods, such as the milieu and leisure time that fosters intellectual and cultural reflection, that sustain and predict the academic success and ambition of those in the middle- and upper-income strata. Bourdieu (1977, 1986) argues that the cultural capital inherited by those in the middle- and upper-class produces a confidence and disposition that is a very strong indicator of academic and social success.

Social capital is a form of capital that facilitates the transaction and the transmission of different resources among individuals through their relationships for mutual benefit (Coleman, 1988; McDonough, 1997). Those individuals who have access to information about post-secondary education through their social networks have greater access to cultural capital and are more likely to be at an advantage in accessing and understanding information and attitudes relevant to making decisions about their post-secondary options. In the case of rural student post-secondary education participation rates, theories of cultural and social capital are a critical tool in examining why we observe lower rates of participation amongst rural populations even where their income is comparable to or greater than their urban counterparts. Indeed, Bourdieu (1984) makes the argument that access to the cultural and educational opportunities offered by urban communities is, in and of itself, a form of cultural capital that, like all capital, defines social difference and disparity.

Student Choice Model

McDonough (1997) outlines the three basic approaches that have been taken in the study of college choice decision-making. These include:

1. social psychological studies, which examine the impact of academic program, campus social climate, cost, location, and influence of others on students' choices; students' assessment of their fit with their chosen college; and the cognitive stage of college choice;
2. economic studies, which view college choice as an investment decision and assumes that students maximize perceived cost-benefits in their college choices; have perfect information; and are engaged in a process of rational choice; and
3. sociological status attainment studies, which analyze the impact of the individual's social status on the development of aspirations for educational attainment and measure inequalities in college access. (p. 3)

Researchers have developed a number of models that attempt to explain the stages in students' post-secondary decision-making (Cabrera & La Nasa, 2000). The current study takes into account the conceptual model developed by Hossler and Gallagher (1987, as cited in Hossler et al., 1999) which identifies three key stages of post-secondary choice decisions: predisposition, search and choice. This model is illustrated in Figure 1

Figure 1. Hossler and Gallagher Model of College Choice. Adapted from Hossler, D., Schmit, J. L., & Vesper, N. (1999). *Going to college: How social, economic, and educational factors influence the decisions students make*. Baltimore, MD: Johns Hopkins University Press.

In the predisposition phase, secondary school students begin to see post-secondary education as an important step in achieving their personal and occupational goals. During the search stage, which is heavily influenced by parents, students refine their options, develop preferences and consider their qualifications for admission and options for financing their decision. In the final

phase, the choice phase, students are influenced by factors that are both economic and sociological in nature. This model is particularly useful in considering the sequencing of factors that impact the decision-making process for students and parents and the role of guidance officials and other external influences.

While a small number of research studies have examined student transitions from secondary school to post-secondary education and the workforce in Newfoundland and Labrador (McGrath, 1993; Sharpe & Spain, 1991; Sharpe & White, 1993), none have specifically examined the post-secondary participation and non-participation decisions of rural high school students. The focus of our research for this study was to examine a number of the characteristics and behaviours that influence the post-secondary education decisions of rural secondary school students. Hossler and Gallagher's student choice model and the findings of previous studies of Canadian youth transition were the basis used to select factors that were expected to impact rural students' post-secondary plans and, in the event that they did choose to participate in post-secondary education, whether they would choose university or a non-university institution.

Methodology

Participants

Proportionally speaking, Newfoundland and Labrador has a significantly larger rural population than Canada as whole. Approximately 40% of the population of the province lives outside centres with a population of 1,000 and outside areas with 400 persons per square kilometre. Most (65%) of the province's 285 schools are considered to be rural schools (Newfoundland & Labrador, 2006).

For this study, we conducted a survey of graduating students at 72 rural schools. These schools had a combined population of 2,113 students in their final year of secondary school. In May and June of 2007, teachers at participating schools administered the questionnaires which were completed by students during classroom time. All completed surveys were then returned to the researchers in the postage pre-paid envelopes. A total of 1,169 students completed and returned surveys out of the 2,113 eligible survey participants. The overall response rate of approximately 60% was considered satisfactory for the purposes of this research.

Outcome Variables

Two outcomes related to rural students' post-secondary education decisions were selected for examination. First, we examined whether or not students planned to pursue studies at the post-secondary level after completing secondary school (0 = no, 1 = yes). Next, of those students who indicated that they planned to continue on with further studies after high school, we examined if students chose a university program (coded 1) or a non-university program (coded 0).

Predictor Variables

Drawing on previous studies of youth transition to post-secondary education that have been carried out in Canada (Anisef, Frempong, & Sweet, 2005; Davies, 2005; Finnie et at., 2005; Frenette, 2004, 2006, 2007b; Hango & de Broucker, 2007; Looker, 1993: Looker & Dwyer, 1998; Sharpe & White, 1993), we designed a survey questionnaire to collect information from rural secondary students about various demographic characteristic and academic performance variables that are known to influence post-secondary education decisions. The questionnaire also included questions about students' after school activities, a series of forced choice items organized on a Likert-type scale regarding secondary students' sources of information about further studies, and a number of questions about potential sources of funding for post-secondary education. Table 1 provides descriptions of the operational definitions used for each of the predictor variables.

Three "demographic characteristic" variables were included in the model for this analysis: gender, the number of siblings they had, their family structure and whether they were "first-generation" students or "legacy generation" students. The family structure variable was operationalized in accordance with the number of parents or guardians that children lived with – one parent, two parents or other for students who reported alternative living arrangements. The "first-generation" student group comprised students whose parents did not complete post-secondary studies while the "legacy generation" group consisted of students who have one or more parents who completed a post-secondary program at college or university.

Academic performance was measured by two variables. The type of mathematics course completed in Level III (none, basic, academic or advanced) was used as a proxy for the academic rigor of the high school curriculum completed by students. Students' self-reported overall academic average at school was used to assess their level of overall academic achievement.

Students' participation in after school activities was assessed by a question in which survey respondents were asked: "How have you spent your time after school and on weekends this school year?" Possible responses to this question included: working part-time, volunteering, homework, and extracurricular activities (e.g., sports, clubs).

The sources of information that students accessed in making their career plans were appraised by student responses to the following survey item: "Listed below are people and sources of information that students often rely on when deciding what to do after high school." Each of the following 10 potential information sources were rated by respondents on a Likert-type scale (5 = very important, to 1 = not important at all): friends; parents; brothers or sisters; college or university students; high school teachers; guidance counsellor; college or university campus tour; promotional materials/ brochures; television or print advertising; and recruitment officer from a post-secondary institution.

The final set of predictor variables were derived from a survey question that asked students the following: "Besides your family, which of the following can you rely on to help pay for post-secondary education?" Responses included: unsure; summer job; part-time job during the year; full-time job during the year; scholarship; bursary; student loan; private bank loan; personal savings and tuition voucher. In two in-

Table 1: Description of Independent Variables in the Model

Variable	Description
Demographic characteristics	
Gender	0 = male, 1 = female
Number of siblings	Number of brothers/sisters
Family Structure	0 = one parent, 1 = two parent, 2 = other, dummy coded with one parent as reference category
Generation	0 = first generation (parents did not complete post-secondary education), 1 = legacy generation (at least one parent completed post-secondary education)
After School Activities	Survey question: "How have you spent your time after school and on weekends this school year?"
Works part-time	0 = no, 1 = yes
Volunteers	
Homework	
Extracurricular (e.g., sports, clubs)	
Academic Performance	
Level III math completed	0 = none, 1 = practical/basic, 2 = academic, 3 = advanced, dummy coded with none as reference category
Overall achievement	Self-reported overall average mark in school
Sources of Information	Survey question: "Listed below are people and sources of information that students often rely on when deciding what to do after high school."
Friends	Rating on a scale of 1 to 5, with 1 being 'not important at all' and 5 being 'very important',
Parents	
Brothers or sisters	
College or university students	
High school teachers	
Guidance counsellor	
A College or university campus tour	
Promotional materials/ brochures	
Television or print advertising	
Recruitment officer from a post-secondary institution	
Sources of Funding	Survey question: "Besides your family, which of the following can you rely on to help pay for post-secondary education"?
Unsure of funding	0 = no, 1 = yes
Summer job	
Work during academic year	
Scholarship/bursary	
Student loan	
Private bank loan	
Personal savings	
Tuition voucher	

Table 2: Descriptive Statistics for Selected Demographic Characteristic and Academic Performance Variables

Variable		Model 1			Model 2*		
		% Going to PSE (87.9%)	% Not Going to PSE (12.1%)	% Total	% University (41.8%)	% Non-University (58.2%)	% Total
Gender	Male	45.9	58.6	47.5	30.5	56.3	45.5
	Female	54.1	41.4	52.5	69.5	43.8	54.5
Generation	First	40.1	63.6	42.9	32.2	45.8	40.0
	Legacy	59.9	36.4	57.1	67.8	54.2	60.0
Family Structure	1 parent	16.5	25.5	17.3	12.4	19.2	16.4
	2 parent	81.4	73.6	80.7	86.1	78.2	81.5
	other	2.1	0.9	2.0	1.5	2.6	2.1
Level III math	None	3.6	11.5	4.6	0.2	5.7	3.4
	Basic	18.3	46.8	21.7	1.0	29.4	17.5
	Academic	23.4	18.7	22.9	18.6	26.8	23.4
	Advanced	54.6	23.0	50.8	80.1	38.1	55.7

* A number of students did not provide an indication of their choice (i.e., university/non-university).

Table 3: Descriptive Statistics for Students' After School Activities

Variable		Model 1			Model 2		
		% Going to PSE	% Not Going to PSE	% Total	% University	% Non-University	% Total
After School Activities							
Part-time work	Yes	32.1	22.2	30.9	35.8	29.3	31.9
	No	67.9	77.8	69.1	64.2	70.7	68.1
Volunteering	Yes	40.2	25.4	38.4	55.0	29.8	40.3
	No	59.8	74.6	61.6	45.0	70.2	59.7
Homework	Yes	85.5	69.3	83.6	98.5	77.0	86.0
	No	14.5	30.7	16.4	1.5	23.0	14.0
Extracurricular	Yes	67.6	45.3	64.9	79.5	59.5	67.8
	No	32.4	54.7	35.1	20.5	40.5	32.2

Table 4: Mean Values for Students' Sources of Information

Variable	Model 1			Model 2		
	% Going to PSE	% Not Going to PSE	% Total	% University	% Non-University	% Total
Friends	3.13	3.35	**3.16**	3.01	3.22	3.13
Parents	3.77	3.65	**3.76**	3.80	3.75	3.77
Siblings	2.75	3.17	2.80	2.72	2.75	2.74
College or university students	2.82	2.40	2.77	2.98	2.72	2.83
Teachers	3.07	2.90	**3.05**	3.29	3.08	2.93
Guidance counsellors	2.77	2.60	2.75	2.89	2.70	2.78
Campus tour	2.44	2.01	2.39	2.51	2.40	2.45
Promotional materials	2.58	1.95	2.51	2.67	2.53	2.59
Advertising (TV, print)	1.94	2.16	1.96	1.86	1.99	1.94
Recruitment officer	2.48	2.14	2.44	2.77	2.28	2.49

Table 5: Descriptive Statistics for Sources of Funding for Post-Secondary Education

Variable		Model 1			Model 2		
		% Going to PSE	% Not Going to PSE	% Total	% University	% Non-University	% Total
Unsure of funding	Yes	4.9	23.4	7.1	2.7	5.5	4.3
	No	95.1	76.6	92.9	97.3	94.5	95.7
Summer job	Yes	71.1	45.4	67.9	80.4	66.6	72.4
	No	28.9	54.6	32.1	19.6	33.4	27.6
Work during year	Yes	52.1	46.1	51.3	45.9	56.4	52.0
	No	47.9	53.9	48.7	54.1	43.6	48.0
Scholarship/bursary	Yes	36.6	12.1	33.6	56.6	23.4	37.3
	No	63.4	87.9	66.4	43.4	76.6	62.7
Student loan	Yes	64.6	37.6	61.3	66.8	64.9	65.7
	No	35.4	62.4	38.7	33.2	35.1	34.3
Private bank loan	Yes	8.6	11.3	8.9	6.8	10.5	9.0
	No	91.4	88.7	91.1	93.2	89.5	91.0
Personal savings	Yes	33.1	21.3	31.6	38.8	29.5	33.4
	No	66.9	78.7	68.4	61.2	70.5	66.6
Tuition voucher	Yes	18.3	3.5	16.5	32.4	9.0	18.8
	No	81.7	96.5	83.5	67.6	91.0	81.2

stances, two items in this set of variables were combined to produce a single item. Part-time job during the year and full-time job during the year became work during academic year; and scholarship and bursary were combined into one variable (scholarship/bursary).

Results

Descriptive Statistics

Of the 1,169 completed surveys, useable data were available for 1,161. Descriptive statistics for the outcome variables and selected demographic characteristic and academic performance and predictor variables are provided in Table 2. Only 12.1% of the rural students indicated that they were not planning to participate in some form of post-secondary education. Of the students who indicated their post-secondary preference, most (58.2%) did not plan to attend university. Most of the students in the study were legacy generation students (57.1%), and 50.8% had completed an advanced-level math course in Level III.

With regard to their after school activities, 83.6% of rural students indicated that they spent some of their time after school completing homework assignments (see Table 3). The second most common type of after school activity selected was extracurricular activity such as sports or clubs (64.9%).

The 3 sources of information that students relied on most when making their plans for after high school were 1) parents, 2) friends and 3) teachers (see Table 4).

As reported in Table 5, the students' anticipated primary sources of funding, aside from their family, were income from a summer job (67.9%), a student loan (61.3%) or employment income earned during the school year (51.3%). Only 7.1% of students indicated that they did not know of any source of funding that they could rely on other than their family.

Logistic Regression Analyses

In recent years, logistic regression analysis has increasingly been employed in post-secondary education and higher education research (Anisef et al., 2005; Arbona & Nora, 2007; Madgett & Bélanger, 2007; Peng, Lee, & Ingersoll, 2002; Wright, Scott, Woloschuk, & Brenneis, 2002; Perna, 2000). As with previous studies, we selected logistic regression because it can be used to predict which one of two categories a person will belong to given a number of independent predictor variables. Logistic regression was used to examine the significance of the variables in two hypothesized models (described below) which reflect the research questions. These statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 15.0 for Windows.

Model One: Choosing Post-Secondary Education

The first logistic regression was performed to assess the impact of selected factors on the likelihood that students would report that they planned to continue on to post-secondary education after finishing their final year of high school (coded 1) versus not continuing on to post-secondary education (coded 0). The 28 predictor variables entered into the logistic regression equation included 3 demographic characteristic

Table 6: Logistic Regression Predicting Rural High School Students' Likelihood of Choosing Post-Secondary Studies

Predictor	β	SE β	Wald's χ^2	*df*	*p*	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Constant	-8.681							
Demographic characteristics								
Gender	.556	.354	2.464	1	.116	1.744	.871	3.494
Number of siblings	-.013	.111	.014	1	.906	.987	.794	1.227
Generation	.918**	.338	7.383	1	.007	2.504	1.292	4.856
Two vs. one parent family	-.035	.401	.008	1	.931	.966	.440	2.120
Other structure vs. one parent	.806	1.317	.374	1	.541	2.239	.169	29.569
After School Activities								
Works part-time	.489	.389	1.579	1	.209	1.631	.760	3.498
Volunteers	.649	.388	2.796	1	.095	1.914	.894	4.097
Homework	-.091	.357	.065	1	.799	.913	.453	1.839
Extracurricular	-.044	.335	.017	1	.895	.957	.496	1.844
Academic Performance								
Level III math completed								
Basic vs. none	.132	.481	.075	1	.784	1.141	.444	2.929
Academic vs. none	1.532**	.571	7.195	1	.007	4.627	1.511	14.172
Advanced vs. none	2.204**	.582	14.355	1	.000	9.064	2.898	28.347
Overall achievement	.114***	.021	29.805	1	.000	1.121	1.076	1.167
Sources of Information								
Friends	.021	.154	.019	1	.891	1.021	.755	1.382
Parents	.630***	.164	14.764	1	.000	1.878	1.362	2.591
Siblings	-.896***	.164	29.708	1	.000	.408	.296	.563
College or university students	.832***	.185	20.162	1	.000	2.297	1.598	3.302
Teachers	-.374*	.172	4.714	1	.030	.688	.491	.964
Guidance counsellors	-.256	.152	2.843	1	.092	.774	.575	1.043
Campus tour	.014	.186	.006	1	.939	1.014	.705	1.460
Promotional materials	.998***	.218	20.923	1	.000	2.714	1.769	4.162
Advertising (TV, print)	-.490**	.182	7.240	1	.007	.612	.428	.875
Recruitment officer	-.205	.164	1.573	1	.210	.814	.591	1.122
Sources of PSE Funding								
Unsure of funding	-1.107*	.470	5.560	1	.018	.330	.132	.830
Summer job	.336	.360	.876	1	.349	1.400	.692	2.832
Work during academic year	.243	.362	.452	1	.501	1.275	.627	2.593
Scholarship/bursary	-.547	.560	.955	1	.328	.579	.193	1.733
Student loan	1.157**	.364	10.124	1	.001	3.182	1.560	6.491
Private bank loan	-.977	.568	2.958	1	.085	.376	.124	1.146
Personal savings	.791	.482	2.696	1	.101	2.205	.858	5.666
Tuition voucher	.352	.961	.135	1	.714	1.423	.216	9.355

Note: R^2 = .523 (Hosmer & Lemeshow), .271 (Cox & Snell), .597 (Nagelkerke). Model χ^2 (29) = 319.60, p < .001. * *p* < .05, ** *p* < .01, *** *p* < .001.

variables, 4 student after school activity variables, 2 academic performance variables, 10 post-secondary information source variables and 8 post-secondary funding source variables.

The full model with all predictors included was statistically significant, $\chi 2$ (29) = 319.50, p < .001, indicating that the model was able to distinguish between students who reported and did not report an intention to pursue post-secondary studies. The model as a whole explained between 27.1% (Cox and Snell R square) and 59.7% (Nagelkerke R squared) of the variance in student choices, and correctly classified 93.4% of cases. As shown in Table 6, 12 of the predictor variables made a unique statistically significant contribution to the model. These were: 1 demographic characteristic variable (generation), 3 academic performance variables (math taken in high school and overall achievement), 6 post-secondary information source variables (parents, siblings, post-secondary students, teachers, promotional materials and advertising) and 2 post-secondary funding source variables (unsure and student loan). None of the student after school activity variables was found to be significant.

With all other factors held constant, legacy generation students were more likely to indicate that they planned to continue on to post-secondary education than first-generation students. In fact, the odds that legacy generation students planned to continue to the post-secondary level was 2.5 times greater than the odds for a first-generation student.

Compared to students who completed no Level III math, the odds that students who completed an academic math course planned to pursue post-secondary education was 4.627 times greater. However, the strongest predictor that students would choose post-secondary studies was the completion of advanced-level Level III (Grade 12) mathematics, recording an odds ratio of 9.06. This indicated that students who planned to continue on to post-secondary education after high school were over 9 times more likely to have completed a Level III advanced math course as compared to students who did not complete any math in Level III, controlling for other factors in the model. Further, the odds ratio of 1.121 for student's self-reported overall academic performance indicated that for every 1% increase in student overall average grades, students were 1.121 times more likely to

intend to participate in post-secondary education.

Results of the logistic regression indicated that, among rural students, the likelihood of post-secondary educational plans was influenced by a number of information sources in the post-secondary choice process. Students who relied on their parents, post-secondary students and promotional materials from post-secondary institutions as sources of information in deciding what to do after high school were more likely to have plans to partake in post-secondary education. In contrast, students were less likely to have post-secondary plans if their key sources of information were their siblings, their high school teachers or newspaper, magazine, or television advertising.

Rural students' post-secondary plans were uniquely influenced by the sources of education financing on which they felt they could rely. Students who were uncertain that they could rely on any other source aside from their parents were 33% less likely to have plans to continue on to post-secondary education. However, those students who felt they could rely on student loans as a source of funds were 3.182 times more likely to have post-secondary plans.

Model Two: Choosing University

Table 7 presents the results of the second logistic regression model which was carried out to assess the impact of selected factors on whether students planned to attend university after high school (coded 1) versus a non-university post-secondary program (coded 0). As before, 28 predictor variables were entered into the logistic regression equation.

The statistically significant model was able to differentiate between students who intended to pursue university and non-university education, $\chi 2$ (29) = 645.78, $p < .001$. The model explained between 52.7% (Cox and Snell R square) and 70.9% (Nagelkerke R squared) of the variance in student choices, and correctly classified 94.7% of cases. Thirteen of the predictor variables made a statistically significant contribution to the second model. These variables were: 1 demographic charac-

Table 7: Logistic Regression Predicting Rural High School Students' Likelihood of Choosing University-Level Studies

Predictor	β	SE β	Wald's χ^2	*df*	*p*	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Constant	-22.198							
Demographic characteristics								
Gender	-.979***	.241	16.540	1	.000	.376	.234	.602
Number of siblings	.091	.093	.972	1	.324	1.096	.914	1.314
Generation	.313	.239	1.712	1	.191	1.367	.856	2.183
Two vs. one parent family	.006	.321	.000	1	.984	1.006	.536	1.889
Other structure vs. one parent	1.490	1.110	1.803	1	.179	4.438	.504	39.064
After School Activities								
Works part-time	.891**	.256	12.071	1	.001	2.438	1.475	4.030
Volunteers	.635**	.243	6.815	1	.009	1.887	1.171	3.039
Homework	2.133**	.701	9.247	1	.002	8.437	2.134	33.352
Extracurricular	.548*	.260	4.425	1	.035	1.729	1.038	2.881
Academic Performance								
Level III math completed								
Basic vs. none	-2.026	1.569	1.668	1	.197	.132	.006	2.854
Academic vs. none	1.781	1.180	2.276	1	.131	5.933	.587	59.975
Advanced vs. none	2.754*	1.175	5.492	1	.019	15.700	1.569	157.070
Overall achievement	.200***	.021	86.777	1	.000	1.221	1.171	1.274
Sources of Information								
Friends	-.334**	.122	7.534	1	.006	.716	.564	.909
Parents	-.160	.106	2.292	1	.130	.852	.693	1.048
Siblings	.090	.097	.860	1	.354	1.094	.905	1.324
College or university students	.012	.112	.012	1	.912	1.012	.813	1.261
Teachers	.475***	.129	13.617	1	.000	1.608	1.250	2.070
Guidance counsellors	.062	.102	.368	1	.544	1.064	.871	1.298
Campus tour	-.140	.111	1.574	1	.210	.870	.699	1.082
Promotional materials	-.260*	.125	4.351	1	.037	.771	.604	.984
Advertising (TV, print)	-.244	.140	3.035	1	.081	.783	.595	1.031
Recruitment official	.477***	.111	18.535	1	.000	1.611	1.296	2.001
Sources of PSE Funding								
Unsure of funding	.121	.558	.047	1	.829	1.128	.378	3.371
Summer job	.504	.276	3.343	1	.067	1.655	.964	2.840
Work during academic year	-.224	.238	.883	1	.347	.800	.501	1.275
Scholarship/bursary	.430	.249	2.991	1	.084	1.538	.944	2.504
Student loan	-.125	.254	.242	1	.623	.882	.536	1.453
Private bank loan	-1.649***	.449	13.494	1	.000	.192	.080	.463
Personal savings	.097	.245	.155	1	.693	1.101	.681	1.780
Tuition voucher	.760*	.309	6.069	1	.014	2.139	1.168	3.918

Note: R^2 = .551 (Hosmer & Lemeshow), .527 (Cox & Snell), .709 (Nagelkerke). Model χ^2 (29) = 645.78, $p < .001$. * $p < .05$, ** $p < .01$, *** $p < .00$

teristic variable (gender), all 4 of the after school activity variables, 2 academic performance variables (math taken in high school and overall achievement), 4 post-secondary information source variables (friends, promotional materials and recruitment official) and 2 post-secondary funding source variables (other bank loan and tuition voucher).

The analysis showed that, amongst the students who planned to continue on to post-secondary education after completing high school, male students were about 38% less likely than female students to indicate that they planned to attend university. The strongest predictor that students would choose university-level studies was the completion of advanced-level mathematics in Level III. In comparison to students who completed no math in Level III, the odds that students who completed advanced-level math planned to enrol in a university program were 15.7 times greater. Students' self-reported overall academic performance also played a significant role in plans to attend university. The odds ratio of 1.221 for this variable suggests that for every 1% increase in their overall grades the students were 1.221 times more likely to intend choose university.

Participation in all four after school activities included in the student survey increased the probability that students planned to attend university. Of these four, completion of homework had the greatest impact on students' chosen post-secondary destination. Students who indicated that they completed homework after school and on weekends were 8.437 times more likely to plan to attend university. For rural students planning to attend university, working part-time for a wage, volunteering and participating in extracurricular activities increased their probability of choosing university by 2.438 times, 1.887 times and 1.729 times respectively.

The results indicated that Level III students who demonstrated that they relied more heavily on their friends and institutions' promotional materials were more likely to plan to attend a non-university post-secondary program. Those rural students who were more likely to rely on their high school teachers or recruitment officials from post-secondary institutions were more likely to have plans to continue on to university after high school. In terms of the funding that students felt they could rely on, aside from their family, rural students who had earned a tuition fee voucher were 2.139 times more likely to intend to pursue university. Students who believed that they could use a private bank loan to cover their educational costs were 19.2% less likely to select a university program.

Discussion

This study analyzed data from a survey of graduating secondary school students at 72 rural schools to better understand how the decision of students to continue their education at the post-secondary level is impacted by a number of factors. The vast majority of the students in the study indicated that they planned to participate in post-secondary education and, consistent with other studies of rural students' transition plans (Looker & Dwyer, 1998; Newfoundland and Labrador, 1998; Shaienk & Gluszynski, 2007) most of the rural students surveyed in this study opted for a non-university form of post-secondary schooling.

Our analyses involved two separate comparisons. Students who indicated that they had chosen to take part in a post-secondary program were compared with those who had not chosen post-secondary education. Also, students who indicated that they had elected to attend university were compared to those who had selected a non-university post-secondary institution. The findings suggest that rural students' post-secondary education decisions are influenced, albeit somewhat differently, by their demographic characteristics, secondary school academic performance, participation in after school activities, sources of information about further studies and sources of funding for post-secondary education.

In this study, family structure and their number of siblings had no significant impact on the outcome of students' post-secondary decisions. As observed in other research findings (Barr-Telford et al., 2003; Butlin, 1999; Cabrera & La Nasa, 2000; Choy, 2001; Frenette, 2007b; Pascarella et al., 2004), the rural students whose parents had not completed post-secondary education, so called first-generation students, were less likely than their peers to have made a choice to participate in post-secondary education after high school. This finding may have been income-related since income and educational attainment tend to be positively correlated. It also may be the case that "legacy generation" rural students have access to a reservoir of information about post-secondary education that their peers are unable to access.

While gender had no significance influence on whether or not students planned to pursue studies at the post-secondary level, it did play an important role in whether students with post-secondary plans chose a university or non-university program. The observed female preference for university education is consistent with the trends observed at both the provincial (Newfoundland and Labrador, 2005) and national (Canadian Council on Learning, 2007) levels.

There were no significant differences in the model regarding the after school activities of students who did not plan to go on to post-secondary education and those who did. However, when those who were planning to attend were considered alone, we observed significant differences between their participation in part-time employment, volunteering, homework, and extracurricular activities. If we conceptualize these four after school activities as proxies for rural students' industry (working part-time), school engagement (homework), civic engagement (volunteering) and social and cultural capital (extracurricular activities), our findings suggest that compared to rural students who chose non-university post-secondary education, the university-bound rural students exhibit significantly higher levels of industry, school and civic engagement and social and cultural capital. This interpretation would appear to be consistent the results of similar research on the post-secondary participation of Canadian youth (Davies, 2005; Finnie et al., 2005; Shaienks & Gluszynski, 2007)

Also consistent with previous research (Butlin, 1999; Barr-Telford et al., 2003; Finnie et al., 2005; Shaienks & Gluszynski, 2007), our findings suggest that compared to other students, rural

students who demonstrate higher levels academic achievement, as evidenced by overall grades, are more likely to plan to pursue post-secondary education. Likewise, university-bound rural students are more likely to have academically out-performed students whose post-secondary plans are for community college or other non-university programs. This was not surprising considering that entrance requirements for post-secondary institutions are tied to high school marks and that universities tend to require higher average grades for admission. Similarly, students who completed a more rigorous high school curriculum, as demonstrated by the level of math completed, were both more likely to plan post-secondary education and more likely at the university level.

There have been few investigations of the specific sources of career and post-secondary education information that rural students tap into as they engage in decisions about their opportunities. Previous examinations of the key career influencers of youth have tended to indicate that young people rely on a combination of sources including on parents, peers, teachers and counsellors (Bell & Bezanson, 2006; Hossler et al., 1999; Looker & Lowe, 2001; Sharpe & Spain, 1991; Sharpe & White, 1993). Our results indicate that rural students who choose to pursue opportunities at the post-secondary level rely a great deal more than their peers on parents, post-secondary students and promotional materials from post-secondary institutions. Compared to students who chose a non-university option, students who chose university relied significantly more on information provided by teachers and recruitment officials. It is possible that these results might be, in part, explainable by influences that remain unspecified in our model. However, our findings are quite consistent with our understanding that the decision to participate in post-secondary education is a complicated process whereby students' decisions are informed and influenced by a diverse set of information sources.

Our results show that rural students are less likely to plan to go to post-secondary education if they are uncertain about how they can cover the associated costs. This observation is not surprising considering that financial barriers are one of the most commonly cited impediments to post-secondary participation cited by Canadian youth (Barr-Telford et al., 2003; Looker & Lowe, 2001; Shaienks & Gluszynski, 2007). We also observed that students with post-secondary plans are far more likely to indicate that student loans will be a source of their financial support. This is consistent with past research which shows that rural students tend to rely heavily on student loans and accumulate debt as they pursue postsecondary education (Kirby, 2003: Kirby & Conlon, 2006). With respect to the second model's comparison of students who were planning university with those planning for other types of post-secondary education, the single most interesting observation is the lack of difference in these two groups' planned sources of funding. This would suggest that, for rural students who decide to purse post-secondary education, the specific type of post-secondary education selected is not significantly influenced by their expected sources of funding.

In Summary

Increasing post-secondary participation among rural students continues to be an important policy concern for governments across Canada (Alberta, 2006; Newfoundland & Labrador, 2005; Ontario, 2005; Saskatchewan, 2007). Though not unequivocal, the following three generalizations about the influences on rural students' post-secondary decision-making processes are warranted as they have important implications for policy formulation: 1) rural students' decisions to continue education at the post-secondary level are strongly influenced by academic factors; however, first-generation students and students who do not consider student loans to be a funding option for them are at a particular disadvantage; 2) rural students' post-secondary choice are influenced by a variety of sources of guidance and support that my not necessarily be well-informed sources; and 3) rural students' selection of university and non-university studies are strongly connected to academic factors, gender, and after school activities, but less depended on students' sources of funding.

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