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Participation in Postsecondary Education: Evidence from the Survey of Labour and Income Dynamics



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Participation in Postsecondary Education: Evidence from the Survey of Labour and Income Dynamics

Atiq Rahman, Jerry Situ and Vicki Jimmo

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Note of appreciation

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Summary

- A variety of family background factors – family income, parents education and family structure — are all related to postsecondary education, even after controlling for the fact that these factors are also inter-related.
 - Youth whose parents had a postsecondary education are themselves much more likely to go on to postsecondary education, especially university.
 - Youth in the lowest family income quartile are less likely to participate in postsecondary education than their better-off counterparts. Furthermore, family income impacts both university and college participation in similar manner.
 - Youth from two-parent families are more likely to go on to postsecondary studies than youth from single-parent families.
- While going on to any form of postsecondary education is related to family income, there is no similar relationship when it comes to choosing between college and university.

Introduction

Access to postsecondary education is a central policy issue in modern societies. Increased participation in postsecondary education is an important social goal as it is a crucial determinant of the economic success of an individual as well as of society as a whole. Because of the positive benefits of postsecondary education, equitable access to postsecondary education for individuals from all backgrounds can ensure a higher level of social mobility.

There has been a great deal of research in recent years to understand the relationship between socio-economic background and postsecondary access (de Broucker, 2005). Given that many policies to improve access are related to family income and the costs of education, it is particularly important to understand the degree to which family income is related to postsecondary participation independently of other factors such as parental education, family composition, community size or location.

Prior research has shown that postsecondary participation is related to each of these factors. However, these various measures of family background are very much interrelated. Parents with greater levels of education tend to earn more money; single parent families tend to have lower family income, etc. It is important, therefore, to take into account how these factors work together in order to understand the mechanisms by which family background influences participation. Are some youth less likely to go on to college or university because of the education of their parents, or because they don't have the money?

This paper builds on previous research examining the role of family income in postsecondary education

Few data sources provide full information on the family background of youth. While parent's education levels and occupations are commonly collected, information on family income is either unavailable, or poorly reported. Statistics Canada's Survey of Labour Income Dynamics (SLID) is a longitudinal survey which collects information from all members of a household and surveys the individuals in that household for six years. By providing information about parents and family income collected when youth were 16 and living with their parents, SLID is one of the most reliable and complete sources of family background information for the analysis of the participation of youth in postsecondary education.

The current paper builds on previous research examining the role of family income in postsecondary education. In particular, a series of papers used the 1998 panel of Statistics Canada's Survey of Labour Income Dynamics (SLID) as their data source examining a number of family background factors, including both parental education and family income (Statistics Canada, 2001, 2002; Lavallée *et. al.*, 2001; Knighton and Mirza, 2002; Drolet, 2005).

Statistics Canada (2001, 2002) used a sample of SLID respondents from 1998 (the first SLID panel, see text box) to report the participation rates of 18 to 21 year olds by family income quartiles. This report documented significant differences in postsecondary participation, particularly university, for youth from the highest and lowest income quartiles.

Lavallée *et. al.* (2001) extended the Statistics Canada analysis by reporting the participation rates for a number of socio-economic variables. These variables included: after-tax income quartile, parental education, gender, family composition, urban/rural status and region of residence. The paper found that youth from the highest income quartile are more than twice as likely to attend university than those from the lowest income quartile. It also found a strong relationship between university participation and both family structure and parents' education.

Knighton and Mirza (2002) then used the same 1998 panel to investigate the relative influence of parental income and parental education on postsecondary education participation. They found that both family income and parent education levels were related to the pursuit of postsecondary education. However, parents' education appeared to have a stronger influence on the pursuit of postsecondary studies than family income. For example, youth in the lowest income quartile who had one or more parents who had gone to university or college were more likely to pursue postsecondary studies than youth in the highest quartile whose parents had no college or university education.

More recently, Drolet (2005) used the two SLID panels (1998 and 2001) to investigate whether the participation pattern by family background changed between 1993 and 2001. Drolet concluded that there was no evidence of changes in participation by youth with different parental income and parental education background.

This paper extends the previous work, particularly Knighton and Mirza, while taking advantage of an additional sample of youth available in the more recent releases of SLID (see the appendix for a full discussion of the SLID sample). The paper attempts to address three broad questions in this context. First, has the postsecondary education participation pattern changed in the recent past either for college and university participation, or for youth of various backgrounds?

Second, how are the socio-economic factors related to postsecondary participation? Does the impact of socio-economic factors differ for college and university participation? Thirdly, for those who did pursue postsecondary education, which factors are more important in the choice of institution– university versus college?

Survey information and important concepts

What is SLID? The Survey of Labour and Income Dynamics (SLID) is a longitudinal household survey that follows the same respondents for six years. Fresh samples (panels) are drawn every three years. The first and the second SLID ‘panels followed the respondents from 1993 to 1998 and from 1996 to 2001 respectively. A detailed discussion on the data source and the definitions of various variables can be found in the Appendix.

This study examines the activities of respondents who were 18 to 21 year old in the last year of each panel. This is consistent with the analysis of the previous SLID papers which used the sample from the first panel. Moreover, in this and the previous analysis, respondents were traced back to when they were 16 years of age, the time around which a postsecondary education participation decision was likely to be made. Information on a variety of family variables collected when they were 16 was then used for the analysis. The age group 18 to 21 was chosen because the sample size for single-year age groups is too small for reliable analysis, and information at age 16 is not available for older respondents.

Participation in postsecondary education here implies participation at the highest level of postsecondary education. For example, if an individual had gone to both university and college, the individual is included in the calculation of university participation rate, but not in the calculation of college participation rate. Similarly, if youth attended a trade/vocational school and college, they are only included in the calculation of college participation rate. Thus each individual is counted only once in the calculation of institution-specific rates.

In this sense, we use the standard definition of college participation used in participation research; the definition refers to a joint event (participation in college AND not in university, or college participation as a percentage of the total population). An alternative definition - a conditional one (participation in college GIVEN no participation in university, or college participation as a percentage of those who have not gone to university) – might provide a different perspective on policy discussions around access to postsecondary education.

Participation in trade/vocational schools is counted as postsecondary education participation, but unlike university and college participation, the results for trade/vocational schools are not presented separately anywhere in the paper due to the small sample size.

Socio-economic variables used in the current paper are: after-tax family income quartile; parental education (parents with postsecondary education); gender; family composition (one or two parent household); urban/rural status; and region of residence. Except for parental education and gender, all other variables were collected at the time the respondent was 16 years old, i.e., around the time when a postsecondary education participation decision was likely to be made. See the appendix for a more detailed discussion on the variables.

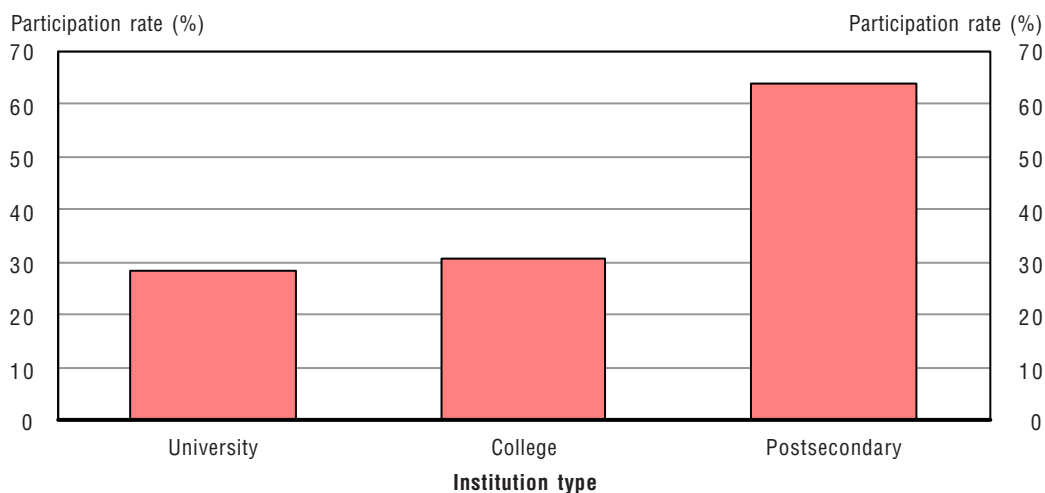
Postsecondary participation in the late 1990s

From 1998 to 2001 there was no change in the postsecondary participation among youth, from any particular socio-economic group

The university and college participation rate of 18 to 21 year old youth from various socio-economic groups remained unchanged from 1998 to 2001, in spite of the fact that tuition increased significantly over this period.¹ Almost two-thirds of youth went on to some kind of postsecondary education during this period. Nearly one-third had gone to college, and slightly fewer had gone to university (Figure 1).²

Figure 1

Proportion of 18 to 21 year old youth who had gone to postsecondary, university and college (two SLID panels combined). Postsecondary includes trade/vocational schools as well as university and college.



From 1998 to 2001, there was no statistically significant change in participation at either college or university for students from different socio-economic backgrounds. In particular, the rate at which youth from low income families went on to either university or college did not change, nor did the rate for youth from higher income families.

In order to measure whether there was change from 1998 to 2001, the study used an analytical model (see text box) to compare participation levels of the two panels (1998 and 2001) for each of a number of socio-economic variables and to test for significant change. Furthermore, three separate models were run – one each for overall postsecondary education, and then for university and college participation separately– to test whether there were changes in the rates at which youth with different family backgrounds participated in different levels of postsecondary education (university or college).

Difference between the two panels

A test for the statistical significance of any difference between the two panels was carried out with a logit model. The model was run separately for postsecondary education, university and college. Specifically, the general model estimated was:

$$\log\left(\frac{p_i}{1-p_i}\right) = x_i \beta + \varepsilon_i$$

Where p_i is the probability of participation, x_i is a vector of regressors and ε_i is the random disturbance. It is worth repeating that only the highest level of participation is retained in these models; that is, if respondents participated in both college and university, they are assumed to be participants at the university level only.

The regressors used in the model included a variety of socio-economic variables, a dummy variable to represent the SLID panel to which the participant belonged (-1 for 1998, 1 for 2001), as well as interactions between the socio-economic variables and the time variable.

The results of this analysis are presented in the form of odds ratios. In this analysis the odds ratios refer to differences in participation rates for the 1998 and 2001 panel. An odds ratio of 1.0 or greater indicates that the specified group (example low-income) had greater odds of participating in 2001 than in 1998. However, these greater or lesser “odds” are not always statistically significant. Where the odds ratio is statistically reliable (or significant), it is marked with one or two asterixes (* or **) depending on the level of significance (see note to Table 1).

The results of the analytical model are presented in Table 1 as odds ratios (see text box). An odds ratio greater than 1.0 indicates a higher likelihood of participation for the second panel (2001) than the first (1998). For example, the odds ratio of 1.18 for postsecondary education participation for women – had it been statistically significant – would mean that 18 to 21 year old women in 2001 were more likely to participate in postsecondary education than their counterparts in 1998. However, the result is not statistically significant, as shown by the lack of asterixes (* or **) normally used to denote reliable estimates.

Differences were tested for several subpopulations defined by a variety of background variables: family income quartiles, parents’ education levels, gender, rural/urban origins, region, and family composition. For none of the specified groups was the difference in participation statistically significant. That is, the odds ratios were not statistically significant, which leads us to conclude that there was no evidence of a change between the postsecondary education participation rates for any of the specified groups at any institutional level.

The row “Intercept only” in the table represents odds ratios between the two panels for postsecondary education, university and college participation for all 18 to 21 year olds irrespective of any particular socio-economic or demographic status. Not surprisingly, these odd ratios are not statistically significant.

Table 1

Odds ratios (2001 compared to 1998) for postsecondary education, university and college participation of different socio-economic groups

Variable	Contrast	Odds ratio (Standard error)		
		Postsecondary	University	College
After-tax income	Highest	0.89 (0.19)	0.86 (0.22)	0.99 (0.23)
	Upper-middle	1.25 (0.19)	0.89 (0.22)	1.22 (0.23)
	Lower-middle	0.89 (0.17)	0.92 (0.21)	0.90 (0.21)
	Lowest	1.12 (0.17)	1.52 (0.22)	1.02 (0.21)
Parental education	Both > High School	1.55 (0.19)	1.53 (0.21)	0.98 (0.22)
	Father > High School	0.62 (0.23)	0.85 (0.26)	0.89 (0.27)
	Mother > High School	1.20 (0.24)	0.96 (0.27)	1.34 (0.28)
	Both < High School	1.36 (0.15)	1.34 (0.2)	1.24 (0.18)
Sex	Female	1.18 (0.14)	1.28 (0.17)	0.94 (0.17)
	Male	0.89 (0.14)	0.81 (0.18)	1.12 (0.18)
Rural	Urban	1.01 (0.12)	0.90 (0.15)	1.18 (0.15)
	Rural	1.04 (0.18)	1.15 (0.22)	0.89 (0.21)
Region	Atlantic	1.04 (0.25)	1.04 (0.27)	0.82 (0.34)
	Quebec	1.27 (0.18)	1.25 (0.23)	0.81 (0.18)
	Ontario	0.79 (0.16)	0.86 (0.19)	0.9 (0.21)
	Prairies	0.91 (0.19)	0.93 (0.23)	1.56 (0.27)
	British Columbia	1.20 (0.23)	1.04 (0.27)	1.21 (0.26)
Family composition	Lives with two parents	1.01 (0.11)	0.89 (0.13)	1.06 (0.14)
	Lives with one parent	1.05 (0.21)	0.65 (0.29)	1.32 (0.26)
Intercept only		0.97 (0.13)	0.98 (0.16)	0.98 (0.16)
Model statistics				
N = 3,722				
Model chi square		494 (df = 31) ¹	426 (df = 31) ¹	326 (df = 31) ¹
Log likelihood		-2,300	-1,324	-1,858

1. The global logistic regression model is significant at $p < 0.0001$.

* Significant with a Bonferroni confidence level of 80%. (no significant results in this table)

** Significant with a Bonferroni confidence level of 90%. (no significant results in this table)

Note: There are non-response/other categories for Parental education and Family composition but they are not presented here.

The relative stability in the participation rates in recent years have been observed by other researchers as well. For example, Corak *et al.* (2003) concluded that the university participation rates since 1994 “have been flat” and that the college participation rates grew during the 1990s “at a much reduced rate”. In fact, Corak *et al.* do not discuss the statistical significance of this reduced growth rate, but from the magnitude of growth reported in the paper, it appears unlikely that the changes in the latter half of the nineties would be statistically significant. Drolet (2005) used the same data source as ours – but different methodology – to come to similar conclusions.

The results of this model can be interpreted to mean that a second sample in 1998 might have produced the same participation rates obtained from the 2001 panel. This result suggests that the two separate panels can be combined or “pooled” to produce a single sample in order to analyse the factors that influence postsecondary participation. The increased sample size from the combined sample leads to more accurate estimates of the rates on one hand, and provides statistical significance to some of the analysis here. The participation rates reported in this paper can be viewed as that of the 18 to 21 year olds in the latter half of the nineties. (See Appendix for information on the pooled sample).

Postsecondary education participation by socio-economic background

Postsecondary participation were found to be different for many student characteristics and socio-economic factors

Research repeatedly demonstrates that the likelihood of going on to college or university is strongly related to family background measured in a variety of ways. As a starting point, this analysis looks at the participation rates for youth with various backgrounds. Specifically, this section presents participation rates by after-tax family income quartile, parental education, gender, family composition, urban/rural status, and region of residence.

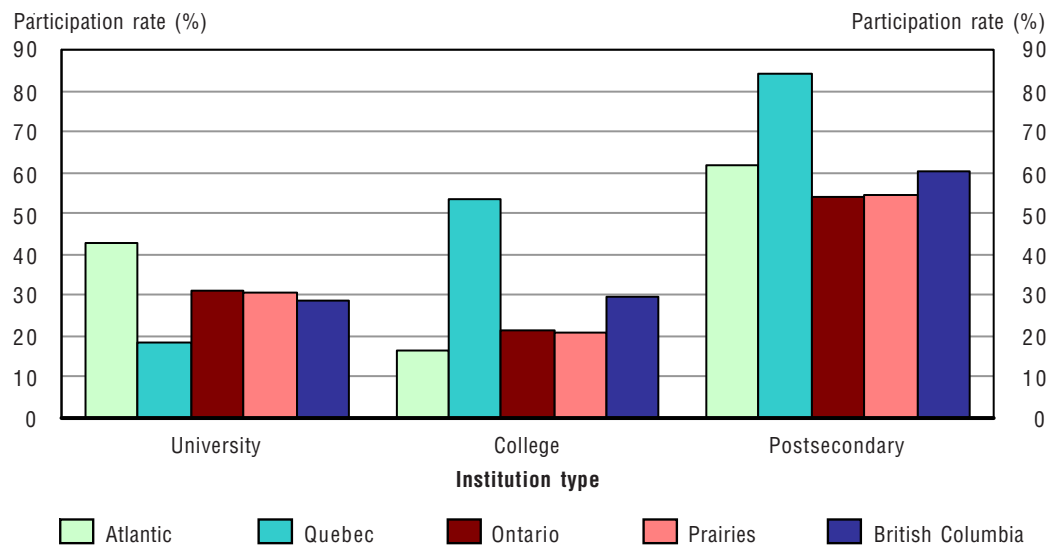
Participation in postsecondary education differed for youth from different parts of the country

Postsecondary education participation rates, as well as university and college participation rates, varied a great deal between the regions (Figure 2). However, a large part of the difference – especially between Quebec and other regions – can be explained by differences in the education systems. For example, while most youth in Quebec had completed secondary school by age 18, this was not the case in most other provinces where many 18 year olds are still completing high school and have not yet had the opportunity to attend college or university. The structure of postsecondary education in Quebec is also a key factor in the high college participation rate for this age group. The sample of 18 to 21 year olds would include many youth who will ultimately attend university, but who were still enrolled at CEGEP.

Quebec is not the only province with distinctive patterns of postsecondary participation. Among the other regions, the Atlantic provinces led participation in postsecondary education, particularly at university, while British Columbia, which has a university college program where students begin their university studies in a college institution, led participation at college.

Figure 2

Postsecondary, university and college participation rates of 18 to 21 year olds by region



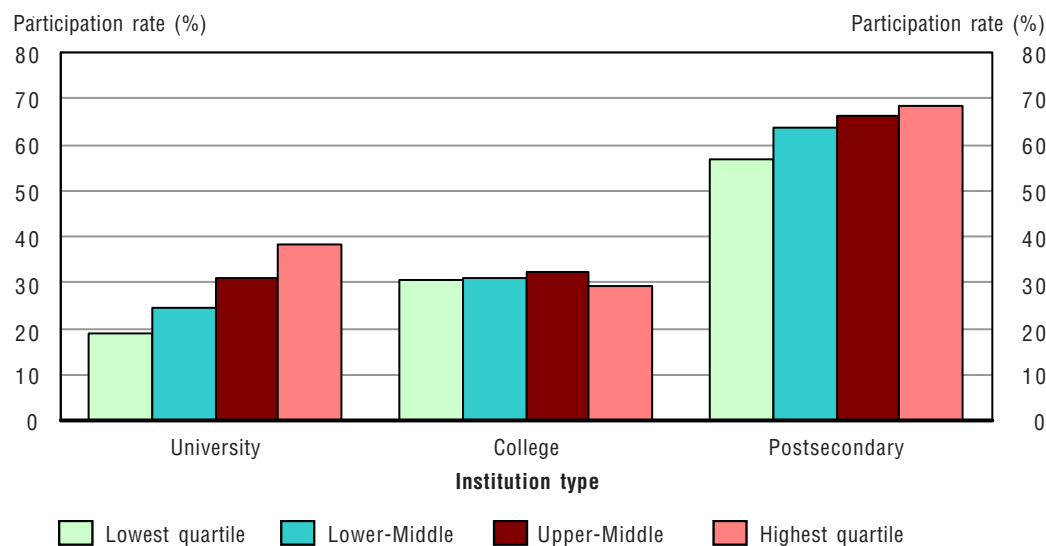
Youth from lower income quartiles went to university at a lower rate

Overall, 64% of the 18 to 21 year old youth in this analysis had participated in some level of postsecondary education. However, the rate was lower for youth from lower income families. Using information on after-tax family income at the time respondents were 16 years old, participation rates were calculated for youth from different income quartiles. For postsecondary participation overall, the greatest difference in participation between two neighbouring quartiles was between youth in the two bottom quartiles. Only 57% of youth in the bottom quartile had gone on to postsecondary compared to 64% or more of youth in the other three groups (Figure 3).

These results are generally in agreement with those reported by Barr-Telford *et. al.* (2003). They used the Post Secondary Education Participation Survey (PEPS), conducted in 2002, to report that the postsecondary education participation rate for 18 to 24 year olds (17 to 24 year olds in Quebec) was 62%. They also reported that two-thirds of 18 to 24 year olds with estimated family income (before tax) between \$55,000 and \$80,000 had taken some postsecondary education, which dropped to just over half when the family earnings were less than \$55,000.

Figure 3

Postsecondary, university and college participation rates of 18 to 21 year olds by family income quartile



This difference in postsecondary participation overall is driven by a difference in participation rates for university (Figure 3). On average, 29% of youth had gone on to university, but this ranged between 19% for youth from the lowest income quartile to 38% for youth from the top quartile. Moreover, the increase in university participation rates by quartile was steady. University participation rates increased at the same rate with increasing income quartiles. Unlike the overall postsecondary participation rates, middle income youth went to university at a lower rate than those from the highest quartile.

At college, participation rates were nearly the same for youth from different income quartiles (between 29% and 32%). The average was 31%.

It is also noteworthy that, except for youth in the highest income quartile, more young people went to college than university. This is influenced considerably by CEGEP participation in Quebec where university-destined youth are still studying at the college level. In fact, Quebec accounted for half (49%) of the youth in this study who had only gone on to college.

Family income appeared to have a sufficient impact so that for the highest quartile, the university participation rate (38%) was nine percentage points higher than the corresponding college participation rate (29%). By contrast, youth in the lowest income quartile were more likely to go to college (30%) than university (19%).

The income groupings used by Corak *et. al.* (2003) are different than those used in this analysis. Despite this methodological difference and the use of a different data source, the results agree for the most part. In their paper, the university participation rate for the 18 to 24 year olds from the highest income group was “in the neighborhood of 40%”, whereas, the rate for the 18 to 24 year olds from the lowest income group was around 19% in 1997. However, the overall university

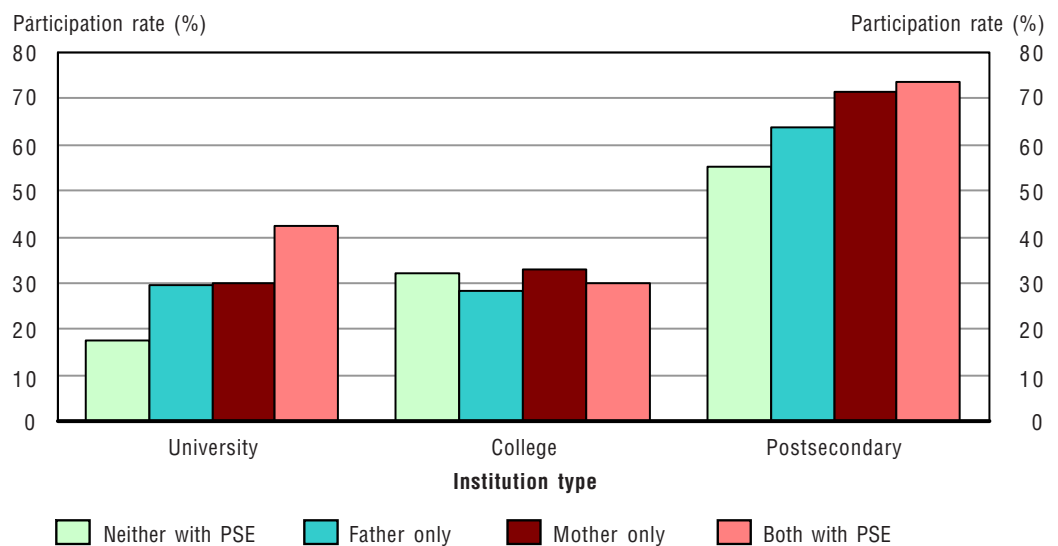
participation rate reported by Corak *et. al.* was 23% for 2001, as compared to 29% reported here. Similar to our findings for college participation rates, Corak *et. al.* found that the rates were “much more similar across family income groupings”.

Youth whose parents have postsecondary education went to postsecondary at a higher rate

Youth whose parents had gone to postsecondary went more often themselves. In fact, when neither parent had a postsecondary education, the participation rate of the 18 to 21 year olds was 55%, or 19 percentage points lower than the rate when both parents had postsecondary education (74%). When only one parent had postsecondary education, the rate was found to be higher if the parent was the mother (71%) than when it was the father (64%).

Figure 4

Postsecondary, university and college participation rates of 18 to 21 year olds by parental education



Parental education and postsecondary participation

The relationship between parental education and postsecondary participation has been noted in previous research. Using the 2002 Postsecondary Education Participation Survey, Barr-Telford *et. al.* (2003) reported that youth who had at least one parent with some postsecondary education were more likely to have continued on with further education than were 18 to 24 year-olds with parents who had not taken any postsecondary studies (70% compared with 57%). Bowlby and McMullen (2002) reported from the Youth in Transition Survey (YITS)³ that postsecondary participants were more likely to come from families where one or both parents had a university degree. Finally, Knighton and Mirza (2002) found from the 1998 panel of the SLID that approximately 88% of high school graduates with university-educated parents pursued postsecondary education, compared with 68% who had college-educated parents and 52% whose parents had a high school diploma or less

Just as was the case for family income, the effect of parental education was more pronounced for youth going to university (Figure 4). When neither parent had postsecondary education, the university participation rate was only 18%, less than half of the rate for children with both parents having postsecondary education (43%). When only one parent had postsecondary education – be it the father or the mother – the rates were close to the average. College participation rates varied little with parental education⁴.

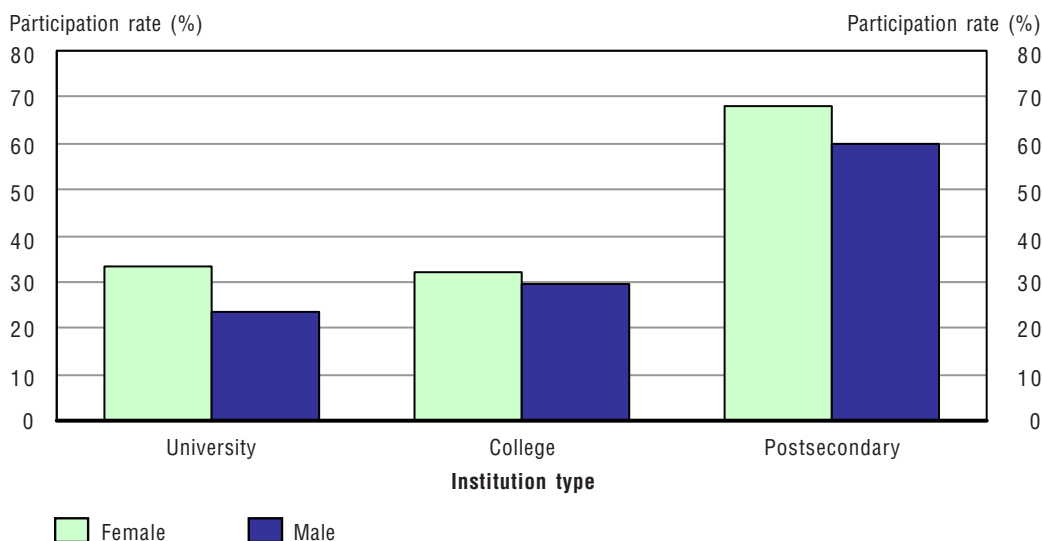
Parental education also seemed to impact whether youth went to college or university. When both parents had postsecondary education, more 18 to 21 year olds went to university than to college (43% to 30%). For those with neither parent having postsecondary education, the situation was reversed (18% to 32%). This is consistent with Knigton and Mirza’s (2002) finding from the 1998 SLID that those whose parents had a high school diploma or less were more likely to go to college than university (29% to 17%).

Women went to postsecondary education, particularly university, at a higher rate

Women went to postsecondary education more than men (68% to 60%). The participation rates for women were higher at both universities as well as college; however, the difference was more pronounced for university. (Figure 5).

Figure 5

Postsecondary, university and college participation rates of 18 to 21 year olds by gender

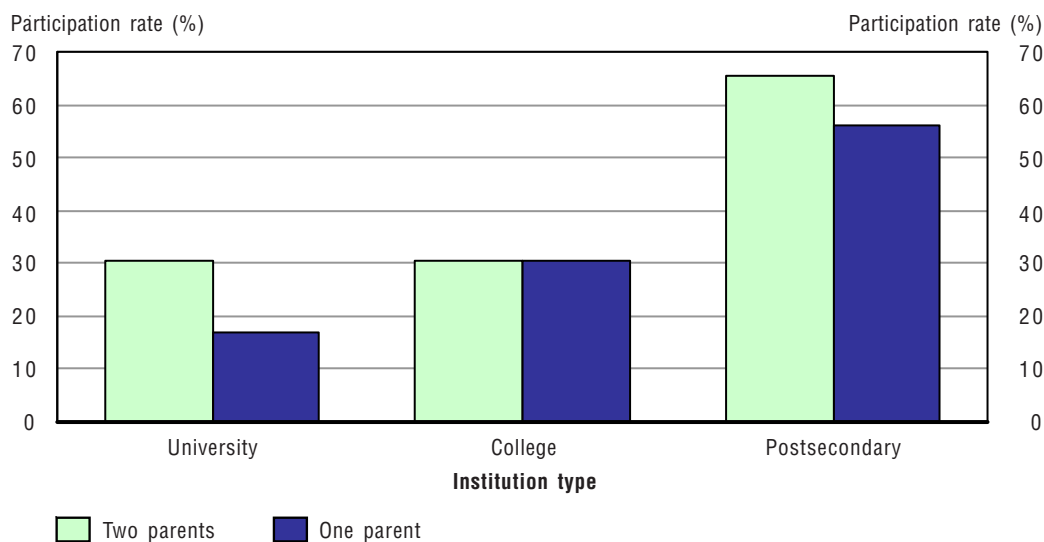


Youth from single parent families less likely to go to university

Analysis of participation rates by family composition (two-parent versus one-parent households) showed a trend similar to those of income groups and parental education. Youth from single parent families were less likely to go to university than those who had lived with both parents at age 16 (17% vs 31%). There was no difference, however, in the rate at which they went to college (Figure 6).

Figure 6

University and college participation rates of 18 to 21 year olds by family composition



Youth from urban areas went to university marginally more than rural youth

Youth from rural areas went to university at a lower rate than urban youth, but the difference was small (30% for Urban and 24% for Rural). At the college level, the rates were similar (31% and 29%).

This concurs with previous research which examined the university participation of rural youth. Frenette (2002) used the 1998 panel of the SLID to report rates similar to ours – that rural dwelling students were less likely to attend university, but only slightly so. However, he focused his research on the distance from a university, and concluded that students living beyond 80 km from a university were only 58% as likely to attend university as students living within 40 km from a university. The distance mattered while the urban/rural classification did not because of the fact that many urban areas did not have universities while some rural areas had.

Determinants of postsecondary participation

Many of the factors that are related to participation in postsecondary education are also interdependent. That is, these factors are related to each other to differing degrees. Most notably, there is a strong relationship between income and educational achievement. It is not obvious, therefore, to what extent the relationship between parental education and participation is a matter of higher income and greater access to financial resources, or some other mechanism such as home environment, family and community norms, etc. It is therefore important to disentangle these inter-relationships in order to identify what really matters to postsecondary participation.

The next section of the paper presents a more in-depth analysis of the relationship of socio-economic background factors and postsecondary participation which takes into account these inter-relationships. This analysis isolates the effect of particular factors while controlling for differences in other factors, and therefore, helps to identify the factors that influence whether youth go on to college or university.

Region of residence, family income, parental education AND family structure all have an impact on postsecondary participation

When all of the background factors previously examined were looked at together, taking into account their inter-relationships, it turns out that most of them show a significant relationship to postsecondary participation. In fact, the only factor in this analysis which did not have any significant relationship to postsecondary participation after controlling for other factors was the rural or urban origins of youth.

Results from this analysis are presented in Table 2. The odds ratios in this table compare the likelihood of attending postsecondary, college, or university for pairs of values for each factor examined. A ratio greater than 1.00 indicates a higher likelihood of participation for the value cited on the left in the pair. For example, 1.80 for the (highest vs. lowest) pair of after-tax income variable for postsecondary education indicates that the odds for an individual from the highest quartile to pursue postsecondary education were 80% higher than the odds for an individual from the lowest quartile. Also, for a fixed reference value (value cited on the right in the pair), the farther the ratio is from one, the stronger the impact. For example, individuals from both the upper-middle and the lower-middle quartile were more likely to participate in postsecondary education than individuals from the lowest quartile; but individuals from the upper-middle were more likely to do so (1.68) than individuals from the lower-middle quartile (1.43).

Table 2
Odds ratios for participation by socio-economic factors

Variable	Contrast	Odds ratio (Standard error)					
		Postsecondary		University		College	
After-tax income	Highest vs. Upper-middle	1.06	(0.11)	1.09	(0.12)	1.04	(0.12)
	Highest vs. Lower-middle	1.25	(0.13)	1.37*	(0.17)	1.19	(0.14)
	Highest vs. Lowest	1.80**	(0.21)	1.66**	(0.23)	1.56**	(0.22)
	Upper-middle vs. Lower-middle	1.18	(0.12)	1.27	(0.14)	1.14	(0.13)
	Upper-middle vs. Lowest	1.68**	(0.19)	1.53**	(0.21)	1.50**	(0.2)
	Lower-middle vs. Lowest	1.43**	(0.15)	1.20	(0.16)	1.31	(0.16)
Parental education	(Both > HS) vs. (Father > HS)	1.67**	(0.16)	1.72**	(0.24)	0.96	(0.13)
	(Both > HS) vs. (Mother > HS)	1.12	(0.15)	1.79**	(0.26)	0.89	(0.14)
	(Both > HS) vs. (Both <= HS)	2.32**	(0.23)	3.64**	(0.4)	0.93	(0.1)
	(Father > HS) vs. (Mother > HS)	0.67*	(0.1)	1.05	(0.17)	0.92	(0.15)
	(Father > HS) vs. (Both <= HS)	1.38*	(0.16)	2.11**	(0.28)	0.96	(0.13)
	(Mother > HS) vs. (Both <= HS)	2.07**	(0.25)	2.02**	(0.28)	1.04	(0.15)
Sex	Female vs. Male	1.48**	(0.11)	1.73**	(0.15)	1.24	(0.1)
Rural	Urban vs. Rural	1.03	(0.09)	1.14	(0.12)	1.05	(0.1)
Region	Atlantic vs. Quebec	0.39**	(0.05)	4.17**	(0.69)	0.22**	(0.04)
	Atlantic vs. Ontario	1.61**	(0.21)	2.17**	(0.33)	0.94	(0.17)
	Atlantic vs. Prairies	1.52*	(0.21)	2.08**	(0.3)	1.05	(0.21)
	Atlantic vs. British Columbia	1.27	(0.19)	2.63**	(0.48)	0.53**	(0.11)
	Quebec vs. Ontario	4.19**	(0.42)	0.51**	(0.06)	4.24**	(0.44)
	Quebec vs. Prairies	3.90**	(0.44)	0.49**	(0.07)	4.75**	(0.65)
	Quebec vs. British Columbia	3.25**	(0.42)	0.61**	(0.09)	2.37**	(0.32)
	Ontario vs. Prairies	0.93	(0.1)	0.97	(0.12)	1.12	(0.16)
	Ontario vs. British Columbia	0.78	(0.09)	1.20	(0.16)	0.56**	(0.08)
Prairies vs. British Columbia	0.84	(0.11)	1.24	(0.19)	0.50**	(0.08)	
Family composition	Lives with two parents vs.						
	Lives with one parent	1.54**	(0.19)	1.96**	(0.31)	0.89	(0.12)
Model statistics							
N = 3,722							
Model chi square		494		426		326	
		(df = 31) ¹		(df = 31) ¹		(df = 31) ¹	
Log likelihood		-2,300		-1,324		-1,858	

1. The global logistic regression model is significant at $p < 0.0001$.

* Significant with a Bonferroni confidence level of 80%.

** Significant with a Bonferroni confidence level of 90%.

HS = High School

Note: There are non-response/other categories for Parental education and Family composition but they are not presented here.

Note on analytical method

Like the model in Section 2.0, the model used for this section of the analysis was also run separately for postsecondary education, university participation and college participation. Unlike the earlier model, where the value for the dummy variables representing the two SLID panels was either -1 for the 1998 panel or 1 for the 2001 panel, here we use 0 (the average of -1 and 1) in order to produce estimates from the combined pool. The regressors here include: parental income, parental education, urban/rural status, gender, region of residence, and family composition.

The methodology used here is based on Knighton and Mirza (2002)⁵. While their focus was the relative strength of the influences of parental income and parental education, this analysis examines the influences of a number of socio-economic variables, but not relative to one another. By adding more variables to the model and controlling for them, this paper examines the influence of each of these variables on participation rates as well as isolates the impacts of the variables to a greater degree.

Furthermore, it deals with parental education somewhat differently than Knighton and Mirza. In their model, they used the *level* of parental education (the higher of the two parents); in this model parental education is categorized as: both parents having postsecondary education, only father with postsecondary education, only mother with postsecondary education and neither with postsecondary education.

Odds ratios from logit models are often presented in a somewhat different manner. For a variable, the odds ratios for different values to a particular reference value are presented. For example, for the family income variable, Knighton and Mirza (2002) used the lowest quartile as the reference and presented ratios of other quartiles to the lowest quartile. This prevents the reader from knowing the statistical significance of ratio between two non-reference values. From Knighton and Mirza, a reader can not tell if the odds ratio between the two highest quartiles is significant or not. Therefore, we present all combinations for the reader to be able to compare each value with all other values of a variable.

The differences in postsecondary education systems determined to a large extent the participation patterns in different regions

Given the notable differences in the postsecondary systems of different provinces, it is not surprising that participation pattern varied a great deal between the regions. Not only do youth in this study complete high school at different ages (especially in Ontario and Quebec), but they also go on to differently structured postsecondary systems. These differences are important in any understanding of where and when youth go on to university or college. Moreover, it is also a factor which needs to be taken into account when the influence of other factors is examined. Most notably, given that this study looks only at 18 to 21-year-olds, the population who are attending college at this early age are not representative of the college population overall. The sample includes many of the students who will go on to university, but does not include those who delay entry after high school and enter college at a later age.⁶

Postsecondary participation by province

The SLID sample does not allow for detailed analysis at the provincial level. However, data from the Youth in Transition Survey (YITS) shows that there is a wide variation in postsecondary activity of youth (18 to 20 years old) by province. In December 1999, 27% of 18-year-olds were still in high school, ranging from 14% in Quebec to 38% in Ontario.

For those youth aged 18 to 20, 62% of youth who were no longer in high school had gone on to postsecondary education. Not surprisingly, there was a wide range by province, from only 50% in Alberta to 78% in Quebec. By age 20 to 22, when more of them have completed high school, 72% of youth who were no longer in high school had gone on to postsecondary. The range at this age was not as great, from 60% in Alberta to 78% in Quebec. (Bowlby and McMullen, 2002; Zeman and Knighton, 2004)

Youth from the lowest income quartile were significantly less likely to pursue postsecondary education than their counterparts from the other three quartiles

Individuals from the lowest quartile were significantly less likely to participate in postsecondary education than individuals from families with higher levels of income; but the differences among the top three quartiles were not significant. This highlighted the degree of disadvantage the lowest quartile faces in relation to the other groups.

The same pattern held for university and college participation except that institution-specific participation rates of the lowest quartile were not significantly less than the same for the lower-middle quartile. This is partly explained by the fact that proportionately more individuals from the lower-middle quartile went to trade/vocational schools that were included in overall postsecondary education participation.

Family income mattered more for participation at university than at college. Not only were youth in the lowest quartile significantly less likely to go on, but also, youth from the lower-middle quartile were less likely to go to university than their counterparts from the highest quartile (albeit at a lower level of significance).

These results generally reflect what was seen in the descriptive findings (Figure 3). However, the results of the model also reveal a relationship between income and participation at college. A simple examination of college participation (Figure 3) showed no difference in the percentage of youth from any quartile who went on to college. The results of the analytical model which controls for other factors (Table 2) suggest that college participation of individuals from the top two quartiles was significantly higher than that of individuals from the lowest quartile (odds ratios of 1.56 and 1.50, both significant).

This is a rather complex finding. Given the strong positive relationship between income and university participation, one might expect there to be a negative relationship between income and college participation. That is, if high income students are significantly more likely to go to university than low income students, then they may be less likely to go on to college. The more students who go on to university, the fewer are available to go to college.

However, this is not always the case. Further analysis of this finding shows that the positive relationship between income and college participation (higher income youth are more likely to go than low income youth) is driven by provincial differences and in fact masks some important provincial differences.

College activity in this study is, as noted earlier, dominated by Quebec. One half of the youth who went to college only were from Quebec, and British Columbia is the only other province whose youth are NOT underrepresented in the college population. This is important as both of these provinces have education systems where many youth who will go to university start their studies at college either at CEGEP or through a university transfer program.

Table 3

Distribution of youth and youth with college by region (18 to 21 years old)

	Percentage of youth with college	Percentage of all youth
Atlantic provinces	5	9
Quebec	49	28
Ontario	23	35
Prairies	11	17
British Columbia	12	12
Total	100	100

When regions are examined individually, there is a division between provinces where income appears to have a positive relationship to college participation, and others where the relationship is negative. While the SLID sample does not allow for reliable analysis at the provincial (or even regional level), there do appear to be three regions where the relationship differs. In Ontario, there is no clear relationship between income and college participation. In the Quebec and British Columbia, youth in higher income families are more likely to go to college than lower income youth. In the Atlantic Provinces and the prairies, however, the relationship between income and college participation is reversed and higher income youth are **less** likely to go to college. This difference is likely due to the fact in Quebec and British Columbia, there are many higher-income students in the college system who will eventually go on to university.

At the national level, these provincial differences cancel each other out and result in there being no relationship between income and college participation. However, when all variables are taken together (in the regression model), the results for Quebec and British Columbia are strong enough to produce an overall positive finding.

Parents' education levels are an important factor in university participation

Parental education is another factor that is related to university participation, but it had no effect on college participation when all factors were accounted for together.

University participation rates for individuals with neither, one, and two parents having postsecondary education were *all* significantly different from each other. Youth whose parents both have postsecondary education were more likely to go to university than those with only one parent having postsecondary education; these youth, in turn, were more likely to go to university than those with neither parent

having postsecondary education. When only one parent had postsecondary education, it did not matter whether it was the father or the mother.

Youth from two-parent families were more likely to go on to university than youth in single-parent families.

As Table 2 demonstrates, youth from two-parent families were more likely to have gone on to university than their counterparts from single-parent families. It is important to note that the difference was significant even after the impacts of other variables including family income had been removed. The difference in university participation led to a difference in postsecondary education participation as well, even though the college participation rates were not significantly different.

The finding here is distinctly different from Drolet (2005) who found that family structure had no significant impact when a control for family income was introduced in her model. Even though the data source is the same, the modeling approach and variable definitions in the Drolet paper are significantly different from those used here. She runs a linear probability model whereas this analysis uses a logit model.

Different variable definitions may have an important impact on the way family structure affects the model. For example, Drolet includes 18 to 24 year olds living with at least one parent in her analysis. This analysis includes all 18 to 21 year olds (not 18 to 24), irrespective of whether they were living with their parents or not. She considers the current state of the family structure, while this analysis uses the structure when the individual was 16. In addition, the measure of parental education is notably different in the two analyses. In the Drolet paper, parent education is categorized in terms of the highest level for either parent – (either with university, either with college (no university), or both with high school or less). The variable in this report, distinguishes between both parents with postsecondary, mother only with postsecondary, father only with postsecondary, or neither. With all these differences in approach, further in-depth investigation is necessary to unearth the cause of the difference in results.

When other factors are taken onto account, there was no difference in college or university participation of youth from rural and urban areas

Although youth from urban areas were slightly more likely to go on to university than their rural counterparts, this relationship completely disappeared after other factors were taken into account. There was no evidence of any significant difference between participation by urban and rural individuals at any level of postsecondary education.

Determinants of the choice of postsecondary institution

So far, this study has looked at factors influencing participation at a specific level of postsecondary. That is, postsecondary participation compares youth who go to postsecondary with youth who do not. Similarly, university participation rates compared those who went to university to those who did not, but who may have gone to college.

This section of the study, however, looks only at the population of youth who went on to university or college and compares those who went to college and those who went to university. It examines the likelihood of choosing university over college for a variety of socio-economic factors. This model is also based on Knighton and Mirza (2002); the differences between their model and this one are the same as discussed for the model in Table 2. The results are presented in Table 4. Odds ratios greater than 1.0 indicate a higher likelihood of choosing university over college for the value cited on the left in the pair. Odds ratio's below 1.0 indicate a lower likelihood.

Table 4
Odds ratios for university over college

Variable	Contrast	Odds ratio (Standard error)	
		University vs. college	
After-tax income	Highest vs. Upper-middle	1.00	(0.15)
	Highest vs. Lower-middle	1.16	(0.19)
	Highest vs. Lowest	1.02	(0.19)
	Upper-middle vs. Lower-middle	1.16	(0.18)
	Upper-middle vs. Lowest	1.02	(0.18)
	Lower-middle vs. Lowest	0.88	(0.16)
Parental education	(Both > High School) vs. (Father > High School)	1.41	(0.25)
	(Both > High School) vs. (Mother > High School)	1.92**	(0.36)
	(Both > High School) vs. (Both ≤ High School)	3.37**	(0.5)
	(Father > High School) vs. (Mother > High School)	1.37	(0.29)
	(Father > High School) vs. (Both ≤ High School)	2.39**	(0.42)
	(Mother > High School) vs. (Both ≤ High School)	1.74**	(0.32)
Sex	Female vs. Male	1.44**	(0.16)
Rural	Urban vs. Rural	1.05	(0.14)
Region	Atlantic vs. Quebec	9.62**	(2.23)
	Atlantic vs. Ontario	1.82**	(0.39)
	Atlantic vs. Prairies	1.59	(0.37)
	Atlantic vs. British Columbia	3.33**	(0.79)
	Quebec vs. Ontario	0.19**	(0.03)
	Quebec vs. Prairies	0.17**	(0.03)
	Quebec vs. British Columbia	0.35**	(0.06)
	Ontario vs. Prairies	0.88	(0.15)
	Ontario vs. British Columbia	1.87**	(0.33)
	Prairies vs. British Columbia	2.12**	(0.44)
Family composition	Lives with two parents vs. Lives with one parent	2.44**	(0.49)
Model statistics			
N = 1,718			
Model chi square		287	
Log likelihood		(df = 31) ¹	-1,005

1. The global logistic regression model is significant at $p < 0.0001$.

* Significant with a Bonferroni confidence level of 80%.

** Significant with a Bonferroni confidence level of 90%.

Note: There are non-response/other categories for Parental education and Family composition but they are not presented here.

The likelihood of choosing university over college differed widely by region, a reflection of the differences in the education systems

After controlling for a variety of socio-economic factors, youth in the Atlantic Provinces were significantly more likely to go to university instead of college than youth in Quebec. Again, this is very much a reflection of variation in postsecondary systems across the country. Many Quebec youth in CEGEP have yet to go on to university. In contrast, the Atlantic Provinces have a well-developed university system. Nova Scotia, in fact, has more universities than any other province, save Ontario. Similarly, other differences by region are also primarily due to the differences in postsecondary systems.

Family income did not influence the choice of institution

After controlling for the effects of other factors, particularly region and parents education, there was no relationship between family income and the choice of university over college. This is partly driven by the fact that the income effect identified in Table 2 applies to both college and university participation. Overall, family income is more of a factor in the decision to go to postsecondary education of some kind; but less of a factor in the choice of the type of institution.

When the population of youth who have not gone at all are removed from the analysis, and only those who go on to college or university are examined, background factors have different effects. The participation of lower-income youth can be examined as an example to clarify the distinction between the previous results (Table 2) and this section of the analysis (Table 4). As Table 2 demonstrated, youth from the lower-middle quartile were more likely to go on to university than youth from the lowest quartile. But as Table 4 demonstrates, individuals from the lower-middle quartile did not choose university *over* college any more than individuals from the lowest quartile did. This was possible because the lower-middle quartile was more likely to go on to any postsecondary, not just university.

Parental education and family structure are both important variables in the choice of institution

While family income did not have any impact on the choice of institution type, parental education, gender and family composition did. When neither parent had postsecondary education, an individual was least likely to choose university over college. Having a mother with postsecondary education made the individual more likely to choose university. Also having a father with postsecondary education made the individual even more likely to choose university. The situation is a little different when the only parent with postsecondary education is the father. Having a father with postsecondary education made an individual more likely to choose university than an individual whose parents did not have postsecondary education. But also having a mother with postsecondary education (in addition to the father with postsecondary education) did not make the individual significantly more likely to choose university.

In addition to parental education, family structure was also related to institution choice. After controlling for other factors, youth from two-parent families were more likely to choose university over college than youth from single-parent families.

Conclusion

This study took advantage of stable postsecondary participation rates for various socio-economic groups between 1998 and 2001 to examine factors related to participation in college and university education using two panels of the Survey of Labour Income Dynamics (SLID).

Given differences in the structure of both secondary and postsecondary systems across the country, it is not surprising that the participation patterns varied widely by region. This regional variation in postsecondary pathways underlines the need to take regional differences in education systems into account when examining postsecondary participation.

A variety of socio-economic factors influence postsecondary participation even when controlling for all other variables. Family income, parental education and family structure are all measures which affect whether youth had gone on to postsecondary education. Family income was an important factor, particularly for youth in the bottom income quartile. While it appears that income is positively correlated to college participation, this was mainly driven by the postsecondary system in Quebec.

Parental education – whether neither, one or both parents had a postsecondary education – was an important determinant of postsecondary participation. It was also an important factor in whether youth chose university over college. Family structure – whether youth came from single or two-parent families, was also an important factor in whether youth went on to postsecondary at all, and whether they went to university or college.

References

- Barr-Telford, L., Cartwright, F., Prasil, S. and Shimmons, K., 2003, "Access, persistence and financing: First results from the Postsecondary Education Participation Survey (PEPS)." Statistics Canada.
- Bowlby, J. and McMullen, K., 2002, "At a Crossroads: First Results for the 18 to 20-Year-Old Cohort of the Youth in Transition Survey," HRDC and Statistics Canada
- Corak, M., Lipps, G. and Zhao, J., 2003, "Family Income and Participation in postsecondary education", Statistics Canada.
- Canadian Education Statistics Council, 2003, "Education Indicators in Canada. Report of the Pan-Canadian Education Indicators Program (PCEIP) 2003." Canadian Education Statistics Council (Statistics Canada and CMEC).
- deBroucker, P., 2005, "Getting There and Staying There: Low-income Students and Post-secondary Education," www.cprn.org/, Canadian Policy Research Network (CPRN).
- Drolet, M., 2005, "Participation in Post-secondary Education in Canada: has the Role of Parental Income and Education Changed over the 1990s?", Statistics Canada.
- Frenette, M., 2002, "Too Far to Go on? Distance to School and University Participation", Statistics Canada.
- Junor, S. and Usher, A., 2002, "Price of Knowledge: Access and Students Finance in Canada." Canadian Millennium Scholarship Foundation.
- Knighton, T. and Mirza, S., 2002, "Postsecondary participation: the effects of parents' education and household income", *Education Quarterly Review*. Volume 8, no 3.
- Lavallée, L., B. Pereboom and C. Grignon, 2001, "Access to Postsecondary Education and Labour Market Transition of Postsecondary Students", Canada Student Loans Program, HRDC, mimeo.
- Statistics Canada, 2001, "Participation in postsecondary education and family income" *The Daily*, Statistics Canada
- Statistics Canada, 2002, "Participation in postsecondary education and family income-erratum" *The Daily*, Statistics Canada
- Zeman, K. and Knighton, T., 2004, "Education and labour market pathways of young Canadians between age 20 and 22: an overview", Statistics Canada (Cat no. 81-595-MIE20040018).

Endnotes

1. According to Statistics Canada's Survey of Tuition and Living Accommodation Costs for Full-time Students at Canadian Degree Granting Institutions (TLAC), undergraduate tuition fees increased 12% in constant dollars between 1997/98 and 2000/01.
2. Many of the youth in this sample may YET go on to college or university. This is particularly true of students in Ontario, where youth would still be completing high school at age 18. Moreover, students in Quebec and other provinces which have university transfer programs, will still be enrolled in college or CEGEP before going on to university.
3. The analysis was based on 18 to 20 year olds, who were no longer in high school as of December, 1999.
4. While the postsecondary education participation rate was somewhat higher when the mother had postsecondary education relative to when the father had postsecondary education, the institution-specific rates show little differences between the two groups (Figure 4). This is explained by the fact that institution specific rates are marginally higher when the mother had postsecondary education, and that this rate was especially higher for trade/vocational diplomas that are included in the calculation of postsecondary education participation rates.
5. More specifically, these results can be compared with Model 3 of Table 2 in their paper.
6. To get a sense of the age differences for those who go to college or university, one can look at their typical age at graduation. According to the National Graduate Survey (Class of 2000), the typical (median) graduation age at both college and university (bachelor) is 23. This suggests that the typical college graduates from a two year program only entered that program when they were 21 years old, whereas university graduates would have started at an earlier age.

Appendix

Data Source and Data Definition:

The data source, the Survey of Labour Income Dynamics (SLID), is conducted by Statistics Canada. SLID is a longitudinal household survey that is designed to capture changes in the economic well-being of individuals and families over time and the determinants of their well-being.

Beginning in 1993, SLID followed the same respondents for six years. A second “panel” was introduced in 1996, overlapping the first one for a three year period. In 1999, panel 3 was introduced and panel 1 “retired”. This pattern will be repeated every three years. Each panel includes about 15,000 households, including about 30,000 adults of whom about 1,900 are in the 18 to 21 age group in the last year of the surveys (1998 and 2001).

The analysis focuses on youths age 18 to 21 in the 6th year of Panel 1 or Panel 2. The measurement of interest is the highest level of postsecondary education participation as at the 6th year of the participation in the panel in relation to the socio-economic status at age 16. The longitudinal nature of the survey allows the identification of a youth’s socio-economic status at the age of 16. To illustrate, for a youth 18 years old in the 6th year of Panel 1, his/her socio-economic status at 16 is available since it was captured two years earlier. This methodology is based on the view that socio-economic factors should be measured prior to the commencement of postsecondary education (since the decision to participate is made at this time).

Sample Selection

Youths age 18 to 21 in 1998 and youths age 18 to 21 in 2001 were selected from the 1993-98 SLID panel and the 1996-2001 SLID panel respectively. There were 1,910 observations from the first panel, and 1,886 observations from the second panel. The sample was further restricted to include only those youths in which the family income at 16 was available. This restriction reduced the sample to 1,897 and 1,830 for the first and second panel respectively.

Pooling of the data for 1998 and 2001

For the descriptive analysis, data was pooled for the two years without any changes to the weights. The weight used was longitudinal weights for panel 1 and panel 2 (ilgwt26). The pooled sample is not representative of 18 to 21 year olds between 1998 and 2001. Instead, it is 18 to 21 year olds in 1998 from panel 1 and 18 to 21 year olds in 2001 from panel 2. Assuming no change in the characteristics and proportion of the population 18 to 21 year old between 1998 and 2001, the pooled sample can be treated as an approximation of the 18 to 21 year old population in each of the years between 1998 and 2001.

For the regression models, results were obtained from using both panels with an indicator (-1 for 1998 and 1 for 2000) representing the panel. Where estimates irrespective of the panel were desired, the value of the indicator used was 0 (the average), which in effect, combines the estimates resulting from both panels. The weights used for the regression models were the longitudinal weights for panel 1 and panel 2 (ilgwt26).

Participation rates

For the purposes of this study, postsecondary participation is defined as having *ever* attended a postsecondary institution (full or part-time). It is different from attainment in that these participants do not necessarily complete the program – whereas, those who *attain*, do. It is also different from enrolment in that enrolment would only include those who are *currently* participating.

For university participation, if the participant responded “Yes” to being a university student in ANY of the 6 years, they were recorded as being a university participant. For college participation, any participant who responded “Yes” to having attended community colleges, institutes of applied arts and technology, or CEGEP AND who did not attend university as defined above (since the interest is in the highest level of education) were counted as being a college participant. For trade participation, any participant who responded “Yes” to having attended trade/vocational schools (but not business/commercial schools) AND who did not attend university or college as defined above were counted as being trade/vocational participants. For overall postsecondary education participation, any participant who responded “Yes” to having attended university, community college, institute of applied arts and technology, CEGEP, or trade/vocational schools (but not business/commercial schools) were counted as being postsecondary education participants. In each case of non-response to a question, the respondent was excluded unless a direct imputation could be made (i.e., a non-respondent to the Trade participation question clearly did not have a highest level of postsecondary education participation of Trade if they responded “Yes” to attending college).

Socio-economic variables

The socio-economic variables considered in the study are comprised of: parental education, region of residence at the age of 16, rural/urban classification at the age of 16, gender, after-tax family income quartile at the age of 16, and family composition at the age of 16.

Parental education is the highest level of education completed by a person’s mother and/or father. Here, postsecondary education includes: non-university certificate or diploma (e.g. community college, CEGEP, teachers’ college, school of nursing, trade or vocational school, etc.); university degree (no level specified); bachelor’s degree; and university degree above Bachelor’s (e.g. MA, PhD, medical degree). No postsecondary education includes: elementary school (includes no schooling); some high school; and completed high school.

For Panel 1, the parental education variable from the student’s record had a high non-response (664 records out of a final 1,825 records - 36% non-response). For Panel 2, the problem was less severe (148 records out of a final 1,897 records – 8% non-response). To deal with the problem, the same approach used in Knighton

and Mirza (2002) was used. That is, we derived it directly from the parents' records (which is available since SLID is a household survey). This reduced the non-response to 10% for panel 1 and 5% for panel 2.

Region of residence is based on the province in which the economic family of the respondent resided in on December 31 of the year in which the respondent turned 16. Here, the Atlantic Provinces include: Newfoundland, Prince Edward Island, Nova Scotia, and New Brunswick; the Prairies includes: Manitoba, Saskatchewan, Alberta. Ontario, Quebec, and British Columbia are treated as three separate regions

Urban/rural identifies whether the household was in an urban or rural area as of December 31 of the year in which the respondent turned 16. A definition of rural which identifies individuals living outside of CMAs and CAs (also referred to as Rural and Small town or RST) is used. A CMA has an urban core of 100,000 or over and includes all neighbouring municipalities where 50% or more of the labour force commutes to the urban core. A CA has an urban core of 10,000 to 99,999 and abides by the same commuting rule as a CMA. This definition was chosen as the best representation of the urban or rural nature of the community to which 16 year olds are exposed. Since this definition is based on actual commuting patterns, it reflects the degree to which 16 year olds are likely to have access to an urban centre as well as the educational institutions.

After-tax family income is defined as the total family income minus the income taxes when the respondent was 16 years of age. The respondents are grouped into quartiles based on their after-tax family income. The 18 to 21 year olds in 1998 turned 16 in four different years – 1993, 1994, 1995 and 1996. Similarly, for the second panel they turned 16 in 1996, 1997, 1998 and 1999. The quartile that a respondent is assigned to is based on the income distribution for the particular year that the respondent turned 16. Table 1 shows the quartile ranges for the relevant years.

Table 1

Upper bound of income quartiles (current dollars)

Quartile	Panel 1 (\$)				Panel 2 (\$)			
	1993	1994	1995	1996	1996	1997	1998	1999
Lowest	30,400	33,100	31,300	31,000	30,700	33,300	34,300	33,700
Lower-Middle	46,800	46,200	48,000	48,100	48,100	48,800	50,400	51,500
Upper-Middle	65,400	60,500	61,800	65,700	66,200	66,200	72,300	74,100

Family composition identifies the structure of the family in the year in which the respondent turned 16. The child either belongs to a “one-parent” family if he/she resides with only a parent that is divorce or not-married, or a “two-parent” family if he/she resides with the parents that are married or in a common-law relationship, or an “other” category family for all other situations (i.e., lives with one parent in the grandmother’s place of residence, etc.).

Culture, Tourism and the Centre for Education Statistics Research Papers Cumulative Index

Statistics Canada's **Division of Culture, Tourism and the Centre for Education Statistics** develops surveys, provides statistics and conducts research and analysis relevant to current issues in its three areas of responsibility.

The **Culture Statistics Program** creates and disseminates timely and comprehensive information on the culture sector in Canada. The program manages a dozen regular census surveys and databanks to produce data that support policy decision and program management requirements. Issues include the economic impact of culture, the consumption of culture goods and services, government, personal and corporate spending on culture, the culture labour market, and international trade of culture goods and services. Analysis is also published in *Focus on Culture* (87-004-XIE, \$8, <http://www.statcan.ca:8096/bsolc/english/bsolc?catno=87-004-X>).

The **Tourism Statistics Program** provides information on domestic and international tourism. The program covers the Canadian Travel Survey and the International Travel Survey. Together, these surveys shed light on the volume and characteristics of trips and travellers to, from and within Canada. Analysis is also published in *Travel-log* (87-003-XIE, \$5, <http://www.statcan.ca:8096/bsolc/english/bsolc?catno=87-003-X>).

The **Centre for Education Statistics** develops and delivers a comprehensive program of pan-Canadian education statistics and analysis in order to support policy decisions and program management, and to ensure that accurate and relevant information concerning education is available to the Canadian public and to other educational stakeholders. The Centre conducts fifteen institutional and over ten household education surveys. Analysis is also published in *Education Matters* (81-004-XIE, free, <http://www.statcan.ca:8096/bsolc/english/bsolc?catno=81-004-X>), and in the *Analytical Studies Branch research paper series* (11F0019MIE, free, <http://www.statcan.ca:8096/bsolc/english/bsolc?catno=11F0019M>).

Following is a cumulative index of Culture, Tourism and the Centre for Education Statistics research papers published to date

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81-595-MIE2003006	Who goes to post-secondary education and when: Pathways chosen by 20 year-olds
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81-595-MIE2003009	Issues in the design of Canada's Adult Education and Training Survey
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81-595-MIE2004020	Culture Goods Trade Estimates: Methodology and Technical Notes
81-595-MIE2004021	Canadian Framework for Culture Statistics
81-595-MIE2004022	Summary public school indicators for the provinces and territories, 1996-1997 to 2002-2003
81-595-MIE2004023	Economic Contribution of Culture in Canada
81-595-MIE2004024	Economic Contributions of the Culture Sector in Ontario
81-595-MIE2004025	Economic Contribution of the Culture Sector in Canada – A Provincial Perspective
81-595-MIE2004026	Who pursues postsecondary education, who leaves and why: Results from the Youth in Transition Survey
81-595-MIE2005027	Salaries and salary scales of full-time teaching staff at Canadian universities, 2002-2003: final report
81-595-MIE2005028	Canadian School Libraries and Teacher-Librarians: Results from the 2003/04 Information and Communications Technologies in Schools Survey
81-595-MIE2005029	Manitoba postsecondary graduates from the Class of 2000 : how did they fare?
81-595-MIE2005030	Salaries and salary scales of full-time teaching staff at Canadian universities, 2004-2005: preliminary report
81-595-MIE2005031	Salaries and salary scales of full-time teaching staff at Canadian universities, 2003-2004: final report
81-595-MIE2005032	Survey of Earned Doctorates: A Profile of Doctoral Degree Recipients
81-595-MIE2005033	The Education Services Industry in Canada
81-595-MIE2005034	Connectivity and ICT Integration in First Nations Schools: Results from the Information and Communications Technologies in Schools Survey, 2003/04
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