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The Cultural Determinants of Access to Post-Secondary (Higher) Education in Canada

Empirical Evidence and Policy Implications

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Introduction

In Canada – as in most other developed countries – students, parents, policy-makers, employers, academics, and many others are concerned about a range of issues regarding post-secondary education (PSE; sometimes called ‘higher’ or ‘tertiary’ education). Access to PSE continues to be at the top of that agenda, driven by two principal concerns. First, is a general recognition that, in the knowledge economy, both individual economic success and macroeconomic growth are reliant on the skills developed through PSE. Further, other aspects of social progress – including health, civic engagement, and crime reduction – are also driven by education at the PSE level (along with the primary and secondary levels), even though the precise causal mechanisms remain an area of contention.¹ Second, interest in PSE relates to equity. In a context where it is well understood that for most individuals PSE is a life-changing – and generally life-improving – experience, providing all young people with the opportunity to access PSE regardless of their family background or socio-economic circumstances is one of the pillars of a just and fair society. Indeed, both the prosperity and equity agendas are increasingly understood to come together in a context where equalising PSE opportunities for traditionally under-represented groups – including lower income families, rural communities, and groups such as Aboriginal peoples – is understood to be critical for development.

Like other Western countries, Canada is also grappling with a demographic bulge in which many are about to enter retirement, while birthrates continue to be well below replacement levels.² These trends have substantial implications for the nation’s age-dependency ratio, as discussed by Denton and Spencer (2009), and are starting to put pressure on the labour force. As Picot and Sweetman (2012) point out, although sometimes proposed as a solution,

immigration cannot undo the pending problem. Widespread productivity increases are, therefore, an important route out of this looming crisis and their necessity underlines the importance of having a highly educated workforce (along with the complementary capital inputs), which brings us back to a discussion of access to PSE. In short, it is recognised that in the future, every Canadian will need to be as productive as possible and that schooling generally, including PSE, is fundamental to productivity increases.

Understanding the factors related to participation in PSE is therefore high on Canada's policy and research agenda, and the contribution of this paper is to discuss core related issues in a way that we believe will be of interest to those in other countries. To do this, we first describe the Canadian PSE and broader educational context. The context has similarities to that of other countries, but also some important differences that may be of interest to researchers and policy makers elsewhere. We then briefly review the standard/conventional human-capital (optimisation) model of schooling decisions that has dominated research and policy making, at least from an economics perspective, for at least the last several decades. Finally, we present some key empirical findings taken from a body of research undertaken in Canada primarily using the Youth in Transition Survey (or 'YITS'), a remarkably rich PISA-based longitudinal data set that has shed entirely new light on the determinants of access to PSE in Canada.³

While we do not reject the basic tenets of the standard human capital investment model, which essentially posits that individuals consider the up-front costs and future benefits of PSE when making their schooling decisions, we think that cultural factors need to be taken into account – and these may in fact be the most important determinants of who accesses PSE. More specifically, the Canadian YITS-based evidence (along with other research findings) suggests that if a child is *taught to value PSE*, is *prepared for PSE* (academically and otherwise), and *sees a place for themselves in the PSE system*, there is a high probability that the child will *participate in PSE*, and – in particular – costs will not be a very important factor, or barrier, at least in the current Canadian context.

We see our work as consistent with the developments that have been taking place elsewhere, especially in the United States, led by the work of James Heckman and various co-authors, including Cameron and Heckman (2001), Carneiro and Heckman (2002), and Cunha and Heckman (2007). That research also emphasises the importance of early childhood development and points to the importance of what happens early in a child's life, as opposed to family income, financial constraints, and other financial factors that come into play only at the end of high school and the subsequent years when final PSE decisions are made.

Policy implications follow from these developments and they are striking. To increase the PSE participation rate, or to level the PSE access playing field

for under-represented groups, we should adjust our policy levers from their past (and mostly current) emphasis on financial tools (i.e. tuition fees and student financial aid strategies) to focus on these newly identified cultural factors, as well as determinants that operate from early childhood up until early high school. To be specific, it could be more important, for example, to take children starting at a young age to visit college and university campuses and to otherwise bring the idea of going to PSE into their thinking, to foster academic preparation, and to ensure they receive the academic counselling and support needed, than to provide increased student financial aid or be obsessively concerned about the precise levels of tuition fees. It is not that these latter have no importance, but at current levels they are not the primary drivers of PSE participation. Of course, if tuition continues to increase, then financial factors will undoubtedly grow in importance. In the US context, Lochner and Monge-Naranjo (2011) argue that tuition is a growing determinant of PSE access as well as influencing selection among universities (and PSE programs as discussed below) for those who do attend. The return to education for the marginal student would also be affected.

This line of thinking – in the Canadian context, grounded in the evidence based on the YITS (as well as other data sources) – has started to influence strategies regarding access to PSE. For example, a recent report by the Organisation for Economic Co-operation and Development (OECD, 2012: 98) citing research undertaken using the YITS notes that: ‘More recent research suggests that it is non-financial factors such as family background and high school performance that have the greatest influence on tertiary participation in Canada.’ Some may find Canada to be an interesting special case in these regards, while others may feel that these issues resonate and that some of what has been learned in Canada may apply to other situations.

The Canadian PSE System(s)

The Structure of Canada’s PSE ‘Systems’

Canada’s PSE architecture has a number of features that distinguish it from other countries, although some characteristics are similar to those found in Australia, New Zealand, and the United States, in particular. One defining political/legal feature with substantial implications for education is that Canada is extremely decentralised. Under the constitution, almost all education (at all levels) falls entirely under the jurisdiction of the ten provinces and three territories (except for Aboriginals living on reserves, members of the armed forces, and inmates of federal prisons, which fall under federal jurisdiction). Canada is unique, in fact, in that there is no ministry of the federal government that is responsible for education, although the department that is generally concerned

with the labour market and related issues (currently called Employment and Social Development Canada) has branches that focus on 'learning', 'skills' and related matters.

As a result of the federal structure, the various provincial education systems have varied quite significantly across Canada's provinces and territories, although there are common patterns and some convergence over the last few decades. For example, young people now normally complete 12 years of primary and secondary education. The province of Québec is an exception to this and a variety of other issues, and students there complete 11 years to attain a high school diploma (but see below on their college system). A few decades ago, students in Newfoundland also finished high school at grade 11, and students in British Columbia and Ontario attended grade 13 if they (mostly) intended to attend university but grade 12 otherwise.

Within PSE, Canada is distinguished by having an extensive college system alongside its more conventional university sector. A variety of terms including 'community college', 'college', 'polytechnic' and the relatively new 'university-colleges' are used to refer to what the OECD would (mostly) classify as tertiary type-B (ISCED 5B), and university to tertiary type-A (ISCED 5A), although in some cases the distinction between traditional colleges and universities is being blurred.⁴ College programs are commonly two years long, although they may be shorter or longer, and they are typically 'vocational', or job/career focussed, rather than 'academic'. Most trade schools (with their related apprenticeship programs) are considered PSE in Canada, and are also typically housed in colleges. Colleges are found not only in the larger cities, but also in smaller centres where no university is placed, and are often geared to serve the local economy to at least some degree. They are often relatively small as well, although the larger ones can have tens of thousands of students and be as large as, or larger than, many universities. Québec has a distinct approach where CEGEPs (i.e. 'Collège d'enseignement général et professionnel'; or, in English, General and Vocational College) follow high school and offer two-year programs for those planning to attend university, and (normally) three-year programs for those entering the workforce directly after graduation. It is meant to be an environment that brings the two 'streams' together and allows for cross-over between them, although it is not clear how much interaction there is in practice.⁵

Undergraduate university programs are most commonly four years long, except in Québec where three years is the norm owing to the CEGEP system. Some jurisdictions make distinctions between three-year 'general' and four-year 'honours' undergraduate degrees. There are, however, several variations. For example, college-based university transfer programs, whereby students take one or two years at a local college and then transfer to a university, are very common in the Western provinces (Alberta and British Columbia in

particular); they remain relatively rare in the East, but there is increasing pressure to facilitate credit transfer there. Conversely, certain college programs effectively or formally require university degrees as prerequisites; they are often billed along the lines of ‘Go to university to get an education – then go to college to get a job’.

PSE pricing also varies significantly by province. Statistics Canada reports that average undergraduate student tuition in 2013/14 was Canadian \$5,772, but this varied from \$2,644 in Newfoundland and Labrador, and \$2,653 in Québec, to \$6,394 in Saskatchewan and \$7,259 in Ontario.⁶ Specialty, typically professional, programs sometimes faced much higher tuition with the extreme being undergraduate dentistry at \$17,324. In recent years, tuition has been increasing at a faster rate than inflation. Not unusually, average tuition went up by 3.3 per cent in 2013/14 compared to a year earlier, whereas inflation was 1.3 per cent. Average graduate student tuition is higher but has a similar pattern with elevated tuition in professional programs. Beyond tuition, students also need to pay mandatory ancillary fees that in 2013/14 averaged \$817 for undergraduates.

Figure 8.1 depicts the cross-sectional relationship between tuition levels and university enrolments across Canada’s ten provinces.⁷ The horizontal axis is the ‘sticker price’ (ignoring student aid, tax credits and the like) for undergraduate tuition for each province for Canadian students,⁸ while the vertical axis is the proportion of those 18–24 who are enrolled in universities in that province in 2011/12. There is no obvious relationship between tuition and the proportion of youth enrolled. In fact, a regression through these data indicates an initially counterintuitive positive, but not statistically significant, relationship. Of course, this is a simple correlation that does not address the make-up of the student body and a host of other issues; more sophisticated analyses that pursue causal relationships are discussed below.

In support of higher education, the federal government transfers money to the provinces and territories (in different ways and by different programs over the years), but these are block transfers with no assurances that the money is spent on PSE. Provinces of course also contribute different amounts to PSE from their independent tax revenue. Moreover, the federal government has a duty to redistribute so-called equalisation payments to ‘have not’ (i.e. less wealthy) provinces so that public services can be provided on an equitable basis to all citizens. This has ramifications for access to PSE (as well as providing funds to support the quality of any provincial or territorial PSE system) since limited taxing opportunities in the poorest parts of the country need not limit those regions’ education systems.

Student financial aid is funded jointly between the federal and provincial governments, although students are not always aware of the dual nature of the programs. The federal role is anchored by the Canada Student Loans Program (CSLP), which has been a pillar of the Canadian student financial aid system since

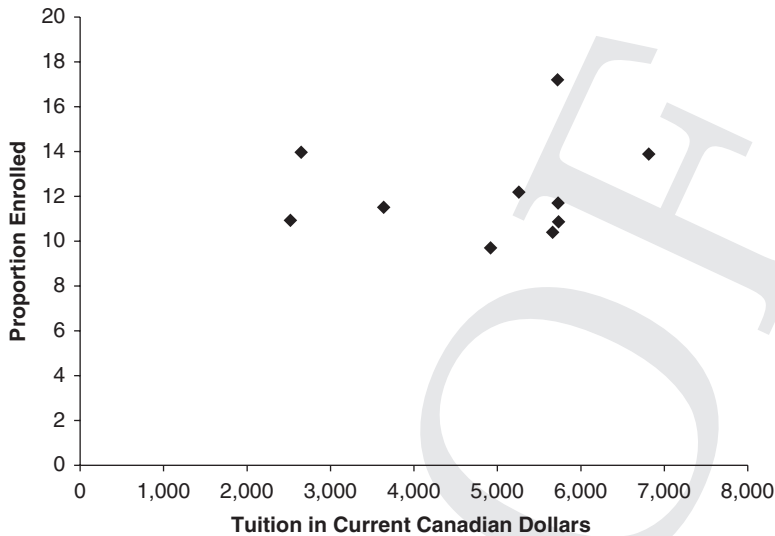


Figure 8.1: University Enrolment as a Proportion of the Population Aged 15–29 by Province, 2011/12

its introduction in 1964. The CSLP tends to work in a coordinated way with each province's own counterpart aid programs, but again this leaves room for provincial/territorial differences, as discussed (along with related issues) in Finnie and Usher (2006), Finnie, Usher and Vossensteyn (2004), and Neill (2013). Various other mechanisms are also employed by the federal government to contribute to student financial aid, including subsidised savings programs, grant programs, and quite substantial tax credits. For a discussion of student loan repayment see, Lochner, Stinebrickner and Suleymanoglu (2013). These are sometimes in unison with associated provincial/territorial programs with variation across jurisdictions.⁹

These public finance issues are central for access issues in Canada since essentially all Canadian community colleges and universities are public rather than private institutions (or are not-for-profit institutions whose characteristics essentially render them public) for whom public funding makes up the greatest part of their revenues.¹⁰ An increasing number of (mostly) small, private, for-profit career colleges have been founded in the last two decades or so (they tend to fall into the ISCED 4 (and mostly 4B) category), providing short labour-market-oriented training courses, but they still make up only a very small percentage of all PSE students in Canada.

Diversity ensues. In fact, fact there is so much diversity that some aspects of PSE, even within some provinces, are perhaps best described not as a 'system' but as a public-sector 'regulated market' with important constraints such as caps on government transfers to institutions and tuition maximums. Across

Table 8.1: Tertiary Educational Attainment by Country (% Rates)

	Age 25–64			Age 25–34		
	Total	Community College	University	Total	Community College	University
Canada	51	25	27	57	26	31
Korea	40	13	28	64	25	39
Japan	46	20	26	59	24	35
Ireland	37	15	22	47	16	31
United Kingdom	38	10	29	47	8	39
Norway	37	2	35	47	1	46
Luxembourg	36	12	24	47	14	32
New Zealand	39	16	24	46	15	31
Israel	45	15	30	45	13	32
Australia	38	10	27	45	10	35
United States	41	10	31	43	10	33
France	29	11	18	43	16	27
Sweden	34	9	25	43	9	34
Belgium	34	18	16	42	19	23
Chile	29	12	17	41	15	27
Switzerland	33	11	22	40	9	30
Netherlands	32	3	29	40	2	38
Finland	38	14	24	39	2	38
Iceland	33	4	29	39	3	37
Spain	31	9	22	39	12	27
Estonia	36	12	24	39	12	27
Denmark	33	6	27	39	5	33
Slovenia	23	11	12	34	13	21
Greece	26	8	18	33	12	21
Hungary	21	1	20	28	2	27
Germany	26	11	15	28	9	18
Slovak Republic	18	1	17	26	1	24
Mexico	17	1	16	23	1	21
Austria	19	7	12	21	5	16
Czech Republic			18			25
Italy			14			21
Poland			24			39
Portugal			15			27
Turkey			14			19

Source: OECD (2013). Columns (1) and (2) are from table A1.1a, and columns (4) and (5) from A1.3a. Notes: University is labelled tertiary type A, and community college tertiary type B, by the OECD. Community college typically has shorter and more vocationally-oriented programs.

provinces there are significant differences in college and university tuition policies, student financial-aid packages, program offerings, and enrolment rates, along with a host of other factors. Nevertheless, there remains broad uniformity as compared to the differences found within some countries. Furthermore, while differences in access rates and the patterns of participation in PSE across Canadian provinces and territories exist, the broad determinants of access tend to be relatively similar – including the cultural factors focused on in this paper.

Beyond funding, Finnie, Laporte and Sweetman (2010) and Ferrer and Riddell (2002), point out that an important aspect of the Canadian education system is the many opportunities for ‘bouncing back’ after dropping out of either high school or PSE. For example, it is entirely possible to drop out of high school and subsequently attend college or even enter some university programs as a mature student (once over a certain age – often between 21 and 25). Alternatively, college can sometimes be used as a way of getting into university for those missing high school requirements. These opportunities, and the degree to which Canadians avail themselves of them, help explain why Canada is often observed to have relatively high secondary-school dropout rates, yet, measured at higher ages, also relatively high secondary-school completion and PSE access/attainment rates.

Looking at graduation rates – or PSE attainment – at the national level, the net outcome of the Canadian PSE system, as depicted in Table 8.1, is that relative to other OECD countries, Canada has a relatively high university-graduation rate, and an extremely high college-graduation rate. Tertiary educational attainment is presented for those aged 25 to 64 in the first three columns, and for those aged 25 to 34 in the last three. Aside from Canada, which is located at the top of the table for comparison purposes, the rest of the OECD countries are sorted according to total tertiary attainment for those aged 25 to 34, although the results for those 25 to 64 are quite similar. For the broader age group, Canada’s rate of tertiary educational attainment is, at 51 per cent, the highest in the OECD, although for the 25 to 34-year-olds the total is surpassed by Korea and Japan. However, what propels Canada to the top of this league table is not the share of its population with a university degree – which is rather average (especially as many other countries have caught up with Canada in recent years) – but the percentage with college diplomas. It is important to keep these magnitudes in mind when interpreting the access rates and patterns of access presented below.

How PSE Places are Created and Allocated in Canada

At the risk of oversimplifying, since funding models differ both across provinces and within provinces for colleges and universities, we sketch out some

issues of the Canadian system at a very abstract level, with the description being somewhat more relevant to universities than colleges. Canada's PSE system can be thought of as having a supply side (represented by the number of seats at PSE institutions) and a demand side (represented by the number of youth who wish to study in different programs). However, price (tuition) is both regulated (i.e. maximums are imposed) and subsidised (i.e. in most provincial funding models, in addition to tuition the institution receives a fixed government transfer for each student) with the total subsidy effectively capped in most cases. The subsidy stimulates demand on the student side, but where there is a cap on tuition and limited per student transfers from government, PSE institutions are unwilling to accept students beyond some threshold. Excess demand ensues since the equilibrium of supply and demand is usually (in most provinces and most years) constrained. Given that the equilibrium is usually on the constraint side, the number of students in the system, which determines overall access rates (as conventionally defined – see more on this below), is determined in large part by government policy, especially that regarding tuition and the subsidy (although other factors such as the level of remuneration of PSE staff, institutional efficiency, and the like, also play roles.)

Further institutional detail may be helpful here. Although there are differences across provinces, by and large universities in Canada are independent institutions run without any direct control on the part of governments. Colleges do not generally enjoy this same level of independence and are sometimes subject to somewhat more direct management by governments. But again, they are largely free to make their own decisions regarding program offerings – in terms of both numbers and areas of study.

Student demand is frequently conceptualised in a cost-benefit framework, with decision-makers (including students and their families) weighing the expected future benefits against the up-front costs. At least that's the conventional approach adopted by neoclassical economists, regarding which we will have more to say below.

Since there is excess demand for university (less so for college, in general, although many programs have limited enrolment which also leads to excess demand), access is competitive and is rationed based on entrance criteria, especially for more attractive programs: most commonly, high school marks, or a mixture of high school marks together with matriculation exam results in Québec or other exit exams in provinces where they are employed.¹¹ This implies that, to some degree, access relies upon academic preparation, although potential students who are willing to be flexible regarding their location and subject of study are more likely to be admitted somewhere than those who are less flexible, since some programs and institutions may have excess supply in some years. Overall, this context again points to cultural and social factors that drive access on the high-school academic outcomes margin as opposed

to financial issues, since within the overall totals *who* goes is determined by i) which particular individuals (youth) *want* to go, and ii) their *preparation for PSE*, since spots are essentially allocated by marks and any prerequisites.

Of course significant changes in provincial and territorial funding regimes can change incentives for institutions and prospective students, and thus affect capacity over time. In particular, many provinces – precisely out of wishes to increase PSE enrolment – rewarded institutions with increased incentives to grow by adjustments to their per-student funding formulae in the 1990s, and one of the results was a subsequent expansion of the number of students on campuses. There are also demographic elements to access across long periods of time, with those in smaller birth cohorts more likely to attend than those in larger ones. At present, the ‘baby boom echo’ is reaching the ages at which they are most likely to attend PSE and enrolment rates are expected to increase as institutions and governments maintain enrolment levels. With this context and institutional setting now established, we now turn to issues of access *per se*.

Models of Schooling Choice

We begin with the standard human-capital model of schooling choice. A useful expression of this approach bringing empirical and theoretical aspects together is by Card (2001). This model posits that individuals (with some decision-making by families in the case of youth) will make choices based on the available information so as to maximise their lifetime utility. PSE involves up-front financial costs, related to both the associated direct costs (tuition and other student fees), as well as the opportunity cost of being in school rather than earning money. Income is one element of this decision, but it need not even be the major consideration for all potential students, as reflected in the low explanatory power of many empirical attempts to estimate the relationship. Psychic costs and benefits are permitted in the theoretical model, and education is allowed to be a consumption good (or bad as the case may be), but in much empirical work this ‘black box’ aspect of the model, which is clearly remarkably large, is neglected in favour of easier to measure financial factors. Using US data, Heckman, Lochner and Todd (2005) also point to the large psychic costs of schooling to explain why individuals do not pursue PSE despite apparent appreciable financial rewards to attendance.

Who goes to PSE according to this model? The answer is those for whom it is worthwhile, that is, those for whom the future benefits outweigh the up-front costs. Those who attend will include, in particular, students who are better at school and who will benefit more from the schooling in the post-schooling period (e.g. the schooling will result in relatively higher earnings and other improved career opportunities).¹² This decision-making process not only seems reasonable in many ways, but can be demonstrated to have many desirable

welfare maximising properties at the societal level. In essence, those who go to school are those who 'should' go – at both the individual and societal levels. Those who do *not* go, *should* not go. The only problems occur where individuals cannot afford the schooling.

A focus on affordability (liquidity constraints) as the principal 'barrier' to PSE has followed from this analytical framework. For example, the typically observed correlation found between family income and PSE participation rates has usually been interpreted as evidence of the existence of financial barriers. Reflecting this, policy has mostly been concerned with eliminating those barriers: keeping tuition fees down, providing student financial aid, and so on, so that those who *decide* to go (and are admitted), are *financially able* to go.

However, in making utility-maximising education choices, individuals are hypothesised to pursue education up until the point that the marginal private benefit of the next increment of education equals the private marginal cost of the same. Simple versions of the model assume that individuals are knowledgeable about the choices available to them, have a constant discount rate, and are able to complete the complex calculations necessary to select the option which maximises lifetime utility in an environment with risky future outcomes. For simplicity in modelling, most economic analysts also assume that decision-makers are risk neutral. These are strong assumptions. Individuals may lack information about their schooling choices, may have internally inconsistent discount rates, may not be able to make all the required calculations in any meaningful way, or may simply not make choices that are utility-maximising in any long-run sense. Moreover, it has become increasingly clear that there is no one-time decision, but a lengthy pathway to PSE that starts at a remarkably young age. Currie and Thomas (2001) in the British context, and Finnie, Lascelles and Sweetman (2005) in the Canadian one, show that variables in early childhood are predictive of educational outcomes much later in life.

Empirical evidence increasingly suggests that preferences – related to the early exposure to 'the culture of PSE' – are important determinants of who goes on to college or university given current levels of financial support. Preparation for PSE, such as taking prerequisite high school courses and achieving the grades necessary to gain admittance, along with parental aspirations and other similar factors, seem to play a central role. In short, decisions regarding access to PSE are increasingly understood to involve a complex set of influences, experiences, relationships, and developments that are rooted in the family and start quite early in an individual's life. Rather than a well-informed calculation of the costs and benefits made near or at the end of high school, there are a series of decisions influenced by many hard to measure factors with each subsequent decision influenced by the outcomes of previous ones.

Below, we will see the importance of what is referred to here to as 'the culture of PSE' manifested in the empirical evidence in a number of ways. Parental

education, for example, turns out to be a much better predictor of whether a child will go to PSE than family income. In Canada, the children of almost all immigrant groups go to PSE (especially university) at considerably higher rates than non-immigrant youth – some at outstandingly high rates (as much as 90 percent in the case of the children of Chinese immigrants), and this holds almost regardless of not only family income level, but even of parental education – suggesting that the culture of PSE is determined by more than parental education.

Preparation also matters, as captured by grades and other test scores, which are in turn at least partly related to the cultural factors just enumerated. Financial barriers are cited by only a small minority of those who do not attend PSE, while being ‘not interested’, expressed in one form or another, is the main reason given. Finally, PSE decisions are in most cases made early, when the child is young, under the strong influence of family and community. In fact, in a substantial number of cases individuals ‘always’ knew they were going to PSE. ‘Culture’ thus appears to matter greatly to decisions regarding PSE. If we wish to expand opportunities for PSE, especially among currently under-represented groups, it is important to go beyond financial considerations and turn our attention to cultural factors.¹³

The Empirical Evidence on Access to PSE in Canada

The YITS Dataset

Much of the research discussed here is based on the Youth in Transition Survey (YITS) data (see Box 1). We also limit our synthesis of the Canadian literature to include mainly research conducted in over the past five to ten years, a period in which many researchers have used this data to produce interesting results. Earlier reviews on access to PSE in the Canadian context are provided by Mueller (2008a, 2008b).

Box 1: Overview of the Youth in Transition Survey (YITS)

Conducted by Statistics Canada beginning in 2000, the YITS is in essence a super-PISA. It subsumes the standard PISA survey, and also includes an array of questions related to education, experiences, demographic information asked of students, and their parents and schools. Sample sizes were greatly increased relative to the PISA norm, and the Cohort A of the YITS, upon which most of the evidence reported here is based, represents a national sample of approximately 26,000 student respondents who were 15 years of age at 31 December 1999.

The student component of the survey was conducted among the same respondents every two years until 2010, when the respondents were 25 years of age. The longitudinal structure of the survey allows researchers to follow young Canadians from their secondary schooling, into post-secondary schooling and the labour market. The YITS-A cohort thus allow researchers to study the factors behind accessing post-secondary schooling in a way that had not before been possible in Canada, and is quite likely the best dataset of its type in the world.¹⁴

A parallel Cohort B ('YITS-B') included young people aged 18–20 as of 31 December, was of a comparable size to the YITS-A, and followed respondents longitudinally to 2008. But, it does not contain a parental survey or school administrative data.

Financial Factors: The Importance of Tuition Fees and Family Income

We start our review with a focus on the financial factors that may affect access to PSE – the factors that have traditionally been the centre of attention of such studies. Care must be taken in interpreting these results since they rely for identification on within-province increases in tuition, ignoring cross-province variation, given its endogeneity. These, therefore, are more plausibly interpreted as causal impacts, which is a beneficial interpretation, but the question that they answer is quite narrow. In contrast, the cross-provincial evidence (alluded to above) shows no decrease and perhaps even an increase in enrolment rates with increasing tuition. While this correlation is clearly not a causal impact, it does suggest that within the current context, factors other than tuition play large, even dominant, roles in determining enrolment.

Johnson (2008) augments the YITS data with year-over-year changes in provincial tuition fees (real tuition and fees, less real tax credits).¹⁵ Like most preceding Canadian studies, he finds that neither the gross nor net level of tuition is strongly associated with access, even when the changes in tuition are relatively large. Like Johnson, but using the Survey of Labour and Income Dynamics instead of the YITS, Coelli (2009) uses the variation in tuition fees across provinces through the 1990s and finds that fee increases coincided with reductions in the university enrolment of low-income youth, with much smaller changes in the university enrolment for other youth.

Neill (2009) uses an instrumental variables approach to get at tuition fee effects over the 1979–2002 period while adjusting for endogeneity. Using the party in power in each province in each year as an instrument, she finds using Labour Force Survey data that a \$1,000 increase in tuition is related to a decrease in university enrolment of between 2.5 and 5 percentage points, the

effect being concentrated for children from families where parental education is modest (i.e. some PSE or less). Given that average tuition fees in her data were around the \$2000 mark, this represents a fairly modest response to a relatively large percentage change in fees.

Frenette (2005) takes a different approach with respect to the estimation of the effects of tuition fees, arguing that these effects could be difficult to identify owing to the fact that in Canada changes in fees tend to be small and gradual. He therefore uses the deregulation of professional program fees (e.g. medicine, dentistry and law) in Ontario in the late 1990s, which resulted in quite unusual and large fee increases in those fields. He then compared enrolment changes in Ontario to those in other jurisdictions where tuition fees did not increase so dramatically. While overall enrolment was not affected, consistent with some earlier work, his findings suggest that these large tuition increases can affect who goes. Middle-class students (proxied by parental education) were affected most by the fee increases. He hypothesises that, unlike those from lower-income families, students from middle-income families were somewhat sensitive to the tuition increases but not eligible for the increased student aid, while the higher fees simply did not deter students from higher socio-economic-status families.

Interestingly, comparing the US and Canada, Belley, Frenette and Lochner (2011) estimate substantially smaller PSE gaps by parental income in Canada, even with controls for family background and cognitive achievement. However, they also observe that that US public tuition and financial aid policies are more generous for disadvantaged students. Finances are clearly not at the heart of this international PSE gap.

Finnie and Mueller (2008a, 2008b) adopt a different approach to get at issues related to financial barriers. They use the YITS-A data and a multinomial logit model to look at access to PSE, specifying three outcomes: attending college, attending university, attending neither. Increasing the number of regressors in a step-wise fashion, they find some interesting results. Most notably, the importance of family income in determining access to university by age 19 decreases greatly once parental education is included in the model. Figures 8.2 and 8.3 show the effect of parental income on the probability of accessing university for males and females, respectively. These are simply a graphical representation of the average marginal effects on university attendance from the multinomial logit model. We focus here (and below) on the university outcome, because this is where the access effects are most evident. When parental income is included in the model with a set of categorical variables (along with a set of basic demographic control variables), income is found to be strongly related to university participation for both young men and women (i.e. the bars to the left in each case). For example, for males, having parents whose combined income is over \$100,000 increases the probability of attending university by 19 percentage points over someone whose parents earned \$50,000–\$75,000 (the omitted

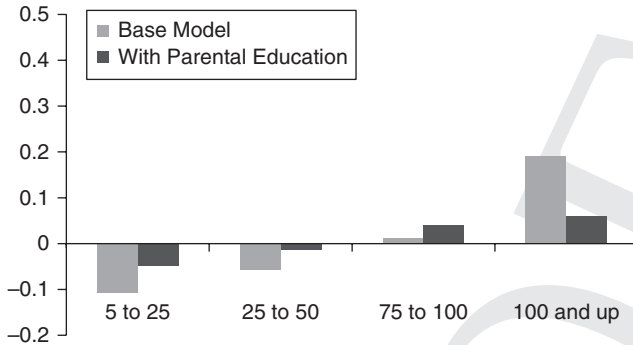


Figure 8.2: Marginal Effects of Family Income (1,000s \$CAN) on the Probability of Access to University, Males

category). Conversely, those at the lowest income variables are over 10 percentage points less likely to go – a range of about 30 percentage points in a context where the overall access rate is about 36 per cent.

Adding in parental education, however, dramatically reduces the estimated effect of parental income. That 19 percentage point high income effect is, for example, reduced to 6 points, and the overall spread drops to only around 10 percentage points. For females, the income effects are – interestingly – everywhere greater than they are for males, but the reduction in these effects is again very significant. Meanwhile, Figure 8.4 shows the effects of parental education on access (while controlling for family income and other control variables), and we see much greater effects on access than is the case for income once the education variables are included. For example, the difference in access rates between those whose parents have the highest education levels (a graduate degree) and those who have the lowest (less than high school completed) is 52 percentage points for males, while for females it is 49 points, and the other spreads across other different parental education levels are also substantial (e.g. having a university BA degree versus just high school).

In effect, including family income in the absence of including parental education represents a classic omitted variable bias. That is, an overstatement of the effects of income on access results, pointing to a financial barrier and affordability issues in an exaggerated fashion. We discuss the parental education effects themselves further below. As Finnie, *et al.* (2011: 7) note:

These findings present a fundamental challenge to our thinking about ‘barriers’ to PSE. It is perhaps not so much that those from low-income families are not *able* to go to PSE but that those from low-income families also tend to be from families whose parents do not have PSE, and that it is the

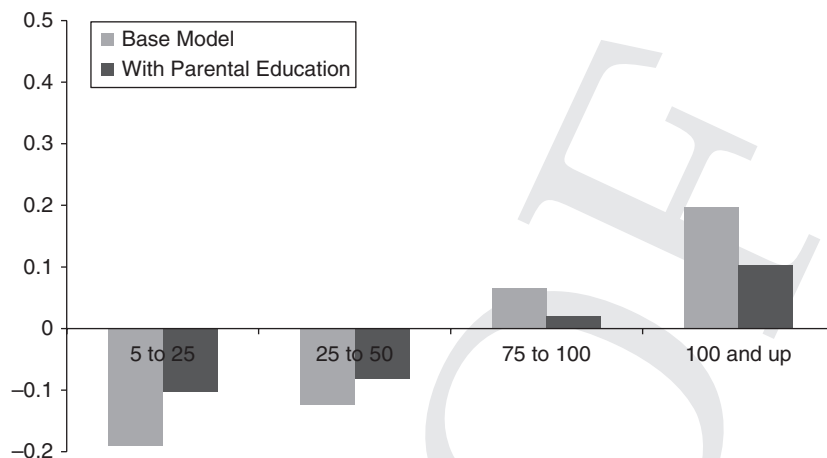


Figure 8.3: Marginal Effects of Family Income (1,000s \$CAN) on the Probability of Access to University, Females

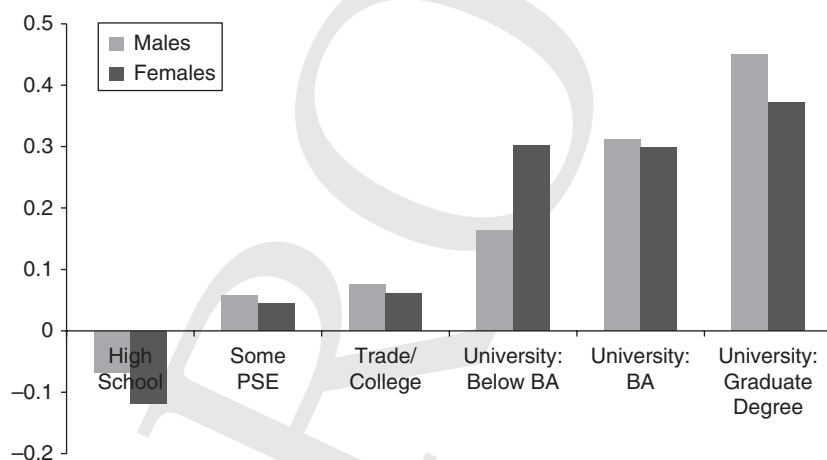


Figure 8.4: Marginal Effects of Parental Education on the Probability of Access to University, by Sex

transmission of values in favour of PSE, the preparation for PSE and other such factors associated with parental education – and not family income – that actually matter most [emphasis in original].

In a similar vein, using the YITS-A Frenette (2008) finds that while 31 per cent of young people from the lowest family income quartile had attended university

by age 19, compared to 50 per cent in the top quartile, that 96 per cent of this total gap can be explained by observable characteristics: 84 per cent of the gap being accounted for by standardised test scores, high school marks, parental influences, and the like, with only 12 per cent from self-reported financial constraints.

More direct evidence on barriers also casts doubt on the importance of financial factors. Finnie, Mueller and Wismer (2012) undertake a detailed analysis of the 25 per cent of young Canadians who *have not* attended PSE by the age of 21. Figure 8.5 shows the reasons young non-attendees give for why they have not gone on to PSE. Of this group, only 22 per cent (or 5.5 per cent of the entire sample) claim that finances constitute at least one barrier to entering PSE, whereas about 42 per cent of respondents indicated that there were no barriers, and about 22 per cent simply had high school as their target highest level of education. Further analysis looked at the reasons for not going to PSE and not holding a government loan. Their findings suggest that among even those who cite finances as a barrier, in most cases the schooling was not actually unaffordable. The underlying factor is that these individuals did not see the benefits of higher education relative to its cost. In other words, even ‘it’s too expensive’ or ‘it costs too much’ seems to mean ‘I didn’t think it is worth it’ rather than ‘I couldn’t afford it’. The policy implications of this are important.

Consistent with the findings thus far, in a recent review of the evidence Frenette and Robson (2011) conclude that most students overestimate the costs of higher education and underestimate the benefits. However, both these tendencies are considerably greater among young people from low-income families, which hinder them in estimating the value of schooling.

Carmichael and Finnie (2008) develop and test a related model using the YITS. They argue that students from low-income families are more likely to experience greater financial hardship while pursuing PSE (even if they can afford the schooling) since those from higher income families are more likely to receive transfers from their parents. This results in those from lower-income families being less likely to attend since they have to have higher expected post-graduation earnings to pay back the additional student loans. They conclude by suggesting that grants, and not loans, may be the appropriate policy to equalise opportunity.

Non-Financial Factors – Survey Evidence

While financial factors have preoccupied economists and policymakers, the preceding results seem to suggest that there are other ‘cultural’ factors, many of which are correlated with income, which may be the main cause of the under-representation of disadvantaged groups in PSE. A number of studies address broader issues of access across various dimensions of socio-economic

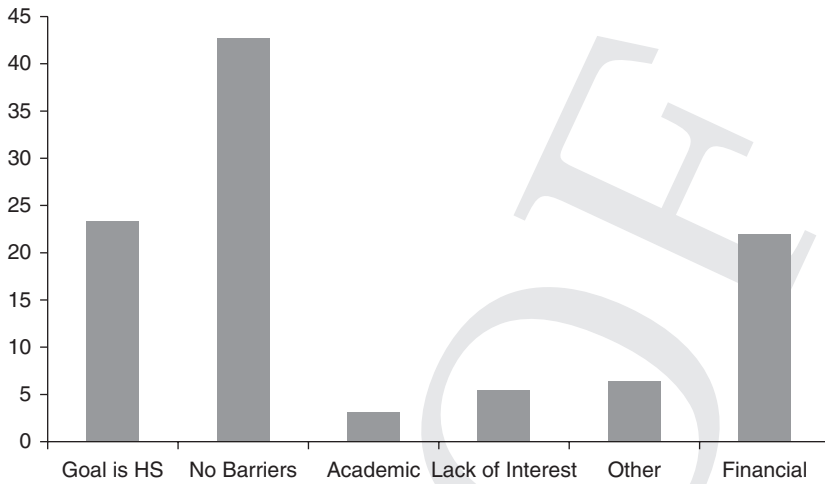


Figure 8.5: Among who do not Access, Barriers to PSE (% Distribution)

status. One important finding to emerge from the Canadian research is that parental education is a much stronger determinant of access than is parental income.¹⁶ Further, there is evidence (Finnie, *et al.*, 2005; Finnie and Mueller, 2008a, 2008b) that parental education works both directly and indirectly to enhance access. Indirectly, it influences high school grades, reading ability, and academic engagement, which are all positively correlated with the higher probability of attending PSE, especially university. This approach illustrates various mechanisms by which background factors operate from very early ages to influence post-secondary access. While the intermediate outcomes are in no sense predetermined by the background factors, these results emphasise the need to consider a sequence of decisions and outcomes across early childhood and youth that affect post-secondary participation, suggesting that a focus on liquidity constraints during post-secondary attendance reflects an incomplete understanding of the decision-making process.

Borrowing from the sociology literature, Childs, Finnie and Mueller (2010) use the concept of ‘cultural capital’ and relate this to tertiary school attendance. Cultural capital refers to ‘a specific set of ways in which parents pass their social status and economic opportunities on to their children. ... These processes involve the knowledge, experiences, and connections that help individuals to succeed in life ...’ (*ibid.*: 247). Using the YITS-A, they find that factors such as parents’ communicating with their children (whether on cultural matters or just more generally), cultural activities (e.g. going to concerts and museums), cultural *possessions* (e.g. the number of books in the home), and reading habits are all positively related to PSE access, university in particular, even

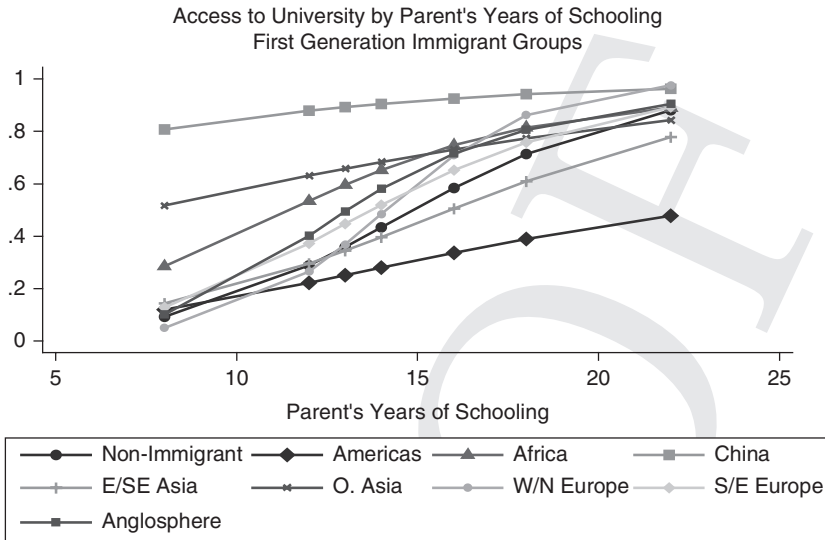


Figure 8.6: Access to University by Parents' Years of Schooling, First Generation Immigrant Groups

after controlling for parental education and income. While clearly endogenous, these correlations nevertheless point to a cluster of pre-PSE factors that are strongly associated with PSE attendance. *Something* differentiates families in these regards that is related to participation – and whatever it is that is going on has little to do with money. It points not to a single (cost-benefit) decision, but a cultural pathway.

Finnie and Mueller (2010) find a strong manifestation of these sorts of cultural factors using the YITS to look at PSE participation rates among first- and second-generation immigrants. Some immigrant groups, especially those from China, some other parts of Asia, and Africa, have very high participation rates even after controlling for the usual background characteristics, including parental education and parental income. Of those born in Canada, 37.7 per cent had attended PSE by the time they were 21 years of age. For first generation immigrants (who must have arrived by age 15 to be included in the YITS),¹⁷ it is 57.0 per cent, and for second generation immigrants (i.e. they were born in Canada to immigrant parents) it is 54.3 per cent. Indeed for some immigrant groups, such as the 1.5 generation (i.e. young immigrants) from China, university attendance rates are close to 90 per cent, with overall PSE attendance approaching 99 per cent once colleges are included. In other words, almost all first-generation Chinese immigrants attend PSE by age 21.

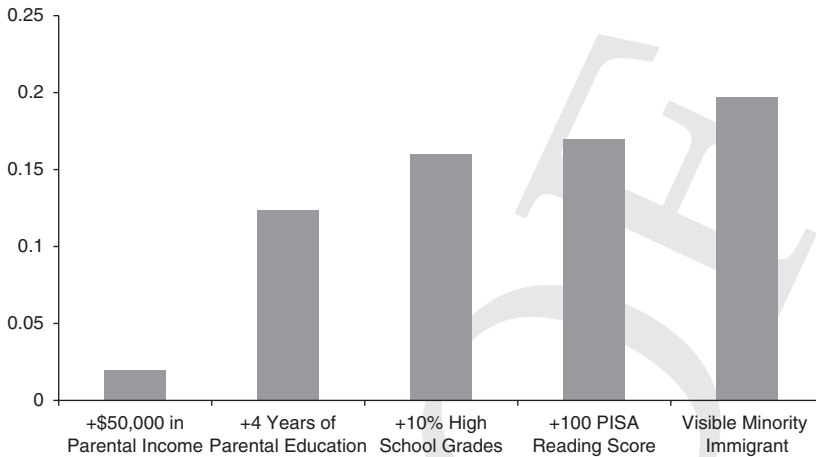


Figure 8.7: Marginal Effects of Student/Family Characteristics on the Probability of Access to University, Males and Females

That the young immigrants and second-generation Chinese immigrants go to PSE at very high rates regardless of their parents' education level is shown in Figure 8.6. So, while we previously argued that parental education is likely a marker for PSE-related cultural influences, here we see evidence of the existence of other cultural influences related to immigration status and country of origin. As Finnie and Mueller (2010) say: 'they just go'. The authors attribute these differences to differences in culture. In particular, the Chinese value education highly and thus will do whatever is necessary to send their children to PSE, and to university in particular.

Figure 8.7 rounds out this line of evidence by showing a range of influences on access to PSE. It shows the results of a model which includes family income and parental education in the form of single linear variables. Also included in this model, are high school grades at age 15 (expressed as the student's overall average in percentage terms); the student's PISA (Programme for International Student Assessment) reading score (range of 0–600 with a standard deviation of about 100); and an indicator of whether they are a visible minority immigrant (in this case meaning they came to Canada by age 15 in order to be included in the YITS). Careful interpretation is required, since grades and PISA scores may be at least partly related to the family background characteristics (thus diminishing their coefficients) and at least partly endogenous to the decision to go on to PSE if that decision has already been made, but it is nonetheless revealing.

First, the income effects are now very small: a (very large) difference in family incomes of \$50,000 is, for example, associated with only a 2 percentage point difference in university attendance rates. This further suggests that money in general, and affordability in particular, are not very important independent factors in determining university access. Second, parental education has a strong direct effect, with four years of education worth around 12 percentage points, or about six times the effect of \$50,000 of family income. Although these parental education effects are smaller than seen above, they represent those effects after controlling for grades and PISA scores, which are themselves at least partly affected by parental education (as well as income). Parental education thus has a sizeable 'direct' effect on participation, as well as a sizeable 'indirect' effect through grades and PISA scores. Third, the grade and PISA score effects themselves are strong. This again points to the importance of early preparation.

Finally, even with the other controls, being a visible minority immigrant is associated with university access rates almost 20 percentage points higher, on average, than those of non-visible minority students who were born in Canada. This is not the norm internationally. Canada is an outlier in the PSE participation rates of the children of immigrants, although Australia and New Zealand are somewhat similar. Contrasting to the US, Aydemir and Sweetman (2008) show that the Canadian composition of source countries explains some of the differences. Sweetman and van Ours (2014) provide an international comparison of educational outcomes across the immigrant generations pointing out the importance of national immigrant selection policy and a school system that actively accommodates new immigrants with, in particular, less 'streaming' or 'tracking' in the elementary and high school systems and the aforementioned ability to 'bounce back'.¹⁸

Focussing on what streaming there is in Canada, Krahn and Taylor (2007) look at the core courses students at various levels have taken during grade 10 (when students are 15 years of age) to ascertain implicit limitations on the range of options they can pursue going forward. They identified courses in maths, science and English that could be used to gain entry into university and then classified students' PSE options as open or restricted. They found that both parental income and education were positively correlated with the open options scenario.

Getting at another kind of cultural effect, Foley (2012) also uses the YITS data to find a significant relationship between university participation and the fraction of the adult population with at least a bachelor's degree in the neighbourhood where the child grew up.

Lefebvre and Merrigan (2010) use longitudinal data on the mental and physical limitations of young Canadians and how these relate to schooling outcomes. They note that these issues tend to be more prevalent among lower-income families. Similar to the vast literature on the importance of early childhood interventions (popularised by James Heckman and his colleagues), these results suggest that early interventions are important to ensure better schooling outcomes, and

are more important than raising incomes. In their words: ‘...despite the fact that being in a low-income family reduces the chances of attaining PSE, marginally increasing the income of these families (by a few thousand dollars) would only have a minor effect on the probability of attaining PSE. We find that inequalities in cognitive abilities, good health, and controlling hyperactivity and aggression are more important than income inequalities for PSE.’ (ibid.: 237).

Non-Financial Factors – Experimental Evidence

Oreopoulos and Dunn (2012) showed a three-minute video about the benefits of PSE to a group of lower-income high school students in the city of Toronto, as well as assisting the group with a financial-aid calculator. A short survey was administered to this group and a control group both before and after. Those who watched the video reported higher expected returns to education, expressed decreased concern about the costs, and expressed aspirations to complete at least a college diploma, with the effects being greater among those who first reported that they were unlikely to attend higher education. Information can thus be one of the mechanisms through which cultural influences operate. But there may also be remedies, and the authors argue that ‘inexpensive information campaigns to promote higher education are worth considering for promoting interest and access’ (ibid.: 3).

That said, while economists like the idea of information problems, because they fit the neoclassical model, and have commensurate policy implications, it is likely not ‘information’ that drives the children of Chinese immigrants to go to university at a rate of 90 per cent. The cultural influences surely go deeper, and if so, policies will have to address those more root factors.

Similarly, an experiment in the provinces of Manitoba and New Brunswick (Ford *et al.* 2012) found that combining substantial career education with large and pre-committed financial aid for higher education, all starting very early in high school, had statistically significant impacts on PSE enrolment for youth from low-income families. Though modest, these impacts passed a benefit/cost ratio justifying each government dollar.

What is interesting in both of these cases is that interventions were targeted early in high school and involved non-financial aspects, at least in part, whereas the traditional approach to equalising PSE opportunities has been to provide student aid at the point students are ready to begin their post-secondary studies. These results – as well as other evidence – suggest that this is too late.

When Decisions are Made

One last set of results lends further light on PSE choices. Figure 8.8 reports when college and university students say they made their PSE decisions from

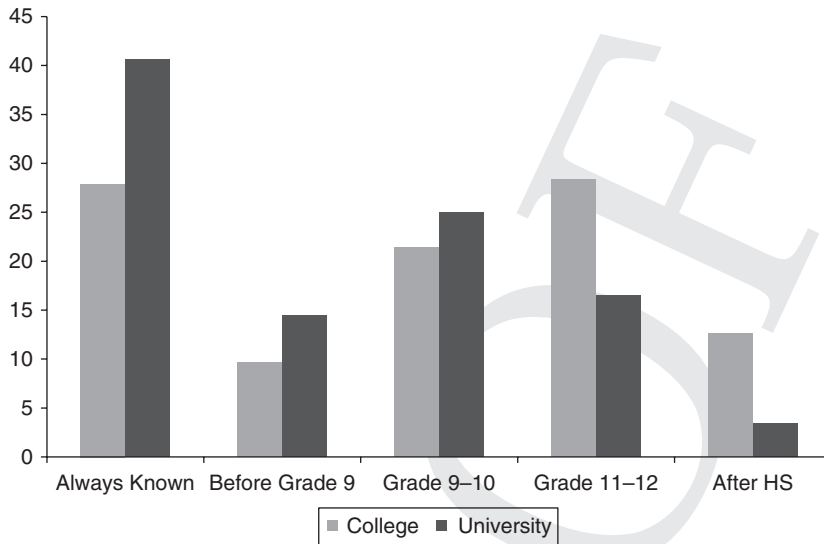


Figure 8.8: When Did Students Decide to Attend College or University? (% Distribution)

Finnie, Childs and Wismer (2011). Remarkably, a full 40 per cent of those who went to university said they had ‘always known’ they were going, and another 40 per cent said they had decided by grades 9 or 10 (age 15–16). That leaves only around 20 percent who said they decided towards the end of high school or later than that. These results, together with the evidence presented previously, such as by Finnie, Lascelles and Sweetman (2005), suggest that PSE decisions are made early, in many cases very early. Clearly, early family and broader cultural influences play a central role.

Conclusions and Policy Implications

Perhaps the most interesting and most policy relevant outcome of the recent Canadian research, much of it based on the uniquely rich Youth in Transitions Survey (YITS), is that the usual suspects like tuition fees and low family incomes – which would presumably be related to financial barriers – are not as important to determining who accesses PSE as was previously believed. This is not to say that money is not important, or that we can reduce financial aid or raise tuition fees and expect no negative results to follow. But it does argue that policies based solely on such factors, typically grounded in the standard neo-classical model of schooling choices, is almost certainly not going to equalise

post-secondary education (PSE) opportunities – and the life chances that go with them – in any meaningful way.

Culture and family background – as defined in the text – appear to be key determinants of PSE opportunities and choices, and we believe that policies should be developed and re-targeted accordingly. Indeed, the importance of non-financial factors seems to be seeping its way into policy circles in Canada. In the introduction to this paper we referred to a recent OECD report which reflected that movement, while in a recent Senate of Canada committee report (2011) on accessing PSE, the second of 22 recommendations states:

The committee recommends that the federal government convenes a meeting of provincial and territorial ministers of education to develop a strategy to address the non-financial factors (such as socioeconomic issues, family environment and K-12 education) in order to ultimately encourage all young Canadians to pursue post-secondary education.

(*ibid.*: vii)

The report continues:

Our knowledge of the key factors that influence participation and achievement in PSE has also grown considerably. It is now acknowledged that non-financial obstacles such as preparation for school, student motivation and parental influence are as significant as cost. In fact, the cost of PSE becomes an issue only if these non-financial barriers are overcome in the first place.

(*ibid.*: 1)

We concur, and we would urge other countries to begin to look at access to PSE through these emerging prisms. The underlying theoretical models also need to be expanded to consider the various influences affecting PSE attendance starting in the very early years of life. Clearly, policy needs to go far beyond making PSE affordable (although that remains a fundamental *sine qua non*) and to target not only children and youth, but also their families, their communities, and their schools in ways that help youth understand and appreciate the benefits of PSE, that allow them to see PSE as an opportunity that is available to them, and that prepare them for that option.

Notes

- 1 For example, education is generally understood to foster various kinds of human capital and related skill development, with Hanushek and Woessmann (2008, 2010) emphasising the importance of cognitive skills, whereas Heckman, Pinto, and Saveliev (2013) additionally

stress the value of personality or non-cognitive development from an early age. At the same time, schooling is correlated with important unobserved variables, making direct causal claims difficult. These issues are not new and have been surveyed by, among others, Krueger and Lindahl (2001) for the US, and Sweetman (2002) for Canada.

- 2 Between 2000 and 2011, the birthrate in Canada oscillated between 1.49 and 1.69 (CANSIM Table 102–4505).
- 3 PISA is the OECD's Programme for International Student Assessment (<http://www.oecd.org/pisa/>).
- 4 It is worth distinguishing terminology from that in the US. In Canada 'college' commonly refers to 'community college', whereas in the US 'college' usually refers to what Canadians would call a 'university'. Universities in Canada have the statutory authority to grant traditional bachelor's and higher degrees. Generally colleges do not have this authority.
- 5 There is no tuition for CEGEP, but most other province's colleges charge tuition.
- 6 www.statcan.gc.ca/daily-quotidien/130912/dq130912b-eng.htm?HPA (accessed March 2014)
- 7 There are no universities in any of the three territories. Comparable tuition data is not readily available for colleges.
- 8 Foreign students in Canada generally pay about twice the tuition of students who are Canadian residents. Again, the exception is Québec where all out-of-province students also pay higher tuition.
- 9 The federal government also provides direct research funding to PSE institutions and researchers, which includes substantial support for graduate students.
- 10 A small number of private tertiary Type A and Type B institutions exist, but they tend to have low enrolment and represent only a small percentage of students.
- 11 Unlike many jurisdictions internationally, Canada does not make much use of standardised testing (such as SATs in the US) for entry to undergraduate programs, and relatively few Canadian provinces have matriculation or exit exams and even when they do, they are used in conjunction with high school marks. An interesting study arguing that where such exams are used they are of benefit is by Bishop (2002).
- 12 If costs vary across individuals, as may be the case where some parents pay for their children's education and some do not, or the costs of financing the education otherwise differ, this can affect the decision as well, even beyond the affordability issue focused on here. See Carmichael and Finnie (2008).
- 13 Early work that touched on these issues includes Borjas (1992), where community norms are considered as important determinants of schooling choices. More recently, Finnie (2014) develops a broader argument regarding the importance of culture which draws upon behavioural economics.
- 14 See Motte, *et al.* (2008) for details on the YITS.
- 15 There is general agreement that it is necessary to use *changes* in fees to identify tuition fee effects because overall *levels*, which vary by province, tend to be related to other provincial factors that would also affect participation rates.
- 16 Work includes, but is not limited to, Butlin (1999), Drolet (2005), Finnie, Laporte and Sweetman (2010), Frenette (2007, 2008), among others.
- 17 However, as observed by Schaafsma and Sweetman (2001), immigrants who arrive in their late teenage years have poorer educational outcomes than those who arrive younger.
- 18 Sweetman (2010) provides a comparison of immigrant student outcomes in the American, Australian, and Canadian school systems.

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