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Summary of: The Impact of Tuition Fees on University Access: Evidence from a Large-scale Price Deregulation in Professional Programs

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Note of appreciation:

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

I. Introduction

Tuition fees in Canadian undergraduate programs have almost doubled over the last decade. The fee increases were not evenly distributed, being particularly large in professional programs: medicine, dentistry, and law. Overall, from 1995–1996 to 2001–2002,¹ tuition fees in Canada rose 160% in medicine, 200% in dentistry, and 80% in law, compared to 50% in all undergraduate disciplines.² These increases were largely the product of trends in Ontario, where fees in professional programs were deregulated in 1998, resulting in dramatic increases for medicine (286%), dentistry (370%), and law (173%). In contrast, Quebec and B.C. continued to regulate fees over the same period. In B.C., tuition fees fell moderately: 3% in medicine/dentistry and 5% in law. In Quebec, fees remained stable in law, while increasing somewhat in medicine (44%) and in dentistry (27%). Other provinces had already deregulated fees, or experimented with deregulation to varying degrees,³ resulting in fee increases for Nova Scotia, Manitoba, Saskatchewan, and Alberta, that lay somewhere between the two extremes of Ontario on the one end, and Quebec and B.C. on the other.

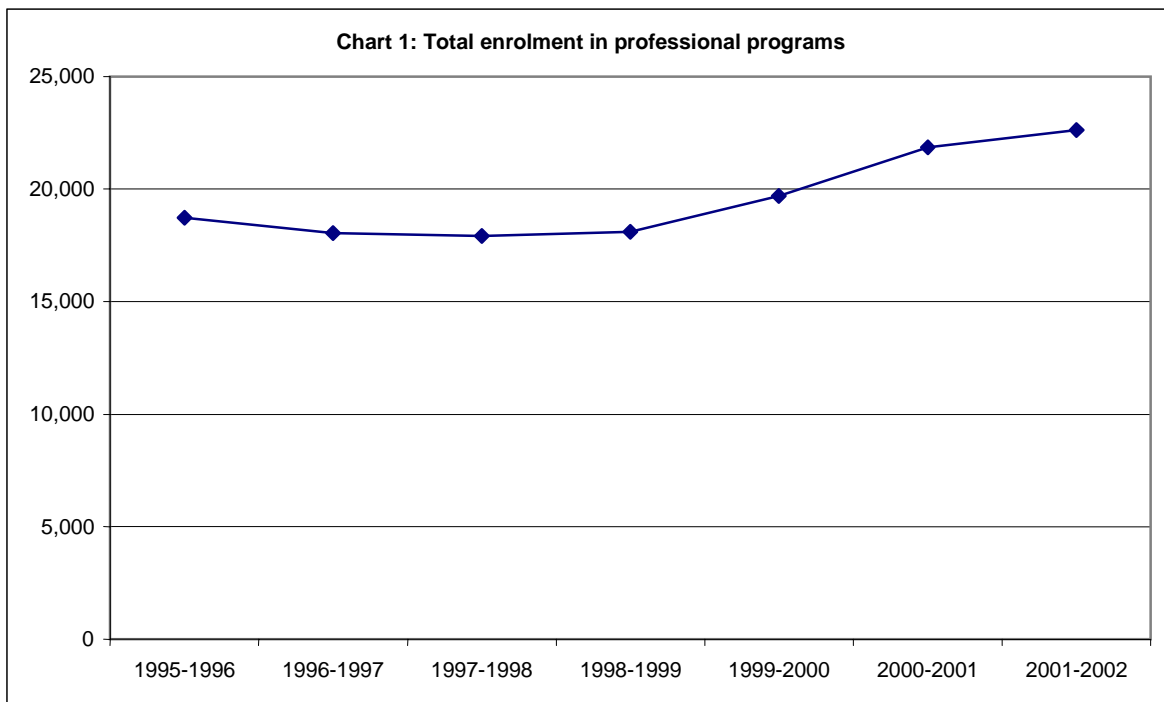
In most cases, deregulation consisted of lifting a price ceiling, which may result in an increase in both price and quantity (i.e., spaces available in the program). Furthermore, demand for professionals may have increased at the same time (e.g. the aging workforce may have increased demand for medical graduates). In fact, from 1995–1996 to 2001–2002, total enrolment rose by 21% (see Chart 1 for total enrolment numbers).⁴ But given the increase in fees, which students filled the extra spaces? To date, only two Canadian studies have examined the changing relationship between access to professional programs and socio-economic background. Kwong et al. (2002) found that the proportion of medical school students enrolled in their first year with less than \$40,000 in family income declined in Ontario between 1997 and 2000, but not in other provinces. Similarly, King et al. (2004) found that, between 2000 and 2003, in five Ontario law schools (University of Toronto excepted), there was an increase in the proportion of students from families in the top 40% of the income distribution and a decrease in the proportion from families in the middle 20%.

1. This period corresponds to the data available in this study.

2. “All undergraduate disciplines” include professional programs in medicine, dentistry, and law.

3. See Canadian Federation of Students (1998) for details on the deregulation of tuition fees across Canada.

4. Numbers were derived from Statistics Canada’s Enhanced Student Information System (ESIS). Unfortunately, it was impossible to isolate first-year enrolments.



Source: Data from Culture, Tourism and the Centre for Education Statistics.

In both studies (Kwong et al. [2002]; King et al. [2004]), only students currently enrolled in professional programs were examined. This is contrary in spirit to traditional access studies, which examine students “at risk” of attending. The current study will address this concern by focusing on recent university graduates and examining their probability of enrolling in professional programs as a function of their socio-economic background, as indicated by detailed information on parental education.

II. Data

The data are drawn from the 1995 and 2000 classes of the National Graduates Survey (NGS) of graduates from Canadian publicly funded postsecondary institutions. Respondents were interviewed two years following graduation (1997 and 2002). This time-frame spans the period before and after the introduction of the fee deregulation in Ontario professional programs. Detailed information is available for the program of study completed in the reference year (1995 or 2000), as well as for any further studies pursued in the following two years as part of a program normally lasting at least three months and leading to a postsecondary certificate, diploma, or degree.

Professional programs are defined as first professional degree programs in medicine, dentistry, and law. Students who have recently completed a bachelor’s degree,⁵ a master’s degree, or a doctorate without previously completing a professional degree are included in the study.⁶ Recent

5. Included in this definition are university certificate programs above a bachelor’s degree.

6. Master’s and doctoral graduates are combined, since the latter group is too small to analyze separately. Descriptive statistics suggest that students in both groups have about the same likelihood of pursuing a professional degree.

graduates are grouped into three categories according to the extent of tuition fee increases in their province⁷: no substantial increases (Quebec and B.C.); moderate increases (Nova Scotia, Manitoba, Saskatchewan, Alberta); and large increases (Ontario).

Although the NGS contains no information on family income, it is the only available data source allowing researchers to link the pursuit of professional studies to socio-economic background over the deregulation period for Ontario's professional programs. Specifically, the highest level of education of the father and mother is available. Therefore, this study looks at the highest level of education achieved by either parent: no postsecondary education, a non-university postsecondary certificate, a bachelor's degree, and an "advanced" degree (a master's, a doctorate, or a professional degree).⁸

The identification of the relationship between tuition fee increases in professional programs and socio-economic background is drawn from the substantial level of provincial variation in tuition increases observed in the late 1990s. The period of interest corresponds to the available NGS data and lies within the vertical lines (1995–1996 to 2001–2002). Since fees in professional programs were being deregulated in Ontario and, to a lesser extent, several other provinces, while fees in Quebec and B.C. remained regulated, this provides a possible source of exogenous variation in tuition fee changes.

The main covariate used is parental education, which rose moderately over the period. This is not surprising given that most parents in the sample likely completed their education about 30 years before, when postsecondary education underwent considerable expansion. In addition to indicating ability to pay, parental education may be indicative of student scholastic abilities. Another measure of ability used in the study is the monetary amount of scholarships, awards, fellowships or prizes, *based on student achievements*.

The other explanatory variables consist of the most recent degree completed by the graduate, the main discipline chosen during those studies, a female dummy variable, age at graduation, and some family composition variables (dummy variables indicating that the graduate was married or had a dependent child at the time of the first interview). As noted, attempting to identify the role of the tuition fee increases involves estimating separate models by region. In the population examined, almost one-half of students lived in Ontario, about one-third lived in Quebec or B.C., and one-fifth in Nova Scotia, Manitoba, Saskatchewan, or Alberta.

III. Results

In national level results, for each period, two models are estimated: one with all graduate and professional degrees held by the parents combined into one category; and the other with separate categories for a master's, a doctorate, and a professional degree.

Students whose parents held a graduate or professional degree are more likely to pursue a professional degree than students with less-educated parents. For example, students from the

7. The residence at the time of the interview is used in this classification. Since the interviews were conducted in the summer months (May to July 1997, for the class of 1995, and May to August 2002, for the class of 2000), this likely indicates the student's usual place of residence.

8. For parental education, the 'professional degree' category includes degrees in medicine, dentistry, law, optometry, veterinary medicine, and theology, and can not be further disaggregated.

class of 1995 with a parent who had a professional degree held a 3.5 percentage point advantage in pursuing their own professional degree over students whose parents had no postsecondary degree. This is a large difference, considering that fewer than 2% of students pursued a professional degree. Furthermore, the advantage appears to have risen with the class of 2000 (7.6 percentage points). There was also an increase in the advantage held by students with a parent with a doctorate: no advantage in 1995–1997, compared to a statistically significant 2.7 percentage point advantage in 2000–2002. For students with a parent holding a master’s degree, the advantage is smaller, yet still significant in both periods; however, it only increased moderately over the period. Interestingly, students with a parent holding a bachelor’s degree have little or no advantage over students whose parents hold no postsecondary qualifications.

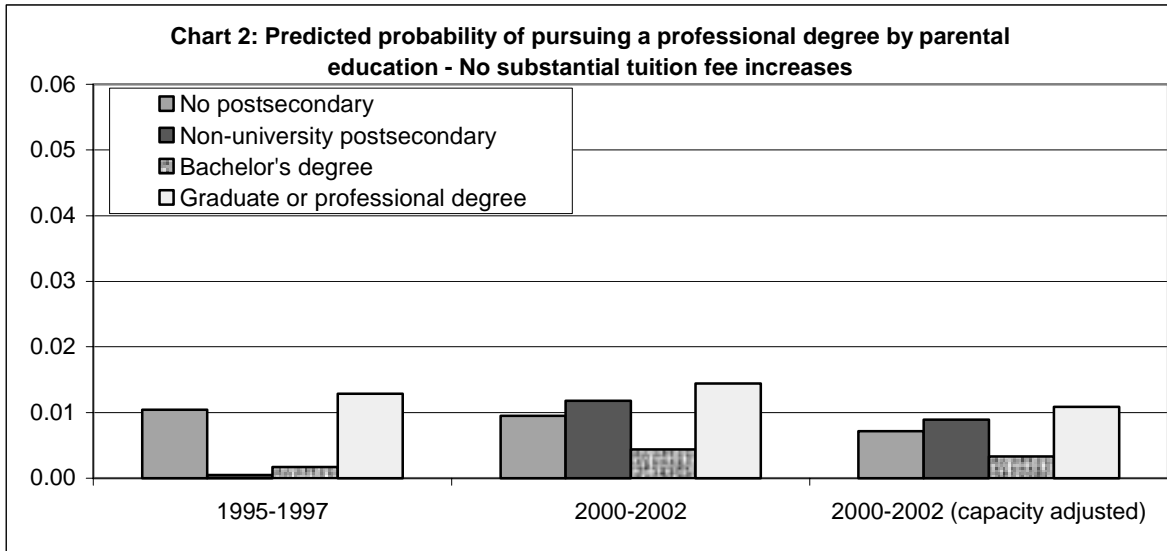
Students with higher scholarship amounts at the bachelor’s degree level are more likely to pursue a professional degree. No such relationship holds at the master’s degree level, perhaps because many graduate students receive substantial merit-based scholarships.

The student’s discipline in the most recently completed degree is strongly associated with the pursuit of a professional degree. Students from health and biological sciences are the most likely to go on, followed by students from commerce, arts, and related disciplines. Engineering and (non-biological) science students are the least likely to pursue a professional degree.

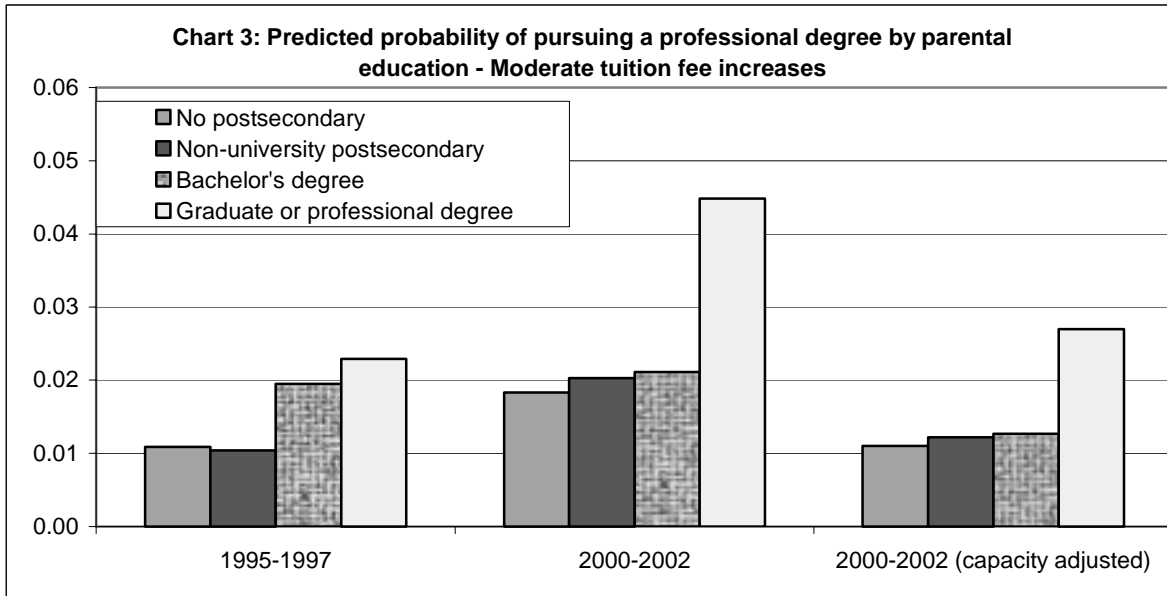
Females are less likely to go on than males, but this gap was no longer statistically significant in the second cohort. Consistent with the notion that students consider lifetime earnings, older graduates are less likely to go on to professional studies, even after controlling for their level of education. Also, married students and those with dependant children are less likely to go on.

Once students decide to pursue a professional degree, their decision of whether to become a doctor, a dentist, or a lawyer may depend on several factors. Family background appears to matter less, while the student’s educational background matters quite a lot. Students with higher scholarship amounts at the bachelor’s degree level are more likely to pursue medicine or dentistry. As with the general pursuit of professional degrees, there are no differences by scholarship amounts at the master’s level. Master’s degree graduates are more likely to pursue medicine or dentistry, which may also indicate a higher degree of competition to get into those programs. Not surprisingly, students in non-science disciplines are more likely to pursue a law degree. Similarly, students from health and biological sciences are more likely to pursue a professional degree in medicine or dentistry than students from other disciplines, although the results are not statistically significant. Factors such as sex, age, marital status, and the presence of dependent children are not associated with the choice of either law or medicine/dentistry.

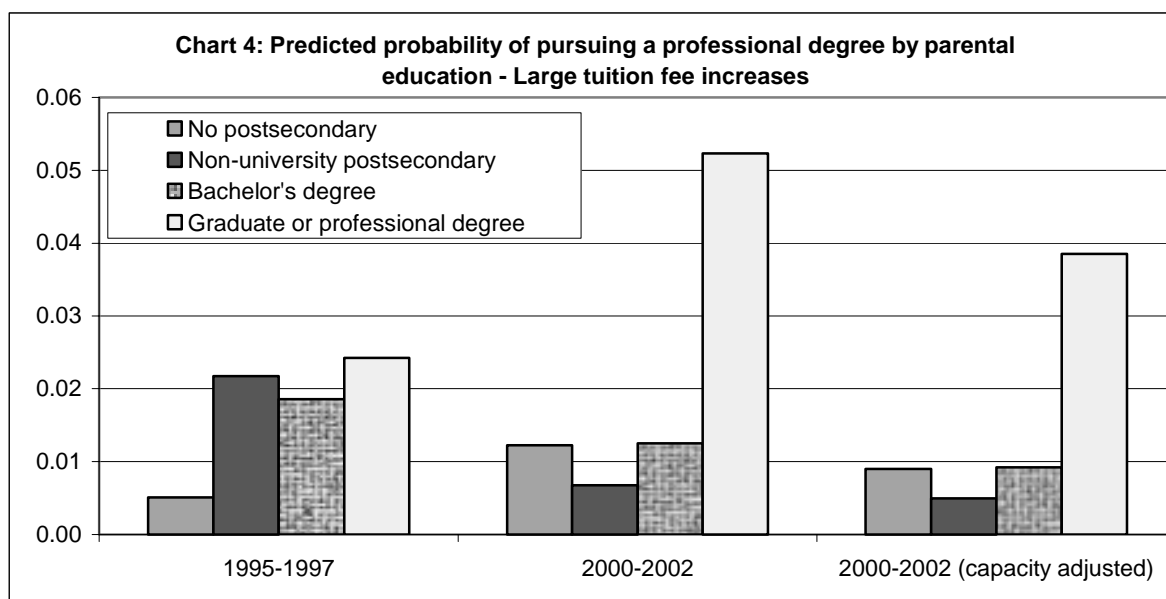
The sample is divided into three regions based on the extent of the tuition fee increases in professional programs. The predicted probabilities of pursuing a professional degree by parental education appear separately by region in Charts 2 to 4. Overall, enrollment patterns by socioeconomic background tended to change more substantially in provinces that saw larger increases in tuition fees. In fact, very little change is observed in Quebec and British Columbia, where tuition fees were frozen over the period (Chart 2). Provinces that saw moderate tuition fee increases also saw moderate changes in enrollment patterns by socioeconomic background (Chart 3).



Source: National Graduates Survey and author's calculations.



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Source: National Graduates Survey and author's calculations.

Enrollment patterns by such economic background where most prominent in Ontario (Chart 5). First, students whose parents held a graduate or professional degree saw their probability of enrollment rise from 2.4% to 5.2% over the period. However, students whose parents had no postsecondary qualifications also saw an increase (from 0.5% to 1.2%). Although this increase is smaller in absolute terms than the increase registered among students from very well educated parents, it is nevertheless as large an increase in relative terms.

Three factors may have prevented a decline among students from disadvantaged backgrounds. First, in provinces where deregulation was prominent, student aid was adjusted to ease the students' financial burden: in Ontario, 30% of the tuition fee increases following deregulation were returned to students in the form of student aid. Second, students living in provinces where tuition fees increased rapidly could apply to programs in provinces with more stable fees.⁹ Third, capacity in professional programs across Canada was increasing substantially at the time.

What if capacity had remained constant among students in each region? In Charts 2 to 4, the far right set of columns shows the predicted enrolment probabilities in 2000–2002, assuming that the overall probability within each region remained constant at the 1995–1997 level. Under this hypothetical case, Ontario students from disadvantaged backgrounds still saw no decline in enrollment, but there were more solid declines in enrolment probabilities among those students whose parents had postsecondary qualifications, but no graduate or professional degrees.

Finally, Ontario students whose parents had post secondary qualifications below a graduate or professional degree saw their probability of enrollment decline quite substantially. It is possible that many students in this group could not afford the increased tuition fees, yet did not qualify for the increased assistance dedicated to low-income students.

9. Unfortunately, the province of the institution attended after the undergraduate program is only available for the class of 2000.

IV. Conclusion

This study examines the changing relationship between enrollment in professional programs in medicine, dentistry, and law and socio-economic background in a period of tuition fee deregulation. The findings suggest that enrollment patterns by socioeconomic background changed substantially in Ontario, where tuition fees increases were largest. Specifically, enrolment rose among Ontario students whose parents held a graduate or professional degree. However, enrolment also rose among Ontario students whose parents had no postsecondary qualifications. The only group that saw a decline in enrollment consisted of Ontario students whose parents had postsecondary qualifications below the graduate or professional level. In provinces such as Quebec and British Columbia, where tuition fees were frozen over the period, no changes in enrollment patterns by socioeconomic background were registered.

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