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Learning and Earning

The Impact of Taxation in the Higher Education Debates

Hugh Mackenzie

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Summary

ARGUMENTS IN FAVOUR of higher tuition attempt to appropriate the language of fairness and distributional equity in arguing against public policies whose goals include the equalization of opportunity. They also ignore the tax system. And when the tax system is taken into account, these arguments collapse.

Does an Increase in Tuition Fees Reduce Equity and Access to Higher Education?

Participation rates in both university and college vary based on the student's family income. That variation is relatively small for college students, but skews toward children from wealthy families for universities. College students come almost evenly from the family income quartiles; regardless of family income, about 25% of students come from each family income quartile. In contrast, more university students come from wealthy families than low-income ones. Almost 35% of all university students come from the top quartile, compared to just under 20% from the poorest quartile.

However, the progressive income tax system is substantially more progressive than university and college participation rates. As the mix of PSE funding shifts from progressive income taxes to higher tuition, poor families, who pay almost no income taxes, end up paying substantially more through tuition. Wealthy families, who pay almost 70% of all income taxes,

may pay slightly more as tuition increases but these increases are more than offset by declines in personal tax rates.

In other words, as PSE funding switches from a progressive income tax system to higher tuition the entire system becomes less progressive, with poor families paying more and wealthy families paying less of the cost.

In Addition to the Obvious Benefit to the Individual Student Resulting From Higher Education, Is There a Public Benefit, and Can We Quantify It?

All studies investigating the relative importance of public or social benefits and private benefits from postsecondary education show appreciable public benefits in areas ranging from direct gains from lower health care costs and better outcomes and reduced expenditures on social assistance and employment insurance to enhanced social, cultural and political participation.

While on average there is a relationship between postsecondary education and increased incomes, this relationship is not reliable for any given individual. According to the 2006 Census, 25–34 year olds with a BA/BSc and working full time made $50,857 compared to $37,475 for high school grads. But there is a 25% probability that a university graduate will earn less than the average for high school graduates and a 21% probability that a high school graduate will earn more than the average for university graduates. As governments push more of the costs of higher education onto students through higher tuition, students with a lower personal return on their education investment have not only spent four years out of the workforce, many have also accumulated significant debt.

However, the payback period *for governments* in the aggregate is much more reliable; governments invest upfront in all students and those students pay back the initial PSE investment through higher taxes, because they generally make more as university graduates. For government support of higher education, the payback period ranges from a low of 10.3 years in Ontario to 17.5 years in Saskatchewan. Put another way, after 10 years and 4 months, higher income taxes paid to the Federal government and the government of Ontario amount to more than the province's upfront spending on PSE. Each subsequent year is added to the public revenue gain.

Completely eliminating tuition would increase the payback period, because governments have to spend slightly more up front. However those in-

creases are minimal and range from 0.6 years in Quebec to 2.6 years in PEI and BC.

Because governments can recoup their PSE investments relatively quickly, the size of the return on this investment over the life of a better educated citizen can be substantial. The real annual returns of current public investments in PSE range from 3.6% in Saskatchewan to 6.2% in Ontario. Assuming a 2% inflation rate the nominal returns range from 5.6% to 8.2%. Replacing tuition with public funding would reduce real returns slightly but not substantially from a low of 0.3% in Quebec to 0.9% in Ontario.

Nominal returns even in the no-tuition scenario would be in the 5–7% range, compared with normal government long-term borrowing costs of 4% to 4.5% and current long-term borrowing costs of less than 3.5%.

Clearly, public investment in postsecondary education pays governments back in full while helping to reduce the job risks taken on by students.

Whether measured in payback years, costs as a percentage of income tax gains, or returns on investment, public investment in postsecondary education is an investment that generates significant fiscal benefits in the long term.

Conclusion

Public funding for postsecondary education amounts to higher-income households subsidizing lower-income households. Subsidies for public education level the playing field when it comes to access to higher education; when those subsidies are constrained it frustrates that objective. And while postsecondary education is certainly a good investment for individual students, on average it is also a very good investment for society more broadly.

Learning and Earning: The Impact of Taxation in the Higher Education Debates

THE YEARS SINCE the recession of 2008–09 have amounted to a perfect storm for students in Canada. The general weakness of the economy has compromised the ability of students and their families to finance the up-front costs of postsecondary education. The recession cut deeply into the savings of many families, and threatened the future economic security of most. High rates of unemployment among young people have restricted students' ability to generate additional revenue through part-time and summer employment. At the same time, in the face of recession-induced increases in budgetary deficits, most provincial governments have turned yet again to one of their paths of least resistance for additional revenue — postsecondary tuition.

This confluence of events has given rise to political conflict, highlighted by the protracted student strike in Quebec in the spring of 2012 but also reflected on campuses and legislatures across the country. It has also brought to the surface familiar arguments from conservative critics of government funding for postsecondary education to support or rationalize shifting more of the cost of education from Canadians generally to students and their families.

In an earlier study,[1] the Canadian Centre for Policy Alternatives has set out the longer-term impact on students and their families of the shifts in costs that have taken place since the recession of the early 1990s. This study focuses on two key arguments advanced by conservatives in support of this trend:

- That subsidies for postsecondary education are unfair in that they amount to a transfer of resources from the poor (whose participation rate in postsecondary education is relatively low) to the rich (whose participation rate is relatively high); and
- That subsidies for postsecondary education amount to an unnecessary and unjustifiable gift to students which they do not need because their investment in the higher future earning power associated with a postsecondary education will pay off handsomely even without a subsidy.

These arguments attempt to appropriate the language of fairness and distributional equity in arguing against public policies whose goals include the equalization of opportunity. They also ignore the tax system. And when the tax system is taken into account it renders the arguments invalid.

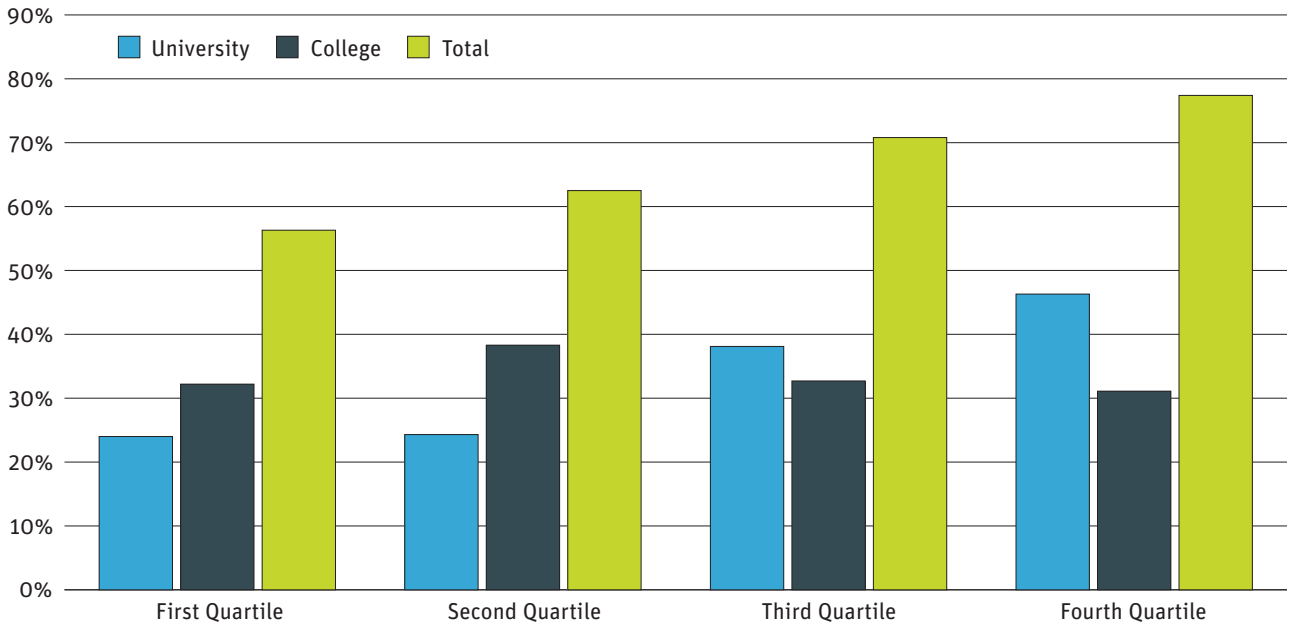
Specifically, it turns out that when the *source* of the revenue required to fund postsecondary education is taken into account, subsidies for postsecondary education redistribute resources *away* from higher-income households and *toward* lower-income households, not the other way around. Subsidies for public education serve to level the playing field when it comes to access to higher education. Constraints on those subsidies frustrate that objective, and contribute significantly to the affordability squeeze experienced by many middle-income families.

And it turns out that the "gift" represented by public support for postsecondary education is repaid many times over by graduates in the form of higher personal income taxes paid on the additional income they are able to earn. Postsecondary education is indeed a good investment for individual students, on average. It is also a very good investment for society as a whole.

Postsecondary Education Funding and Income Distribution

Advocates for higher tuition use the fact that participation in the current system is skewed towards students from higher-income families as an argu-

FIGURE 1 College and University Participation Rates Among 18–24 Year Olds by Family Income Quartile



ment to support raising the financial barriers faced by students from low- and moderate-income families even higher.

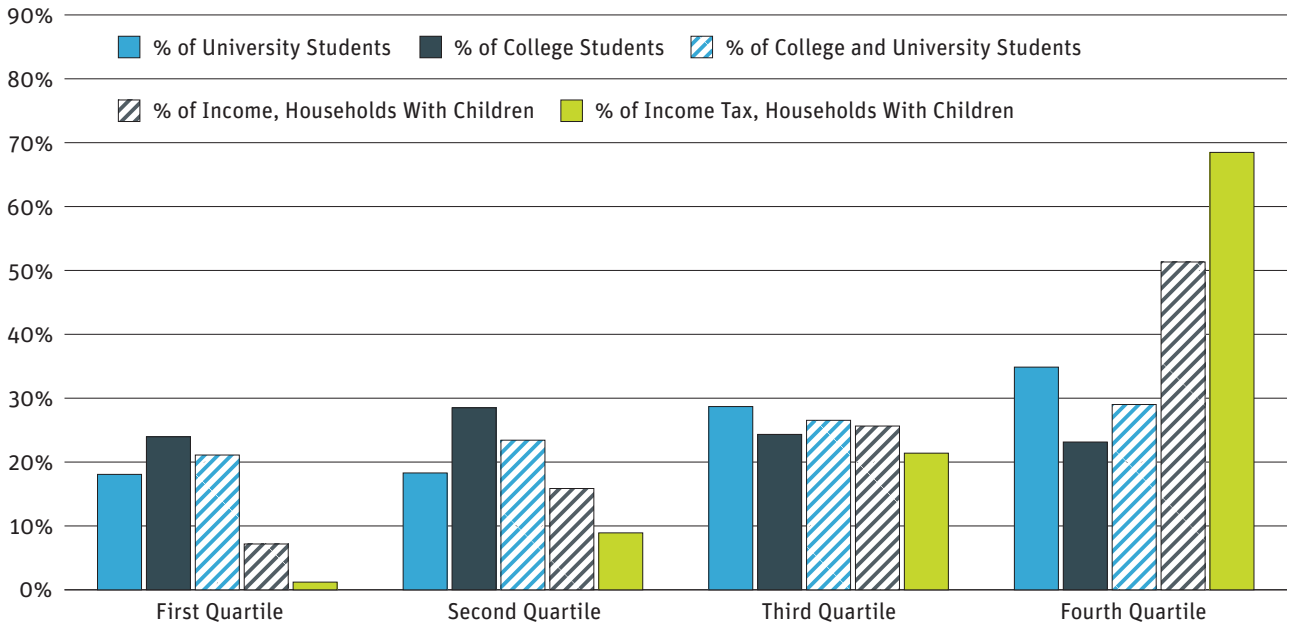
Typically, these arguments cite data from Statistics Canada showing that students from the lowest quartile of family incomes are less likely to participate in postsecondary education than students from families in the highest income quartile, and that each higher income quartile has a higher participation rate than each lower income quartile.

For example, *Figure 1* shows the percentage of college- or university-age Canadians who are full-time students in college or university programs. The bars in the chart show participation as a percentage of the potential student population in college or university, for each family income quartile. [2]

The chart is based on national data and is derived from a similar chart based on Ontario data in *Ontario: A Leader in Learning*, the Ontario-government commissioned report by Bob Rae following his review of postsecondary education. The data were presented in support of its argument that subsidized tuition favours the rich.[3]

Figure 2 looks at the same data in a different way. In this chart, each bar shows the percentage of the total college or university student population that comes from families with incomes in each income quartile. If the dis-

FIGURE 2 Households: Shares of Postsecondary Enrolment and Income by Quartile



tribution were unaffected by family income, we would expect to see 25% of each category of student drawn from each family income quartile.[4]

In fact, the data show that a higher percentage of both college and university students is drawn from the highest income quartile than from the lowest income quartile, making the same undisputed point as is made by *Figure 1*: that students from high-income families are more likely to attend college or university than students from low-income families.

However, the fact that young people from high-income families are overrepresented in the student population and young people from low-income families are underrepresented does not mean that subsidizing tuition from general government revenues results in poor families subsidizing rich families.

One cannot make that claim without knowing the distribution of the taxes levied to provide the subsidies. And so, to that end, *Figure 2* adds a separate set of bars showing the share of taxes paid accounted for by each income quartile of families with children. It shows that family income is far more unequally distributed than college or university participation.

Taken together, the data on the distribution of college and university students and the distribution of taxes paid by households demonstrate that in direct contradiction to the claims of the higher tuition strategy advocates,

subsidizing tuition from general revenues results in an income transfer from higher-income families to lower-income families.

Referring to *Figure 2*, where an income quartile group's share of the college and/or university student population is greater than its share of the total taxes paid by all families with children, a tuition subsidy paid for from general government revenues amounts to a net income transfer in favour of that group.

Conversely, where an income quartile group's share of the college and/or university student population is less than its share of total taxes paid by all families with children, a tuition subsidy paid for from general government revenues amounts to a net income transfer from that group to other groups.

The first and second quartile groups make up a larger proportion of the student population than of taxes paid. Subsidized tuition provides a net transfer in favour of families in the lower half of the income distribution.

Families in the third income quartile account for a slightly larger share of students and of taxes paid. There is a limited cross-subsidy in favour of families in the third income quartile.

The fourth (highest) quartile accounts for a smaller proportion of college and university students than it does of total income, so the highest-income 25% of families, through their contributions to the tax system, in effect subsidizes tuition of the lowest-income half of families.

Given the overall pattern, one would expect that families in the top third of the third quartile would be underrepresented among students relative to their share of income, and that families in the bottom two-thirds of the third quartile would be overrepresented among students relative to their share of income — producing a slight gain overall for that quartile.

However, more than two thirds of families with children are net beneficiaries of the transfer inherent in subsidizing tuition from general government revenues.

This means that, to the extent that tuition does pose an economic barrier to college and university participation by people from lower-income families, substituting tuition for public funding will tend to *reduce* the net transfer from higher-income families to lower-income families; replacing tuition with increased public funding will tend to *increase* the net transfer.

The claim that subsidized tuition amounts to an unfair, regressive income transfer from lower-income families to middle- and upper-income families is simply not true.

Does Public Investment in Postsecondary Education Pay?

The core of conservatives' arguments for relying more heavily on tuition to finance postsecondary education is the assertion that postsecondary education is essentially a private investment by the graduate that delivers private benefits to the graduate and that, as such, there is no justification for a subsidy.

As 'proof' of the point, critics of public funding for postsecondary education cite data that show a substantial earnings differential between individuals with a postsecondary education and those without. That differential amounts to a return to the individual on his or her investment in postsecondary education that more than justifies the initial outlay, without any public subsidy. On that basis, subsidies for postsecondary education are characterized as an unwarranted gift to individuals who, on a rational basis, should make the investment themselves, regardless of subsidy.

Leaving aside the obvious debating point that delivery of private benefits irrespective of need and without regard to outcome doesn't seem to be an obstacle to the provision of billions in direct and tax system subsidies for business investment, let's look more closely at the premises on which the argument is based.

The logic of the argument relies on two key assumptions: that the benefits from investment in postsecondary education are private in nature; and that there is a reliable relationship between education level and earnings.

The first of these assumptions, that the benefits from postsecondary education are exclusively private, is clearly not valid. While the results of studies investigating the relative importance of public or social benefits and private benefits from postsecondary education vary in their relative weighting of public and private returns, all show appreciable public benefits in areas ranging from direct gains from lower health care costs and better outcomes and reduced expenditures on social assistance and employment insurance to enhanced social, cultural and political participation. Benefits such as these are the defining characteristics of public goods and services — goods and services that deliver benefits that are not captured by market prices and that therefore will attract inadequate investment in the absence of public support.

For example, a review by the Association of Universities and Colleges of Canada identified returns to the public over and above the additional tax revenue resulting from higher incomes of 5 to 8 percentage points, as follows:

Dynamic impacts through innovation, knowledge creation and economic growth, 1 to 2 percentage points.

Knowledge spillovers to help increase skills and productivity of less-educated workers, 1 to 2 percentage points.

Reduced crime, increased civic participation, improved health, interegenerational benefits passed on to children, 3 to 4 percentage points[5]

The second of these assumptions — that there is a reliable and predictable relationship between an investment in postsecondary education and differential income outcomes — is also demonstrably not valid.

Data compiled from by Statistics Canada from the 2006 Census show the expected relationship between the earnings of individuals and their highest attained level of education. For example, in the 25–34 age group for Canada, individuals whose highest educational attainment was high school or lower, the average income of those who worked full time for a full year was $37,475. For individuals whose highest educational attainment was at the BA/BSc level, full-year full-time earnings averaged $50,857 resulting in an earnings differential of $13,382 or nearly 36%.[6]

However, a closer look at the details demonstrates that the differential is anything but reliable and predictable.

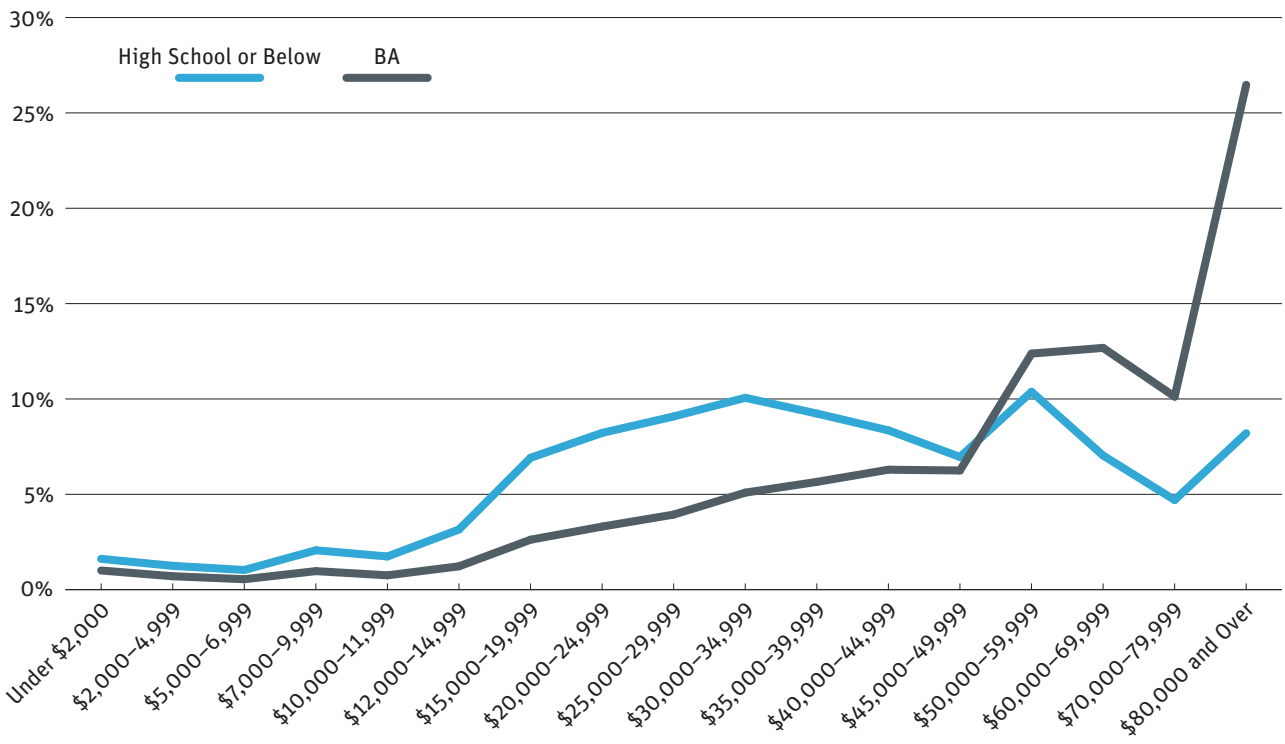
Chart 3 shows the distribution of earnings for individuals whose highest educational attainment is high school or below and individuals whose highest attainment is at the BA/BSc level.

Earnings for both groups vary over a very wide range, with a substantial range of overlap. More important, 27% of individuals with a BA/BSc earned less than the average earnings of the high-school group, and 21% of individuals at the high school or below level earned more than the average earnings of individuals at the BA/BSc level. Because the BA/BSc distribution is skewed towards the top of the income range, more than 57% of individuals earned less than the average premium over the high school average.

In the language of investment, for individuals in the 25–34 age group, there is a 25% probability that a university graduate will earn less than the average for high school graduates and a 21% probability that a high school graduate will earn more than the average for university graduates.

While these data undermine the logic of the argument against public subsidy for postsecondary education, the argument collapses in the face of an analysis that includes the fiscal impact of public investment in postsecondary education.

FIGURE 3 Distribution of Employment Earnings, High School vs. BA, Full-Time Full-Year Employees Age 25–34



The key issue here is that the public vs. private return argument ignores the impact of the tax system on the outcome. Specifically, the argument ignores the fact that the BA/BSc earnings differential gives rise to increased income tax revenue for Federal and provincial governments.[7]

To illuminate this issue, average full-time full-year earnings were extracted from 2006 Census of Canada data for those who had attained a BA/Sc level qualification and those who had not were calculated for each province and each 10-year age range between 25 and 65.[8] Using tax rate tables for each province and the Federal government, the difference in tax payable was calculated for each subgroup.[9]

For comparison, student and government per-student postsecondary education costs were estimated using data on average tuition from Statistics Canada and per student government operating grants from the Canadian Association of University Business Officers (CAUBO).[10] To account for the fact that tuition payments are eligible for a non-refundable tax credit, the estimated value of the credit is subtracted from the tuition cost to re-

TABLE 1 Years of Employment Required for Payback

	All Costs (Tuition and Public Funding)	Current Public Costs	Increase if Tuition Eliminated
NL	14.0	12.8	1.2
PEI	16.1	13.5	2.6
NS	14.1	11.6	2.5
NB	15.6	13.5	2.1
QC	12.0	11.4	0.6
ON	12.1	10.3	1.9
MB	16.9	15.1	1.8
SK	19.7	17.5	2.2
AB	14.8	13.2	1.6
BC	18.8	16.2	2.6

flect the value of the credit and added to the government grants amount to reflect the cost of the credit to governments.[11]

The relationship between costs and offsetting income tax gains was evaluated in three ways.

The first looked at the pay-back period for the government's investment in postsecondary education, comparing the discounted present value of tax revenue differences with the present value of four years of investment in education.[12] For each province, three sets of numbers were calculated: the number of years of employment required to generate a present-value income tax gain equal to the present value of four-year average provincial government operating grants; the number of years required to offset provincial operating grants plus tuition to model the payback period if undergraduate tuition were eliminated; and the difference between the two, which shows the increase in the payback period that would result from eliminating tuition.

The results are presented in *Table 1*.

The payback period for current provincial operating grants ranges from a low of 10.3 years in Ontario to a high of 17.5 years in Saskatchewan.

Including both government and student tuition costs, the payback period increases to a range between a low of 12.0 years in Quebec to highs of 19.7 years in Saskatchewan and 18.8 years in BC.

The additional payback period resulting from the elimination of tuition would range from a low of 0.6 years in Quebec to a high of 2.6 years in PEI and BC.

TABLE 2 Cost Recovery (Present Value of Costs as % of Present Value of Tax Gain)

	All Costs Including Tuition	Current Public Costs	Return Impact if Tuition Eliminated
NL	20.0%	17.3%	2.6%
PEI	32.0%	25.8%	6.1%
NS	23.8%	16.8%	7.0%
NB	27.0%	21.9%	5.1%
QC	15.8%	14.2%	1.6%
ON	15.7%	11.3%	4.4%
MB	30.2%	26.0%	4.1%
SK	35.6%	30.4%	5.2%
AB	19.4%	16.0%	3.4%
BC	34.6%	28.2%	6.4%

The second approach compares the present value of costs and the present value of working lifetime taxation gains, expressing the present value of costs as a percentage of the present value of the taxation gains.

The results are presented in *Table 2*.

Current public costs range from a low of 11.3% of the gain in tax in Ontario to 30.4% in Saskatchewan, with most provinces in the 15–20% range. Total costs including tuition (a representation of costs if tuition were eliminated) range from a low of 15.8% of the tax gain in Quebec to a high of 35.6% of the gain in Saskatchewan.

The third approach looks at the compound annual rate of return (in additional tax revenue) on investment, again based on government operating grants alone and operating grants plus tuition.

The results are presented in *Table 3*.

Real returns on current public investments range from an annual rate of 3.6% in Saskatchewan to an annual rate of 6.2% in Ontario.

Replacing tuition with public funding would reduce real returns by between 0.3% (in Quebec) and 0.9% (in Ontario and Nova Scotia) to produce returns ranging from 3.2% (in BC) to 5.3% (in Quebec and Ontario).

Nominal returns (comparable to long-term government bond rates) would be higher by the expected rate of inflation, typically assumed to be in the 2% to 2.5% range. Nominal returns even in the no-tuition scenario would be in the 5–7% range, compared with normal government long-term borrowing costs of 4% to 4.5% and current long-term borrowing costs of less than 3.5%.

TABLE 3 Returns to Investment (Real Return)

	All Costs Including Tuition	Current Public Costs	Return Impact if Tuition Eliminated
NL	4.7%	5.0%	-0.4%
PEI	3.5%	4.0%	-0.6%
NS	4.2%	5.1%	-0.9%
NB	3.9%	4.4%	-0.5%
QC	5.3%	5.6%	-0.3%
ON	5.3%	6.2%	-0.9%
MB	3.6%	4.0%	-0.4%
SK	3.2%	3.6%	-0.4%
AB	4.8%	5.3%	-0.5%
BC	3.2%	3.8%	-0.5%

Whether measured in payback years, costs as a percentage of income tax gains, or returns on investment, public investment in postsecondary education is an investment that generates significant fiscal benefits in the long term.

Behavioural Implications

The obvious response to the analysis above is that even taking into account the tax implications, private after-tax returns alone justify a student's investment and that therefore the tax system can generate the gains without having to make the initial investment.

While that may be true, it ignores the fact noted above that income gains are highly variable. It also ignores both the social and economic implications of students graduating with ever more substantial debt loads and the impact of higher up-front tuition costs on both the size and composition of the student cohort.

The number of undergraduate university places is essentially controlled by government makes it difficult to assess the impact of tuition on overall enrolment. However, analyses of the impact of tuition increases on the composition of university classes, particularly in the professional schools in which tuition has increased the most, show a significant negative impact on participation by students from middle-income households. A literature review conducted for the Council of Ministers of Education in 2007 identified two types of impacts of higher tuition. For undergraduate programs, the review

identified studies showing that higher tuition tends to reduce participation by students from lower-income families, but has relatively little impact on other students. For graduate and professional programs, the studies suggest that participation of students from middle-income families who cannot afford high tuition costs but do not qualify for assistance has decreased relatively as tuition has increased.[13]

Conclusion

In spite of the appropriation of the language of "fairness" in recent conservative arguments against public subsidies for higher education, once the impact of the progressive tax system is included the analysis those claims fall apart. Public funding for postsecondary education does not amount to lower-income households subsidizing higher-income households. The opposite is true. Subsidies for public education level the playing field when it comes to access to higher education; when those subsidies are constrained it frustrates that objective. And while postsecondary education is certainly a good investment for individual students, on average it is also a very good investment for society more broadly.

Appendix

What's Wrong With Income-Contingent Repayment Systems?

THE IDEA OF income contingent loan repayment has become a common response to the impact of high tuition on students and their families. Under such a system, students would finance their education — including higher levels of tuition — with loans which would be repaid via a percentage levy on their earnings, post-graduation.

Such systems are based on exactly the same empirical findings as those presented in this analysis — that postsecondary education increases earnings potential. As such, they have the advantage over conventional loan programs that repayment is claimed based on the availability of money to repay. It is also possible to design these programs so that they are sensitive to differences in earnings potential resulting from differing career choices, either by providing for forgiveness either in whole or in part for particular programs or occupations, or by limiting the required repayment period and so that they focus the additional levy on incremental income.

There are two fundamental problems with this approach, however. The first, and most obvious problem is that we already have an income-contingent repayment system in Canada; it is called the personal income tax system. As the analysis above suggests, paying for postsecondary education through an income-contingent repayment system in effect requires graduates to pay for their education twice: once through income contingent re-

payment of loans; and again through the regular income tax on their incremental earnings.

The second problem is that such systems, by imposing a second income tax post-graduation on students who are not in a position to pay off their debts before interest payments and required repayments kick in, violate the basic fairness principle of horizontal equity — equal treatment of equals.

Consider two recent graduates, working for the same employer in the same job. One graduate had access to resources sufficient either to avoid incurring debt during postsecondary education or to pay off the debt upon graduation. The other did not have access to such resources, and is therefore in the repayment phase of an income-contingent repayment scheme.

The first graduate will be paying tax at the applicable combined marginal rate in his or her province. The other will be paying tax at that rate plus the rate charged for income contingent repayment — an additional rate of perhaps 10 to 20%.

The disposable income of the second graduate will be substantially lower than that of the first graduate, solely because he or she did not have access to the family resources needed to pay off the loan.

Not only does income contingent repayment duplicate the already-existing link, via the income tax system, between the benefit from education and public revenue, it also serves as a mechanism for the export of low-income status between generations. It in effect becomes a special tax on graduates from low-income families.

Notes

1 David Macdonald and Erika Shaker "Eduflation and the High Cost of Learning", Canadian Centre for Policy Alternatives, Ottawa, September 2012

2 Source: Frenette, Marc, "Is Post-secondary Access More Equitable in Canada or the United States?" Statistics Canada, Analytical Studies Branch Research Paper Series, 11F0019MIE — No. 244, March 2005, Table 2 p. 18.

3 "Ontario, A Leader in Learning", Report of the Postsecondary Review, Bob Rae, Advisor to the Premier and the Minister of Training, Colleges and Universities, Ontario, 2005, p.61.

4 Income data: Distribution of income and tax, households with children, Survey of Labour Income Dynamics, 2009.

5 "Trends in Higher Education, 2011", AUCC, 2011 Volume 1 Enrolment p.46.

6 2006 Census of Canada: Topic-based tabulations — Employment Income Groups in Constant (2005) Dollars, Age Groups, Highest Certificate, Diploma or Degree, Work Activity in the Reference Year and Sex for the Population 15 Years and Over of Canada, Provinces, Territories, Census Metropolitan Areas and Census Agglomerations, 2000 and 2005 - 20% Sample Data

7 In addition to increased income tax revenue (which would be described as a first-order impact), higher incomes give rise to other first-order increases as well second-order revenue increases, derived from increased employment income. These other effects are not taken into account here. For example, higher employment incomes generate higher payroll tax revenue — a first-order impact. Higher levels of consumption derived from higher employment incomes give rise to higher revenue from sales and excise taxes — a second-order impact.

8 The analysis uses earnings by age and highest level of education attained as a proxy for the earnings expectations over time of a student graduating in 2005. To support a comparison with tuition costs, future earnings are assumed to increase at a real rate of 2% per year, and are discounted to 2005 at a rate of 4% per year.

9 Because most deductions from tax payable are now delivered in the form of credits rather than as deductions from taxable income and do not vary with income, the difference in the tax

table amounts owing provides a reasonable estimate of the difference in tax revenue. Because tax data do not distinguish between tax on earnings and tax on total income, it is not possible to measure income tax revenue from earnings directly. As noted above, it is also important to note that the income tax differential does not capture fully the tax system gains flowing from income gains because it does not reflect differences in consumption and other tax revenue that tend to increase as income increases.

10 Given the acknowledged higher costs of graduate and professional education, this approach to the measurement of per-student government grants will tend to overstate to some extent the per-student value of the government's investment in postsecondary education, and will therefore tend to overstate payback periods and understate returns.

11 The income data are from public access tables from the 2006 Census of Canada, and thus reflect incomes in calendar year 2005. The data for tuition and government grants used in the analysis are for the four years 2001–2 to 2004–5. Tuition and grants values are brought forward to 2005 at the assumed rate of 4%.

12 All amounts were adjusted to a common comparison date by discounting at a rate of 4% real. Earnings were assumed to increase at a real rate of 2%.

13 Literature Review of Postsecondary Education Affordability in Canada, Tandem Social Research Consulting, Council of Ministers of Education, Canada, 2007

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