How Best to Fund Postsecondary Education: A Graduate Tax?

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Abstract

When firms need to raise money for investment they have a large array of financial instruments from which to choose. Students looking to finance their postseconday studies are limited to personal savings (including family support), government or university subsidies, and personal debt. This paper examines the case for a new institution - a graduate tax - and argues it may improve both accessibility and equity.

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When a firm wishes to raise money there are quite a number of sources it can turn to. The company or its owners may have the capital in hand. If not, there may be public subsidies available, or there may be banks willing to lend the money. Failing this, there may be private investors willing to provide funding in return for a debt obligation or a share of future profits. The structure of these financial instruments can become quite complicated.

The prospects facing a student seeking to pay for postsecondary education are both better and worse. They are better because in many cases the student will have the money or have relatives willing to provide it for no obligation at all. In other cases there may be private scholarships or bursaries available, again for no obligation other than to continue to succeed in the program. And, of course, a large part of the cost is covered by public subsidy. However, if these sources are not sufficient then the only remaining option is to borrow the money through the student loans program, and incur a debt that must be paid back from future earnings.

In recent years in Canada the level of public support for postsecondary education has been declining, and students have had to pay more in tuition. In some cases this financial burden is substantial , and this has led to a new interest in the various ways that students might finance their share of the cost of postsecondary education. Why are we limited in Canada to standard loans with continuing, mortgage style, repayments? This paper will outline and compare some of the alternatives that have been suggested and implemented in Canada and around the world.

There are no new ideas in this paper, and indeed there are very few that can even be called recent. The problem of funding postsecondary education has received steady attention from economists, and the work has been surveyed already in several places (Barr (1993), Greenaway and Haynes (2003)) My hope is that this paper will make some aspects of the problem and some of the suggested solutions accessible to a wider audience. My overall goal is to promote the discussion of a scheme whereby postsecondary education is funded through a special tax on university graduates. In essense, this program would ask the public to take an equity interest in the success of its most talented scholars.

Background

Currently in Canada about 25% of high school graduates will go on to take a university degree. Is this the right number? If we look simply at the rate of return to a university degree, the answer would seem to be no. Postsecondary education is a good investment for those who currently attend and graduate. Estimates of the private rate of return in Canada and elsewhere regularly top 10% as revealed in the table below:[1]

Private Rates of Return to University Education in the OECD

	men	women
Canada	8.7	9.9
Denmark	11.5	11.1
France	14.3	15.4
Germany	9.1	8.4
Italy	6.5	8.4
Japan	7.9	7.2
Netherlands	12.1	12.5
Sweden	11.4	10.8
United Kingdom	18.5	16.1
United States	14.9	14.7
unweighted average	11.7	11.8

Of course money is not the only benefit that is correlated with educational status. University graduates also enjoy better health, (Kenkel (1991)) and spend less time in jail (Lochner and Moretti (2001)). As well, there appear to be some external benefits to having an educated population. Higher education is linked to participation in community affairs,

[1] The table is taken from Blondal and Giroard (2002).

the democratic process, and volunteer work (Bynner and Egerton (2000)). As well, low skilled US workers earn higher wages if they live in cities that have a higher proportion of university graduates (Moretti (2004)). This could be due to complementarities in production among workers, as examined by Johnson (1984). Finally, the effect of higher education on economic growth seems sure to be positive, although estimates are imprecise (Bassanini and Scarpenta (2001)).

Given these benefits it would seem that more and more people should be taking advantage of the opportunity to go to university. However the numbers above are average monetary returns for those who attend. They do not reflect the expected returns for those individuals who do not attend now but would attend if the system were expanded.

While we have all heard stories of university graduates driving taxi, explicit data on the returns to education for a marginal applicant are hard to find. In one interesting study Ockert (2003) examined a unique date set from Sweden. In 1982 college applicants were centrally ranked and admission was granted to those with the highest qualifications. There was a group of students at the bottom of the "acceptable" category who were considered equally qualified and who were randomly assigned admission to the fixed number of places remaining after all the higher ranking applicants were placed. Tuition was free. Ockert had information on the qualifications of each applicant and labor market histories up to 1996. In his sample the rate of return to an acceptance letter was actually negative – most marginal applicants would have earned more money had they not been admitted to university, even though the overall average rate of return was positive.

These data are hardly conclusive, but it is clear that some university graduates earn much more than others, so that the average rate of return to a university education will be significantly higher than the marginal return. It also seems likely that some university graduates whose private returns are below average, say because they have not found work in their preferred fields, would also generate below average social returns. This means that in spite of the high measured rates of return to university education, the social benefit of educating another student may be fairly small. If so, the goal of the university system

should not necessarily be to bring in more students. It may well be true that certain students who could benefit are not currently able to attend, but it may also be true that there are some students who are attending who would be better off if they went straight to work or into the college system.

Overall, one inescapable conclusion from these data is that those who attend university enjoy a considerable advantage over those who do not. Graduates earn higher incomes, and enjoy better health, longer lives, and higher social status than non graduates, at least partly due to their experience in university. Unfortunately, the fact that these benefits are not enjoyed by everyone may not just reflect their lack of access. Some people lack the ability to do well at school, and simply will not benefit from a university education.

With this picture in mind it is time to discuss the goals of a program that helps students afford the cost of a university education. I will assume that there is no great need for the overall number of students to be larger or smaller. It is also clear that due to external benefits and in the interest of equalizing the tax treatment of investments in education with investments in capital goods[2] there should be a significant public subsidy to postsecondary education. In what follows, to focus discussion, I will also assume that the size of this current subsidy is about right, and that needed increases in funding should come from higher tuition payments by students. The paper will focus on the issue of how best to structure those payments made by students, whatever their size, so as to achieve the important goals of efficiency, accessibility, and equity. We shall see that a major increase in fees need not reduce accessibility.

[2]I outline the taxation argument in another paper (Carmichael (1999)) and work out some illustrative examples. The required subsidy, which corrects for the fact that opportunity costs are taxed at a lower rate than higher future salaries, is suprisingly large given that there are no external benefits assumed.

Goals

Economic efficiency in the context of a student assistance program is similar in concept to accessibility. An important part of each criterion is to make sure that any student with the ability to benefit from a postsecondary education has the opportunity to attend. To achieve efficiency we would also like to be sure that those without this ability do not waste their time in university, but rather enter the College system or the labor market directly. There is another difference as well. To achieve accessibility it must be the case that able students attend even if they do not have the money to pay the costs.

A strong case for accessibility has to do with the desire for equal opportunity. Postsecondary education is a terrific investment for those who attend. It is not fair that some qualified people should be denied access to this opportunity because of the unwillingness or inability of their parents and relatives to pay for them. However, since an education is an investment this issue might boil down simply to the efficiency of capital markets. If students can borrow money at the going rate of interest then any investment as profitable as postsecondary education would be accessible to everyone. Of course it is generally not possible to borrow in this way. Students find it difficult to use their future income and good character as collateral on a private commercial loan. Much of the economic literature on student loan programs uses this as a starting point.

A complicating factor is that some of the private benefits of a university education, as discussed above, are not monetary. Apart from better health and other outcomes as discussed above, a university education has important consumption value. Graduates arguably enjoy their experience and most consider it to have improved their lives. Of course the rich are able to consume many goods that the poor cannot, but is it fair that this particular benefit be restricted to those who can afford it?

This issue arises often in the discussion of health care. Suppose there was a cure for a particular disease and the last dose was being auctioned off to two bidders. One is rich and is worried about getting sick in the future while the other is poor and will die soon without the drug. Economic efficiency requires that the good be allocated to the person willing to

pay the most. Auctions are an excellent mechanism for this, and in the normal course of bidding the rich person might be expected to submit the highest bid, especially if she were unaware of the condition of her opponent.

Even though it is economically efficient, most people would consider this outcome unconscionable. Under the circumstances the drug would be considered a "merit good" – i.e. a good that should be allocated (perhaps at no cost) to those individuals who need it without reference to their income. It is clear that most Canadians consider medical care to be a merit good, and this belief underscores much of our health policy. All taxpayers pay for the delivery of health services to those who need them, with the definition of "need" delegated to the medical experts. But should access to a university education also be treated as a merit good in Canada?

The argument here is not so compelling. First, it is clear that students are not sick: by attending university they gain a benefit that is unavailable to the rest of the population. They are not even drawn randomly, but come overwhelmingly from families that already have greater education and higher income than the average. This does not seem likely to change. Expansion of the British university system from about 10% of the eligible population to near 20% had virtually no effect on the socioeconomic demographics of the student population (Greenaway and Haynes (2003)). Further, there seems to be little that individuals or policymakers can do about the situation. Every trait that psychologists can measure is partly heritable, including intelligence (Turkheimer (2000)) and the impact of the home environment is very small. A recent argument that educating parents will lead to better educated children has so far found little empirical support (Black and Salvanes (2003)).[3] And, finally, from a practical and moral standpoint it is up to the voters of Canada to decide what they will support, through their taxes, as a merit good. They have clearly made the choice that medical care qualifies but that postsecondary education does not.

[3]There is a very strong correlation between parental education and children's education, but so far there is little to suggest this is not due largely to the heritability of the ability to do well at school.

Nonetheless, the argument for universal access to all the benefits of postsecondary education continues to be made, largely by students and professors from within the system. This articulate voice, along with the tacit but no less powerful consilience of educated middle and upper class voters, who want neither higher tuition fees nor higher taxes, has made it politically impossible to raise tuition or taxes in support of education at a time when the university system is in dire need of more resources. In this context, a mechanism that could allow for an increase in tuition fees and at the same time could transparently and obviously maintain or improve accessibility would be most welcome.

Student Loan Programs

In Canada the problem of accessibility is addressed with scholarships and bursaries for poorer students and with the Student Loan Program. This program clearly helps many students to attend university. Nonetheless some students graduate with high levels of debt, and it has been argued that this debt level, perhaps because the anticipated nominal value is high relative to anything in the student's pre-university experience, will deter enrollment even though it may turn out to be manageable relative to post graduation income. The empirical importance of this factor has yet to be established (Finnie and Laporte (2003)), but the argument retains some power in public discussions. A second argument is that the desire to pay off a debt will deter some students from entering occupations that have large public benefit but are less well-paid. Examples might include social work and family medicine. If poorer students are more likely to enter these occupations in the first place because of their pre-university experience, the problem will be exacerbated.[4] It is also clear

[4]These criticisms of a loan system have been made for many years. Merrett (1967), pages 292-93 states: "Certainly working class children have little or no experience of financial manoeuvres ... . They especially would be unwilling to saddle themselves with future debts, to indenture themselves. The resulting bias on entry into higher education to the sons and daughters of the wealthy ... would lead to a form of social ossification with obvious moral and technical disadvantages. Second, the penalties will be great for those people who after graduation either enter professions which, although of great importance to the community, do not receive such recognition in terms of salary payments, or enter professions in which the risk of low incomes is very significant, such as the writing of poetry."

that if the non-monetary returns to a university degree are seen to be a merit good, then a loan program will not provide access to those who want to attend purely for these benefits.

An income contingent student loan program, such as the one in place in Australia (Chapman (1997)) would seem to mitigate these issues somewhat, but perhaps not completely. Under such a system debt payments are geared to income, but the debt remains as a potential claim on future income until it is repaid. Whether this is sufficient to induce "debt aversion" is again an open question, and may depend on the character of the individual. Some may be willing to treat the entire amount as a gift to be repaid (perhaps) with public service, but others may continue to see it as an obligation and this may affect occupational choice.

The classic problem with using private loans to support investments in human capital is that there is nothing to use for collateral. It is easy to borrow money to buy a car because the bank can repossess the vehicle if you stop making payments. If you borrow money for your education the only thing you can offer as collateral is the expectation that you will eventually be earning enough money to repay the loan.

Since it is inevitable that some students will never earn a significant income after graduation, in order to get banks to offer student loans there must be a public subsidy. It follows that a student loan program, income contingent or not, is inequitable because it is not designed to break even. Students who never pay off their debts are subsidized by general taxpayers, including many who did not go to university, and whose children will never attend. Of course it is always possible to mitigate this inequity by introducing other taxes or subsidies, but the program itself introduces a new subsidy to the more priveleged.

A Graduate Tax

There is a program that in principal would provide universal access to university and would require no public subsidy. The earliest version of the idea is probably due to Friedman and Kuznets (1945), who argued that students should consider selling an equity share in their education. This would mean that a student would accept money while in school and pay it back later, but rather than principal plus interest the payment would be a percentage of future income. A version of this idea was tried out by Yale University in the 1970's[5] and a modified version is still in place at the Yale Law School.[6]

A major issue with this program turned out to be the problem of default. Even though Yale could require participants to allow it to get information on their income from the Internal Revenue Service, it still had to face the problem of getting payment. According to West (1976) this was the most critical issue.

The problem of default is related to the fact that the courts will not allow individuals to sell ownership rights in their human capital. This would amount to slavery, or indentured servitude at best, both of which are illegal. Nonetheless, we are all indentured to the government through our obligation to pay taxes, and every April we all have to settle up. The government also has no difficulty in determining our income for the year, particularly for university graduates who participate for the most part in the above ground economy. This has led several authors to suggest a version of the equity plan where the government provides the equity and then collects the return through a "graduate tax". Early references include Merrett (1967) and Glennerster and Wilson (1968), while much

[5]Discussions of the "Yale Tuition Postponement Option" appear in Nerlove (1975) and West (1976). Participants agreed to pay Yale .04% of their gross income over a 35 year period per $1000 advanced to them. In practice, since there was an upper limit on the amount that would have to be paid back, the scheme shared some attributes of an income contingent loan system. Nonetheless, to "buy out" of the plan the graduate would have to pay back 150% of their initial allocation, plus interest.

[6]This is called the "Career Options Assistance Program". The plan is designed to allow graduates to take on lower paying jobs without fear of bankruptcy due to high loan payments. This plan is closer to a pure income contingent loan plan, and is subsidized by the endowment funds of Yale University.

more recently Poutvaara (2003) has proposed such a tax for the European Community.

To fix ideas, suppose that the current direct public subsidy to education is held constant and that tuition payments for a student in an Arts and Science program at University were increased to $10,000 per year. Given recent government cutbacks this would restore overall quality of service to about the levels of 1990.[7] Total tuition cost to the student over four years would be $40,000.

The idea behind a graduate tax is that there is a cutoff salary below which no graduate would pay any tax. In the simplest case, gross earnings above this rate are taxed at a fixed percentage. Suppose we set a cutoff salary of $35,000, which is close to the average salary of an Arts and Science grad two years after graduation.[8]. A simple spreadsheet calculation shows that if we assume real income growth of 3%, and also use a discount rate of 3%, then a tax rate of 9% on income in excess of $35,000 over the next 35 years will raise, in current present value, the sum of $40,534.71. Someone who starts at $45,000 under the same assumptions will pay $72,034.71. Someone who starts at $25,000 will pay nothing for the first 12 years, and the present value of all subsequent payments is only $14,330.48.

There are many details. Of course the cutoff income would have to be adjusted for inflation on an ongoing basis. Since the payments reflect the cost of an investment that raises future income, it is clear that they should be deductible from otherwise taxable income, just as the current system allows the deduction of direct tuition payments. It is also clear that universities cannot wait 35 years to be paid in full for the services they provide to students. The only way this system could be useful at all is if the federal government pays the university up front in return for the right to levy a tax on the student.[9] This might require new deficit finance on the part of the government, but such

[7] This was the conclusion of a committee set up to study the requirements for a quality undergraduate education in the Arts and Science Faculty at Queen's. The report is available at http://www.queensu.ca/artsci/internal/quality/pdf/A&SQuality_draft_rept010825.pdf

[8] See Finnie (1999) for a trove of data on earnings of university graduates two and five years post degree.

[9] It is also clear that if the government did not pay up front, it could not be trusted to separate the income from this tax and dutifully sent it to the universities. Funding would be set according to political priorities and health care would win, as usual.

debt would be backed by growth in the human capital of Canadians, an asset the government is in a unique position to appropriate.

The calculation of a "break even" tax rate in practice will be a complicated task, and it would take us beyond the scope of this paper to attempt a more precise calculation. In practice salaries for university graduates grow at a much faster rate than 3% in the early years of a career,[10] which might substantially reduce the required tax rate. As well, if the cutoff income is reduced to $30,000 then a tax rate of just over 7% is all that is needed to break even on someone who starts at $35,000. So it might be reasonable to think that the rate could be kept below 10%, or 0.25% per $1000 advanced.

A huge assumption that underlies these calculations is that participation in the program is required of all students.[11] In practice if participation is voluntary a serious problem of adverse selection can be expected to arise. Those students who expect to do well and whose families can afford the direct cost will likely opt out of the program since this is by far the less costly option. In fact there is another problem of adverse selection as well – given that the up front cost of university has fallen and in particular if the program is expanded to cover some of a student's living expenses, some young people with very weak intentions to study and low expected future income may decide to enter university with no expectation of graduating.

The second of these problems can be handled in the same way that it is now – by requiring students to show academic promise in order to be admitted to university and to continue in their programs. As argued above, there is no strong evidence that the overall number of students attending university is too low. This is perhaps the one area where we should restrict accessibility in order to achieve efficiency. Some students would not he helping themselves, and they might be interfering with the experience of others.

The first issue is more problematic. The Yale Tuition Postponement Option partially

[10] The data in Finnie (1999) suggest the average growth rate in real earnings between the second and fifth years post degree is at least 5 % per year.

[11] In contrast, current demands by some students and faculty for increases in funding and zero tuition would force the participation of all taxpayers.

addressed it by allowing participants in the plan to cease making payments once their accumulated total exceeded 150% of the advanced amount, plus interest. Nonetheless, participation rates remained below 40%, which may explain why the tax rate under the plan was as high as it was – 0.4% per $1000 advanced. This would be equivalent to 16% in the example above.

The easiest way to encourage participation by high income earners in a voluntary plan would be to increase the price of opting out. So let us continue to list tuition for an Arts and Science program at $10,000. This payment is covered in full by the government for anyone who joins the graduate tax program. However, anyone who opts out of the graduate tax program would have to pay $15,000 per year. In principle there could be partial participation whereby every $1500 advanced toward tuition payments leads to a tax of 0.25% (say) on income in excess of $35,000. However, for every $1500 "advanced" to the student for tuition, the university only receives $1000 from the government.

After graduation participants in the plan could stop making payments once their accumulated total equals 150% of the actual cost – $60,000 plus interest for someone who participated fully. The average graduate would continue to pay the tax over her lifetime, and in present value would still expect to pay about $40,000. This means that there should be a tax rate at which this plan will break even. Those graduates who do better than average will subsidize the ones who do not. In this sense the plan is an improvement over a standard income contingent loan plan, where graduates who earn little money are subsidized by people who never went to university, and may be earning even less.

Note that under the assumptions above, opting out of the plan costs $60,000 up front, while participation leads to a cost of *at most* $60,000 in present value. Thus participation rates should be very high. Those people who cannot make the calculation and do opt out will provide a nice subsidy to the university.

One remaining problem is that the plan is beginning to look like a loan program again, given the fixed opt-out level of $60,000. Since the way a program is perceived by students seems to be at the heart of the "debt aversion" issue, this may lead to some of the same

problems, even though payments are labelled as extra taxes rather than loan repayments. One way to prevent this without discouraging participation of people who expect to earn high incomes would be to redesign the tax rates so that people earning very high incomes after graduation pay at a lower rate. For example, in the case above where someone starts at a salary of $45,000 and pays 9% of income in excess of $35,000, she pays a total of $72,034.71 in present value. If instead we assume she pays 9% of the first 50,000 of income in excess of $35,000, and a fixed amount of $4500 per year if her income rises above $85000, then the total payment in present value falls to $63,118.33. The total payment by the "average" student who starts at $35,000 falls to $39,649.89 from $40,534.71. Again it would seem likely that the plan could be designed to break even, although a great deal more effort and data would be needed to determine the appropriate tax rates.

The fact that the program is run by the government through the tax system avoids the problem of default that plagued the Yale Tuition Postponement Option. There is still the problem that some students may emigrate and skip payment. This is a problem for a student loan program as well, and in principle it is solved by requiring people to pay up before they leave. In practice there will be people who escape, and this may be a problem that cannot be entirely solved with either program. In the end, some of the extra money paid by more successful students will subsidize the exit of others.

It seems clear that to be most successful the program should be run at the federal level. This will at least avoid problems due to interprovincial migration. However, postsecondary education is a provincial responsibility. One can only hope that the political issues here would turn out to be manageable. There is also the possibility that the costs of administering the program would be too large. This seems unlikely, however, given the experience of Australia in running its income contingent loan scheme through the tax system.

Finally, one aspect of the current system that has not been adequately discussed in this paper is the student support available through university and private bursaries and federal programs such as the Millennium Foundation. These programs attempt to identify

students in financial need and provide support directly. This direct bursary system is a major factor at selective colleges in the United States.

Under a bursary system, just as with a graduate tax, richer students pay a higher price for the same education received by their poorer colleagues. The difference is in the way that "rich" and "poor" are defined. Eligibility for bursaries is determined by the income and wealth of the student and her family at the time she attends university. Under a graduate tax the student is treated as a single individual, and his wealth is determined by actual post graduation earnings. This has the advantage that identification is automatic, and the remarkably invasive and detailed requirements to report family income in selective US schools are avoided.

Nonetheless, if a graduate tax program were to be implemented in Canada, the bursary money currently available could be used to remove the last remaining barriers to accessibility. For example, the living expenses of those qualified students who are in particular financial need could easily be covered.

Conclusions

A graduate tax, as a program to replace the current student loan program, has some distinct advantages. First, it is more equitable in that it does not require a subsidy from the general taxpayer to make it solvent. Those students who go on to earn high incomes subsidize the ones who do not. Second, it would appear that the program can dramatically enhance the accessibility and the quality of a university education. With no increase in the current public subsidy to education, students would be able to attend university for four years, tuition free, and receive an education that in terms of the quality of the services provided is at the levels available in 1990 – before the long series of cutbacks to Postsecondary Education in Canada began. In return they agree to an increase in taxes over their lifetime that is certainly manageable, and is itself equitable given the advantages they enjoy as university graduates. There are no constraints on the careers they might choose, and if anything there is a mild encouragement to choose those low salaried occupations that provide public benefits.

The idea of a graduate tax has been around for at least 30 years and to my knowledge it has yet to be implemented in any public jusisdiction. While they do not seem prohibitive, this may mean that the political and practical difficulties are too great. Nonetheless, even if it is never implemented, public discussion of the graduate tax may help to advance the debate over postsecondary funding within Canada.

It is a puzzle that the Canadian Association of University Teachers and other left wing voices from within the university system remain adamantly opposed to increases in tuition payments. The evidence, some of which is referenced here, makes it abundantly clear that subsidies to tuition are regressive – they transfer wealth to the middle and upper classes, or to people who will soon enter the middle and upper classes. Policies that make the rich richer are not normally espoused by the Left.

The argument made is that there are many students who have the ability to benefit from university but who cannot afford to pay tuition. Bursary programs help, but students do not always know about them, and may not think to apply. Loan programs lead to post graduation debt that some students find frightening. So the only way to really ensure access for everyone is to keep tuition as low as possible. The regressive nature of this policy is ignored or simply disbelieved.

Underlying this attitude is, I believe, a deeper issue. Many academics are sincere, public spirited individuals who believe strongly in the ideals of social justice. Their vision is to make the university an egalitarian Public Space, accessible to anyone who wants to learn. Yet they find themselve in an institution whose role in society, among other things, is to take individuals who are already blessed with ability, give them the additional advantage of further education, and then identify them so as to ease their passage into the upper echelons of the capitalist world. University graduates are a strongly favoured group in society. To acknowledge the regressive nature of tuition subsidies would require academics to accept their own complicity in this elite-making process.

A graduate tax will make university as accessible as any program of tuition subsidies. Students do not need to apply for any kind of support (although support will still be

available for living expenses) and they need not be frightened by the prospect of incurring any debt. Nonetheless, the graduate tax program is designed to recognize the value of a university degree, and indeed it charges more to those students whose degree has particularly high economic value. If a public discussion of the graduate tax can be started, it will be interesting to see what the CAUT and other voices from the left have to say about it. In the end, however, public policy choices toward funding the university system must be based on the broad concerns of efficiency, accessibility and equity, and the very real need, within the system, for more resources. Tuition levels and student aid programs cannot be designed simply to support the self-image of academics.

References

Barr, N. (1993): "Alternative Funding Resources for Higher Education," *Economic Journal*, 107(418), 718–728.

Bassanini, S., and S. Scarpenta (2001): "Does Human Capital Matter for Growth in OECD Countries? Evidence from Pooled Mean-Group Estimates," Discussion Paper 282, OECD working paper.

Black, Sandra, D. P., and K. Salvanes (2003): "Why the Apple Doesn't Fall Far: Understanding the Intergenerational Transmission of Human Capital," Discussion Paper 926, IZA.

Blondal, S., F. S., and N. Giroard (2002): "Investment in Human Capital Through Upper Secondary and Tertiary Education," *OECD Economic Studies*, (34), 41–89.

Bynner, J., and M. Egerton (2000): "The Social Benefits of Higher Education: Insights Using Longitudinal Data," Discussion paper, Centre for Longitudinal Studies, Institute of Education, London.

Carmichael, H. L. (1999): "Restructuring the University System: What Level of Public Support?," *Canadian Public Policy*, 25(1), 133–140.

Chapman, B. (1997): "Conceptual Issues and the Australian Experience with Income Contingent Charges for Higher Education," *Econommic Journal*, 107-751(442), 738–751.

Finnie, R. (1999): "Fields of Plenty, Fields of Lean: Earnings of University Graduates in Canada," Discussion Paper R-99-13E.a, Human Resources Development Canada, Ottawa, Canada.

Finnie, R., and C. Laporte (2003): "Student Loans and Access to Post-Secondary Education: Evidence from the New Post-Secondary Education Survey," Discussion paper, Statistics Canada, Analytical Studies Branch.

Friedman, M., and S. Kuznets (1945): *Income From Individual Professional Practice*. National Bureau of Economic Research, Cambridge, MA.

Glennerster, Howard, M. S., and G. Wilson (1968): "A Graduate Tax," *Journal of Higher Education*, 1(1), 26 –38.

Greenaway, D., and M. Haynes (2003): "Funding Higher Education in the UK: The Role of Fees and Loans," *Economic Journal*, 113(485), 150–166.

Johnson, G. E. (1984): "Subsidies for Higher Education," *Journal of Labor Economics*, 2(3), 303–318.

Kenkel, D. S. (1991): "Health Behavior, Health Knowledge, and Schooling," *Journal of Political Economy*, 99(2), 287–305.

Lochner, L., and E. Moretti (2001): "The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self Reports," Discussion Paper 8605, National Bureau of Economic Research.

Merrett, S. (1967): "Student Finance in Higher Education," *Economic Journal*, 77(306), 288–302.

Moretti, E. (2004): "Estimating the Social Return to Higher Education from Longitudinal and Repeated Cross Sectional Data," *forthcoming, Journal of Econometrics*.

Nerlove, M. (1975): "Some Problems in the Use of Income Contingent Loans for the Finance of Higher Education," *Journal of Political Economy*, 83(1), 157–183.

Ockert, B. (2003): "What's the Value of an Acceptance Letter? Usine College Applicants to Estimate the Return to Education," Discussion paper, Institute for Labor Market Policy Evaluation, Sweden.

POUTVAARA, P. (2003): "Educating Europe," Discussion paper, Center for Business and Education Research, Copenhagen.

TURKHEIMER, E. (2000): "Three Laws of Behavioral Genetics and What They Mean," *Current Directions in Psychological Science*, 9, 160–164.

WEST, E. (1976): "The Yale Tuition Postponement Plan in the Mid-Seventies," *Higher Education*, 5, 169–175.