INCOME-CONTINGENT STUDENT LOANS

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Education, though an acknowledged key to productivity growth, is costly. As governments look for ways to cut their deficits, attempts are being made to shift the costs away from governments to the students, or the students' parents. One suggestion has been for income-contingent student loans for higher education. Unlike conventional loans, which have equal periodic payments, income-contingent loans are repaid as a proportion of annual income; the payment in any period will vary with income, so the periodic payments will not be fixed.

Such loans could provide a substitute for traditional student loans, which have drawbacks for both the lenders (a high default rate) and borrowers (higher interest rates because of the high default rates, and the burden of a large debt immediately after graduation). Income-contingent loans could also replace grant schemes that involve direct subsidies to students, or could be used in tandem with a hike in tuition fees at colleges and universities.

This paper discusses first the earliest proposal for income-contingent student loans and then attempts in the U.S., Australia and New Zealand to implement the scheme. Finally, it highlights lessons for Canada and predicts how the system might work here.

BACKGROUND

A. The Initial Proposal

The recognized source for most income-contingent student loan plans is a 1955 paper "The Government and Education" by the University of Chicago economist Milton Friedman.[1] In fact, Friedman had set out the rationale for income-contingent lending in 1945 in a book on professions in the U.S. he had written with another economist.[2] The proposal

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(1) The paper was included as a chapter in Robert A. Solo (ed.), *Economics and the Public Interest*, Rutgers University Press, 1955 and revised as a chapter in Friedman's *Capitalism and Freedom*, University of Chicago Press, 1962.

(2) Milton Friedman and Simon Kuznets, *Income From Independent Professional Practice*, National Bureau of Economic Research, New York, 1945, p. 90 and 20.

responded to a concern that someone with the ability and desire to enter a profession might not be able to finance the necessary training.

Financing might not be forthcoming because the potential entrant to a profession has no collateral for a loan; the ability to repay a loan will be based on future income, which is uncertain. Borrowers who end up with low incomes may default on the standard loan; borrowers who end up with high incomes pay no more than the amount of the loan plus accrued interest. Lenders must, therefore, set a rate of interest that is sufficiently high to cover the losses on loans to borrowers who default. According to Friedman and Kuznets, that rate of interest might be too high, higher than the economic return on an investment in professional training, and might thus shut potential entrants out of certain professions.

A possible solution was to allow the potential entrant to sell "stock" in himself; that is, to agree to repay the lender with a fixed proportion of future earnings. With such an agreement, a lender's losses from the defaults of those with low earnings would be balanced by the repayments of those with high earnings. At the time Friedman and Kuznets were writing, the market for student loans was certainly underdeveloped, so an income-contingent scheme might have been attractive to all potential entrants into the professions, even those who expected high future earnings. As will be discussed below, the availability of conventional loans can undermine the financial well-being of an income-contingent scheme.

In the 1955 paper, Friedman was most concerned with what he considered the inequity of having taxpayers, many of whom had relatively low incomes, subsidizing the university education of children from families with relatively high incomes. Moreover, since a university education would increase earning power, the income gap between the average taxpayer and the graduate would widen over time.

Friedman's solution was to tap the increased earning power of graduates to finance university education, by having a student borrow to cover the cost of his or her education and repay the loan as a specified fraction of future earnings. He saw this as an alternative to a fixed money loan. He recognized explicitly that the more successful graduates (in terms of future earnings) would repay more than the cost of their education and thus compensate for the less successful graduates, who would never repay the full amount of the loan and accrued interest.

Although Friedman's emphasis has generally been on the private market, he recognized that the high administrative costs of the plan (for example, the difficulty in obtaining

accurate income statements from borrowers) might prove a rationalization for government intervention. Under his scheme, the public or private sector would provide the funds, attracted by the possibility of cross-subsidies from successful to less successful graduates.

If, because of high monitoring costs, the force of contract law, and the sanctions available under this law, could not limit defaults to an acceptable level, Friedman conceded that the government might use the tax system to collect loan repayments. Because the income-contingent loans would be available to all students, there would be no need for government intervention in determining who could borrow.

An excellent, although now somewhat dated, survey of income-contingent lending is the 1972 book *New Patterns for College Lending: Income Contingent Loans*.[3] Chapter 3 of this book lists and briefly summarizes several proposals from the late 1950s and the 1960s. Each of the proposals was theoretical; it was not until the early 1970s that any universities attempted to put the theory into practice. Before examining any of the early attempts to implement income-contingent lending, it is useful to examine the basic structure of such schemes.

B. The Basic Structure of Income-Contingent Loans

There are several variables in a model of the income-contingent loan scheme. Some are under the control of those who set up the scheme, while others are not. The relevant variables are:

1. The amount of the loan (L),
2. The interest rate on the loan (r),
3. When interest begins to be charged,
4. The proportion of income (x % of income per year for each $1,000 of student loan),
5. The number of years over which the loan will be repaid (T),
6. Income stream of those who have taken out the loan, and
7. Average present value of income stream over the life of the loan (PV).

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(3)   D. Bruce Johnstone, *New Patterns for College Lending: Income-contingent Loans*, Columbia University Press, New York, 1972.

Hybrids of the conventional fixed-term loan and the income-contingent loan are possible and would necessitate changes to the list above. For example, the borrower might be required to pay some minimum amount each year, no matter what the level of his or her income. This would add an element to the list above. Alternatively, the borrower might not have to pay any portion of income until it reached some minimum level. This would necessitate a modification to number 4 on the list.

The present value is simply the income stream discounted by the appropriate rate of interest. That rate is not necessarily the same (in fact, is probably not the same) as the interest on the loan. Different rates make calculations more unwieldy, as does the practice, common in student loan programs, of not charging interest on the loan while the borrower is in school and often not until some time after the borrower leaves school.

Advocates of income-contingent student loans have argued that the scheme would be self-financing over time. With some simplifying assumptions it is possible to represent the breakeven point as:

$$xPV = L,$$

that is, the proportion of income paid, x, times the present value of the average borrower's income stream over the life of the loan, PV, equals the amount of the loan, L.

The simplifying assumptions are: (1) that the entire loan is taken at one time, rather than being spread over the years spent in school; (2) that interest begins being charged the moment the loan is taken, rather than at some later date such as six months after graduation; and (3) that the discount rate and the rate on the loan are the same. Without these assumptions, the algebra would be more complicated, but the central formula ($xPV=L$) would be the same.

Note that this breakeven point is defined for the average present value of future income over the total group of borrowers (or over a subset of the total, such as all those who borrowed or began repayment in a particular year). For the individual borrower, the breakeven point is where the present value of the future income stream is such that an income-contingent loan and a conventional loan would be equally attractive.

Obviously, in choosing the proportion of income to be repaid each year if the plan is to be self-financing, the lenders (either the government, the universities themselves or private financial institutions) must forecast the income stream of the average borrower. There are several ways of doing this. One way is to take the average income stream of past graduates – either those

throughout the nation or those at a particular university. Another way is to take the income profiles of graduates who had taken out student loans – again, either throughout the nation or at a particular university. If students of sociology borrow, while students of medicine do not, the forecast should be based on the income of sociologists rather than of doctors or of a group made up of both professions.

It does not really matter what method is used to forecast the average income of graduates. What is important is that the present value of the income stream used in the calculation is for the <u>average</u> borrower; some graduates will have higher incomes and some will have lower incomes. For a plan to be self-financing, those with above-average incomes must subsidize those with below-average incomes. The more successful graduates, in other words, will pay more than the present value of their loans, with the surplus going to pay off the loans of the less successful graduates. If students know whether they will have above- or below-average incomes, there is the potential problem of <u>adverse selection</u>. With adverse selection, students expecting below-average incomes will opt for income-contingent loans, while students expecting above-average incomes will opt for conventional loans to avoid subsidizing the less successful. If students can forecast their future incomes accurately and act accordingly, the income-contingent loan program will need an external subsidy (from the university or the government) to break even; with the subsidy, the income-contingent loan program includes a grant for at least some of the borrowers.

The attraction of income-contingent lending depends on imperfect capital markets – students either cannot obtain loans at all or can obtain them only at rates that are too high to make investment in educational economical. When income-contingent lending was first brought up in the 1940s and 1950s, student lending was certainly underdeveloped. There are many more student loan programs available now (even if the market is still far from perfect); thus the terms on alternative means of borrowing will be important in determining the success of an income-contingent scheme.

EXPERIENCE IN THE UNITED STATES

Although Friedman's loan plan was developed as part of a criticism of government-funded higher education (especially the California system, which then provided "free" education in the state colleges and universities), the income-contingent loan plan was first instituted in private schools in the early 1970s. Yale is the most often cited example, though Duke began a

similar loan program at about the same time. Beginning with the 1971-72 academic year, Yale offered students the Tuition Postponement Option (TPO) that let loans be repaid out of future income; the TPO program, which ran from 1972 to 1978, was not a success.

Under this program, Yale undergraduates in 1972-73 could borrow up to $1,150; those in Yale's professional schools could borrow up to $950; any increases in university charges were to be added to these limits in subsequent years. Borrowers were to repay 4/10ths of 1% of their annual income for every $1,000 of postponed tuition. Repayments were scheduled to take place over a maximum of 35 years, although the actual repayment period was expected to be much shorter.

Yale loaned $8 million to 3,602 students under the TPO program. Most of the borrowers were undergraduates (66% of the total); 9% were from the Graduate School of Arts and Sciences; 6% from the Law School; 4% each from Divinity and Medicine; and the remaining 11% from seven other professional schools.[4]

By the autumn of 1993, 724 borrowers, or just over 20% of the total, had repaid their loans. There are two ways a borrower can repay the loan before the end of 35 years. The first is by paying 150% of the initial loan and accrued interest (the interest rate is set every six months, roughly at Yale's expected borrowing rate plus 1%). The *Tax Reform Act of 1986* reduced the deductibility of interest on student loans and led some 300 borrowers to buy out of the TPO program.

The second way a borrower can repay the loan early is to be part of a cohort (generally all TPO borrowers who begin repayments in the same year) that repays the aggregate amount borrowed by the members of the cohort plus accrued interest. An individual borrower must have repaid at least the principal of the loan to take advantage of the group termination of the loan. Those participants with low incomes (under $7,250 in 1972-73) were required to make a minimum annual payment of $29 for every $1,000 borrowed. By 1988, the experience with repayments under the TPO program indicated that group pay-offs would probably occur within 24 to 25 years of the start of repayments.

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(4) Because of recent U.S. interest in income-contingent student lending, the Financial Aid Director at Yale University prepared a note in 1988 (updated in 1993) explaining Yale's experience with such lending. The information on Yale in this paper is taken from the note and from an appendix in the Johnstone book cited above.

Looking back on the program in 1988, an official at Yale concluded that: "(1) the program required a large amount of start-up capital because of the long period of repayment, (2) it is complex to administer because of the need for annual determination of income, heavy counseling and extended repayment and (3) collections depend heavily upon clear and precise description of the non-conventional loan terms."

At the time of the program, Yale intended maintaining existing student aid programs at their current levels of funding. Retaining these programs increased counselling costs, because students needed to compare new and old borrowing possibilities that were quite different in their terms and financial implications. The TPO program was designed to break even, and not produce a profit for Yale. But the possibility of having to contribute to participants in the income-contingent scheme meant that some potential participants in the scheme would have been better off with an existing aid package.

The TPO experiment was phased out after the 1977-78 academic year; by then, according to the official at Yale, "federal programs had been implemented which met the needs that the experiment was designed to fulfil." It is somewhat ironic that income-contingent schemes are now being examined to replace existing federal programs.

Recently, proposals for an income-contingent student loan program have re-emerged in the U.S. Two bills were proposed during the 102nd Congress in 1991 – the *Income-Dependent Education Assistance Act* (H.R. 2336) and the *Self-Reliance Scholarship Act* (H.R. 3050). During the February 1992 hearings on the bills, an academic supporter pointed out that the bills differed in detail but had three important common elements: (1) universal eligibility, (2) direct federal funding and (3) income-contingent repayment. The second element is, of course, at odds with the philosophy behind Friedman's scheme in that federal government funding replaces private lending. In addition, reliance on ordinary contract law to limit defaults would be replaced by the use of the Internal Revenue Service (IRS) to collect the repayment of the loans.

The idea of using the IRS to collect loan repayments was opposed by officials from that service, who criticized the proposal as a "fundamental change in the mission of the Internal Revenue Service and our role in the lives of taxpayers." The IRS already collects some non-tax federal debts, including some defaults on existing student loans through the refund offset program. In 1991, this program collected over $900 million, which included over $360 million for defaulted student loans, through the offset of taxpayers' refunds.

During the 1992 hearings, an official from the IRS pointed out that the income-contingent student loan proposals would move the IRS from acting as a debt collector of last resort to being the primary debt collector for federal student loans. This official also pointed out that the proposal conflicted with IRS attempts to simplify the tax system. Another witness pointed out that using the IRS would not reduce defaulting loans to zero, as some graduates would not have taxable incomes; this witness also pointed out that the program could lead to additional tax evasion as it provided an added incentive to under-report income.

In order to avoid the problem of adverse selection, the *Self-Reliance Scholarship Act* included floors and ceilings for the repayments. A student who took out a $10,000 loan and agreed to repay the loan with 1 1/2% of future income over 25 years would pay no less than $477 and no more than $1,083 a year; the amount paid would depend on the ratio of the graduate's income to the "average for college graduates" (a graduate with less than two-thirds of the average would pay the minimum, and a graduate with more than one-and-a-half times the average would pay the maximum).

Neither bill made it through the committee stage of U.S. legislation, but the idea of income-contingent student loans is far from dead. At the end of April 1993, President Clinton unveiled a plan that would change the way Americans pay for college. The part of the plan that called for a national service program attracted most of the media's attention; however, another part of the plan called for an overhaul of the student loan program. The plan contained elements similar to those found in the two 1991 bills – direct federal lending and collection of a percentage of income by the IRS – but the income-contingent element was included only as an option. Other options for borrowers included repaying the loan over ten years with fixed monthly payments, over a longer period with slightly lower fixed payments, or over a fixed period with the size of the repayments increasing over the period of the loan.

The U.S. federal government is heavily involved in the financing of higher education. In the 1992-93 fiscal year, direct spending on post-secondary education by the U.S. federal government is projected to be $21.3 billion (or 12.4% of total spending on this level of education). There are many programs that make up the total for federal initiatives in the field. Two programs, however, dominate the spending: Pell Grants and Federal Family Education Loans (FFEL). For the 1992-93 fiscal year, Pell Grants were projected to provide students with $6.4 billion in aid, while Federal Family Education Loans were projected to provide $13.6 billion.

Funds for the FFEL program are provided by private financial institutions, with the federal government guaranteeing the loans and often providing an interest subsidy while the student is in school. A large secondary market for student loans has developed. When students graduate, the banks often sell the loans in this secondary market. The biggest player in this market is the Student Loan Marketing Association (often called Sallie Mae), which finances the purchase of the loans from the banks by selling bonds (backed by the government-guaranteed loans).

Banks and other institutions involved in the current student lending program vigorously opposed the new loan plan. In 1992, banks made $13.6 billion in federally insured student loans, so they have much to lose from direct lending by the federal government. One observer noted that "lobbying had been intense, with high-priced lobbyists replacing the more usual scuffed-shoe types seen on education issues."

In 1992, defaults were estimated to have cost the federal government about $3 billion; the Department of Education claims that there has been a significant reduction in defaults since 1991 and there will be further reductions in the future, because of changes to the FFEL system introduced in the Higher Education Amendments of 1992. These reductions in default costs are expected even if the scheme for income-contingent loans with collection by the IRS is not adopted. The proposed loan program of direct government lending is intended to pay for itself, with the reduced number of defaults being an important source of saving over the current system.

There are two reasons why the proposed income-contingent student loan package would have a lower default rate. The first is that the payments would fluctuate with income, so there would be less financial hardship during the early years after graduation than with the traditional fixed-payment loans; also, any interruption in employment would not throw the loan into default. The second reason for fewer defaults, at least in schemes where repayment is made through the tax system, is that borrowers could not miss payments on the student loan as long as they were paying taxes; the borrower would have to evade taxes to evade repayment of the loan, and evading taxes (by under-reporting income or by not filing a return) is difficult.

The legislation to institute direct student lending by the federal government was passed in August 1993 (the legislation to establish the national service program was passed in September 1993).[5] The original loan proposal, which would have eliminated private lenders

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(5)   The *Student Loan Reform Act of 1993* was passed in August 1993 as part of the *Omnibus Budget Reconciliation Act of 1993*. The *National and Community Trust Act of 1993* was passed in September 1993.

entirely from the federal student loan program, has been modified considerably. As a result of a committee compromise, direct government lending will be introduced gradually. Direct loans will, by law, account for 5% of total new student loan volume for the 1994-95 academic year; these loans will increase to at least 60% of the total by the 1998-99 academic year.

Soon after the legislation passed, a task force was set up to help with the transition to direct federal student lending and to work out details for the income-contingent scheme. By mid-November 1993, 105 schools had been selected to take part in the first year of the direct loan program. Still to be worked out is the role of the Internal Revenue Service in the collection of repayments.

EXPERIENCE IN AUSTRALIA

With the exception of experiments by some private institutions and a recent ten-school pilot project funded by the government, the U.S. has little experience with income-contingent student lending. Since 1989, Australia has had the Higher Education Contribution Scheme (HECS), which is open to all students pursuing higher education and which is linked to the tax system.

Under HECS, Australian students are expected to contribute to their higher education. In 1989, the contribution for "each year of equivalent full-time study" was set at $1,800Aus. ($1Aus then equalled about $0.94Can); at that time, the cost of providing the education was about $9,000Aus. A student's contribution could be made at the start of the year, in which case a 15% discount was given. Alternatively, the student could defer payment until his or her income reached a threshold level, at which time the contribution would be repaid as percentage of income. (Strictly speaking, the student need not graduate to begin repaying the contribution; students who fail are still liable to repay, and students begin repaying whenever their incomes exceed the threshold.)

Repayment is through the Australian tax system. In 1989, the accumulated HECS debt was to be repaid at the following rates:

> 1% of taxable income between $22,000 and $24,999,
> 2% of taxable income between $25,000 and $34,999, and
> 3% of taxable income of $35,000 or more.

The thresholds are indexed each year to reflect increases in the cost of living. Additional payments may be made at any time to reduce the accumulated HECS debt.

Whether taking out a HECS loan is a good idea depends on how quickly a student expects to repay the loan. The implicit interest rate on the HECS loan comprises a margin for inflation, which is covered by the indexation of the loan, and a real component, which is a function of the 15% discount on immediate payment of the contribution and the number of years it takes to repay the loan. The faster the loan is repaid, the higher the implicit rate of interest (and the greater incentive to use some alternative source of funds to obtain the 15% discount).

Unfortunately, the income-contingent student loan scheme has not been in place long enough to provide data on some aspects of the scheme, especially the default rate. In 1992, the government announced a scheme that would replace some grants with interest-free loans, which provoked violent protests from students.

EXPERIENCE IN NEW ZEALAND

In 1992, the New Zealand government established the Student Loan Scheme, which allowed citizens or permanent residents who were taking approved courses and who had an acceptable academic record to borrow from the government. Eligibility for the loan does not depend on age, ability to pay, credit-worthiness, or parents' or spouse's income; however, a bankrupt under New Zealand law cannot borrow money, so a student who was a bankrupt would be unable to take out a student loan.

The maximum amount available in 1992 to any student through the loan scheme would be equal to compulsory enrolment fees, course-related costs up to $1,000NZ ($1NZ is currently about $0.64Can), a living allowance up to $4,500 and the $50 administration fee. A Ministry of Education pamphlet uses $1,000 as an example of a compulsory fee, so a typical maximum for the annual loan would be $6,550. The Government, through a Student Loan Manager, sets up a loan account for each student, who may use it to draw up to the allowable maximum.

Following is a summary of the terms and conditions of the loan contract (the summary is from a New Zealand Ministry of Education pamphlet "1992 Student Loan Scheme"):

> To receive a loan you will have to sign a contract. This is a legally binding agreement between you and the Government. Your tertiary institution will sign the contract on behalf of the Government.
>
> Simple interest will accrue daily on your loan account. There are two components to the interest charge: real interest [which the pamphlet defines rather idiosyncratically as the interest rate that "reflects how much it costs the Government to borrow."] and the interest adjustment rate [which is an adjustment for inflation]. These have been set at 6% and 2.2% until 31 March 1993.
>
> You will be charged an administration fee of $50 when you make your first draw down. Interest is also charged on the administration fee.
>
> The repayment has been set initially at 10 cents in the dollar for every dollar earned above the income threshold of $12,670 pa.
> If in any year that you do not draw a loan [or] your repayment amount is not enough to meet the real interest, the difference between your repayment amount and the real interest will be written off by the Government. This provision applies to New Zealand resident taxpayers only.

As was the case in the Australian scheme and the recent proposals in the U.S., repayments by those no longer in school in New Zealand are made through the government tax collector (the Inland Revenue Department). While at school, a student may make a payment to the Student Loan Manager and thus reduce the principal that will later be repaid through the tax system.

The pamphlet gives several examples of repayments at different income levels. The repayment rate is 10% of income above the threshold level; because there is a positive threshold level, the actual percentage of total income going to repayment of the student loan increases with income. The following are the four income levels used in the pamphlet with the percentage of total income going to repayment in parentheses: $15,000 (1.6%), $20,000 (3.7%), $40,000 (6.8%) and $60,000 (7.9%). According to an official at the New Zealand High Commission in Ottawa, the average wage in New Zealand is about $30,000; at this income level, the repayment would take 5.8% of total income. The Government has reserved the right to review the repayment percentage;

at the current rate of 10% for repayment, according to the pamphlet: "It is estimated that the majority of the loans will be repaid within a 15 year period."

As was the case with the Australian scheme, it is too early to have any useful results from the New Zealand experience with income-contingent student loans.

CANADA AND INCOME-CONTINGENT STUDENT LOANS

The Canadian government, through the Department of Human Resources Development (formerly the Secretary of State), currently operates the Canada Student Loans Program (CSLP) to make post-secondary education more accessible to those in need; Quebec and the Northwest Territories manage their own programs.[6] CSLP was established in 1964 and is the federal government's largest program of assistance to students. The program provides guarantees for loans made by private financial institutions, an interest subsidy while students are in school and some possible interest relief to borrowers who become unable to repay the loan without financial hardship.

Loans made under CSLP are not meant to cover all costs of higher education. In 1991-92, 247,044 full-time students negotiated CSLP loans for a total value of $742 million; the average value of a loan for a full-time student was $3,003. The big five Canadian banks made about 93% of all the loans.

There has been considerable concern with CSLP, especially the government's liability for defaults, and attempts are currently under way to change the program. According to one source, the Department of the Secretary of State "estimates that claims paid to the banks by the government have averaged 5.2% a year of outstanding loans."[7] In his 1992 report, however, the Auditor General of Canada estimated the claim rate for Canada Student Loans as 13.8%. The "claim rate" is "net claims paid plus collection cost as a percentage of total loans made since the program inception," but does not include subsequent recoveries, which would almost halve this

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(6) Two useful references for this section are: Marc Leman, *Post-Secondary Education: The Role of the Federal Government*, Library of Parliament, Background Paper, BP-140E, February 1986 and Odette Madore, *Post-Secondary Education: An Imperative for Canada's Future*, Library of Parliament, Background Paper, BP-319E, November 1992.

(7) *Globe and Mail* (Toronto), 11 March 1993.

claim rate.   Since the program began, an estimated $7.6 billion has been lent; the Department expects another $4 billion to be lent in the next five years.

Changing to an income-contingent loan program would, obviously, involve a radical shift in the federal government's assistance to students. If the new program did not have eligibility criteria, the government would probably have to come up with more than $4 billion over the next five years. If the loan scheme became an important source of university financing rather than a supplement to other sources of funds, the cost to the government would be even greater. The cost to the Canadian government could, therefore, be $1-$2 billion a year in the early years of the program. Over time, the program could pay for itself; however, it could be a constant drain on the government purse if only those with low expected earnings took out these loans or if there was a sharp increase in interest rates so the fixed proportion of a graduate's income became an insufficient repayment of the loan and accrued interest.

Any attempt to use Revenue Canada to collect the loan repayments would also involve a radical shift in the student loan program and in the functioning of Revenue Canada. Tax returns would become more complicated, and there would be immediate costs to Revenue Canada. These costs might be paid, however, perhaps several times over, by a lowering of defaults on student loans. No precise estimates of the costs or benefits in this area are possible.

One way of gauging how practical a program of income-contingent student lending might be is to see what proportion of income would go to repaying the loan if the program were designed to be self-financing. This is the approach taken in a recent paper on income-contingent student loans in the U.S.[8] According to the authors: "If we suppose a participant borrows $25,000, the required supplementary tax rate to repay the loan would be 17.75 percent over 10 years or 7 percent over 25 years, again assuming no adverse selection."

The "supplementary tax rate" is the proportion of income taken to repay the loan (x in the formula given earlier); if this tax rate is to be comparable to common tax rates, of course, the income base used in the loan repayment must be the borrower's taxable income. Use of the tax system for social policy, therefore, will affect the repayments of income-contingent loans (and possibly the setting of x in future years).

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(8)   Alan B. Krueger and William G. Bowen, "Income-Contingent College Loans," *Journal of Economic Perspectives*, Volume 7, Number 3 (Summer 1993), p. 193-201. The article is a useful introduction to income-contingent loans.

The Krueger-Bowen paper also points out that the supplementary tax rate would be higher for women, if the scheme allowed for the historically lower post-graduate earnings of women. The figure of 7 % over 25 years to pay back a loan of $25,000 was based on average earnings of men and women; if the calculation were based on the average earnings of women, the supplementary tax rate for women would become 12.5%; if the calculation were based on the average earnings of men, the supplementary tax rate for men would become 5.75%. Again, these figures do not include any adjustment for adverse selection.

Krueger and Bowen suggest, however, that: "Because of adverse selection, the average program participant will probably have lower earnings than the average eligible person in the population." Accordingly, they adjusted their calculations so that the average person with an income-contingent loan would have "earnings equal to that of a worker occupying the 25th percentile of the earnings distribution." The results are startling, especially when men and women are treated separately. For men and women together the supplementary tax rate jumps to 21% for a $25,000 loan to be repaid over 25 years (44.25% if repaid over 10 years); for men as a group the supplementary tax rate is 10.75%; for women it is a staggering 68.5%.

Several comments must be made. First, note that this a supplementary tax rate that must be added on to the regular tax rate to calculate the total tax burden facing the borrower of an income-contingent loan. Women borrowers – assuming the calculations by Krueger and Bowen are reasonably accurate – could end up with overall marginal tax rates of more than 100%. This would certainly discourage women from entering the labour force.

There is, of course, the question of the legality of having different repayment rates for men and for women. Different rates are certainly politically unpalatable and would possibly be found to be unconstitutional: on the surface, the different rates would violate section 15 of the *Canadian Charter of Rights and Freedoms*, which prohibits discrimination on the basis of gender, although a counter argument could be made, in line with section 1 of the Charter, that there is a sound economic reason for the different rates. There would undoubtedly be a court case if an income-contingent scheme were set up with different rates for men and women.

If having different rates for men and women was found to be unconstitutional, the income-contingent loan scheme could founder on the problem of adverse selection. The problem would be aggravated, moreover, if private lenders created instruments appealing to students likely to have above-average incomes.

If an income-contingent loan scheme becomes a source of financing students likely to have relatively low future incomes, the government could be faced with the need to provide large subsidies for the scheme (or with the need to set high supplementary tax rates for those using it). Given the current fiscal difficulties for all levels of government, providing the initial funding for an income-contingent lending scheme would pose another problem.

CONCLUSIONS

There are obviously many varieties of income-contingent student loan, although all share the basic element first set out by Friedman in 1955 – repayment based on a proportion of a student's future income. Early advocates of the scheme saw it as a means of reducing the role of government in higher education. Schemes now in operation in Australia and New Zealand, however, involve direct government loans and the use of government tax collectors to process the repayments. The scheme about to begin in the U.S. involves direct government lending, although the role of the tax system in the program has not yet been worked out. Unfortunately, none of the current schemes has been in operation long enough to generate useful data on the benefits of income-contingent student lending.

In theory, such lending has many good points. It avoids placing large financial burdens on new graduates by allowing them, in effect, to sell shares in themselves (with the returns on these shares varying with future income) rather than finance their education with fixed interest debt. Thus, repayment of an income-contingent loan varies with the returns to the investment in education.

A move to income-contingent lending in Canada, however, would have immediate implications for the government's financial requirements. The annual subsidy for such a scheme could be significant if adverse selection became prevalent. Moreover, attempts to avoid adverse selection could run into constitutional challenges.