

The Economics of Higher Education

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by

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The following investigation of post secondary education will proceed via three sub-disciplines of modern economic analysis: first, by way of well-known techniques used in the study of public finance (welfare economics); second through models connected with the economic theory of organization; and third through the approach of "public choice" (the economics of politics). There are important areas of actual or potential conflict arising from these different approaches, and these will be illustrated. The first part will begin with the traditional public finance approach, the second will apply the theory of economic organization, and the third part will deal with public choice. The final section will offer the chapter's main conclusions.

Public Finance

This branch of economics, as applied to higher education, contains both normative analysis of the relationship between higher education and "equality opportunity" or "equity" and a separate investigation, using mainly positive analysis of matters concerning efficiency. We will begin with the latter issue.

Benefit/Cost Analysis

A conventional tool of public finance that is usually applied to education the search for efficiency in policy making is that of benefit/cost analysis. Invariably, it yields estimates of the rates of returns from education that are then compared with returns from competing (non-education) investments. Since the early 1960s much information has been generated by economists on both "private" and "social" rates for different periods. "Private" rates are usually defined approximately as the difference between

after-tax income differentials and private resource costs. Social returns allude to the difference between before-tax income differentials and total resource costs. Invariably, private real rates of return are found to exceed social rates. The predominant reason offered is that the social resource costs (usually via government subsidies and grants) are so much larger than are private resource costs.¹

Empirical Measures of Returns to Education

The social rates of return for investments in four years of college education in the United States are usually found to be lower than that for elementary and secondary education. Thus, in a survey of estimates from 1950 to 1970, Cohn reports social returns averaging 11.33 in college education and 13.1 in secondary schooling.² The social rates for elementary schooling are usually predicted to be higher than that for university training because the private costs, especially in the form of forgone earnings, are virtually non-existent. Private costs in secondary schooling are higher than are those in the elementary level because the cost of forgone earnings begin to appear. But such costs are highest in the case of post secondary education. Researchers, however, have varying attitudes about the proposition that a student in college forgoes income equal to 100 percent of the earnings of the average high school leaver. Some analysts estimate that the cost is two-thirds of this figure, and others assume 75 per cent, and so on.

Vaillancourt and Henriques (hereafter referred to as V&H) provide estimates of the social rates of return concerning Canadians aged eighteen in 1981 faced with the choice of either attending university for three or four years or entering the labour force.³ Since there are no adequate data to conduct a longitudinal analysis, they calculated an age earnings profile at a point in time, using cross-sectional data for that year and then assumed that the profile would remain stable in real terms through time. They found their earnings profiles to be well behaved, with individual earnings first increasing, then reaching a peak between ages forty-four and forty-eight, and

¹Elchanan Cohn, *The Economics of Education*, (New York: Ballinger, 1979).

² Ibid

³ Francois Vaillancourt and Irene Henriques, "Returns to University Schooling in Canada," *Canadian Public Policy*, VI: 4, (1986)

finally decreasing until age sixty-five. The analysis was based on individual micro data from the Survey of Consumer Finance carried out by Statistics Canada for 1981.

V&H's results are reported in Table 5.1. The private rate of return is the rate that equates the discounted net (after income taxes) earnings income differential, associated with attending university, to the cost of obtaining it. The public rate (or what others call the social rate) of return is the rate that equates the discounted gross (before income taxes) earnings income differential, associated with attending university, to the cost to society of a university degree. The differences in the returns to three and four years of university schooling are solely due to differences in cost, since the same earning profiles are used. One of the chief focuses of the V&H study was the comparison of experience across provinces. And the figures revealed the rather striking finding that the social returns are significantly higher in Eastern and Central Canada than in Western Canada.

Table 5.1 - Private and Public Rates of Return, Three or Four Years of University Studies For Men in Canada, 1981

	Private Returns	Public Returns
	<i>Atlantic</i>	
3 years	14	9
3 years	12	8
	<i>Quebec</i>	
3 years	14	10
3 years	13	9
	<i>Ontario</i>	
3 years	11	8
3 years	9	7
	<i>Prairies</i>	
3 years	9	7
3 years	7	6
	<i>British Columbia</i>	
3 years	10	7
3 years	8	6

Source: Vaillancourt & Henriques, 1986, Table 4.

But what is also clear from Table 5.1 is that the real after-tax private rate of return to a university education, whatever the province, is significantly higher than most alternative investment avenues for individuals, avenues such as long-term government bonds that usually yield between 3 and 5 percent in real terms. Since

investment in university education is so attractive to individuals, it is not surprising that full-time enrolment has been continually increasing since the 1970s despite the slowing down of the rate of growth of the eighteen to twenty-four age group. For example between 1975 and 1979 this age group grew 8.4 percent, while enrolment at post-secondary institutions rose 5 percent. By contrast, between 1979 and 1983 that age group grew only 3.2 percent, while enrolment jumped as much as 23 percent over this four year period. It is interesting too that enrolments have been increasing more strongly in Quebec and the Atlantic regions, where the private rates of return are seen to be the highest (see Table 5.1).

V&H observe that their results are in agreement with the findings of Dooley, who concludes that for males there was a reduction of between 5 and 10 percentage points in the relative earnings differential, between 1971 and 1981, between university graduates and those with a secondary school education.⁴ Despite such a decline, the private rates of return remain outstandingly attractive to individuals. This being so, V&H argue, tuition fees could be increased in all regions of Canada without much effect on the demand for university enrolment. They estimate that a doubling of tuition fees would reduce private rates of return by no more than 3 percentage points for a three-year degree. At present, fees contribute on average about 15 percent of total operating costs.

With respect to social (public) returns V&H emphasize that these are at best equal to and often lower than the rate of return on physical capital. The policy implication of this observation is that provincial governments could reduce their subsidies to universities. For the rate of return on physical capital V&H rely on the work of Jenkins (1977), who reported a figure of 10 percent.⁵ I shall comment further on this reference subsequently.

Qualifications

It will be convenient now to compare the estimates of V&H with my own calculations using a different source of Canadian data, namely the 1981 Census. Opportunity will

⁴ Martin D. Dooley, "The Overeducated Canadians: Changes in the Relationships Among Earnings, Education and Age for Canadian Men: 1971-81," *Canadian Journal of Economics* (February 1986)

also be taken to include qualifications that were omitted in the V&H study. The first of these relates to the part played by "ability" in earnings differentials. Many writers argue that it is extreme to assume that all income is attributable to education. In view of this some analysts assume that a given percentage of income differential is due to ability and practice ranges from zero percent to 60 percent.⁶ In my analysis I will experiment with income percent differentials due to ability ranging from zero to 35 percent. (V&H recognize the point about ability but do not include any of their own estimates.)

A second qualification, and one that V&H also recognize, concerns that part of the costs of attending university that consists of forgone earnings. As mentioned previously, researchers have varying attitudes on this variable. In the extreme case, some writers will assume that a student in university forgoes income equal to 100 percent of the earnings of the average high school leaver. Analysts such as V&H assume that this cost is two-thirds of this figure. I will employ a proportion of 75 percent.

A third qualification concerns the source of the estimate for a social return on physical capital with which to compare the social return on education. I will argue that the reference to Jenkins, relied on by V&H, is inappropriate.

To come now to the fourth qualification, all previous estimates of returns to education seem to have neglected one important item: the marginal cost of public funds. Such cost is attributable to the fact that, because a perfect tax system (employing, say, lump sum taxes) is not available, certain unavoidable deadweight welfare losses are associated with tax collection. Recent retrospective estimates for the early 1970s turn out to be far from trivial. Economic theory suggests that such costs rise exponentially with the rise in government's share of G.N.P., and that share has of course been rising significantly over the last two decades.

⁵ Glenn P. Jenkins, "Capital in Canada, Its Social and Private Performance, 1965-1974," Discussion paper, *Economic Council of Canada* no.98, 1977

⁶ Cohn, op. cit., p. 46.

The significance of deadweight losses from taxation is becoming well recognized in the literature.⁷ The latest estimates for the U.S. are reported in Ballard, Shoven, and Whalley.⁸ Using data for 1972 and applying general equilibrium analysis, these authors report that the marginal cost of raising one dollar extra revenue ranges between 17c and 56c, depending on different assumptions of elasticities of savings and labour supply. If we wish to use the Ballard study for an indication of the welfare cost of taxation in Canada in 1981, however, we require further broad adjustments.

As shown by Browning and Browning, deadweight loss increases more than proportionately to the increase of government's share in G.N.P.⁹ Another way of stating this is to observe that the excess burden of taxes increases exponentially with the direct burden. Since Canadian government's share of G.N.P. in 1981 (about 0.5) was greater than the U.S. government's share of G.N.P. in 1972, I predict higher deadweight losses than those reported in Ballard, Shoven, and Whalley. I believe that a figure approaching the higher end of the estimates of Ballard et al. is probably appropriate. Accordingly, 500 will be assumed to be the marginal deadweight cost of raising one additional dollar in revenue.

Usher argues, meanwhile, that the conventional deadweight loss analysis (adopted by writers such as Ballard et al.) underestimates the cost of public funds.¹⁰ The reason for this is that it ignores the welfare cost of tax evasion (which also increases more than proportionately with government's share of G.N.P.). Incorporating tax evasion costs, Usher calculates that, with a government share of G.N.P. of 50 percent and tax evasion of 10 percent, the total cost of public funds is such that it costs 800 to raise \$1 of tax revenue (i.e., the total burden on taxpayers when one extra dollar of revenue is raised amounts to \$1.80).

⁷ H.F. Campbell, A Benefit/Cost Rule for an Additional Public Project in Canada, PhD dissertation (Queen's University, 1972); Edgar K. Browning, "The Marginal Cost of Public Funds," *Journal of Political Economy*, (1976), pp. 283-98; C. Stuart, "Swedish Tax Rates, Lab or Supply Tax Revenues," *Journal of Political Economy*, (1981), pp.1020-38; and A.B. Atkinson and N. Stern, "Pigou Taxation and Public Goods," *Review of Economic Studies* (1974), pp. 119-28

⁸ C.L. Ballard, J.B. Shoven and J. Whalley, General Equilibrium Computations on the Marginal Welfare Costs of Taxation, *American Economic Review*, 75: 1 (March 1985).

⁹ Edgar K. Browning and Jacqueline M. Browning, *Public Finance and the Price System*, 3rd ed., (New York: Macmillan, 1987).

¹⁰ Dall Usher, "Tax Evasion and the Marginal Cost of Public Funds," *Economic Inquiry*, vol. XXIV, October 1986.

Table 5.2 applies the (adjusted) estimates of Ballard et al, assumed here to be 500, and the latest estimate by Usher of 800, to our calculation of the social rate of return to Canadian university education under different assumptions about the proportion of the income differential that is attributable to ability.

My estimates in Table 5.2 refer to the social returns from a four-year university degree, using 1981 Census data. It is interesting, first of all, to compare them with those reported for 1980 by V&H. Using different data, and concentrating on provincial returns, V&H's findings suggest an across-province social average of about 7.5 percent. Their estimates, to repeat, were not adjusted for ability or for deadweight losses from taxation. Their figures were also confined to male students, whereas mine refer to males and females.

Table 5.2 - Social Rates Of Return From University Degrees, 1980

Income Percent Differentials Due to Ability					
Marginal Cost of Public Funds	0	0.1	0.15	0.2	0.35
0	9.27	8.67	8.35	8.03	6.95
0.5	8.24	7.68	7.38	7.07	6.04
0.8	7.73	7.18	6.89	6.60	5.59

Data Source: The 1981 Census

Analysis of Overall Canadian Findings

The most severe of my adjustments of the social rates from elementary education (see Table 5.2) consist of the combined assumption of 35 percent of earnings differentials deriving from ability plus a marginal cost of public funds estimate of 0.8. The result for university education is the dramatic decrease in the estimated rate, from 9.27 to 5.59. Even on the more moderate assumption that ability accounts for 0.15 of the income differential and that the cost of funds amounts to 500, the social rate is reduced significantly, to 7.38. One method of determining whether university training pays off socially, and the method chosen by V&H, is to compare the social rate of return from such investment in human capital with the rate of return on physical capital. Their reference to Jenkins; suggests that the latter rate is 10 percent.

In my opinion, however, this reference is not appropriate since circumstances had changed by 1980.

Boadway, Bruce, and Mints report an estimate of the real (gross) rate on aggregate capital 197-81 of 6.3 percent.¹¹ Since the trend seems to have been upwards at the end of this period, the figure of 6.5 percent seems to be a reasonable conjecture for 1980.¹²

Consider now the findings of Table 5.2 in the context of the conclusion by V&H that government subsidies to universities should be reduced. If we are to base our judgment exclusively on Table 2, concurrence with their conclusion is indicated only if we assume that ability accounts for 35 percent of income differentials and that the marginal cost of public funds is 0.5 or above. But there are several other factors still to discuss, factors that are not incorporated into Table 5.2. The three most obvious appear to be (1) externalities, (2) the use of education as a job market signal, and (3) higher education as a means of occupational licensure.

Externalities

Some observers argue that the typical private and social rates of return approach underestimates the benefits of additional schooling because it neglects the non-labour market effects of that schooling. Such effects are commonly included under the term "externalities." In some quarters, indeed, this is the most crucial issue, when deciding on the merits of public intervention. According, for instance, to the leading U.S. textbook on the subject of the economics of education the rationale for public support of higher education rests mainly on the market failure argument concerning externalities.¹³

If higher education provides social benefits to society that individual students cannot capture, then the private demand for education will be less than the social demand, and underproduction of education will result.

¹¹ R. Boadway, N. Bruce and J. Mints, *Capital Income Taxes in Canada: Analysis and Policy* (Canadian Tax Foundation, 1986).

¹² Determined in private conversation with Jack Mints, one of the authors of the Boadway, Bruce, and Mints study, 1986

¹³ Cohn, op.cit

An economic externality is said to exist when the self-interested action of one person or group in society indirectly affects the utility of another person or group. In other words, when individual X educates himself, he benefits not only himself but others in society. The content of the external benefits has not always been made clear, but the following examples have been suggested: increased economic growth for the nation, a more informed electorate, greater political participation, improved and extended research, reductions in crime and other antisocial activities.

With respect to economic growth, it should be noticed that the argument reduces to the proposition that increased human capital is beneficial in causing economic expansion generally. But, as the Friedmans have argued, the same proposition could be made about physical capital such as machines and factory buildings.¹⁴ To be consistent with the externality argument justifying subsidies for postsecondary education, therefore, one should argue that, because of the consequences for growth, tax money should also be used to subsidize the capital investment, say, of General Motors of Canada or of G.E.C.

The main difficulty with the argument concerning external benefits is that they have still not been satisfactorily measured empirically. A conspicuous problem is that those who decide how much to consume from private motives may, depending on the price, generate external benefits that are entirely inframarginal to the decision concerning the efficient output. In other words, those who produce and consume education may do so at an efficient level even though others may benefit from their decisions (i.e., obtain external benefits free of charge). But, even if marginally relevant external benefits are revealed, some critics point out that the investigator should also look for negative externalities. An instance of the latter is the case of social unrest among a highly educated, yet significantly unemployed, intelligentsia. But, the main point remains that if there are no attempts to measure external benefits, even if only crudely, the case for subsidies to higher education on these grounds remains weak.

But suppose, for the sake of argument, that evidence has been produced showing that marginally significant externalities from higher education do exist. The success of

¹⁴ Milton and Rose Friedman, *Free to choose: A Personal Statement* (New York: Harcourt Brace Jovanovich, 1980).

a government program for internalising them will be measured by the increase in enrolment that it accomplishes. Suppose that, typically, the authorities operate a college that provides X units of education. Prior to any government intervention, some families were purchasing zero amounts, others were buying from private universities something less than X , while a third group were purchasing from other private institutions more than X . After intervention the subsidized public college would obviously attract population from the first two groups so that, to this extent, total expenditure on education would increase. Consider, however, members of the third group, who are used to privately purchasing more than X education units. Economic theory predicts that some of them will desert their private college and will settle for the lesser X units at the public institutions since they will be more than compensated by their escape from between 75 and 85 percent of the per capita operating costs. *Their* action will have a *downward* influence on total educational expenditure. The final outcome thus depends on the numerical size of the different populations mentioned.

After his empirical study of the U.S., Peltzman estimated that if public colleges were eliminated college enrolment would fall by only 25 percent, while total expenditure on higher education would fall by something between zero and 25 percent.¹⁵ This result implies fewer students in college but with each receiving, on the average, more education. On further reflection, however, Peltzman appears to have overestimated the fall in college population. The main reason for this is that in his calculations he omitted the fact (outlined above) of deadweight loss from taxation, the fact that it takes more than one dollar to raise a dollar tax revenue. Intervention, therefore, involves considerable negative income effects. Conversely, the withdrawal of government would involve a decrease in both taxation and in the deadweight losses. As a result there would be positive income effects. The latter would raise the demand for higher education because it is a normal good. For this reason the decline in higher education following government withdrawal would have been less than Peltzman's 25 percent.

¹⁵ Sam Peltzman, "The Effect of Government Subsidies in Kind of Private Expenditures: The Case of Higher Education," *Journal of Political Economy* 81: 1 (Jan 1973)

When we allow for the increased costs of tax collection and evasion (see above), a conjecture that it now costs about \$2 to raise an extra \$1 tax revenue in the U.S. would appear to be quite realistic. The final implication is that U.S. government intervention is maintaining the quantity of education at levels not much different from what would occur without it. This conclusion is strengthened when we take into account the change in market structure after government institutions have crowded out private colleges. This phenomenon refers to the tendency for higher cost public monopoly establishments to replace the lower cost services of a private and more competitive college system.

Having reached this position, we must conclude that, even if positive marginal external benefits from higher education were demonstrated by selected evidence, it is not obvious that government intervention is very capable of capturing them. Government failure seems to be at least as strong as market failure. Alternatively, one may entertain doubts about whether external benefits are relevant at the margin. Judging from Peltzman's findings (even before our own adjustments to them), most college students the U.S. would go to college even without subsidies, and they would receive better educations.

Education and Job Market Signalling

The information contained in Table 5.2, by itself, suggests that government subsidies in Canada should be reduced only on certain assumptions concerning (1) the effects on rates of return of "ability" and (2) the prevailing magnitude of the deadweight cost of public funds. The preceding discussion externalities has not led to any substantial revision of this conclusion.

Consider next the fairly new specialist area of economic analysis that it now entered the advanced textbooks and that is known as "job-market signalling."¹⁶ Since this type of analysis suggests that much education can be socially wasteful, there may be a case here for some downward revision of our estimated social rates of return. The waste from education is potentially present in those cases where there are differences in the productivities of workers that are not immediately observable to the employer but

are known to the employees. The "best" workers may, in these circumstances, obtain education certificates if these are taken as a proxy for higher productivity the employer, who can then be expected to pay them more than the other, lower productivity, workers. Used this way education simply redistributes income. It also causes net output to fall because of the diversion of resources into the education in question.

The more formal analysis is associated with four assumptions and one corollary (below).¹⁷ Suppose there are two groups of workers - A and B. Type A consists of workers who have an intrinsic productivity per year (P_A) that exceeds that of workers in B ($=P_B$) (i.e. $P_A > P_B$). If the employer sees no differentiating characteristics, he will pay each worker the same, regardless of group. In this case each worker receives per year:

$$W = \frac{P_A + P_B}{2} = P$$

where P is the weighted average annual productivity.

Consider now the four assumptions necessary for a competitive signalling equilibrium to emerge wherein members of the A group have differentiated themselves by having acquired a signal of superiority in productivity, the signal being, say, an education diploma.

- A1) Symbolizing the cost of one year's schooling for group A members as A_{sc} and B_{sc} for B group members, the first assumption is: $A_{sc} < B_{sc}$.
- A2) It is not privately worthwhile for a B group individual to become educated. This implies that $P_A - P_B < B_{sc}$.

¹⁶ See P.R.G. Layard and A.A. Walters, *Microeconomic Theory*, (New York: McGraw Hill, 1978)

¹⁷ A. Spence, "Job Market Signalling" *Quarterly Journal of Economics*, (August, 1973)

- A3) It is privately worthwhile for each A group member to become educated. This implies
- that $P_A - P_B > Asc$.
- A4) For the equilibrium to be self-sustaining employers must ultimately and repeatedly find that the productivity of educated workers is, in fact, P_A and that the productivity of uneducated individuals is, in fact, P_B .

Corollary: The welfare losses from such a signalling equilibrium derive from the fact that education is assumed to have no human capital value but merely acts as a screening device. All that such education does is to (1) raise the wage of the A group members by separating them out from the others, a process that automatically lowers the wage earned by members of the B group and (2) lower net national output to the extent of the resources diverted to the (wasteful) education associated with the job signalling.

Some economists are now making policy recommendations on the basis of such argument. The work of Lang, for instance, indicates a policy that will indirectly curtail education and so achieve a welfare gain because wasteful job signalling will be reduced.¹⁸ Insofar as there is truth in this kind of argument, we will be obliged to revise (downwards) our rates of return from education as reported in Table 5.2. Unfortunately, however, no empirical estimates are available to indicate the magnitude of the required adjustment.

Education Unionism and Occupational Licensure

Another challenge to conventionally measured "high" rates of return to education comes from those who maintain that much of the crude earnings differentials used are attributable to the use of education to restrict job entry. Surveys by H. Gregg Lewis in 1986 have estimated that unions in the U.S. increase wages above market

¹⁸ Kevin Lang, "Pareto Improving Minimum Wage Laws," *Economy Inquiry*, vol. m (January 1987).

levels on average by 15 to 20 percent.¹⁹ One means of doing so is the imposition of "artificial" restrictions on entry.

Where closed shops exist the unions can effectively ration entry by demanding education requirements that are considerably higher than those of incumbent workers. Trade unions, however, are by no means the only effective labour cartels. Professional associations, like the American Medical Association, are frequently charged with cartel-like behavior. And, in general, loosely organized resource-supply cartels find it easier to achieve their objectives of higher incomes by restricting entry to the trade than they do by trying to gain agreement on prices.

Such restriction activity shades into the process of occupational licensing since members of the professional association frequently have positions on the relevant boards. In Canada occupations in the medical and dental fields, law, engineering, architecture, accounting, and actuarial science have, for a long time, been regulated by licensing bodies operating under provincial statute. In some provinces, moreover, many of the skilled trades are regulated by autonomous or semi-autonomous boards or agencies granted statutory licensing power.

The main aim of licensing is usually officially stated to be that of ensuring the rendering of services that society feels ought to be rendered because it is a better judge of what is good for the individual consumer than he himself is. But, as Dodge observes, such an argument appears suspect, because, in general, it has been members of the professions and trades themselves who have sought to have their professions regulated: "Governments have not forced self-regulation upon protesting professions but rather have yielded to the importuning of members of the professions and trades to establish by statute licensing agencies."²⁰

In 1950 entry to dental, law, and medical schools in Ontario could be gained with no formal postsecondary training. Since then the *de facto* standard for admission to all three professional programs now appears to have become a university degree. The same is true of those accepted for articles in Chartered Accountancy. Meanwhile, the

¹⁹ H. Gregg Lewis. *Union Relative Wage Effects: A Survey, 1986* (Chicago: Chicago University Press 1986).

evidence shows an increase in the queue of applicants meeting the stated requirements.²¹

Insofar as education is thus used by unions and professional associations to act primarily as a restriction on job entry, there is obviously no guarantee that it contributes to social output in the usual human capital investment sense. But again, unfortunately, there is no reliable method of calculating the precise magnitude of the required downward adjustments to the estimates of rates of return contained in Table 5.2.

This discussion on the measures of efficient budget allocation to education reaches the following conclusion. When we consider the possibilities of the use of education in both job market signalling and occupational licensure, the findings of rates of return in Table 5.2 must be revised downwards, but precisely by how much it is difficult to say. But since, in any case, the rates reported in that table are, at best, not far above the returns available from government investment in physical (as distinct from human) capital, it seems strongly arguable, at least, that there is little case for an increase in Canadian government expenditure on university education. And this conclusion appears valid despite the tide of opinion that Canadian universities have been suffering from under-funding for several years. One new ingredient of reasoning in this essay, of course, has been the incorporation into the benefit/cost analysis of the marginal costs of public funds, a factor which, although far from trivial (as demonstrated above), has hitherto been unfortunately, and improperly, neglected.

It will be useful, finally, to examine the policy suggestion of V&H that tuition fees could be increased in all regions of Canada without the ensuing reduction in the (high) private rates of return affecting significantly the demand for university schooling.²² Although my research has been concerned with social rates of return, it contains nothing to refute the V&H conclusions that private rates are well above alternative returns available to families and students. The implied prediction of this

²⁰ David Dodge, "Education and Occupational Licensure," in *Education for the Seventies*, (Economic Council of Canada, 1973).

²¹ Ibid

²² Vaillancourt and Henriques, op. cit.

finding is that enrollment will be on the increase so long as the high private rate persists. I have produced evidence showing that continuous enrollment expansion is indeed the case despite the drop in the share of the eighteen to twenty-four age group in the total population.

V&H, however, add the proviso that their proposed tuition fee increase be accompanied by "appropriate changes in the Canadian student loan plan." Because they do not specify the particular changes they have in mind, and since the argument for a government loan system is, in any case, another aspect of the search for efficiency in the public finance of education, the next section will be devoted to this whole subject.

Efficiency in Educational Loan Markets

Efficiency in the public finance of higher education relates to the original purpose of intervention. One major purpose is normally assumed to be the removal of "barriers to access." The most widely quoted examples of such barriers are financial. Higher education would, of course, occur without intervention but at substantial prices. But millions of other goods and services are also sold at significant positive prices. Should we speak of financial barriers here too?

Obviously, the case for intervention must be linked, not merely to the existence of prices, but to an argument that in higher education they are so "artificial" or arbitrary as to constitute what can truly be called *unusual* financial barriers. Governmental removal of these is therefore urged. This policy is sometimes regarded as an efficiency operation, and sometimes as inter-student equity move. Where special subsidies are thought to be required for inter-student equity, the advocates argue a need for a trade-off between equity and efficiency, implying that the two objectives are competitive rather than complementary. Since this area of debate appears confused, I shall attempt a further and deeper analysis of "financial barriers" as a necessary preliminary to later arguments.

There seems a consensus among economists, that the main reason for specially "artificial" barriers and the consequent lack of interstudent equity or equality of

opportunity, is the prevalence of excessive interest charges facing qualified but low-income students.²³ The problem, it is argued, is not education involves prices but that these prices are too high. The unusually high price of finance is, in turn, often construed as stemming from a capital market imperfection.

No rigorous empirical demonstration of such a proposition has yet been made, however. A crucial issue is the distinction between the student borrow rate and the lender's realized rate.²⁴ When we deduct transaction costs, lender's realized rate may be no different from that realized on physical capital. With educational loans, transaction costs such as the costs of information, screening, collection, and defaulting, are likely to be appreciable. If they are high enough, the allocation of capital could be efficient; that is, no artificial financial barrier need exist. The precise extent of transaction costs is an empirical question, and I must re-emphasise that it has, so far, not been answered adequately; but clearly it has much to do with risk and default rates. Meanwhile, absence of evidence of abundant use of private loans for education does not necessarily mean that a capital market is imperfect or does not potentially exist.

In Figure 5.1 the supply curve for loans is so high that it fails to intersect with any point on the demand curve. This is not an imperfect, but an inoperative market. The question of the "true" height of the supply curve is obviously a key issue.

The direct way of stating the meaning of an imperfect market is of course to begin with an examination of common definitions of a perfect one. Confidence in the adequacy of markets exists where certain well-known assumptions are satisfied. These include the absence of monopoly, no trans costs, and the existence of abundant knowledge. When some elementary action costs are introduced, costs such as invoicing, communication, and port, we reach intermediate cases where we are still reasonably confide markets can operate at least as practically as any alternative. With higher action costs, however, we have less confidence in market outcomes. This is especially so when there is considerable risk and imperfect or inadequate formation.

²³ See E. L. Hansen and B.A.Weisbrod, *Benefits, Costs and Finance of Public Higher Education*, (Chicago: Markham. Publishing Company, 1969

²⁴ George J. Stigler, "Imperfections in the Capital Market," *Journal of Political Economy*, vol. 75 (1967)..

This is not to say that governments have better sources of information or risk-facing facilities, for in this area we must be especially cautious.

The market for human capital is one where we are confronted by both risk and information complexities. Many writers emphasize that human capital is not available on terms comparable to physical capital; with conventional loans, like a house mortgage, a physical asset can be repossessed in case of default. Without further discussion this argument could be semantic. Repossession cannot occur in the case of an educational loan because the law does not allow investors to hold equity stakes in other human beings. Such an argument does not constitute a direct proof that the capital market is "imperfect." Markets work only with a given legal framework. Here the framework is "restricted." This is so because the property rights of the worker (to pledge future income against a loan) are curtailed. It may be that we should avoid equating this constraint with "market imperfection"; given the legal framework, "very high" rates of interest may be compatible with a capital market that is adjusting to the circumstances with perfect efficiency.²⁵

It is interesting, nevertheless, to probe deeper and ask why it was first necessary to so constrain the law. A market blockage may have been established deliberately, and this because of previous inadequacies in markets. It is unlikely that there was a complete or perfect set of risk markets. In such circumstances there are no prices to guide decision makers in a context of uncertainty. If there was a complete set of risk markets these would include a market for contingency lending so that individuals even from the poorest of families could borrow to finance their higher education. In such a market borrowers would pledge a percentage of future income differentials, and lenders would charge average borrowers a rate that, on average, paid for or covered the risk that others will not succeed in earning a sufficient differential. The latter individuals would thus be insured against complete destitution or worsening of incomes.

²⁵ Stigler, *op. cit.*, argues that the legal limitation on the worker's bargaining rights should be called an imperfection-of-the-labour-market. The term "imperfection," however, cannot directly be switched to the labour market. What is certainly happening is a market "blockage," constraint or restriction. A market that the government does not allow to exist can be neither imperfect nor perfect. Similarly, where only a part of a market is forbidden the resultant "inadequacies" are not necessarily inherent in the market system itself

In the absence of a market in contingency loans, say because of severe information or policing costs, some individuals will be tempted to borrow on a non-contingent basis. This could, in some cases, have results that are socially repugnant. (Allowing others to have an equity stake in oneself *on a non-contingent basis* could lead to forms of slavery.) To prevent such consequences, governments would be prompted to protect individuals with bankruptcy or usury laws; and they might deliberately establish the market blockages previously mentioned. Much of this reasoning, however, is still conjecture. What we need next is some hard evidence.

In practice some private markets for human capital do exist even within the legal constraints (or blockages). How efficient are these? The problem of coping with high variance is basically one of adequate risk-pooling. There is no clear evidence that large finance houses and insurance companies do not already enjoy economics of large scale of such pooling of risk. Today multinational finance corporations frequently have pooling facilities that are bigger than those available to some governments, especially provincial or state governments. Moreover, as Friedman points out, there is no clear reason why firms and insurance corporations cannot devise means to select from among potential human capital investors and charge rates that differ according to individual prospects.²⁶ One method of implementing this policy would organize special company examinations and to have candidates independently assessed. Individuals who are the better prospects would then be more likely to invest because their rates would be lower than others; in this way selected individuals will be less called upon to subsidize the interest rates charged to poorer prospects - although some probability of failure will remain even in the screened prospects.

A perfect market requires free entry and also requires that traders have access to optimal information about bids, offers, and conditions. In the absence of freedom of entry the market for capital happens to be highly competitive.²⁷ In the absence of full information among buyers and sellers there is much less confidence. Information, however, is expensive. It is especially so to lenders in human capital markets,

²⁶ This appears in Friedman's version of his argument in *Capitalism and Freedom* (Chicago: University of Chicago Press, 1962), p. 105

whether they be private individuals government officials. In such circumstances efficiency demands not *complete* but *optimum* information. The latter is found at the point where marginal costs and expected marginal returns from search are equal. If it is not remunerative to acquire "complete" knowledge, a market possessing incomplete knowledge is not necessarily imperfect.

If a government has no better methods than having private agencies for reducing transaction costs, it will create a misallocation of capital, not eliminate one, if it intervenes to lower interest rates to one common level. But now we reach a crucial part of the analysis. It can be argued that governments *are* in a position to reduce transaction costs. This relates to their access (1) to superior information and (2) to administrative economics. Governments have already invested large resources in establishing machinery for income tax assessment and collection. The marginal costs of using this machinery for educational loans collection should be relatively small. This advantage applies to non-contingent as well as to contingent loans. With contingent loans, however, there is an added advantage. Contingency systems depend upon the supply of accurate income statements long after the production of human capital has been completed. Governments have this knowledge automatically and cheaply through income tax statements. Government sponsored loans, therefore, could carry reduced interest rates, not because of subsidies from nonusers, but from genuine cost reductions in lending.

This argument needs some qualification however. First, full information about lifetime earnings is *not* available from government income tax files. Second, it is arguable that the screening of candidates for loans is better done by educational authorities. Universities, for instance, have better information concerning the progress of students and their worthiness to receive loans. What is strongly indicated, however, is the need for a division of labour; educational institutions can concentrate upon screening and government can accept responsibility for administration and collection. The reason that government authorities are at present so involved in the screening process is that loans are issued partly on the criterion of *parental* incomes. In

²⁷ Stigler, op. cit.

a full contingency plan this would be irrelevant. Only the future income prospects of the student would count.

Much discussion suggests that the key advantage enjoyed by governments is their ability to mutualise risks. Because of the large variance in outcomes from human capital investments, it is argued, an individual will be reluctant to borrow in the form of a fixed money repayment loan. He may, however, be more likely to borrow in the form of a government loan that is contingent upon income (i.e., a fixed percentage of future income over a given period) and where, if his lifetime income is low, repayments are small. Since governments will obtain more revenue from the more successful, they will be able to cover the costs of financing the less successful. Thus: "The Educational Opportunity Bank mutualises the risks of investment in education on the same way that fire insurance mutualises the risks of investment in housing."²⁸

One cannot deny that governments do possess such an advantage. But it is not necessarily absolute. When the private sector makes loans, it also mutualises risks. Incorporated into the rate charged by the lender is an allowance for default; and this allowance is, in an accounting sense, paid for by the successful investors. This is the equivalent to the "extra" tax upon the successful in the Educational Opportunity Bank scheme. One cannot assume, therefore, that private markets are inefficient because they cannot mutualise risk. When asking what governments can do that the private sector cannot do better, the central focus should be upon the possibility of the previously mentioned administrative conveniences - but especially that of interest collection. One of the most demanding requirements of any educational loan system is an efficiently policed system of repayments and interest collection. It is in this area more than in any other that the private market is likely to confront the severest costs. With respect to a borrower's repayment and interest charges Friedman argues: "payment could easily be combined with payment of income tax and so involve a minimum of additional administrative expense."²⁹

This is a crucial point; but it is the *quality* of this government collecting channel more than the quantity of conventional administrative expenses that is the governing

²⁸ Karl Shell et al., "The Educational Opportunity Bank," *National Tax Journal*, March 1968

²⁹ Friedman, *Capitalism*, p. 105

factor. The argument has to do with incentives to default. It is realistic to assume that there is a significant margin of people who will have no compunction in evading repayment if they believe the chances of escape without cost are good. Because the borrower does not pledge physical collateral he is more tempted to skip. It is strongly arguable that these chances would be better if the collecting agency is a bank rather than the income tax authorities. If the bank is guaranteed the loan repayment on default, it will have negligible incentive to pursue the debtor. If, however, the loan is registered in the income tax files, the only way to default is to become a vagrant and to forego lifetime social security benefits. This is the fundamental (deterrent) advantage that governments have over private markets: the costs imposed on defaulters are automatic and extremely large.

This point has not been clearly brought out in the literature. This point does not prove private market *imperfection*. It shows only that government has monopoly access to machinery unavailable to the private sector. Nevertheless, the possibility of using this key advantage strongly argues for government intervention-provided that government makes full use of it. If instead, governments concentrate, as they do now in Canada and in the U.S., upon guaranteeing educational loans to private banks, it is probable that defaults could rise to such a point that the true costs of lending to students eventually exceeds those in the market. Moreover, the new economic theory of bureaucracy predicts still worse.³⁰ The theory initially postulates that bureau personnel are no more and no less self-interested than are other individuals. While such interest can often be channelled in such a way as to benefit society, the incentives in bureaucracies are frequently to society's disadvantage. Self-interest here often finds simple expression in pressure by the bureau, not to attain social efficiency, but simply to expand its own budget. Suppose a government "gets off on the wrong foot" with its student loan system and does not use the income tax agency for collections; and suppose, indeed, that the possibility is completely lost sight of. The larger number of student defaults that ensue will give the bureau an additional argument for expanding its own department. It will call for special personnel to investigate, monitor, and research the growing default problem. In addition to the

costs of defaults there will now be the costs of an expanding civil service, at first on an ad hoc or temporary basis, but eventually on a permanent one. But, here we fringe upon the study of public choice, which is the subject for a later section.

Statistics on Defaults

There appears to be considerable confusion and misinformation in the statistics reporting defaults on educational loans from government. Consider the following simple example. A program that makes twelve-month loans lends \$100 in year one and \$1000 in year two. Suppose all the year one loans defaulted in year two. What, at that time, is the rate of default? Surely it is the ratio of the number (or value) of defaults to the number or value of the loans that have become due. In our example the default rate is 100 percent. Year two's loans do not become due until year three, so they are not related in any way to the loans outstanding (loans that have become due).

In Canada the method used by the chartered banks is unsatisfactory because it does not follow the above logic. It calculates the loan losses for the year as a percentage of the loans outstanding at year end. Thus, in our example the banks would report a loss of zero for the first year and of 10 percent for year two.

The Canadian Public Accounts uses "percentage of net claims to outstanding guarantees," a method that in our above example would produce the erroneous loss rate of 16.7 percent. Various government departments, meanwhile, calculate the loss for the year as a percentage of the mean of the opening and closing balances in a program. Thus, in our example, they would report a loss of zero for year one and 18.2 percent for year two, based on an average outstanding of \$550 (i.e., $\$100 + \1000) and a loss of \$100 in year two.

What then is the appropriate estimate of prevailing default rates connected with Canada student loans if we use the correct method outlined above of relating the defaults to the loans that have become due? From the annual reports of Canada Student Loans we observe that between the start of the program in 1964-65 and

³⁰ See William A. Niskanen, *Bureaucracy and Representative Government* (Cambridge, MA: Harvard University Press, 1971).

1984-85 the cumulative total of loans discharged (loans that had become due) was approximately \$1,600 million. Of this total, government paid to the participating banks \$377.7 million or 23.6 percent. This government payment was required partly because of death (\$6 million), partly following permanent disability (\$0.8 million), but mainly for the reason of defaults (\$370.9 million).

The figure of 23.6 percent, however, measures only the gross default rate. To obtain the net rate we need further adjustments. When the government pays off a loan to the banks in response to guarantee claims it is automatically considered to become a direct loan between government and student borrower. Some of these direct loans are subsequently collected by collection agents. To this extent, therefore, costs are reduced. Costs are increased, however, by commissions paid to collection agents and by administrative fees paid to the provincial governments.

The cumulative net loss rate after recoveries, less collection fees, came to 14.8 percent of the \$1,600 million of accumulated guaranteed loans discharged down to 1984-85. Over the twenty-year period this ratio has averaged around 14 percent.

To place this finding in the perspective of the previous discussion of private capital market "failures," recall that the "proof" of such diagnoses was the claim that private market rates were too high. To simulate the private market, governments would have to internalise all costs and charge students loan rates that covered the costs of defaults as well as normal interest rates. Under Canada Student Loans the latter have been based on the average yield to maturity on government bonds during the six months prior to the start of the program year. On average such interest rates have been around 13.5 percent over the last five years.³¹ The gross rate that governments would have needed to charge students, therefore, would be 13.5+14 percent or about 27.5 percent. The claim that private capital markets fail because their rates are too high obviously demands some statement as to what level is too high. If the benchmark is 20 percent then we must conclude from the above figure of 27.5 percent that governments fail also. If the average private rate of interest on an educational loan is, say, 21 percent then the case for a government loan system of the

³¹ Myles B. Foster, *A Study of the Government of Canada's Loan Guarantee and Direct Lending Programs*, (Ottawa, Canada: Department of Finance. 1986).

present type would collapse. This would immediately imply an obligation upon government to consider alternative loan structures and especially of the type that use the income tax machinery for purposes of control or collection (as originally recommended by Friedman). If government is not prepared to do this there is no case for its continued presence in the student loan business.

The above findings have relevance to the figures of social rates of return in Table 5.2. Since the figures of cost from which those rates were calculated excluded the annual costs of defaulting on student loans just examined, we have here still another reason for concluding that the net social rates in Table 5.2 were overestimated. The default costs have not been trivial. They amounted to about \$149 in every \$1000 lent over the last five years.

There are additional costs of the loan system that have hitherto been neglected. These arise especially from the government payment of interest on the educational loans of students while they are in college and for six months after they leave. In the last five years (1982-87) these costs have amounted to \$296 for every \$1000 loaned. Add to this the \$149 per \$1000 lent accounted for by defaults, \$7 for provincial service fees, and \$33 for the service of collection agents, and the net direct (extra) cost per \$1000 guaranteed comes to \$485. Furthermore, insofar as this cost is covered by taxation, we must add the associated deadweight losses. If we use the estimates based on Ballard et al. we increase the cost of \$485 by 0.5, to \$727.5. If we use Usher's method we increase by 0.8 to obtain a cost of \$873 per \$1000 loaned.

All of these findings are clearly pertinent to the proposal by V&H that tuition be increased provided that appropriate charges be made in the Canadian student loan plan. Obviously my analysis points urgently to the need to explore the feasibility of employing the income tax machinery as a means of collection. But it also suggests the possibility that, especially if the latter proposal is shown to be unfeasible, government move out of student loans altogether.

Equality of Opportunity

Before leaving the subject of public finance we should briefly examine another frequently stated motive of government intervention in higher education, that of

providing more "equality of opportunity," equality, or equity. This obviously takes us into the area of public finance that is concerned with normative analysis.

If additional education is required in order to obtain more income, then allowing poorer individuals to obtain higher education is one means by which future income distributions will become more equal. One must observe, nevertheless, that even if governments pursue this line of thought, the allocation of subsidies directly to universities is only one possible instrument available; an alternative is to direct the money to students so as to maximize their choice and to encourage competition among institutions.

However, the case for intervention on equity grounds needs further scrutiny. First, it is necessary to make a distinction between two broad types of equity in the context of educational finance. Equity (Type 1) will refer to equity within the college-ability group. Equity (Type 2) will relate to equity between the college-ability and non-college, typically lower ability, groups (or between users and nonusers of the education system). The emphasis here will be upon equity Type 2.

It will be interesting to examine the position of John Rawls, who has argued that any change or intervention should be allowed so long as those lowest on the income scale are not made any worse off.³² By income scale Rawls means a lifetime scale. The avoidance of injury to the poorest has its corollary in the fact that the taxes they pay will be used in the most efficient manner and not to the disproportionate benefit of more fortunate classes. Now, "the less fortunate class" overlaps considerably with the group in society that does not receive postsecondary education. The fact that there are millions within these groups who do not receive the benefits, together with the fact that the same individuals are obliged to contribute via taxes to the finance of the higher education of the more fortunate, brings the present system into serious question on the very criterion of equity that is supposed to justify the intervention.

The percentage of the U.S. high school class of 1980 participating in fulltime postsecondary education two years later was 34.46 per cent. For the lowest quartile socioeconomic status it was only 18.84 percent. It should be remembered, moreover,

³² John Rawls, *A Theory of Justice* (Cambridge, MA.: Harvard University Press, 1971).

that (1) not all students complete high school; and (2) of those who proceed to postsecondary education less than a quarter attend universities. More important, even if we did find that all socioeconomic groups were equally represented in postsecondary schooling, this does not deny that millions of nonusers of higher education at the bottom of the income scale would be forced to pay for the postsecondary education of others, whose lifetime income expectations are considerably higher than their own. Equity Type 2 would be sacrificed for Equity Type 1. The argument that higher education should be supported because, in the long run, graduates will pay back the subsidy in the form of higher taxes over their lifetimes is not convincing either because the repayment should strictly consist of subsidy money *together with accumulated interest*.

The Theory of Economic Organization

So far I have been discussing issues in the public finance of education. Now it is time to consider the public *provision* of education via state government enterprises. More precisely, we must consider, from the efficiency point of view, public over private operation and we must also examine and assess the different varieties of each that are available. In other words, it is now time to employ our second sub discipline in economics: the theory of organization.

Private Non-profit Universities

There is a temptation to think that because most private universities are legally non-profit institutions, there is not much difference between them and public universities. Yet, because a firm is described by law as being a non-profit undertaking, this does not mean that something like profit is not operative in reality just beneath the surface. At private institutions students pay high fees that very often cover most of the cost of their schooling. The money spent by the student is either his own or comes from a loan or a scholarship. For this reason such students have a strong "profit motive" to see that they get value for money. If they do not, they can go elsewhere. Administrators, in other words, are not the only actors in the process of responding to incentives. If private students are able to shop around aggressively, which is the case if their fees cover most of the cost, administrators have to respond to their needs by

producing at the lowest possible cost as well as by providing the appropriate pattern (mix) of services. Moreover, the student himself will be a more efficient learner. It has been observed, for instance, that one graduate at Dartmouth College once remarked, "When you see each lecture costing \$35 and you think of the other things you can be doing with \$35, you are making very sure that you are going to go to that lecture."³³

Another illustration of the argument that private colleges usually follow market incentives to the full, is the recent contention by the Friedmans that, besides teaching services, private colleges and universities also produce and sell monuments and research. Buildings, professorships, and scholarships are often financed by a benefactor who receives in return a memorial for his services. In the process, students become, in effect, like shareholding employees in the joint educational process. "The combination of the selling of schooling and monuments exemplifies the much under appreciated ingenuity of voluntary cooperation through the market in harnessing self-interest to broader social objectives."³⁴

It is prudent to keep in mind, however, a whole spectrum of educational institutions, from the pure public (state) university at the one polar extreme to the complete market or private enterprise university at the other. It is interesting that in his *Wealth of Nations* we find Smith attacking, not *all* universities in the eighteenth century, but some kinds in contrast to others. The most grotesque deteriorations in efficiency occurred, Smith insisted, where the whole of the incomes of the university personnel came directly from private (bequests) endowments, regardless of efforts: "In every profession, the exertion of the greater part of those who exercise it is always in proportion to the necessity they are under of making that exertion.... The endowments of schools and colleges have necessarily diminished more or less the necessity of application in the teachers."³⁵

In other universities, the administrators and professors had to rely also on the fees from their students. Smith observed that the necessity of application, though

³³ Friedman and Friedman, op. cit

³⁴ Ibid., p. 177.

³⁵ Adam Smith, *The Wealth of Nations*, Book V (New York: The Modern Library, Edwin Cannan Edition, 1950), p. 283.

more or less diminished wherever there was any element of private endowment finance, was not in this case entirely taken away from the teacher:

Reputation in his profession is still of some importance to him, and he still has some dependency upon the affection, gratitude, and favourable report of those who have attended upon his instructions; and these favourable sentiments he is likely to gain in no way so well as by deserving them, that is by the abilities and diligence by which he discharges every part of his duty.³⁶

Smith asks us to contrast this kind of university, which was like the one at which he taught in Glasgow, with those whose teachers were prohibited from receiving any fee from pupils. In this case a teacher's endowment-financed salary constituted the whole of his revenues from office. Smith contends, "His interest is, in this case, set as directly in opposition to his duty as it is possible to set it."³⁷

Although Smith was referring to endowments made directly to a university, the same consequences arose from the custom of tying certain scholarships to a particular college. In this case the student had no redress when finding inefficient teaching since he could not transfer the scholarship elsewhere. Adam. Smith, himself, seems to have been caught in this same trap. In 1740 he was appointed as a student to one of the Snell Exhibitions at Balliol College, Oxford.³⁸ It would have been much more in keeping with his system of efficiency had his scholarship been transferable between universities just as in the modern proposal for the education voucher. Had such choice been available it is very probable that Smith would have chosen one of the Scottish universities because he had a much better opinion of them than he did of those below the border. Unlike them, most Scottish universities charged student fees that covered a considerable proportion of total costs.

Private Endowments

In the nineteenth century the practice of endowing universities with bequests received further scrutiny by the, political economists. John Stuart Mill, for instance,

³⁶ Ibid., p. 284

³⁷ Ibid.

³⁸ E.G. West, *Adam Smith, The Man and His Works* (Indianapolis, IN: Liberty Press, 1976), p. 44

acknowledged that the right of bequest was an extension of the right of property. As such, endowments for education were to be accepted as a fact of life. If, however, they were held to cause serious imperfections in the private market for education, then economists had the duty to devise newer methods of allowing public endowment financing to operate.

The main trouble with endowments arose, Mill argued, when they were made in perpetuity. The wishes of the original donor often became impractical with a change of conditions centuries later. The trustees, meanwhile, often became so corrupted that they eventually began to think of the funds as their own property. The need was for some impartial body to interpret the appropriate use of the funds with the passage of time. Those who wanted to abolish endowments because of the problems were too extreme. To prevent misuse, endowments made in the distant past, Mill contended, ought, at least ultimately, to be under the complete control of the government.³⁹ The nineteenth century disciple of Adam. Smith, Sir Robert Lowe, agreed with Mill but endeavoured to be more specific in devising conditions.⁴⁰ Agreeing with Smith, he thought it was important to try to work into endowments "the merits of the free system." This could be done by incorporating bequests into a system of "payments by results." An educational institution should be rewarded with a flow of funds from endowments according to its proficiency and according to the number of students taught. Clearly, Lowe's system approached that of the modern voucher scheme proposal.

It is useful to keep Lowe's position in mind when considering the history of university education. In the nineteenth century especially the endowment was typically administered so as to end up serving the interests of the faculty and administration rather than of the student. Stanford University, for example, which, although established to provide undergraduate education, seems to have quickly deviated from the ideas of the benefactors to become like other institutions. Similarly disturbing was the attempt by the Rockefeller Foundation to shape higher education into a comprehensive system and to discourage unnecessary duplication and waste.

³⁹ J.S. Mill, "Endowments," *The Jurist*, 1833

⁴⁰ Sir Robert Lowe, *Middle Class Education: Endowment or Free Trade?* (1868).

In fact it is usually untrue that "duplication and overlapping" means waste; for competition to exist there must, in most cases, be at least two suppliers who "overlap" each other.

Subscribing to a consistent view of property rights, it is arguable that benefactors should be allowed to make their own conditions on the endowments they leave. Nevertheless, it is difficult not to be disturbed by the practice of the Carnegie Foundation in discriminating against church colleges from the beginning of the twentieth century. It may be contended that, so long as there is free entry, different benefactors will cancel out the idiosyncrasies of others. This contention, however, could not have been so reassuring in the 1930s when the trusts set up by Carnegie and Rockefeller contained over three-fourths of the known assets of foundations.

If the proposals of Sir Robert Lowe had been implemented from the mid-nineteenth century, a free and more competitive system would have emerged, even though Carnegie and Rockefeller had dominated the endowment "market." Lowe recommended that foundations and wealthy individuals have their endowments channelled through a special central agency (such as, in Britain, the Charity Commissioners) to educational institutions *simply according to their enrolments*. Although this does not constitute a voucher system in the direct sense, the result is the same. The student or his family triggers off an incremental portion of the grant that goes to the school or university by his decision to choose one particular institution in preference to others. Subsidies follow the student, therefore, just as they do with the conventional voucher. In this way the system embraces all the advantages of competition, free choice and efficiency that are associated with voucher plans. It is reasonable to conjecture that if Lowe's mechanism had been adopted there would have been less chance for universities and other institutions to manipulate endowment funds for the purposes of the administrators and faculty. Whether the Carnegie Foundation could have discriminated against church colleges would have depended on the design of the constitutional body that was to have had the responsibility of allocating all the funds to universities. Compromise arrangements could have been introduced of course whereby, for instance, for every endowment dollar going to particular universities for such items as buildings and research, two

dollars would have to be devoted to the common pool of voucher funds. The latter would have to be allocated in proportion to enrolments at the college of the student's choosing and would therefore be spent according to teaching efficiency as perceived by students and their families.

Private Universities Versus Public Monopoly

The effect of tenure systems is probably more pernicious in public than in private universities. Because of stronger union representation in public institutions there is less variance in rewards to faculty members since, in effect, the less productive members redistribute from their more efficient colleagues toward themselves.⁴¹ What needs to be cautioned against, however, is the temptation to believe that, because private universities exist, their presence will provide all the necessary correctives to the shortcomings of the public sector. One necessary condition must be fulfilled for this view to be valid: a reasonably sized private sector must be maintained at present and in the future. The trouble is, as we have shown, that the presence of a strong and growing public undertaking is a continuous threat to the number of its competitors.

One is reminded here of the contrasting views of the classical economists on this question. In the early nineteenth century some of them were beginning to be attracted to the idea of government-as-enterprise, that is, to the idea that the government should be allowed to enter at any level of a market-provided service and "compete" with existing private establishments. The position in the early days was treated as fairly innocuous since the proposed interventions were seen merely as marginal experiments.

Of all the advocates, the name of John Stuart Mill stands out. In his *Principles of Political Economy*, published in 1848, he distinguished what he called undesirable or *authoritative* interference that controlled the free agency of individuals, from the non-authoritative intervention designed to promote the general interest. An example of the latter would be intervention that, while leaving individuals free to use their own means of pursuing any objects of general interest, "the government, not meddling

⁴¹ Richard Freeman, "Unionism and the Dispersion of Wages," Harvard University Discussion Paper No. 629, June 1978

with them, but not trusting the objects solely to their care, establishes, side by side with their arrangements, an agency of its own for a like purpose."⁴²

Under this rubric, Mill attempted to justify governments participating both in education and in business generally. With respect to education he argued: "though a government, therefore, may, and in many cases ought to, establish schools and colleges, it must neither compel or bribe any person to come to them."⁴³ A public (government) college should exist: "as one among many competing experiments, carried on for the purpose and stimulus, to keep the others up to a certain standard of excellence."⁴⁴ The argument that the public institutions would always be superior pace-makers was of course entirely a priori. No substantial evidence on the matter was yet available.

Since Mill's time, experience has shown that when a government agent enters a profession or industry there are automatic or unavoidable restrictions placed on the private competitors. For one thing, the public enterprise has the extra advantage of reliance on government tax revenue and on loans that rest on the public credit. Individuals connected with the public supply, moreover, often become a disproportionate political constituency in their own right and are able to press successfully for further degrees of protection and intervention.

Proprietary Academies

The point has already emerged that efficiency of academic institutions depends crucially on the structure of property rights surrounding them. So far we have examined (1) public colleges where most, if not all, of the costs are provided by government and (2) independent colleges that are privately endowed. We have also emphasized that, before the state-run higher educational institutions, the universities, such as Oxford and Cambridge, which operated without government support throughout the eighteenth century and well into the nineteenth century, were certainly not monumental successes. It is reported by Winstanley, for example, that by the mid-nineteenth century there was in Cambridge a growing resort by students

⁴²J.S. Mill, *Principles of Political Economy* (reprint ed., :Augustus Kelley, 1969), p. 942.

⁴³Ibid., p. 956..

⁴⁴ J.S. Mill, *On Liberty* (New York: F.S. Crofts and Company, 1947; reprint ed., London: 1972), p. 240

to the services of private tutors (at a fee) as an escape from the inefficient teaching provided by the university and colleges.⁴⁵ Luminaries such as Edward Gibbon and Jeremy Bentham, as well as Adam Smith, were all highly critical of the privately endowed universities.

And again it was Adam Smith who diagnosed the source of the problem inappropriate property rights specifications:

If the authority to which the teacher is subject resides in the body corporate, the college, or university, of which he himself is a member, and in which the part of the other members are, like himself, persons who either are, or ought to be, teachers; they are likely to make a common cause, to be all very indulgent to one another, and every man to consent that his neighbour may neglect his duty, while he himself is allowed to neglect his own. In the University of Oxford, the greater part of the public professors have, for these many years, given up altogether even the pretence of teaching.⁴⁶

The argument appears to suggest that the only ultimate cure of the US university's "cost disease" today is the gradual but planned withdrawal of government, but not necessarily government finance, from the academic industry. Without this event the crowding out effect will always make it difficult for new proprietary academic establishments to prosper. In Britain it is equally true to say that the unique case of the sole independent university Buckingham is maintaining a threshold mainly because of the recent retrenchment of public spending on the "conventional universities." And it is remarkable that the Buckingham institution is the only one hitherto to have introduced such innovations as two-year degree courses, the substitution of two, year contracts for the old tenure system, and academic years consisting of four ten-week terms.

Conclusion on Organization Aspects

The debilitation of typical universities in today's environment stems from years of over-supply of public funds. The argument by some economists that government intervention has been justified by the existence of public (external) benefits has been

⁴⁵ D.A. Winstanley, *The University of Cambridge in the Eighteenth Century* (London: Cambridge University Press, 1922)

⁴⁶ Smith, *Wealth of Nations*, Book V, Chap. 1, Part III, Art. II.

based on assertion rather than evidence. One part of the argument contains the implicit assumption that intervention will significantly expand educational output. Having applied the analysis of Peltzman (with our own modifications), we have reached the conclusion that significant educational output expansion following intervention has never been demonstrated. What we have been witnessing is a substantial expansion in the costs of an increasingly monopolistic public establishment and the slow demise or crowding out of competitive alternatives.

This is not to say that *any* form of privately funded education inst will do much better. The authority of Adam Smith and others providing testimony to this. Private subsidies can be just as disruptive or enervating public subsidies. The main requirements are proprietary enterprises whose main source of revenue derives directly from the market and its system of payment by results. Such institutions only will experience the salutary feedback mechanism of the stock market, a mechanism that will constantly keep proprietary establishments progressively up to standard. Administrators' and professors' sovereignty should go. The consumer should be re-enthroned.

The Theory of Public Choice

In the previous exploration of public finance (welfare economics) aspects of our subject in the first part of the chapter, the question of optimal subsidies was examined. It was shown that the literature frequently recommends intervention to internalise externalities from education. My own conclusion about whether externalities were empirically relevant at the margin was agnostic. But, to those who are convinced that they are relevant, the further question must immediately be addressed as to whether public officials enjoy the right kind of information and face the kind of incentive structures that are conducive to the "correct" public policy response.

Externality advocates often appear to assume implicitly that our democracy is one in which the preferences of an undifferentiated electorate are respected via an electoral process and then by subsequent executive, bureaucratic, and judicial actions. Yet such a scenario is inaccurate. The electorate is not undifferentiated. Typically, it is

represented by special interests whose preferences dominate those of the general public. When citizens are brought together into a group, as for instance at their place of occupation, the political office holder has an interest in transacting with its leaders. Representation of dispersed individual citizens, in contrast, is much more costly. The office holder himself will receive more direct rewards by behaving in this way, and the result is a political process that produces private benefits to special interest groups at collective costs.

Expressed in other terms, there is no assurance that representative democracies can easily deliver optimum subsidies to internalise external benefits from education, as the usual welfare-regarding models of the public sector assume. Instead, the real world political process can be more confidently expected to produce particularized rather than generalized benefits. Subsets of the population (including office holders), therefore, stand to benefit at the expense of the general public.

Such argument predicts that educational subsidies will indeed emerge but that they will be directed more to the interests of the suppliers of education than to the general public. The supply interests here will be the organized teaching profession, the members of education bureaucracies, politicians, and politically articulate student groups. The result is that we start with a proposition about externalities that has been described as an instance of market failure, and we finish our analysis with the realization that, if political action I instigated as a "corrective," we soon run into at least equally serious problem of government failure.

Even if evidence of marginally relevant externalities of net positive value does emerge, this would still not constitute an argument for the present system of government financing. Ideally, government intervention has to be designed to increase educational output beyond what the market would achieve. If this is at all possible the most effective way to do it is to direct the subsidies to students in the form of scholarships or vouchers. Because students would then have the freest of choices among universities, the resultant competition would keep costs down to a minimum and/or would maximize output per dollar of expenditure. The fact that the supply interests have managed to persuade governments to avoid vouchers and

instead to finance the universities directly testimony to the asymmetric political power to which we previously referred.

Typical public universities have conventional bureaucracies that are interested in expanding their own budgets and in enhancing the welfare of administrators and others involved on the supply side. The inefficiency of such bureaus stems largely from their monopoly position. It is true that there exist some private institutions of higher education side-by-side with the public ones. Numerically, however, the private sector is small and is relatively shrinking. One must reiterate that this situation occurs largely because of the tendency the public system to crowd out the private. The circumstances that make this possible include the obvious fact that tuition fees in private establishments are higher than those in public institutions, where the subsidy element tends to dominate. In 1986 average tuition and other fees in U.S. private universities amounted to \$5,120, whereas the public equivalent was only \$1,040.23.

The crowding out phenomenon is not new. In his *Wealth of Nations*, published in 1776, Adam Smith not only observed the tendency but also offered the crucial diagnosis: "Unsubsidised private education institutions in his day were a declining minority, he argued, because the salaries of the teachers the public or subsidized establishments ... put the private teachers who pretend to come into competition with them, in the same state as the merchant who intends to trade without a bounty [subsidy] in competition with those who trade with a considerable one"⁴⁷

It is not surprising therefore that the proportion of private to public higher education institutions in the U.S. has fallen from 35.7 percent in 1963 to 2 percent in 1983.^{48,49} What is more, this decline is officially predicted to continue. Thus, it is estimated that by 1990 the proportion of private to public have fallen to 20.5 percent.⁵⁰

⁴⁷Smith, op. cit. V, p. 265

⁴⁸ *Digest of Education Statistics 1985-86*, (Washington, D.C.: National Center for Educational Statistics, Table 139).

⁴⁹ *Digest of Education Statistics 1986*, (Washington, D.C.: National Center for Educational Statistics, Table 87).

⁵⁰ Projections of Education Statistics to 1990-91 by Martin M. Frankel and Deborah E. Gerald, National Center for Education Statistics, U.S. Department of Education 1982. Table 20

Insofar as bureaucracy increases the costs and reduces the efficiency education, the freedom and encouragement of the genuine scholar is seriously impaired.

His working environment is likely to become the subject of tight routine and regulation. Furthermore, the administrative hierarchy with which he is saddled will attempt to direct his energies toward obtaining the maximum financial return from government to pay the salaries of all participants, including those of the administrators and of the least efficient academics.

Some relevant evidence has recently been produced by William Orzechowski.⁵¹ He tested the hypothesis that staff inputs in public institutions are used in greater proportion than they are in private firms supplying the same service. His empirical analysis covered thirty-one states for the year 1968. He found that, for the same relative price of labour to capital by state, the public colleges in a state employed roughly 40 percent more labour than did private colleges for the same sized capital stock. He concluded that such a labour bias of public colleges and universities was due to behavioural reasons associated with difference in ownership. The public institutions were operated by administrators who were utility maximisers, and the fiscal residuum generated by these organizations was used to a considerable extent for overstaffing.

In another piece of research, David Sisk has argued that, because tuition is held below the market clearing price in public universities, market evaluation of the product mix is prevented, and the public authority is forced to monitor product attributes. The main attribute is enrolment.⁵²

Consequently, because the public funding is directly linked to the number of students, university managers divert resources toward enrollment and away from instruction. The result is larger classes, lower admission standards, and less preparation for the classroom by instructors.

Public Choice and Equity

⁵¹ William Orzechowski, "Economic Models of Bureaucracy: Survey, Extensions and Evidence," in *Budgets and Bureaucrats* ed. Tom Borcherding (Durham, NC: Duke University Press, 1977).

⁵² D. Sisk, "A Theory of Government Enterprise: University PhD Production," *Public Choice*, vol. 37, no. 2, 1981, pp. 357-63

As previously mentioned, another leading argument urging government intervention is that income distribution can be improved by providing educational facilities, especially to the poor. I have pointed out that there are two dimensions to the equity question: Equity (Type,1) within the college-ability group and Equity (Type 2) between the users and nonusers of higher education. I emphasized that the latter version was the prior consideration if we are to adopt widely accepted notions of justice. In fact it is this same version that, in politics, seems to be deliberately neglected or submerged. Rational politicians will predictably choose to talk in terms of the particularized needs of the student group since it is more organized politically and can offer measurable benefits, in turn, to their party. The politician's prospects will be pursued more effectively in this way than by attempting to champion the interest of a widely diffused, unorganised, and less educated population that is made to contribute via taxes (especially indirect taxes) to a higher education system from which its members are personally disqualified. Higher education students, education bureaucracies, and politicians will all comfort themselves, meanwhile, with statements that they are supporters of "equity" simply by arguing for more money to reduce tuition in the interests of accessibility. What is concealed is the fact that most higher education students are middle class and would receive higher education anyway, even in the absence of any government intervention (see the previous discussion of Petzman's 1973 analysis). It is these students who benefit predominantly from the system; it is they who enjoy the accessibility- to the incomes of poorer families who, partly because they typically receive the worst offerings of the public school system (kindergarten through high school), will have children who are not usually acceptable entrants to universities.

Public Choice and the Government Loan System

The way to stop middle-class students from drawing upon the incomes, poor nonusers of higher education is to implement an income contingent loan system. With this arrangement students would be called upon to repay the loans only if they reached high enough income positions in the future. The successful students, meanwhile, would be obliged to pay some surcharge cover the costs of the less

successful. In this way the middle class will be obliged to look after its own "poor" without having to depend on those who are unambiguously poor.

Despite the logic behind this argument it is a striking fact that, a quarter a century after Friedman proposed it, the principal of a contingent loan system has still not been introduced by the public sector in America or in Canada. Equally arresting is the continuance of a bureaucracy, with its own special constituency, persisting with an inefficient method of loan policing and collection. For, the loan system still does not employ the income tax machine the method that Friedman originally advocated. Meanwhile, in Canada, previously explained, for every \$1000 lent government is involved in extra costs of at least \$700.

In the U.S. the largest financial intervention continues to be, not the loan system, but the Basic Educational Opportunity Grant (BEOG) program. In the 1980s total outlays on BEOGs are exceeding \$3 billion. Such subsidised college students, to repeat, have the consequence of making individuals with higher expected incomes in the future even wealthier, and this at the expense of the less fortunate. The comment of the Friedmans in 1980 is still apposite:

"In this area those of us who are middle and upper-income classes have conned the poor into subsidizing us on a grand scale - yet we not only have no decent shame, we boast to the treetops of our selflessness and public spiritedness."⁵³

But, despite such protest, the fact remains that the political process as we know it, and populated as it is with self-interested politicians, administrators, and interest groups, is apparently so constructed as to continue the Friedmans' "confidence tricks" in perpetuity.

Conclusions

The public finance approach to the issue of higher education recommends, among other things, the use of benefit/cost techniques to determine how far public investment in postsecondary schooling is socially worthwhile. My own research on these lines has challenged the tide of opinion in Canada that the public universities are under funded. This conclusion has followed from new adjustments that I have

introduced to the traditional benefit/cost formula, the two most important being (1) an addition on the cost side to allow for deadweight losses from taxation and (2) a further addition corresponding to the enormous, but previously neglected, incidental costs associated with an inefficient public loan system. Beyond this I have drawn attention to the need for a downward revision to benefit/cost analyses (whether in Canada or elsewhere) because of the potential use of education in the socially wasteful practices of job-market signalling and occupational licensure. The finding of very high private rates of return, meanwhile, indicates that tuition could be raised significantly without large effects on enrollment.

With respect to the case for intervention on "equality" grounds, I have shown that the present system aggravates rather than ameliorates reasonable notions of equity. Applications of the theory of market and organization have indicated the inevitability of the crowding out of private by public academic institutions and the increase of the monopoly power and social inefficiency of the latter. But it has also been shown that subsidies of any kind, whether public or private, tend to have potentially detrimental consequences for efficiency, and especially if they are directed straight to institutions rather than to students.

Finally, considerations of public choice remind us that the political process that advocates rely upon to Pursue external benefits, equity, and so on, does not, in practice, respect the preferences of a wide and undifferentiated electorate but tends to allow particular interest groups (including politicians, bureaucrats, teachers, and middle-class students) to exploit asymmetric political power. The "pure" recommendations of traditional welfare economics (public finance) thus appear to be associated with some vision of perfect democracy and benevolent government. And it is in this way primarily that a conflict among economic approaches has been illustrated.

⁵³ Friedman and Friedman, *Free to Choose*, p. 172.