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TOWARDS FREE POST-SECONDARY EDUCATION?

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Numerous factors account for these changes. Education is what economists call an income-elastic good -- as incomes increase the amount of education demanded increases even more rapidly. Awareness of the opportunities afforded those who have education beyond secondary school has steadily increased. With this increased awareness and an accompanying increasing social conscience, government has assumed a growing share of education costs. This subsidization has generally been justified by the argument that there are significant social returns to a better educated population, and by attempting to achieve the social goal of equal educational opportunity.[1] The basis on which the "correct" level of subsidization is reached (and the extent to which either justification is met) remains a subject of debate.

However, these fundamental changes have also given rise to a number of critical, but largely unresolved, questions. Can universities cope with the increased demand within the context of individual and personal enrichment or will they meet it in a new atmosphere of group and impersonal processes? Teaching is a profession in which productivity has not improved and hence as labour has become relatively more scarce over time expenditures for teaching have become a larger element in the budget.[2] In fact, in 1967-68 expenditures for instruction amounted to 62% of university budgets.[3] Will resort have to be made to mechanical teaching devices and/or lower teacher/student ratios?

Equally important and related is a question that concerns all bureaucracies, but particularly new ones. This is the problem of efficiency and accountability - the problem on which the Economic Council in its Seventh Annual Review placed greatest emphasis.[4] As government's role has increased, the change has been sufficiently rapid to preclude changes in the institutional

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1. Cf., Report of a Commission to the Association of Universities and Colleges of Canada, Financing Higher Education in Canada, (Toronto, 1965) Chapter V.

2. Cf., Walter Hettich, Expenditures, Output and Productivity in Canadian University Education, Economic Council of Canada, Special study 14, (Ottawa, 1971).

3. Computed from D.B.S., 81-201, 1968-69, (Table 29) p. 56.

4. These problems are problems of the "grants economy." For a detailed discussion see the recent writings of Kenneth Boulding.

TOWARDS FREE POST-SECONDARY EDUCATION?[1]

by

Ronald W. Crowley*

Introduction

The adverse reaction to the Economic Council's proposal last year to increase tuition fees for higher education was not surprising.[2] Students in post-secondary institutions, and the families of which they are part, comprise a significant - and growing - proportion of the Canadian population.

Recent growth in enrolment in post-secondary institutions has been dramatic. From 1959-60 to 1969-70 the increase was from 148,000 to 490,000 full-time students or 331%.[3] Projections prepared for the Economic Council suggest that by 1980-81, full-time enrolment will be approximately 1,130,000.[4] Equally dramatic has been the increased financial responsibility assumed by both the federal and provincial governments. Whereas in both 1953-54 government contributed 49% of the total revenues of universities, by 1967-68 they contributed 70%; in absolute terms, this growth was from $32 to $521 million.[5]

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1. Post-secondary includes universities and other institutions requiring secondary education as a prerequisite.

2. Economic Council of Canada, Seventh Annual Review: Patterns of Growth, (Ottawa, 1970), p. 70

3. Z.E. Zsigmond and C.J. Wenaas, Enrolment in Educational Institutions by Province 1951-52 to 1980-81, Staff Study No. 25, Economic Council of Canada, January, 1970, p. 93.

4. Ibid., p. 29, 93.

5. Computed from D.B.S., Preliminary Statistics of Education, 81-201, 1968-69 (Table 29, p. 56) and 1952-54 (Table 25, p. 30).

arrangements. In the case of fees and gifts, the university must cater to particular groups and there exists some incentive to use its money efficiently if money is to be forthcoming. However, for government grants it has usually only to meet some stated formula.[1] Usually, the formula is one based on enrolment and hence there is an incentive for expansion if the formula yields monies greater than the cost of educating the extra students. Certainly, in this context there is no incentive for efficiency in the use of these monies and administrations become involved in games of numbers. To take an example, under the Ontario grant programme, a basic unit of grant is set up to be equal to some dollar amount (approximately at present $2000) and different types of students are weighted differently.[2] A general undergraduate is 1 unit, an honours undergraduate 1 1/2 units, a masters student 3 and a Ph.D. 6 units. Perhaps this reflects a social ranking of the extent to which each class should be subsidized but its generalized nature cannot help but result in unintended effects. To the extent that the relative weights do not reflect opportunity costs, not only does the formula encourage the rapid proliferation of graduate schools (for greater points) and hence dollars but it also encourages growth in those disciplines which are the least expensive (i.e., humanities and social sciences).

A third question concerns the limits of government involvement in higher education. The effect of government intervention has been to freeze the fee structure. This implies that the real cost of tuition to the individual has actually been declining over the past few years. In this context, given that government's revealed preference has been to decrease role of tuition, a critical question is whether fees should continue to play any role or whether instead tuition should be abolished and higher education put on the same basis as education at lower levels.[3] It is to

1. In some provinces grants are determined by political bargaining which generally eludes efficiency criteria to even a greater extent.

2. Cf., Charles Hanly, Who Pays, University Financing in Ontario OCUFA Studies in Higher Education 1, (Toronto, 1970).

3. One might similarly conclude that this raises the question whether or not higher (or lower non-zero) tuition fees should be employed. We chose not to examine these considerations except in the context of zero tuition fees. See Section C.

this question that we address ourselves in this paper.[1]

We shall first place the topic in perspective by examining some historical and current considerations. After this, we will assess the pros and cons of such a policy and then estimate the financial costs. Finally, we will attempt to draw some conclusions as to the feasibility and the desirability of tuition-free higher education.[2]

B. Perspective

It is rather interesting to note the parallels between the proponents and opponents of free university education and the same groups in the last century arguing free elementary and, later, secondary education.

In Ontario, when Egerton Ryerson argued in 1846 that "a universal and compulsory system of primary and industrial education is justified by considerations of economy as well as of humanity",[3] opposition was intense. Newspapers complained of the importation of ideas of absolutism from Europe;[4] politicians recoiled from the difficulties of collecting revenues to finance the proposal;[5] "men of property ... (and farmers) objected to paying taxes to educate other people's children;"[6] "doctrinaire liberals... objected to the introduction of 'communism' and held up the French as 'warning of the abyss to which this probably socialism is enticing us' ";[7] others forecast the doom of the entire system resulting from this abrogation of the principles of free enterprise.

On the other hand, Ryerson's arguments in favour of universal education sound surprisingly modern.

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1. For a discussion of this and other alternatives see J. Philip Hinson, "Higher Education - How to Pay", New England Economic Review (March/April, 1971), pp. 3-22

2. C.D. Sissons, Egerton Ryerson, His Life and Letters, (Toronto), (1937), Volume 2, p. 26. Cf. p. 16, 105, 190.

3. For a discussion of a situation where free university tuition and open admissions have been attempted (City University of New York) see "Report card on open admissions: remedial work recommended" The New York Times Magazine, (May 9, 1971), pp.26-46.

4. P. 105.
5. P. 126
6. P. 209
7. P. 249

He kept before the minds of the people such principles
as these; a free country requires an intelligent people;
a common school education is the right of every child in
the land; the property which is accumulated by the help
of the common industry and intelligence of the people,
and protected as well as the increase in value by the
institutions of the land, is justly chargeable with that
which is absolutely necessary for the general welfare
of the country, and to enable every man born in the
country to discharge the common duties of citizenship to
the common good.[1]

Indeed, it is probably fair to conclude that the arguments
used by both sides are similar to those used whenever social
change is proposed; arguments based on the sanctity of the
status quo and the assumed deleterious effects of the changes
vs. arguments proclaiming the fundamental necessity of the
change.[2]

C. Arguments for and Against

In many respects, the debate on free post-secondary
education has just begun, although a form of non-decision to
advance in that direction has already been made. We have drawn
attention to government policies which have had the effect of
stabilizing fees. During inflationary periods, this implies
a decrease in the real amount that individuals have to pay.
Although change is more likely to succeed if it is marginal
and almost indiscrete, (as this change has been) decisions
as important as this should not be left to happenstance.
If the change is justified, then delay perpetuates inequities;
if it is not justified, then inequities are the result of the
even marginal changes.

In the final analysis, the economist's role in this
debate is limited:

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1. Nathanael Burwash, Egerton Ryerson, (Toronto, 1910), p.191.

2. Some opponents to zero tuition have, of course, argued
that such a policy could only be implemented to benefit middle
and high income groups at the expense of low income groups.
Such an argument is quite different from Ryerson's opponents.

If the full cost pricing leads to underinvestment one may ask whether it is appropriate to go to the other extreme where the state would provide free higher education to all qualified students and pay them a stipend while enrolled in universities. The choice between these positions, or the selection of some intermediate position where the costs are divided in some proportion between the individual and the state, must depend on social and philosophical values and not on objective economic grounds. But some discussion of the economics of the problem is relevant to the choice.[1]

While the social and economic issues of the debate are irrevocably entwined, it is possible to analyze them on a basis which clearly delineates the alternatives. As with all collectively provided goods the issues concern equity on the one hand and efficiency on the other. Initially, let us focus on the latter. How can education be most efficiently provided? In part, this question has been answered since there is general agreement that education cannot be left solely to the "market".[2] The important question at the present time is in deciding the optimal level of involvement.

Start from the proposition that government involvement must be justified. Market prices distribute education like any other economic good to those who most want it. Government involvement may be justified to a point since there are social as well as private returns, and the government can "correct" market prices so that they accurately reflect social considerations. However, judging the extent of social returns is not easy and in the final analysis is a question of value judgements. Value judgements are interpreted politically and are ultimately a weighted result reflecting the decision-makers. A different group of decision-makers would undoubtedly result in a different solution.

What would be the calamitous effects if the subsidization were increased to cover all costs? Advocates of the pricing solution claim that resources would be wasted since people would consume more than is "desirable" or in other words, than the amount for which they are willing to pay.[3] These defenders of the price system claim consumption

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1. Report of a Commission..., p. 59

2. For a substantially contrary view, and a rather ingeneous scheme, see M. Friedman, Capitalism and Freedom (Chicago, 1962)

3. See James M. Buchanan, The Inconsistencies of the National Health Service (London: Institute of Economic Affairs, 1965), for a discussion of these issues in British medicare and a defense of the price mechanism.

patterns are distorted when prices are zero. Imposing taxes
to finance non-priced goods is inequitable. Not only will
such a policy result in enormous sums being spent on education
but it will also result in taxes and expenditures which reinforce
regressivity, that is, the real beneficiaries will be the rich
not the poor.[1] Let us now introduce some equity considerations
and examine the premisses of this argument.

In the first place, it should be unnecessary to point out
that, contrary to the opinions of some, the pricing system need
not be maintained for its own sake. Granted, it is the most
efficient means of allocating goods among competing wants,
but were there sufficient goods to satisfy all wants then
prices would be redundant. Indeed, under any circumstances
the goal of economic activity must be to provide goods to
satisfy human wants. Since we are likely to reach the stage
where goods are provided in adequate quantities for all only
gradually, the real question is <u>the priority with which we
release goods from the necessity of allocation through the
price system</u>, i.e., when we can "afford" to offer all members
of society a basic amenity.

In the context of economics, of course, all goods are
scarce if any good is. This follows from the assumption of
substitutability among goods. Unfortunately, in real life,
goods are not completely substitutionable. Moreover, socially,
if the political system is unable (or unwilling because of
other effects) to undertake income redistribution of "sufficient"
magnitude, it may be desirable to bypass the price system on
income redistributive grounds. Economists in rationalizing
a role for government in the context of Pareto optimality,
have concentrated on the <u>necessary</u> rather than sufficient
conditions.[2]

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1. Cf., George Stigler, "Director's Law of Public Income
Redistribution", <u>Journal of Law and Economics</u>, XIII, (April, 1970),
pp. 1-10. Stigler argues that the "Public expenditures are made
for the primary benefit of the middle classes and financed with
taxes which are borne in considerable part by the poor and rich."

2. The latter is laced with the normative judgements from
which economists generally shy away. It might be similarly
argued that economists have concentrated on developing a normative
(in the context of Pareto optimality) rather than positive analysis
of government. See Peter O. Steiner, "The Public Sector and the
Public Interest", in R. Haveman and J. Margolis (ed)., <u>Public
Expenditures and Policy Analysis</u>, pp. 21-58.

This, of course, is a normative decision. If we decide that education is the highest priority then the question is whether or not we can afford to "release" it at the present time. In computing the answer to this question, consideration must be given both to the costs of <u>not</u> having free education and to those of having it.

Secondly, the reasons for the anticipated increase in expenditures resulting from zero tuition should be analyzed. Obviously, part of the increased subsidization is of those who would have attended were tuition free or not.[1] The remaining portion, however, goes to two identifiable groups who would not have attended: (a) those who do not face income constraints on their decision and are unwilling to pay the tuition "price" and (b) those who do face income constraints and for whom the real price is greater than perceived benefits. Of these two groups it is clear that the latter is the most significant.[2] People will consume more than if tuition were charged but who is to say that the choice dictated by the extant distribution of income is the best one? Our calculus says, in effect, it is desirable for all to attend university and that rather than the extant income distribution some other is better.[3] If all were to go

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1. To the extent that students receive grants and other subsidies however, these could be reduced by the amount of the saving in out-of-pocket expenditure. Since a large proportion of students receive some such aid, this could be a significant factor. See below.

2. Cf. R.M. Pike, <u>Who Doesn't Get to University and Why?</u>, Toronto, 1970 and John Porter, <u>The Vertical Mosaic</u>, Toronto, 1965. Pike seems to suggest that tuition fees are not a <u>strong</u> deterrent.

3. Economists frequently reply it is the best because no other is unambiguously better. The problem with this approach is that it is strongly biased in favor of the <u>status</u> quo and ignores the essential role of the political process in deciding whether those better off outweigh those worse off. The economist's solution to problems of the type we are considering is frequently to change the income distribution to reduce constraints; however this is usually politically even more difficult than providing some goods free and hence increasing "real income" indirectly.

to university, therefore, this would not represent "overconsumption".

Thirdly, research on the distribution of educational benefits is far from conclusive. It should be noted immediately that the extent of redistribution depends critically upon the institutional nature of the tax system. It is always possible to change the structure of taxation to bring about a different balance of benefits and costs.

Hansen and Weisbrod examined the California system to determine the net benefit by income group of higher education in California. Their principal finding was that "families with children enrolled in public higher education receive positive net transfers (subsidy less taxes paid) and that these net transfers are an increasing fraction of average family money income".[1] The subsidy in their analysis is the full cost of education less student charges. A second finding was that larger subsidies go to those families whose children enroll in higher cost, higher prestige institutions.

In a separate study of the Wisconsin system of higher education, Hansen came to somewhat different conclusions.[2] Subsidies were higher in California (expectedly since tuition was almost zero for the period studied) than in Wisconsin but the most interesting finding was that unlike California subsidies were inversely related to income in Wisconsin. As well, "the higher level of taxes paid and the wider differences in family incomes of students combine to make net transfers more redistributive... than are net subsidies."[3]

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1. W. Lee Hansen and Burton A. Weisbrod, "The Distribution of Costs and Direct Benefits of Public Higher Education: The Case of California," Journal of Human Resources, IV, 2, (Spring, 1969), p. 176.

2. W. Lee Hansen, "Income Distribution Effects of Higher Education", The American Economic Review, Papers and Proceedings, (May, 1970), pp. 335-40.

3. Ibid., pp. 337-38.

Table I
...ion Through Higher Education
...rnia and Wisconsin
1964-65

a	Families with children in Higher Education – University of California	Families with children in Higher Education – California State College	All Families	Families With no Children in Higher Education	Families with children in Higher Education – University of Wisconsin	Families with children in Higher Education – Wisconsin State University
	12,000	10,000	6,800	6,500	9,700	6,500
	1,700	1,400	--	0	900	1,010
	14.2%	14.0	--	0	9.3	15.8
	350	260	240	240	430	270
	2.9	2.6	3.6	3.6	4.3	4.1
	+1,350	+1140	--	-240	+470	+740

"Wisconsin" (header spanning the Wisconsin columns)

Effects of Higher Education,"
0), pp. 337-38.

TABLE 2

A Study of the Redistribution Resulting from Canadian Higher Education

	Family Money-Income Class					
	Less than $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000 and above	ALL Families
(1) Public Revenue going to Universities (1961)	10.4%	20.5%	24.9%	19.9%	24.3%	100.0%
(2) Family income of families whose head has "some university education"[1]	21.7	25.3	24.2	18.7	10.0	100.0
(3) Family income of families whose head has a university degree	12.8	17.0	17.6	25.1	27.5	100.0
(4) "Blended family" to reflect a 35 percent dropout rate[2]	16.1	21.1	21.1	23.1	21.6	100.0
(5) Students' Parents, 1961-62	13.5	24.0	22.2	18.7	21.5	100.0

1. Interpolated linearly from 1959 and 1965 data.
2. A weighted average of the percentage for families whose heads had "some university education" (35 percent) with "university education" (65 percent).

Source: Judy, pp. 312, 313

In a similar study for Canada, Richard Judy found that the income redistribution benefits are negligible.[1] "Some 44.2 percent of the costs of public aid to higher education are borne by families earning $7,000 or more. About 40.2 percent of students' parents had family incomes of $7,000 or more."[2] Tables 1 and 2 summarize the results of these studies.

Before directing ourselves to the importance of these studies, let us first offer some criticisms of the method which bring into question the accuracy of the results.[3] In the calculation of benefits, included is only the amount of taxes paid to state (provincial) and local governments by the student's family. No account is taken of the higher productivity of students and the discounted value of the extra tax revenues the student is likely to pay over his lifetime. Secondly, while federal support of higher education is ignored in the subsidy estimates, national benefits are also ignored.[4] Thirdly, the use of tax payments by student families is strongly suspect as a measure (the only measure) of the benefits received from higher education. Although some component of educational expenditure is almost certainly "consumption" for example, this consumption is possibly worthy of consideration (and subsidy). Fourthly, there are data problems since students who were not "parent-supported" were excluded from the analysis. Fifthly, it is not clear that the marginal taxes to support higher education are the same as the average tax burden.

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1. Richard W. Judy, "The Income Redistributive Effects of Higher Education", in L. Officer and L.B. Smith, Canadian Economic Problems and Policies, (Toronto, 1970).

2. Judy, p. 313.

3. These apply, in particular, to the Hansen-Weisbrod study. Criticisms of the approach are contained in three papers by E. Cohn, A. Gifford and I. Sharkansky, "Benefits and Costs of Higher Education and Income Redistribution: Three Comments", Journal of Human Resources, V, 2, (Spring, 1970), pp. 22-236.

4. Judy above has made an alternative calculation based on anticipated income; he also included federal support.

In other words, if less were spent on higher education would all
tax sources decrease proportionately? Sharkansky convincingly
argues that since support is derived disproportionately from
state (provincial) revenue sources which are more progressive
than the property tax base of local taxes, the degree of
redistribution may be substantially overstated.[1] Sixthly,
benefits accruing to out-migrants are subtracted but those
associated with in-migrants are not added; since the level of
education expenditures is likely to be a factor in attracting
migrants, this is not wholly reasonable. Finally, of particular
importance is how this redistribution has changed over time
since there may be long lags among the poor in adjusting to the
changed availability of higher education at subsidized prices.

In evaluating this type of study for our purposes, the last
criticism has considerable relevance. There can be little doubt
that at the present time, the poor take less advantage of higher
education than do lower income groups.[2] However, the fact that
they drop out of the school system (and hence eliminate the
chances of post-secondary education) is a social as well as
economic phenomenon and hence subject to a variety of factors.
It is apparent that were a study of the distribution of benefits
made of primary and secondary education in the last century,
similar conclusions would have been drawn.[3] For lower income
persons, even the existing fees are possibly

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1. Sharkansky, p. 233 ff.

2. One study in the United States suggests that the proba-
bility of dropping out of or falling behind in school is twenty
times greater than for children from well-to-do families where
both parents have completed high school. Masters suggests most
policies are likely to have reasonably small short-run effects
but the possibility of important long run effects. S. Masters,
"The Effect of Family Income on Children's Education: Some
Findings on Inequality of Opportunity," Journal of Human Resources,
IV, 2, (Spring, 1969), pp. 158-175.

3. Stigler argues that middle-income individuals are still
the primary beneficiaries, though his case, it seems, is not
strong. Cf. "Director's Law of Public Expenditures", pp. 2-3.

a deterrent (especially when combined with considerations
of clothing, food, etc.) and certainly they are a relatively
greater deterrent than to higher income individuals.[1] As
well, and frequently ignored, is the fact that foregone earnings
during school have much greater significance for poor people
than for rich. Unless there is some direct means of compensa-
ting for this (for example, payment of a "salary") indirect
informational-type programmes to change perceptions of these
considerations will need to be continued and expanded.

Thus, given the studies that have been done and their
limitations, one can only conclude that it remains to be
proved that current subsidization is regressive.

The basic question becomes one of equity. The real issue
in abrogating the market in a system of unequal incomes is
whether more equal opportunity is provided. A college degree
is the recognized prerequisite for a broad range of jobs --
indeed jobs which do not require the technical ability -- if
any -- acquired from college education.[2]

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1. There is also the problem of raising sufficient money to
meet the "price" of education, if the resources of parents are
unavailable. A number of studies have directed their policy
recommendations towards this problem. Cf. Gail C.A. Cook and
D.A. Stager, Student Financial Assistance Programs, A Report
to the Ontario Committee on Student Awards, Institute for
the Quantitative Analysis of Social and Economic Policy, University
of Toronto, 1969. Loan schemes as recommended by this and other
studies, are generally unsatisfactory since (1) the real cost
of borrowing probably seems much higher to lower income people
and those with more uncertain futures and hence they do not
take as great advantage of them, (2) an effective system
requires a considerable administrative expenditure and usually
some sort of means test and (3) such loan schemes (other than
those at market rates of interest) generally result in a large
degree of subsidization of non-educational consumption. The
Ontario Government is currently examining the possibility of
implementing one such loan scheme, the Educational Opportunity
Bank, with repayments geared to income after graduation.
hile such a proposal is preferable in a number of respects,
it is still subject to substantially the same criticisms, viz.,
the perception of the real cost on the part of the borrower.

2. John B. Keats, The Sheepskin Psychosis, (New York, 1965)

Lowering price barriers is one substantial way of increasing opportunities to all income groups. Since the lower income groups presently take least advantage of higher education, it follows that potentially increased demand from this group is greatest. Of course, as Hansen points out, in the interest of enhancing equality of opportunity public subsidies must include not only university education but all forms of training and education. Secondly, as far as financing is concerned, coercive taxation is equitable if the proceeds are used for equitable purposes. The burden of taxation can be politically distributed in the best way to reflect this concern. Similarly, one might argue that expenditures for these purposes are equitable if they provide a framework in which all citizens can participate in the fruits of an economically developed society.

If decided on these issues, then, two questions remain: (1) What are the costs of alternative subsidy plans? and (2) How are they to be financed? As well, of course, the corollary: Can we afford these costs? It is to these questions that the remainder of this paper will be devoted.

In the next section, we will attempt to estimate the total cost of free post-secondary education in Canada. Following that, we shall look at the cost relative to other programmes and the increased tax rates necessary if no cutback in other programmes is to accompany such a policy.

C. Method

The analysis may be divided conceptually into two separate steps. First, we calculate the additional costs the community would bear if students in 1966-67 had paid no tuition.[1] The second step is to include the total cost of some reasonable estimates of increased enrolment that might result from abolishing tuition fees.[2]

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1. 1966-67 is the most recent year for which complete data are available.

2. It is important to remember that this is not fully "free education" since remaining are the costs of books, personal services, living expenses and most important the opportunity cost of not working.

The initial cost estimates involve the assumption that all costs of post-secondary education are absorbed by government. This requires not only that the costs previously absorbed by students be added to government education expenditures, but as well that other sources of university revenue, including private funding agencies, disappear.[1]

Educational expenditures in any period are the result of expenditures for new capital and those for operating purposes. Since the reported statistics on operating expenses might be expected to include a component approximately equal to the amount of capital consumed in the period (i.e., depreciation), it would be possible to use only these data in the computation of total costs.

Although this would be the simplest approach, the results would be misleading. Prices are not constant over time and accountants record the value of capital at purchase price. If prices rise over time and depreciation schemes are not designed to account for price changes (which they are not), asset values and depreciation per period will tend to understate real economic values. Moreover, poor capital accounting procedures generally have meant that depreciation is in fact much greater than amortized cost. As well, there is no provision made for foregone interest on investment in educational facilities.[2] In view of these considerations, we have chosen to directly estimate the capital component of expenditures.

The basis for this estimate is the formula used by the Ontario government to determine the capital requirements of Ontario Universities.[3]

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1. This is a reasonable assumption especially if one considered remaining private contributions directed to "special" extraordinary expenditures.

2. For a discussion of this issue, see Walter Hettich, Expenditures, Output and Productivity in Canadian University Education, Economic Council of Canada, Special Study 14, (Ottawa, 1971), p. 23

3. Report of the Committee on University Affairs, 1968-69, pp. 30-32.

Table 3 summarizes the estimated floor space and costs allowances per student in various programmes. This is based on $55 per square foot as specified by the Province.[1] In the absence of information on other provinces, we applied these values

TABLE 3

Capital Financing in Ontario Universities

Programme	Floor Space Allowance	Cost per Student
Undergraduate Arts, General Science, etc.	96 sq. ft.	$5,280
Hon. Science, Undergraduate Professional Courses	176 sq. ft.	9,680
Graduate	352 sq. ft.	19,360

Source: Based on Report of the Committee on University Affairs, 1968-69, (Toronto, 1970), pp. 30-32

to all of Canada. Although there are likely to be some regional differences, it is not apparent that these would be of sufficient magnitude to warrant our attention.

Operating costs per student are calculated by dividing total reported operating costs by total enrolment. Total per student costs of post-secondary education are therefore estimated as the sum of operating and capital cost components.

For the second part of the analysis, the task is to examine the demand for post-secondary education with a view to determining the increase in enrolment which might be expected from the lower costs that individuals would face. Unfortunately, this information is unavailable. Of course, even if it were,

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1. Discussion with an architect suggested that, if anything, this value is low. However, it should be noted that the formula square footage applies to "usable" space and hence there is an incentive to economize on hallways, foyers, etc.

one would have to be wary of using it. The meagre research which has been done on this question has concentrated on changes in the amount of education resulting from changes in income and not price.[1]

Instead of attempting to estimate the increased enrolment, we have chosen to examine the implications of a number of alternative assumed increases in enrolment. The range is from 0% to 100%. Initially, one would not expect a large response to the innovation; however, over a longer period of time adjustments would be made. Enrolment as a proportion of those 18 - 24 years of age was approximately 16% in 1967.[2] A 50% increase would raise enrolment approximately to the level of the United States and a 100% increase to the level predicted for Canada in 1980-81 if there were no change in fees.[3]

Before presenting our estimates, we should note two assumptions of the method. First, we have assumed constant costs (marginal costs equal average costs). Given existing information, this was a necessary assumption, although it must certainly be true that there exist discrete changes in costs and the possibility of varying marginal costs.[4] Secondly, the analysis of capital costs assumes that facilities were used to capacity. If they were not, then it would be possible to increase enrolment without increased capital expenditures.

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1. Cf., J. Schaafsma, "The Demand for Higher Education in Canada", Institute for the Quantitative Analysis of Social and Economic Policy, University of Toronto, September, 1968, found that when all other factors were considered the demand for education was not sensitive to changes in income. One might expect a similar conclusion with price if the prime reason were perception of the advantages of education; however, in the long run zero tuition would be a factor in changing this perception.

2. Z.E. Zsigmond and C.J. Wenaas, p. 12.

3. Ibid., p. 12 and appendices.

4. It should be noted that in a dynamic context, large enrolment increases may be characterized by substantial short run economic rent accruing to factors in fixed supply (for example, faculty members). Our analysis is based on constant cost supply functions. (see below)

D. The Results

Table 4 presents our estimate of increased costs. It is apparent that substantial increases in expenditures would occur. If enrolment were to increase 100% approximately two and three-quarters billion dollars more would be spent than would be the case with no increase in enrolment.

Two questions arise in connection with this calculation. First, what amount of this increased expenditure would be a direct subsidy to those already attending university? Our answer to this is complicated by the fact that our calculations are based not on actual government disbursements in 1966-67 but what they would have been if there were no private financing. In fact, of course, private financing accounted for 5.6% of university revenues in 1966-67.[1] As we argued previously, however, it is more reasonable to treat these as extraordinary revenues which would be used by universities to supplement government monies. Under the circumstances, students currently enrolled would receive an additional subsidy of $194 millions. However, the net expenditure would be less since grants and loans given by governments to students could at least be somewhat reduced.

If every student enrolled in 1966-67 higher education were receiving a grant to cover tuition, this would imply no subsidy to those who are currently enrolled. However, this is unreasonable since not all students received aid and among those who did, a number (unknown) received more than the cost of tuition. In 1966-67, some $127 millions were spent by governments on aid to students; there were 237,000 awards.[2]

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1. D.B.S., Canadian Universities, Income and Expenditure, 81-212, Table 14. (See Table I)

2. Education Support Branch, Department of the Secretary of State, Federal and Provincial Student Aid in Canada, 1966-67 and 1967-68 (Ottawa, 1970) Tables 1, 3, 6, pp. 35-37. This was comprised as follows (1967-68 figures in brackets - millions of dollars): loans $65 ($76), grants $30 ($38), bursaries $4 ($5) free tuition, $2 ($3), allowances $5 ($8). Total $127 ($155). University support of undergraduates was $7 millions in 1966-67. The rapid growth draws into question the validity of conclusions based on one year's data.

TABLE 4

Estimated Costs of Alternative Post-Secondary Enrolments for Canada, 1966-67

(1) Change From 1966-67 Enrolment Actual	(2) Expenditure Class	(3) Total Government Expenditures (Millions of dollars)	(4) Change in Total Government Expenditures (millions of dollars)	(5) Change in Total Government Expenditure if Capital Facilities allocated Over Twenty Years (millions of dollars)[1]	(6) Change in Total Government Expenditure if Capital Facilities Allocated Over Five Years (millions of dollars)
Actual	Operating	$ 385			
	Capital	207			
0%	Operating	579	$ 194[3]	$ 194	$ 194
	Capital	1,903[2]	–	0	0
	Total	$2,482	$ 194	$ 194	$ 194
10%	Operating	$ 637	$ 252	$ 252	$ 252
	Capital	2,093	190	10	38
	Total	$2,730	$ 442	$ 262	$ 290
20%	Operating	$ 695	$ 310	$ 310	$ 310
	Capital	2,284	381	19	76
	Total	$2,979	$ 691	$ 329	386
50%	Operating	$ 868	$ 483	$ 483	$ 483
	Capital	2,855	952	48	190
	Total	$3,723	$1,435	$ 531	$ 673
100%	Operating	$1,158	$ 773	$ 773	$ 773
	Capital	3,806	1,903	95	381
	Total	$4,964	$2,767	$ 868	$1,154

TABLE 4 (Continued)

1. Capital values are not discounted. Calculated total costs are interpreted as costs in each year (for five (6) or twenty (5) years) of current and capital expenditures.

2. A comparison of this value and actual capital expenditures is not meaningful since actual expenditures are those for a given year whereas this value represents the total stock of capital. Since no student fees are credited to capital account, it may be assumed that if enrolment were to remain the same there would be no additional demands for government financing.

3. This represents a maximum amount since it would probably be possible to reduce grants and loans to at least some students if tuition were free. See text.

Suppose three quarters were spent on undergraduates.[1] With
university money spent on grants, this implies $98 millions
were spent on undergraduates. If we assume one half of the
awards were in an amount greater than tuition cost (say $500)
and the other one half averaged $250, then a saving of
approximately $74 millions would be possible. Thus, it
appears that more than one third of the anticipated increase
in expenditures would be compensated by decreases in student
aid programmes.[2] However, since any increase in student
enrolment would likely be among those who would require funds
to meet other costs at university, the savings might be com-
pensated in turn by this increased demand. If 25,000 additional
students were attracted[3] and if they required an average
$1000 loans or grants, this would imply that one third of the
presumed "saving" on current loan/grant programmes would
disappear. Obviously, there are a large number of permutations
depending on the particular assumptions made. We have therefore
presented our results in Table 4 ignoring the effects on grant
and loan programmes; the reader should nevertheless be cognizant
of this consideration in interpreting the findings.

A serious problem in the interpretation of these data
results from the fact that account has not been taken of the
life of capital assets, i.e., the possibility of spreading
capital expenditures over several years. Thus, the data as
presented may represent an estimate of the total initial
expenditures if all facilities are immediately provided but
they do not represent expenditures in the second or subsequent

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1. Graduate students were only 10% of total enrolment
but presumably received more aid per capita.

2. The assumptions on which this conclusion is based are
probably conservative, especially when considered dynamically.

3. This was approximately 10% in 1966-67.

years. To give a fairer presentation of this information,
we have arbitrarily assumed a useful life for floor space
of twenty years. If the costs of physical facilities are
then spread over twenty years we have an estimate of the
change in total annual expenditures (Column 5, Table 4).
In column 6, we present estimates of the changed expenditure
on the basis of the reasonable assumption that capital
facilities are provided over a five year period.

The final question is how this cost compares to other
government expenditures and whether we (collectively) can
afford it. Table 5 summarizes our data for this. It is
apparent that a substantial sum both in absolute terms
and relative to other expenditures is involved.

Even if enrolment were to remain the same, free tuition
would imply an increase of 21% in the amount spent on univer-
sities. In the implausible circumstance that enrolment
increased 100% and all capital facilities were immediately
provided, the increase would be almost 300% (approximately
85% operating and 215% capital). More reasonable is an enrolment
increase of, say 20%, over a five year period -- in this case
an increase of approximately 40% over 1966-67 expenditures.

It is clear that if enrolment increases substantially --
an unlikely possibility in view of the fact that high school
graduation remains a necessary prerequisite -- the costs
ranging from $.9 to 2.7 billion dollars would be substantial.
However, relative to total expenditures and our national
wealth, more reasonable enrolment projections are within a
reasonable range of costs.[1] The question thus is whether
we are willing to increase the public commitment to post-
secondary institutions by approximately 35-50% to ensure
more equal opportunity to all. The reply must be based on
social values and provided through the political system.

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1. Column 1 of Table 5 represents the increase in total
expenditures and hence the increased average rate of taxation
which would be necessary to finance free tuition under alternative
assumptions. Since approximately 37% of total revenues are
raised through income taxation, one would have to multiply
each of these values by 2.7 to derive the approximate increase
in the average rate of income taxation. Thus, for assumption
B in Table 5, the increased taxation would be 2.8%, 4.2%,
5.6%, 9.7%, and 16.6%.

TABLE 5

Estimated Increased Expenditures for Tuition-Free Post-Secondary Education As a Proportion of Selected Government

Expenditures and GNP, 1966-67
(Millions of Dollars)

Enrolment Projections	Total Government Expenditures	Total Provincial Government Expenditures	Total Educational Expenditures	Total Expenditures on University in 1966-67	Total Elementry and Secondary Expenditures	GNP
	$18,727²	$6,132²	$3,481²	$923³	$2,558³	$62,06?
A. Assume all Capital Expenditures Immediately made						
0%	1%	3%	6%	21%	8%	0%
10	2	7	13	48	17	1
20	4	11	20	75	27	1
50	8	23	41	155	56	2
100	15	45	80	300	108	4
B. Assume All Capital Expenditures Made Over Five Years						
0%	1%	3%	6%	21%	7%	0%
10	2	5	8	31	11	0
20	2	6	11	42	15	1
50	4	11	19	73	26	1
100	6	19	33	125	45	2

TABLE 5 (CONTINUED)

Estimated Increased Expenditures for Tuition-Free Post-Secondary Education As a Proportion of Selected Government

Expenditures and GNP, 1966-67
(Millions of Dollars)

Enrolment Projections	Total Government Expenditures	Total Provincial Government Expenditures	Total Educational Expenditures	Total Expenditures on University in 1966-67	Total Elementry and Secondary Expenditures	G...
C. Assume all Capital Expenditures Made over Twenty Year Period						
0%	1%	3%	6%	21%	8%	
10	1	4	8	28	10	
20	2	5	9	36	13	
50	3	9	15	58	21	
100	5	14	25	94	34	

Sources: 1 D.B.S. National Accounts, Income and Expenditures, 1967.

2 D.B.S., Consolidated Government Finance, 1966, Table 2.

3 Computed from D.B.S. Preliminary Statistics of Education 1967-68. Data are only approximate since what appeared to be double counting (because of grants) has been eliminated by the author.

E. Conclusions

In this paper, we have argued that the market mechanism is unquestionably efficient but not always equitable. Hence, some goods should be removed from it as it becomes obvious that we can afford to do so. The possibility of free university tuition is here examined. On the basis of our estimates of costs, it appears that with reasonable expected enrolment increases, the cost would be considerable but probably within "acceptable" limits - especially when compared to other programmes. While this would be a necessary first step in reducing barriers faced by low income groups, it is important to remember that foregone income will remain of primary importance. Attention to this and to the interrelationship with other educational programmes will need to be explored. As well, in a federal system of government, allocation of expenditures among levels of government is an important consideration which we have not here treated.

Whatever the answers to these questions, however, our research suggests that free university tuition is a reasonable option on which the commitment of our elected representatives should be solicited.