No.106

THE FINANCING OF THIRD-LEVEL EDUCATION

A. C. Barlow

December, 1981

The Economic and Social Research Institute

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THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE
COUNCIL, 1980-1981

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Price IR £5.50
(Special rate for Students IR £2.75)

A.C. Barlow is a College Lecturer in the Department of Economics, University College, Cork. The paper has been accepted for publication by the Institute, which is not responsible for either the content or the views expressed therein.

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DUBLIN, 1981
ISBN 0 7070 0042 4

Acknowledgements

This study commenced from an initiative of Professor Denis Lucey. It subsequently received support and assistance from various members of the UCC Economics Department, in particular Martin Kenneally, Mary McCarthy, Donald Nunan and Professor David O'Mahony, each of whom read full drafts and made valuable contributions. I am especially grateful to Professor Dale Tussing and two anonymous referees who made numerous important suggestions and contributions. I also benefited considerably from discussions with and the comments of many others. In particular, John Hayden and James Dukes of the Higher Education Authority (HEA), Geoffrey Cook, UCD, William McCarthy, Bolton Street College and Breda Sheehan, NIHE, Limerick. Data collection was assisted by Teresa Loughnan, UCC Computer Bureau, Nicholas Leonard, UCC Careers Office and Brendan O'Dea of the HEA. The assistance of these and many others is gratefully acknowledged. Patricia Kenny, Desmond McDermot and Michael Fogarty, in particular, gave valuable technical assistance. Vivienne Murray provided excellent secretarial support. Notwithstanding these aids I take full responsibility for the final manuscript.

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LIST OF ABBREVIATIONS

CPI:	Consumer Price Index
NCPE:	National College for Physical Education
ESF:	European Social Fund
DW:	Durbin Watson
IDA:	Industrial Development Authority
IFUT:	Irish Federation of University Treachers
HEA:	Higher Education Authority
NIHE:	National Institute for Higher Education
NUI:	National University of Ireland
OECD:	Organisation for Economic Co-operation and Development
RTC:	Regional Technical College
TCD:	Trinity College Dublin
UCC:	University College Cork
UCD:	University College Dublin
UCG:	University College Galway
NUS:	National Union of Students
NCEA:	National Council for Educational Awards

General Summary

Third-level education is the fastest growing area of education in Ireland, both in terms of enrolment and in terms of expenditures. The factors influencing the growth and make up of both are examined in this study. The growth of enrolment and expenditures and, more particularly, how the expenditures are financed have important social and economic consequences. The study examines these consequences in the context of the present system of finance, and continues to analyse and assess six alternatives.

Enrolment

Third-level enrolment is dominated by the universities. At present they account for over 60 per cent of all third-level enrolment, although government plans are that they will constitute a considerably smaller proportion in the future. The primary teacher training colleges make up just under 10 per cent, and the technological sector around one-quarter with the remainder in other, non-aided, institutions.

Enrolment at third-level has more than doubled over the past two decades. Approximately one-third of this rise can be accounted for by the rise in the numbers of young persons in the age group from which most third-level students are drawn. The remainder is attributable to the rise in the proportion of persons from the age group who participate in third-level. This latter can be explained by the rise in real incomes over the period.

Notwithstanding this substantial growth, only around one-fifth of young people continue to third-level at present. Those who do are a very special minority. They are heavily drawn from the upper socio-economic groups, particularly in the universities and higher technological institutes. This has been a continuing feature of the university student population, such that the socio-economic make up of the universities appears to have changed little since evidence was first collected in the mid-'sixties.

The low enrolment of those from the lower socio-economic groups has been a feature of third-level education in other countries. The reasons for this can, in part, be attributed to the failure of many to complete their secondary schooling. In one British study this was found to be attributable to the attitude of the pupil, which was in turn influenced mainly by the academic attainment of the pupil, and to some extent by the precedents of peer groups and the staying-on ratio of the school. Social class at home was found to be a relatively minor factor, having taken account of these. In

Ireland too, many fail to complete their secondary schooling although the proportion who drop-out between the Intermediate and Leaving Certificate has approximately halved over the last thirty years. The changes in the drop-out rate over the period seem to be attributable mainly to the rise in both real incomes, which reduced drop-out rates, and real wages of young persons, which increased them.

The decision to enrol involves a choice of subjects. Generally, students' choices appear to be responsive to the perceived economic rewards of alternative choices. Thus, the subjects in greatest demand are those offering good prospects of entry to secure and economically attractive careers.

In the future enrolment is almost certain to continue to increase by more than 30 per cent over the next decade, according to the White Paper on Educational Development (1980), possibly more.

Expenditures

The increase in expenditures has been even more dramatic than the rise in enrolments. Over the last two decades institutional expenditures per student in the universities have more than doubled (in real terms). Total institutional expenditures have risen even more steeply due to the rise in enrolment. It is forecast that the expenditures per student will continue to rise dramatically and that by 1991 will have reached £4,500 per student and by 2001, £6,700 (both in February 1981 prices).

In addition to these expenditures, many students and their families bear substantial costs in terms of fees and extra costs of maintenance whilst at college. Fees, and some portion of these maintenance costs, are paid for by the taxpayer if the student qualifies for a grant. Even for those students the major costs of third-level, the foregone earnings (or output), still have to be borne.

Financing — From the Past to the Present

Third-level expenditure has increasingly been financed by the taxpayer. Whereas in the early nineteen-sixties more than 35 per cent of current university income came from student fees, by 1979/80 this had declined to around one-eighth of total income. Nearly all the remainder came from the taxpayer, via the government. The share of the taxpayer in all third-level spending is much greater than in the universities, because fees represent a considerably smaller proportion of the income of the technological sector. The rising proportionate contribution of the taxpayer to third-level expenditure is partly due to the rise in real expenditures per student, which have not been matched by proportionate real increase in fees, and partly due to the rise in the share of the technological sector.

In addition there has been the development of student aid with the introduction of the higher education grant scheme in 1968 such that in 1979/80 around one-quarter of university and around 40 per cent of technological and of teacher-training students received aid.

Financing for the Future

The Objectives

There are a wide variety of systems of financing third-level education. Which system is suitable depends upon the objectives that are being aimed at. In this regard this study is unusual in that it uses the objectives which have been put forward, in some form or other, by the major groups concerned with third-level financing, or by their representatives. These objectives are that any financing scheme should promote equality of opportunity, economic equality, social mobility, efficiency and the economic independence of students and institutions; it should be administratively, financially and politically practical and should effectively tackle the issues of foreign and emigrant students.

The Choices

This study makes a detailed examination and assessment of the present scheme according to the above criteria and finds it to be deficient on each measure. Even so, it may be that it is the best system available. Thus, the analysis continues to assess and compare six schemes for financing third-level education, which embrace the major features of the alternatives which have been suggested, including the present scheme. These are private finance, comprehensive grants, means-tested grants, general grants, ordinary loans and income-contingent loans. Private finance is where no public aid is provided to third-level through the government. Comprehensive grants is where all third-level students are paid grants and there are no fees. Means-tested grants are where grants are paid to students whose parents have less than a certain level of resources. In addition fees may, or may not, be subsidised. General grants are grants awarded to all, whether or not they attend third-level. Ordinary loans are loans which must be fully repaid together with interest. Income-contingent loans are loans for which repayments are made depending on the level of income of the student after finishing education. Each of the schemes is assessed according to the seven objectives.

Equality of Opportunity

Because many potential third-level students would be unable to finance their education on a private basis, any scheme which provides a source of

funding would enhance opportunities. Since those who would have most difficulty are likely to be those who come from the least well-off homes, any such scheme would foster greater equality of opportunity.

The financial stringency of the present system is such that it does not adequately compensate those from less well-off homes. In addition, the exclusion of the majority of young persons who do not enter third-level accentuates the failure to significantly enhance equality of opportunity.

Of the six alternatives, the means tested subsidy scheme makes the most direct *attempt* to enhance equality of opportunity, since it directs aid to those deemed to be least well-off, amongst third-level students. However, the loans schemes may well be sufficient for this purpose. On a broad view, general grants are clearly the most effective, since they increase opportunities for all young persons, not just the elite of the third-level sector.

Schemes which provide institutional subsidies to training are likely to generate substantial demand for places in courses which offer the opportunity of entry to attractive and rewarding careers. Under such schemes places may be rationed by attainment, as with the points system. Such a rationing scheme implies equal opportunities to persons of equal ability, or rather attainment. It does not imply equal opportunities to all who are sufficiently able.

Social Mobility

Since most third-level students come from the upper socio-economic groups and also proceed to such groups the effect of third-level on social mobility is not substantial. Nevertheless, it is an important avenue to occupations in the upper socio-economic groups for those minority who attain entry to third-level.

The means-tested grant scheme directly supports upward social mobility, and it is the only scheme which discriminates in favour of those from less-well off homes. However, the evidence of the socio-economic background of grant holders suggests that it is not very important in this regard. Only around a quarter of UCC undergraduate grant holders were from manual homes. Further, more than half of those from manual homes entered without a grant. The other schemes, also assist mobility but do not discriminate this end.

One reason for the limited success of third-level education in enhancing social mobility is that the majority of those from lower socio-economic groups do not complete second-level. It is suggested that this is partly due to their economic circumstances.

Economic Equality

Third-level students, particularly university and higher technological

students, mainly come from the upper socio-economic groups. Even more marked is the socio-economic position of third-level students, including those from less well-off backgrounds, in their later careers. The occupations they enter are even more concentrated amongst the better off groups. Thus any scheme subsidising third-level training is highly regressive both from the perspective of background, and lifetime earnings. Accordingly, the schemes which do not involve subsidies of this sort are more egalitarian. These are private finance, means-tested subsidies (without institutional subsidies), general grants and loans.

Efficiency

Six aspects of efficiency are examined in the study. In all aspects but one, subsidies to the institutions would seem to reduce efficiency. They generate excessive demand for places in most areas, which, if the demands were catered for, would flood the labour markets for these fields. Such excess demands are particularly noticeable where the subsidies are greatest. In addition, the existence of subsidies reduce pressures for the technical and management efficiency of the colleges. Further, they give little stimulus for concern for the customers, since the customers do not pay. In the universities this would help to explain the relatively lesser emphasis on teaching, as against research.

As against this, subsidies do give the opportunity for the use of third-level expenditure as an economic stabiliser over the business cycle. Regrettably, the little evidence available does not suggest that this expenditure has been so used. There is some evidence to suggest that it has augmented, rather than diminished, the business cycle.

Practicality

(a) Financial: Third-level training under the existing scheme costs £110 million. From the perspective of costs to the taxpayer those schemes which do not involve subsidies are more practical. These are private finance, the loans schemes and the means-tested subsidy scheme without institutioned subsidies. These are estimated to cost the taxpayer nothing, between £99m. and £122m. and between £115m. and £141m. respectively by the year 1990/91 (at 1981 prices) depending on the effect on enrolment. Significantly more expensive are the means-tested subsidy scheme with institutional subsidies (i.e., the present position), which by the year 1990/91 could cost between £210m. and £213m., and the comprehensive grant scheme costing around £284 million. Most expensive of all would be a general grants scheme which would, if it offered grants sufficient for a three year third-level course for all, cost around £1200m. by that time. This figure indicates the sort of cost which

the taxpayer would bear if all were to be subsidised to the same extent as the select minority at third level are at present, (N.B. if the number of income taxpayers is reckoned to be around one million the average cost per income taxpayer per year would be the above figures without the million pound unit, if all the expenditure were financed from income tax.)

(b) Administrative: The amount of administration and, more particularly, the distribution of this cost vary depending upon the scheme. Under all the fee schemes the institutions bear costs of collection. Under the subsidy schemes the taxpayer pays the cost of deciding appropriate levels of subsidy and of monitoring any subsidies to institutions and, in the case of the means-tested subsidy schemes, deciding eligibility criteria. Under an ordinary loans scheme there are costs of keeping and collecting accounts. With income-contingent loans such recoupment could be arranged, relatively simply, through the tax system. Both loan schemes give rise to problems of recoupment from emigrants. As against this, the subsidy and grant schemes give no such problems, because nothing is recouped.

(c) Political: At first sight it appears that those schemes which subsidise most are most attractive. However, the other face of these schemes is the taxation through which they must be financed. The net effect is hard to judge. Attitudes to different schemes vary

Economic Independence

Economic independence, and what it entails, are highly desired by both students and institutions. Schemes which give most independence to students are those that make finance available to all. These are the general grants, comprehensive grants and both the loans schemes. The means-tested grants scheme gives some independence to those with inadequate means, but not to the remaining majority. Private finance makes no finance available, and only those with families who have adequate funds, or who have their own funds or private access to such funds will be independent.

Institutions are either dependent on fees or the government. It is not clear which gives most independence. However, the increasing lack of desire, or ability, of government to direct public spending to the area makes government support seem less propitious for future independence through this source.

Emigrants and Foreign Students

Emigrant graduates who have received subsidies do not generate any return to the taxpayer for the subsidies they receive. Foreign students, as

well as nationals, benefit from institutional subsidies. Both of these occurrences would be mitigated by the schemes without subsidies. Thus private finance, loans, general grants and means-tested subsidies with full fees would resolve the difficulty in respect of foreign students. Private finance and loans would involve no loss in respect of emigrants, in the latter case in so far as debts can be recouped.

Conclusions

These assessments are such that no one scheme is fully superior to all others. Nevertheless, of the six, three would seem superior to the remainder: general grants, means-tested subsidies, without institutional subsidies, but with an income-contingent loans-scheme, and an income-contingent loans scheme on its own. Between these three, the major argument for the means-tested subsidy scheme is that it may enhance equality of opportunity and social mobility more fully than others, but, to repeat, the evidence on this is not encouraging. The major arguments against this scheme are the cost to the taxpayer; the lack of economic independence to which the scheme gives rise, particularly for those students who failed to qualify for the subsidies; the subsidisation of emigrants; and the lack of efficiency which it supports. There is virtually no strong argument against the income-contingent loan scheme, although it is possible that it may not promote social mobility to the same degree as the means-tested subsidy schemes. There is little evidence available on this point, but what is available does not suggest a major difference. The general grant scheme has only one major drawback: its enormous expense to the taxpayer.

Providing an adequate financing scheme were introduced (i.e., one of the three above) then most objectives would be enhanced, and the remainder would be little affected by increasing fees. Such a move would enhance economic equality, efficiency, financial practicality, the economic independence of institutions and reduce the problem pertaining to emigrants and foreign students. Accompanied by an adequate financing scheme equality of opportunity, social mobility and the economic independence of students could be preserved. A step in this direction would be to allow fees to be raised to cover all future increases in third-level expenditure.

Nevertheless, it is argued that fees should not exceed training costs. There is little reason for them to cover research costs unless third-level training and research are a joint product. It is argued that in so far as this is the case, they are still separable, at least in principle. Thus, fees should not be raised to the same extent in those institutions which do more research.

Introduction

The expansion of third-level education[1] in Ireland[2] over the last two decades has been substantial and has involved a vast rise in third-level spending. In 1961/62 total current expenditure at third-level was of the order of £2.6m. (*Investment in Education* (1965) pp. 98-100) while it is estimated that for 1980 *state* current (i.e., not including capital) spending alone amounted to over £90m. If state spending is assumed to be between around 90 per cent of all expenditure on third-level education (as is the case for the universities) then overall expenditure will be over one hundred million pounds.

State current spending alone has grown by over fifty times between the beginning of the 'sixties when it was £1.5m. (1960/61), and 1980/81, with an almost tenfold increase after allowing for inflation. Even over the last decade the figures have *doubled* after allowing for inflation. It will be suggested that in the absence of any radical change in policy, that this rise is likely to continue at a fast rate, although probably at a somewhat slower rate of increase than that of the 'sixties and 'seventies taken together.

Apart from *future* developments considerable concern already exists as to the financing of the present level of expenditure on higher education. This concern was reflected in the Higher Education Authority (HEA) progress report (1974 p. 85), and the Government Green Paper (1978) and White Papers (1979 and 1980).

Despite this manifest concern, no extensive analysis of how this problem should be faced has been undertaken. In addition much of the necessary background evidence does not exist. This report is an attempt to bridge both of these gaps.

The report divides into three parts. The first part begins in Chapter 1 by presenting a brief account of the history of the financing of higher education in the state. This examines the rise in costs over the past two decades both from the perspective of the institutions and from that of students and their parents.

The second part examines and assesses the research evidence pertinent

1. "Third-level" and "higher education" are used interchangeably in this report to refer to post-secondary education, mainly consisting in Ireland of instruction at the universities, the National Institutes for Higher Education, the various Colleges of Vocational Education (including Bolton Street and Kevin Street Colleges of Technology and Rathmines College of Commerce among others), the Regional Technical Colleges (RTCs) and the Teacher Training Colleges. The HEA estimated (1974) that about two-thirds of RTC spending was for third-level at that time.

2. In this report "Ireland" refers to the twenty-six counties of Ireland constituting the Republic of Ireland unless explicitly stated otherwise.

to the financing problem and related issues. Chapter 2 reviews and analyses the literature from outside Ireland, mainly from the US and the UK. Attention in this chapter focuses upon the economic effects of third-level education and the factors influencing the level of enrolment, both as a whole, and in particular subjects. The socio-economic distribution of uptake is considered next with a final section concerned with the level of fees. The same areas are again examined in Chapter 3 but with regard to Irish evidence. This chapter includes some new analyses of Irish data which shed some light on the various issues.

The final and major part of the report is an assessment of the appropriate choice of financing schemes for third-level education in Ireland. It commences in Chapter 4 with an attempt to discover the appropriate objectives for any such financing schemes in Ireland. The objectives chosen to appraise the schemes are those put forward by the various interested parties. In this respect the analysis is methodologically more neutral than existing studies in this area, which usually depend more upon the author. Chapter 5 then assesses the existing system in the light of the objectives and with regard to the evidence. Chapter 6 outlines six possible financing schemes, including one which comprises the basic components of the existing system. Chapter 7 attempts to assess and compare each of these schemes, again in the light of the objectives and evidence. Chapter 8 provides indications of the level of public expenditure required under each of these schemes, based upon simulations of a model of university costs outlined in the appendix to the chapter. Chapter 9 provides a summary of some of the conclusions of the analysis and a final comparison of financing schemes.

Throughout the report a major emphasis is upon the universities. There are two reasons for this. First, the universities are the most important sector in third-level in terms of expenditure and enrolment. Secondly, better data and research literature are available for the purposes of the analysis. Notwithstanding these qualifications, the major impact and analysis of the work is appropriate to all third-level financing.

Chapter 1

A BRIEF HISTORY OF THE FINANCING OF THIRD-LEVEL EDUCATION

This chapter is intended to provide a background to the existing system of financing third-level education in Ireland. The development and nature of the costs of third-level institutions are discussed first, followed by consideration of the way in which they have been financed. The chapter then continues with an examination, in the same vein, of the costs of third-level education for students, and of how these costs have been financed.

The Costs of Third-level Institutions

As noted in the introduction, third-level expenditure has risen rapidly over the last three decades. A major component of this expenditure was, and still is, the expenditure of the universities. This accounted for around 60 per cent of total institutional expenditure[1] in 1980 and a greater proportion prior to this date. The figures in Table 1.1 show the expenditure of the universities at five-year intervals from 1950/51 to 1979/80, and it is clearly evident that the level of expenditure grew rapidly over the period, particularly during the nineteen-sixties.

A second major component of institutional expenditure was disbursements to primary teacher training, though the relative importance of this sector has declined somewhat in the last two decades. The third major component of expenditure was disbursements to the technological sector. Expenditures in this sector was originally quite small, but expanded greatly in the nineteen-seventies.

The rapid growth in expenditure at third-level was the result of two factors. First, there was a substantial increase in enrolment at third-level and, secondly, there was an even more substantial increase in the level of costs per student.

The rising enrolment in third-level education had two sources, one reflecting the rise in the population of persons in the relevant age groups, the other the increase in the participation rate of persons from that sector, the reasons

1. The consumer price index (CPI) is used as the deflator throughout this report, except in some econometric work, where it was felt to be inappropriate (see Chapter 8). The CPI is used mainly for convenience and partly because it was considered to be the most appropriate of the various alternative indices. In fact, no appropriate education indices are available. However, the various available indices have been highly correlated over the last two decades such that the choice is not overly important.

Table 1.1. *Expenditure of the universities 1950/51 to 1979/80*

Year	*Current expenditure*		*Total expenditure*	
	Current prices £m	*Constant February 1981 prices* £m	*Current prices* £m	*Constant February 1981 prices* £m
1950/51	0.8	8.0	0.8	8.2
1955/56	1.2	8.6	1.2	9.1
1960/61	1.8	12.0	1.9	12.8
1965/66	3.7	19.8	4.2	22.7
1970/71	10.0	42.4	13.5	57.0
1975/76[a]	24.6	55.8	27.2	61.5
1978/79[a]	44.8	68.2	49.5	74.8

a figures for capital expenditure for 1975/76 and 1978/79 are public sector estimates for 1976 and 1979 respectively.

Source: Statistical Abstract and College Accounts

for which are discussed in Chapter 3. For the first component, Table 1.2 shows population figures for the 15-19 and 20-24 age groups at census dates and estimates from the labour force surveys of 1975 and 1977. Between 1961 and 1977, there has been an increase of over one-third in the 15-24 age group, and with nearly all third-level students coming from this cohort (85 per cent of students in colleges under the Higher Education Authority in 1978/79) the increase has played a significant part in the growth in demand for third-level places. The second component of the rising demand has been the change in participation rates. In 1964 the enrolment rate, measured as the number of third-level students as a proportion of the 15-24 population age group[2], was 4.29 per cent and by 1980 this had risen to 6.97[3] per cent. Between 1960 and 1980 the combination of these two components led to the number of students more than doubling.

When considering these enrolment rates, it is worth bearing in mind that many of those who commence their studies fail to complete them. In the university sector only between 60 and 80 per cent finish their studies successfully[4].

To meet the growing demand for third-level education, a number of new institutions were set up, mainly to provide technological training. These developments included the National Institute for Higher Education (NIHE) in Limerick, the National College for Physical Education (NCPE) also in Limerick (now called Thomond College of Education), and the Regional Technical Colleges (RTCs) throughout the state, most of which began taking in students in the early years of the nineteen-seventies. In the Dublin area, the National Institute for Higher Education in Dublin has recently begun to admit students.

Nevertheless, the change in numbers is not sufficient by itself to explain the tenfold rise in government real expenditure which has taken place over the last two decades. This suggests that there have also been changes in the costs of providing third-level education or in the method of its finance. There have been changes in both.

Institutional costs at third-level are largely staff costs (about 75 per cent

2. The population age group figures are for 1961.
3. The number of third-level students in 1980 as a percentage of the 15-24 population age group in 1977.
4. These estimates are based upon survival rates using enrolment figures of 1976/77 and 1977/78 (HEA various years). In some faculties due to changes in the provision and nature of courses in those years and due to limitations of the classifications available, estimates could not be made. Notwithstanding these qualifications, the estimated overall survival rates were 62 per cent in Maynooth, 72 per cent in UCG, 72 per cent in UCC and 76 per cent in UCD. In TCD the movement of students between the classifications used over the years of their study made a meaningful estimate of overall survival impossible. However, survival rates for faculties for which meaningful estimates could be made were within the ranges of comparable faculties in other colleges. Further consideration of these survival rates follows in Chapter 5.

Table 1.2. *Population aged 15-24, enrolment at third-level and enrolment rates 1961-80*

	Population age 15-19	*Population age 20-24*	*Population age 15-24*	*Number of third-level students*	*Enrolment rate %*
	(1)	*(2)*	*(1)+(2)=(3)*	*(4)*	*(4)/(3)*
1961	233,832	158,007	391,839	16,819[a]	4.29
1966	259,356	185,289	444,645	20,698	4.65
1971	267,727	215,251	482,978	26,218	5.40
1975	292,500	238,600	531,100	30,987	5.83
1980 (or latest)	288,200[b]	244,800[b]	533,000[b]	37,156	6.97
% increase 1961—latest	23.25	54.9	36.01	120.9*	62.5

a 1964 estimate: Investment in Education (1965)
b 1977 estimates
Sources: 1961, 1966 and 1977 Census of Population
1975 and 1977 Labour Force Surveys
* 1964-71 only

of university costs were such according to the HEA report (1974) p. 29) and staff wages and salaries have risen considerably relative to the overall price level, as have other incomes in Ireland, leading to pressure on cost levels. Such pressure could be offset by improvements in productivity, but in third-level education, as in the service sector generally, this would seem to be difficult. Educational output is difficult, perhaps impossible, to measure and in the face of this difficulty, quality is often assumed to be directly related to staff-student ratios (cf. pp. 595-6 in Commission on Higher Education, 1967). This implies that productivity can only be improved at the expense of quality although the evidence of the relationship between quality and productivity is not generally provided.

Nevertheless, this consideration, amongst others, led the Commission to recommend that moves be made to increase staff-students ratios in the universities from the level of 1:18 to 1:12 by 1975. The aim has not yet been achieved but the ratio of staff to students had risen to just less than 1:15 by 1978/79 in the university colleges. Whatever the effect upon the quality of education, it naturally tended to raise the cost of its provision.

It is possible to make an estimate of the rise in university costs per student, using the figures for costs in Table 1.1 and student numbers. These figures which are shown in Table 1.3 witness a substantial rise in real costs per student since the nineteen-fifties. The level over the nineteen-fifties was virtually static, much in line with the depressed economy. Since then the rise has been rapid as the economy grew more quickly. The substantial growth in costs per student is the major component of the rising costs of third-level education. As will be seen in Chapter 8, this fact has important implications for the future.

The Financing of Third-level Institutions

A discussion of the major elements of the financing of education at third-level in the early 1960s, both of the institutions and of the students, is covered in the report of the Commission of Higher Education (1967) and in the Investment in Education (1965) report. At the time of these reports, the state was already providing over 60 per cent of the income to teacher-training colleges, and over 50 per cent of university income, and, in addition, was making a significant contribution to other third-level institutions. The system of finance generally consisted of block grants which for the universities were to cover the gap between other income and total expenditure. The survey team which prepared Investment in Education noted that this "means that expenditure is virtually 'open ended' " (p. 345). The accuracy of this statement was to become very evident over the next two decades.

Table 1.3: *Growth in current expenditure per university student between 1950/51 and 1978/79*

	Current university expenditure in February 1981 prices £m	*Enrolment*	*Real expenditure per student* £	*Growth rate of expenditure per student per cent*
1950/51	7.8	6,910	1,127	
1955/56	8.3	7,278	1,140	0.2
1960/61	11.6	10,021	1,161	0.3
1965/66	19.3	14,147	1,368	3.3
1970/71	38.6	18,793	2,053	8.1
1975/76	55.8	21,273	2,266	2.0
1978/79	61.7	23,182	2,662	5.2

Source: Statistical Abstracts, various years.

In 1967 the Commission on Higher Education were unable to agree on any criterion for fee levels for universities save that "fees will always have to be realistic, i.e., within the capacity of a large number of students". (p. 846). In 1968, following a recommendation of the Commission, the Higher Education Authority was set up and in its Progress Report of 1974 it expressed the view (again for universities) that "the fee element should constitute 20 to 25 per cent of the whole of (presumably current) financing". (para. 48.2, p. 35).

The January 1979 white paper stated the government view as follows:

> The government feel that third-level institutions should be moving towards a situation where they collect a greater proportion of their income in fees (Programme for National Development 1978-81)

Whatever the aims, fees have continued to play a decreasing part in financing third-level education. In 1961/62 approximately 35 per cent of university current income came from this source (Investment in Education 1965 p. 98). In 1978/79 fees were between 11 and 13 per cent of current income in each of the university colleges.

The experience in other areas has varied widely. In 1961/62 the teacher training colleges received over 60 per cent of income from the state (ibid., p. 311) and this had risen to around 84 per cent by 1978/79. The RTCs and other technological colleges receive almost all their income (over 90 per cent) from the state whereas the Royal College of Surgeons is virtually totally independent receiving a mere £18,000 from the state in 1981.

The growth of costs of the third-level, together with reduced reliance on fees as a means of finance gave rise to a very rapid increase in government support for third-level expenditure. Table 1.4 shows estimates of current government expenditure in constant 1980 prices* for various third-level sectors at five year intervals after 1960. Table 1.5 shows corresponding figures for total government expenditure on third-level education (including capital expenditure and student assistance). These tables indicate that both current and total government expenditure have risen more than ten-fold over the last two decades.

The Costs to Students

The costs to students are derived in the main from two sources: the opportunity costs of foregone leisure and income from employment,[5] and

* See footnote 1.

5. This may be a private cost to students – but whether it is a social cost in Ireland depends on whether it is assumed that, should a student have elected not to go on for post-secondary education, another job would have come into existence for him or her. (see p. 24)

Table 1.4: *Estimates of current government expenditure on third-level education (February, 1981 prices) (in millions of pounds)*

	1960-61[a]	*1965-66*[a]	*1970-71*[a]	*1975*	*1980*
Universities	7.7	11.0	27.6	43.0	59.5
Teacher training[b]	1.3	1.8	3.4	5.8	8.1
RTCs	-	-	1.1	5.5	11.2
Other[c,d]	0.6[e]	1.6[e]	1.9[e]	5.6[f]	19.6[f]
Total	9.6	14.4	34.0	59.9	98.4

Sources: Estimates for public services, various years; and estimates of this author.
[a]These figures in these columns are for single fiscal years.
[b]Teacher training figures include preparatory colleges for trainee teachers, home economics teachers and Thomond College.
[c]The RTC figure is taken as two-thirds of total RTC expenditure, being the estimated proportion attributable to third-level in the HEA progress report 1974. Approximately 95 per cent of 1980/81 *full-time* enrolment at the RTC was at third-level. However, many apprentice and other courses are second-level. One-third of teaching staff in the colleges are college teachers, who undertake mostly second-level teaching, although this classification is by no means clear cut. The same proportion of the expenditure of the Dublin colleges of technology is attributed to third-level.
[d]Includes NIHEs in Limerick and Dublin, the Dublin and Limerick VECs are spending at third-level, the College of Art and the NCEA.
[e]Estimates
[f]This figure comprises Dublin VEC funding and estimates for the Limerick VEC and the College of Art.

the financial costs of fees and additional maintenance and materials for third-level study. According to Parsons (1974) the measure of foregone income is a significant underestimate of the real opportunity cost of time at third-level due to the additional study-time (i.e., over and above normal work-time) that students undertake. As for the fee costs, it is worth noting that fees in universities did not vary substantially in real terms over the decade 1967/68 to 1977/78 and the new levels for new entrants for 1979/80 constituted a significant policy change. However, the HEA considered (par. 14, p. 17, 1978) that "it will not be possible to transfer any significant proportion of the costs of higher education from the exchequer to those who benefit from it merely by increasing fees". They based their view on the outcome of an exercise involving a rise in the proportion of university costs derived from fees (to 25 per cent), and an increase in the means-test limits for grants

Table 1.5: *Estimates of total state expenditure on third-level education (in Feb. 1981 prices) (in millions of pounds)*

	1960-61[a]	*1965-66*[a]	*1970-71*[a]	*1975*	*1980*
Universities	8.0	16.6	35.2	49.2	66.5
Teacher training[b]	1.5	3.8	3.6	6.0	9.8
RTCs[c]	-	-	4.7	8.0	12.8
Other[c,d]	0.7[e]	1.6[e]	2.7[e]	9.2[f]	19.6[fg]
Total current plus capital expenditure on third-level institutions	10.2	22.0	46.2	72.4	108.7
Student assistance	0.1	0.8	2.9	4.2	6.0[e]
Total	10.3	22.8	49.1	76.6	114.7

Sources: Estimates for public services, various years; and estimates of this author.
[a]These figures in these columns are for single fiscal years.
[b]Teacher training figures include preparatory colleges for trainee teachers, home economics teachers and Thomond College.
[c]The RTC figure is taken as two-thirds of total RTC expenditure, being the estimated proportion attributable to third-level in the HEA progress report 1974. Approximately 95 per cent of 1980/81 *full-time* enrolment at the RTC was at third-level. However, many apprentice and other courses are second-level. One-third of teaching staff in the colleges are college teachers, who undertake mostly second-level teaching, although this classification is by no means clear cut. The same proportion of the expenditure of the Dublin colleges of technology is attributed to third-level.
[d]Includes NIHEs in Limerick and Dublin, the Dublin and Limerick VECs are spending at third-level, the College of Art and the NCEA.
[e]Estimated
[f]This figure comprises Dublin VEC funding and estimates for the Limerick VEC and the College of Art.
[g]Excludes capital expenditure.

by 30 per cent. At that time, they estimated such changes to increase state *expenditure* by £114,000.

Financing of Students

Students have been financed in two main ways, mostly from private sources and a smaller number through the state. From 1961 to 1968, the major source of state assistance to third-level students was from local authority

scholarships under the 1961 Local Authorities (Education Scholarships) Act. This Act contained provisions limiting the proportion of the scholarships available to university students subject to a means test. The number of scholarships varied from county to county depending on the size of population of the county and its wealth, and the beneficence of its councillors. The number of scholarships in 1964 (taken as an illustrative year), per 1,000 pupils in secondary schools, varied widely from more than five in Meath to fewer than two each in Kerry and Clare.

The local authority scholarships comprised almost exactly one-half the value of all awards to Irish undergraduates in 1964/65 (see Table 141, Commission on Higher Education). The next most important sources were college funds and the Department of Education, providing approximately 20 per cent and 10 per cent respectively of the value of all awards. The college awards were generally in the form of scholarships based on merit and some waiving of fees based on financial need. The Department of Education awards were for (a) students from Gaeltacht areas and (b) students to take university courses through Irish. Because of the limited nature of funding only 10 per cent of 1964 university students received support. This situation was felt by many, including the Commission on Higher Education (1967), to be inadequate and inequitable. For these reasons in particular, in 1968 the Fianna Fáil Government introduced the Local Authorities (Higher Education Grants) Bill which was designed to ameliorate and remove the deficiencies which then existed.

The bill provided for grants to be made to students attending third-level education subject to a number of conditions which were left to the Minister for Education for detailed interpretation. In 1968 these conditions were interpreted such:

(i) that the course pursued had to be at a univeristy or other approved institution for a course of university degree level;
(ii) that the student reach a standard of honours in four subjects at the Leaving Certificate examination of the year of entry;
(iii) that the means of the student or parents or guardians did not exceed an income of £2,600 (£120 rateable valuation for students from farming backgrounds); an income of less than £1,200 (£60 valuation for farming families) entitled a student to the full grant;
(iv) that the level of the grant was to be £175 p.a. for students residing in or near the town of their study and £300 otherwise.

Subsequent to 1968, there have been a number of changes in the amount of the grant and the eligibility limits which are detailed in Chapter 5, Tables 5.1 and 5.2. The number of third-level students receiving such grants rose continuously up to 1975/76 when 6,168 students received them. This was approximately one-third of the number of students at university, who received 93 per cent of the awards. The next major recipients were NIHE (Limerick) students with about 3 per cent and most of the remainder went to students of the technological colleges and the RTCs.[6] Subsequent to this, the number of third-level students receiving grants fell in each year until 1978/79, when slightly less than one-quarter of the number of students at university received awards.

In conclusion, it is clear that the costs of third-level education have risen rapidly over the last twenty-years. The financing of these costs has increasingly fallen upon government, both for the institutions and also for the maintenance of students. In the following chapters criteria are developed and used to assess these and possible future developments.

6. Grants are also given to some students attending Northern Ireland colleges, some teacher training colleges and the Royal College of Surgeons. The total number of students involved was less than 100 in 1978.

Chapter 2

ECONOMIC ASPECTS OF THIRD-LEVEL EDUCATION

An understanding of the economic and social basis of education is a prerequisite to a rational and informed policy as to its financing. This chapter will summarise some general research findings that are pertinent to this study. The discussion is divided into five sections. First, the economic effects of education will be considered together with some consideration of their magnitude. Secondly, the factors which influence the uptake of third-level education among individuals, the demand among particular faculties, and the overall demand over time will be studied. Thirdly, the distribution of uptake by different socio-economic groups will be considered. Fourthly, attention will be focused upon certain equity aspects of higher education; and, finally, the research on the costs of providing third-level education and the appropriate level of fees will be reviewed. Evidence particular to Ireland and discussion as to the applicability of the general evidence to Ireland will be discussed in the next chapter.

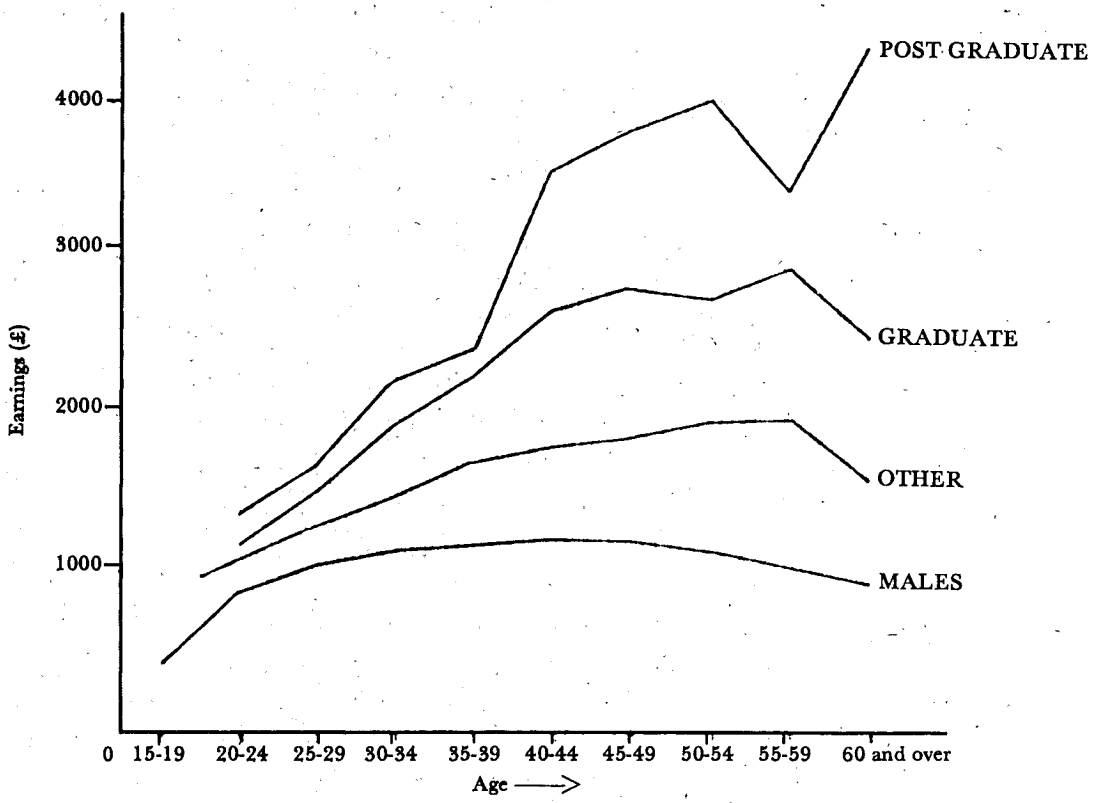
The Economic Effects of Education

Education may be considered as an economic good and some debate has arisen as to whether, or to what extent, it is best viewed as a consumption good, undertaken for the immediate "satisfaction" which it brings, or as an investment good, undertaken for expected future rewards. Most have agreed that higher education has consumption aspects such as the agreeable atmosphere in which it is conducted, the understanding it conveys, and the intellectually stimulating and socially enjoyable environment that accompanies it. However, these benefits go hand in hand with costs including the foregone income from work and occasions when study time involves the sacrifice of what is for most people, leisure time. It is not certain whether education is, on balance, a consumption "good" at all.

Research by Lazear (1977a) suggested that almost all (97 per cent) of US students dislike higher education *per se* with the exception of some of the very bright students, many of whom do post-graduate work. He found that the majority spend fewer years at college than they would if they were to consider only the financial aspects (i.e., the net monetary rewards) of their studies.[1] More direct evidence may be gleaned from a survey undertaken

1. This research has yet to be tested against other data in different conditions, and therefore, the results should be treated with caution. The results were, however, robust and suggest at the minimum, that the majority dislike *education as a whole*.

Figure 2.1. *Average earning for levels of educational qualifications 1966/7 (Males) UK*



Key:

Postgraduate	Higher university degrees or equivalent.
Graduate	First degrees and all qualifications of this standard, including membership of certain professional institutions.
Other 3rd level	Qualifications below first degrees, such as Higher National Diploma, Higher National Certificate, teaching certificates, and nursing awards.
Males	All males in working population.
Source:	Ziderman (1973)

in Britain in 1975 of 800 boys and girls at age 16 by Williams and Gordon (1979). This revealed that of the 59 per cent of the sample who did not intend to continue full-time education, 24 per cent mentioned being "fed up with school/teachers" as a reason. This was the most frequently mentioned factor amongst five choices. Another survey in the same study of nearly 2,000 boys and girls about to leave school at age 18 found that of those who did not intend going into full-time higher education immediately (16 per cent of the sample), 57 per cent of the boys and 66 per cent of the girls stated that their being "fed up with studying" was a factor of some importance. This was the second most frequently mentioned factor among eleven possible choices. Nevertheless, the majority found their senior school work an intrinsically worthwhile experience.

Due to the uncertainty as to the importance of the consumption component, and the difficulties in its measurement, most research work to date has been directed towards the investment component and it is to this that most of the remainder of this chapter is devoted.

When one examines age-income profiles for western industrial countries such as in Figure 2.1 for UK males, it is generally the case (and clearly so for the UK males shown) that soon after employment commences (or immediately as in the diagram), the earnings of those with more education are higher on average than those with less. The type of profile shown has given rise to the view that there is a financial "return" from additional education, a view which receives support from figures as in Table 2.1, which gives the relative earnings for different levels of education in various OECD countries. In addition there are other non-financial returns in employment attributable to additional education otherwise known as psychic benefits, such as more pleasant work surroundings, greater influence and more interesting work. Stern (1975)[2] attempted to place a value on six such non-pecuniary benefits of jobs held by college graduates (making less physical effort, making more of own decisions, being more creative, making more friends and having less repetition, and more say in ones work). He concluded that the value of these benefits would increase the spread between their full earnings and those of non-college workers by about 25 per cent. McMahon (1974a) made similar estimates based upon a sample survey of 2,766 US college students in 1972-73 finding that the non-pecuniary returns were only slightly below pecuniary ones. There are other non-work benefits such as improved health (see Bowen (1977) pp. 210-213), the ability to cope successfully with the complexities of everyday life and the benefit of greater knowledge and understanding of themselves.

2. Reported by Bowen (1977) pp. 179-180.

Table 2.1: *Index of average annual earnings of labour by level of education in OECD countries*

Country	*Year*	*Educational level*		
		Primary	*Secondary*	*Higher*
Belgium	1960	100	251	502
Canada	1961	100	144	263
France	1968	100	183	289
Greece	1960	100	139	220
Italy	1969	100	141	244
Japan	1968	100	117	161
Netherlands	1965	100	131	152
Norway	1966	100	140	213
USA	1967	100	129	200
UK	1967	100	140	225

Source: G. Psacharopoulos: Earnings and Education in OECD Countries 1975.

However, there are costs involved in undertaking this education in the form of forgone income and leisure during study, tuition costs, additional maintenance costs for those studying away from home and the costs of educational materials. Whilst the costs are immediate, the returns are in the future, and as such education may be looked upon very much as an investment, creating *human* capital. Like other investments, education can be said to have a rate of return, but unlike many others, more than one such rate is frequently considered.

There is a private rate of return to education where the investment is looked upon solely from the individual student's point of view. Here, the benefits are the additional earnings, monetary and non-monetary, attributable to education (net of tax) and the costs are the forgone income and leisure and the direct financial costs of attending college *less* any grants or scholarships from outside bodies. The rate of return is that interest rate which renders the flow of net[3] benefits equal to zero.

There is also a social rate of return where the investment is looked upon from the "social" viewpoint where society may be defined so as to include the persons involved or exclusive of them. In the former case all transfers

3. In principle, net benefits refer to all benefits net of all costs attributable to the education involved: in most empirical studies (reported later) only forgone earnings and tuition costs are included.

among individuals, such as grants and taxes, are ignored for the purpose of calculating the social rates of return. These transfers are very important to the distribution of income but are separate from the worthwhileness of education as an investment providing better qualified labour. The social benefits of education arise from more efficient organisations, and better government and administration, resulting in lower costs and making possible the additional output of goods and services. Further, society receives indirect external benefits in the form of educated individuals using their expertise outside of their employment, in social organisations, in politics, charities and in community and public life. In addition, educated individuals may pass on the benefits of their education through their family and others informally (Bowen, op. cit., Ch. 6). From the viewpoint of this social rate of return the costs involved are the value of the forgone work and leisure of the individuals being educated plus the extra resources needed to provide the education.

For some purposes it is appropriate to consider a social rate of return from the point of view of the "rest of society", excluding the individual concerned. This social rate of return includes as benefits any tax that the individual may pay on his extra income and, as before, any external benefits *arising from his education*. The costs, using this approach, are the resources forgone by the rest of society in order to provide education for the student, which consist of the subsidies provided for such education. Using this approach, emigration reduces the social rate of return, since the tax and external benefits of the more highly trained manpower are appreciated elsewhere, whereas the private rate of return is unaffected since graduates benefit from the higher earnings attributable to their further education no matter where they are. When such computations have been made the private rates of return have been found to be *substantial*. Most estimates, which used data up to the nineteen-seventies, were of the order of 10 to 20 per cent in real terms. If it is wished to compare these with investment in a savings account it is necessary to take account of the fact that earnings rise with inflation, so that if inflation were to continue at 15 per cent, the rate of return would be (approximately) the real rate plus 15 per cent.[4] Rates of return estimates have varied significantly from country to country as Table 2.2 suggests but in each case there is a considerable *real* rate of return (in 11 of 13 cases it is greater than 10 per cent). Some of the studies in this table do not make adequate adjustments for taxation, ability and various other factors that strictly speaking should be made, but Psacharopoulos (1973) claimed (p. 63) to have chosen comparable figures as far as possible. One

4. The precise formula is as follows:

$$\text{Real Rate of Return} = \frac{\text{Money Rate of Return} - \text{Rate of Inflation}}{1 + \text{Rate of Inflation}}$$

Table 2.2: *Social and private rates of return to higher education in various countries (per cent)*

Country	*Year*	*Social*	*Private*
Belgium	1967	9.3	17.0
Brazil	1962	14.5	33.1
Canada	1961	14.0	19.7
Denmark	1964	7.8	10.0
Greece	1964	8.0	14.0
India	1960	12.7	14.3
Japan	1961	6.0	9.0
Netherlands	1965	5.5	10.4
New Zealand	1966	13.2	14.7
Norway	1966	7.5	7.7
Sweden	1967	9.2	10.3
United Kingdom	1966	8.2	12.0
United States of America	1959	9.7	13.6

Source: G. Psacharopoulos (1973), p. 62.

study by Ziderman (1973) using 1966-67 data, which did make all these adjustments, estimated a real private rate of return for UK first degree training of 16.5 per cent.

More recently there has been evidence of a significant decline in the returns to college education. In the US Freeman (1977), using 1974-75 data, estimated rates of return ranging between 7.5 per cent – 10 per cent for private rates, and 9-10 per cent for social rates. He attributed this decline to increases in the supply of college trained persons seeking employment and a levelling off of demand for such workers. Wilson (1980) put forward the former reason to explain a similar decline in the rates of return to graduate scientists and engineers in Britain. He found that private rates of return had declined from 14.5 to 9.0 per cent for engineers and 14.0 to 9.5 per cent for scientists from 1967-68 to 1976-77. However, Adamson and Reid (1980), using data covering all specialisms, found that the private rates of return to male graduates fluctuated between 16 and 23 per cent over the period 1971 to 1978, without any clear trend. No firm conclusion can be drawn on this issue except that in all cases the pecuniary rates of return would still seem to be sizeable.

It is noticeable in Table 2.2 that the social rate of return is lower in each case than the private rate but that the converse is the case for Freeman's study. The lower social rates are generally the results of the various subsidies to third-level education which are partially (and in Freeman's study more than fully) offset by the additional taxation paid by the graduates on their increased earnings. The use of a "more than professionally necessary" graduate qualification as a requirement for entry into certain professions (Dodge 1972) suggests that the social value of the contribution of such graduates may be less than their remuneration. Thus the *social* rate may even be less than these figures intimate. Such arguments may also apply to the requirements for graduate qualifications for some public sector employment.

This investment approach, even at its weakest, gives a way of assessing this aspect of education in that it becomes possible to evaluate the economic effects of education upon different persons. At its strongest, this approach provides an explanation of the way persons make decisions as to whether to undertake more education and of what particular sort: whether to study at third-level at all, and whether to take up particular subjects; law or commerce, for example.

Even the weakest view has not been without criticisms which were well voiced by Vaizey (1962).

> There is a multiple correlation between parental wealth, parental income, access to educational opportunity, motivation in education, access to the best jobs and "success" in later life. Above all, there is sheer native wit and ability which will "out" despite all educational handicaps. It follows then that all the statistics may go to show is that education is unequally distributed: there may be no necessary causal relationship between education and income.

This sort of criticism had already been answered to a considerable degree thirty years previously in a famous study by Gorseline (1932) who had used a sample of 200 brothers, educated and gainfully employed in the state of Indiana, to control for the effects of non-educational factors on earnings. He found that brothers with more schooling earned significantly more than those with less schooling at each and every age above twenty, and that after analysing the sample for differences in age, length of education, grades attained in school, scores on a standardised test, occupational rank, place of residence, size of family, windfall income and medical expenses he concluded that half the mean differentials between the least and the most educated brothers in an average year were attributable to education.

Since then a considerable number of studies have estimated returns to college education, controlling for ability and socio-economic background. Psacharopoulos (1975), attempting to synthesise these studies, found that if one took an average of the estimates of sixteen of the most notable pieces of research, education was found to explain 77 per cent of earnings differentials associated with more schooling after allowing for the effects of these two factors.

A more recent critique of the productivity of schooling has suggested that the private rate of return derives from its use in providing information on the ability of the student. In the most extreme form of this "screening" hypothesis, additional education serves merely to identify those individuals who are more productive in the market, the proposition being that an individual's productivity is unaffected by the formal schooling process.[5] Thurow (1975) supports and extends this critique and suggested that education merely moves individuals up the "queue" in the competition for jobs. (However, this extension of the critique does not in itself imply that schooling is unproductive.)

Despite the initial support for the screening hypothesis from other leading economists (Arrow (1973), and Stiglitz (1975)), the importance of this information aspect of education would seem to have been overestimated. Layard and Psacharopoulos (1974) noted three findings in varying degrees of conflict with the hypothesis. First, they reason that if education is a screen for ability then graduation should provide more evidence of this ability than mere attendance for a number of years. However, in the US studies they examined the rates of return to higher education drop-outs were equally as high as for those who completed their study and obtained a certificate. Secondly, that earnings differences attributable to education rise with age after completion of study despite the fact that employers should have more information on such persons' abilities. Thirdly, they suggest that if screening was the main function of education it could, and would, be provided more cheaply on a private basis. Employers would then hire able secondary students rather than more expensive graduates. In the US Wolpin (1977) observed that amongst a group for which education as a screen has no value – the self-employed (excluding the professions), almost as much third-level education was acquired as for an equally able group of salaried workers.

More recently Riley (1979) attempted to reconcile the different findings by suggesting that the extent of screening varies considerably between

5. It is interesting to note that Schultz had previously (1968) considered this "discovery of talent" to be one of the strongest features of US higher education and that the pay-off to additional resources used for these purposes was still, in all probability, very high.

occupations. Those occupations which are heavily screened are, he continued, also those which occupy a more certain lifetime income due to the fact that *having* entered the profession less monitoring of performance take place. In unscreened jobs, monitoring of performance is more important and lifetime income depends upon such performance and, consequently, returns vary more. Thus, assuming individuals are risk averse, the returns in screened posts for any given educational level are lower than for unscreened ones. According to this classification, screened occupations are mainly comprised of persons in the education sector.

Notwithstanding the importance of education as a screen, Lazear (1977b) noted that "from an individuals point of view, it is almost always irrelevant whether schooling is a screen or productivity augmenter. Human capital analyses are consistent with both. Since the individual is simply assumed to maximise the present value of his income stream, he is not concerned with the employer's reason for paying higher wages".

Factors Influencing the Uptake of Third-level Education

The strongest view of education as an investment suggests that those who take up further education are responsive to the expected returns from so doing. The evidence for this hypothesis is fragmentary. Williams (1973) found for the UK that the anticipated earnings of those pupils in the last years of secondary education "conform fairly closely to the predictions of the hypothesis that those expecting to stay on at school after age 16 anticipate financial rewards from so doing (even if these rewards are not the explicit reasons for continuing in full-time education)". Survey work on US students by McMahon (1974b) indicated that the total direct investment in higher education by the student and his family is influenced by the expected monetary and non-monetary returns. In Canada, Handa and Skolnik (1975) found that poor labour market conditions, as measured by youth unemployment rates, exerted a weak effect on keeping persons in education after second level. Nevertheless, as Blaug (1976) observed, the existing evidence on *overall* uptake of third-level education has *not* provided strong corroboration of this version of the "investment" view of education.

Greater support is available for the view that students' subject choices are responsive to the expected economic returns. Freeman (1971) finds that US students are sensitive to the starting salaries in different occupations when making their choice of subject of study for undergraduate and postgraduate work. His investigations included work on student accountants, chemists, engineers, and mathematicians and in each case demand was strongly sensitive to the starting salary in the occupation relative to salaries in other occupations. In addition to these econometric results, he presented evidence from a

survey of students in the Boston area which showed that students have a good knowledge of the life-cycle of earnings of the different occupations. His later work on psychologists (1972), lawyers (1975a) and physicists (1975b), provided additional support for his approach. More recent questionnaire evidence of British 18 year-olds by Hutchinson (1977) strongly suggests that security is a very important factor influencing subject choice. This is not to suggest that other non-economic factors are not important. For example, Kelly (1976) showed for Scottish data that social background is also important, that new entrants to the "ancient" professions (law, dentistry and medicine) are frequently the offspring of existing members, and few students from working class backgrounds enter these faculties. She also found such self-recruitment evident amongst male students entering engineering, business, farming and, to a lesser extent, education. From the point of view of background she found that working-class students are significantly more likely than those from other backgrounds to specialise in education and engineering. Sociologists have suggested that high social status is a further important aim influencing demand although there is a lack of evidence as to its importance, independent of the factors mentioned above.

To conclude, the evidence on the factors influencing subject choice is not fully developed. There is some evidence that enrolment in general, and in particular subjects, is influenced by expected monetary and non-monetary returns and also security, but their relative and absolute importance is by no means clearly determined, neither is it certain whether or to what extent the findings generated in one country would be valid for another.

It is important to note that this approach is *not* inconsistent with the view that vocational reasons are the most important in deciding the subject of choice of any one individual. In Freeman's survey it was found that 82 per cent of students regarded "interest" (in the job) as "very important". First, "interest" is likely to be related to salary and psychic benefits and, secondly, although interest may be of prime importance, changes in relative interest are usually of the form of long-term trends, whereas changes in relative salaries may occur more frequently. Thus, provided earnings have importance in career choice for students, then changes in their level may be the major factor involved in bringing about the changes in demand observed. This can be viewed from the perspective of an individual student; for most, interest is perhaps the main explanation for the particular choice of occupation, but it is unlikely that even those with avid interest would be prepared to consider a particular occupation at any expected salary. At some sufficiently low salary all would probably reconsider their choice and many others may be prepared to alter their choice in response to fairly small changes in expected salary. After all, there are usually other "interesting" alternatives.

Table 2.3: *Probability of high school graduates entering college within five years of high school graduation in the United States*

Socio-economic Status Quartile	*Ability quintiles*				
	1 (High)	*2*	*3*	*4*	*5 (Low)*
1 (Highest)	0.95	0.84	0.69	0.56	0.40
2	0.79	0.63	0.46	0.34	0.28
3	0.67	0.52	0.34	0.27	0.19
4 (Lowest)	0.50	0.36	0.24	0.17	0.15

Source: Project TALENT. 1965 five year follow-up of 100,000 1960 high school students as reported by Rivlin and Weiss (1969) p. 545.

Socio-economic Distribution of Uptake at Third-level

A further matter of serious concern is the distribution of uptake of third-level education among social groups. The evidence in this area is still somewhat limited but some leads have been provided.

First, there is clear evidence of differences in uptake of third-level education amongst groups with different social backgrounds. Table 2.3 for the US shows that, with a given level of ability, the likelihood of any individual attending college is strongly dependent upon parental income, that as the level of income falls so does the likelihood of attendance. McMahon commenting upon these figures suggested that "a problem created by limited access and by limited aid going to students from lower income families does exist". However, the evidence from the UK does not seem to be in full accord with this view. In Table 2.4 the proportion of students in British universities from manual backgrounds is shown to have remained reasonably stable over a very long period. This is despite a fivefold rise in the number of entrants (between 1938 and 1978) and substantial rises in grant levels over the period. Blaug (1970 p. 294) asserts that one of the principal reasons for these outcomes is the lack of finance to complete second level, and the survey by Williams and Gordon (1979) on British 16-year-old secondary pupils provides some support for this belief. They asked the pupils who intended leaving whether they would continue at school if they were paid, and thirty per cent said they might with such assistance. However, the remainder of their research suggests that this will be far from enough to affect significant changes. Their study used an interactive (path) model of the effect of social class at home, academic attainment, perceived payoff, school

Table 2.4: *The percentage of university students in GB with fathers in manual*[a] *occupations*[b] *and the percentage of males aged 45-59 in manual occupations*[c]

	Men	*Women*	*Total*		*Skilled*		*Semi-skilled and unskilled manual*
					Non Manual	*Manual*	
1928-47	27	13	23				
1955	27	19	25	1951	47		31
1961	27	19	25	1961	47		31
1977[d]	25	20	23	1971	11	37	27

a Includes farmers.
b Because GB figures do not categorise farmers separately and because a greater proportion of fathers in GB have manual backgrounds these figures are not directly comparable with the Irish equivalents.
c Census data.
d University entrants not total population.
Sources: Robbins Report (1963) Appendix IIb p. 4.
Information supplied by Universities Statistical Record.

stay-on ratio and peer group precedents, all as having influence on third-level educational intentions. The results using this model confirmed that social class at home has its major effect upon staying on to complete second level and found that its effect on third-level entry was small and indirect. The single most important direct factor which affected the decision to continue schooling was the attitude of the pupil which in turn was mainly the product of attainment, and the precedents of peer groups.

For the US, Parsons (1974) and McMahon (1974a) both found that the level of parental education was significant and important in influencing uptake of third-level education. Parsons differentiated between mothers' and fathers' education but found both important.

The conclusions as to the effect of financial assistance are not at all precise. Any financial aid to study for less well-off groups will encourage enrolment by them; but we know not by how much, nor whether peer groups or other effects will counter any equalising impact on the socio-economic uptake.

Equity at Third-level

There are two important ways by which higher education affects equity. First, changes in the average level of education have effects on economic equality and secondly, so do the methods by which education is financed.

With regard to the first process Winegarden (1980) used a sample of thirty-two countries and after controlling for several background factors, found that increases in the average level of schooling had an important effect on reducing income disparities. In an earlier paper Psacharopoulos and Marin (1976) had shown that in order for an increase in the average level of schooling to reduce inequality there must be a sufficiently large fall in the rate of return as the level of education rises. Their results for the US were inconclusive but they suggested that increasing the average level of schooling may be important in reducing inequality in developing countries. Combining these two points there is an implication that the effect on inequality is less certain as a country becomes more developed.

Much work has been devoted to the study of the second process whereby education affects equality, particularly with regard to the effect of government support for third-level education on equity. Psacharopoulos (1977) studied the relationship between public subsidisation of higher education and the degree of inequality in 64 countries. His results suggest that inequality increases with subsidisation, since the subsidies go mostly to children from wealthy families who can afford the cost of preparation for college entrance examinations (including the costs of forgone earnings), and thereby enter college.

Peltzman (1973) pointed out that much of the effect of subsidising education is to replace private consumption. He shows for the US that subsidies in kind replace more private consumption than do money subsidies such as scolarships. Indeed, the former may replace so much (private consumption) so as to reduce total consumption. His findings suggest further that at a conservative estimate, three-quarters of such government expenditure substitutes for private expenditure and that 60 per cent of students receiving subsidies would attend college anyway and thus he concludes:

> It is also worth re-emphasising that higher-education subsidies, either in their present form or in some money-equivalent alternative which might be granted to present recipients, cannot be rationalised as a method for reducing income inequality.

The general conclusions are clear and have been well summarised by Theodore Schultz,[6] a leading worker in the field.

> The financing of education is generally quite regressive . . . because it adds to the value of the human capital of those who attend

6. Both Schultz and Boulding are thus quoted by Adams (1977).

> college, relative to those who do not go to college, because it increases the lifetime earnings of college graduates in part at the expense of others, and closely related, because higher education provides educational services predominantly for students from middle and upper income families and a part of the cost of these educational services is paid for by taxes on poor families.

In short says Schultz:

> The financing is such that substantial amounts of valuable assets are being transferred by society to a particular intellectually elite set of individuals.

This conclusion does not seem to be dependent upon the political persuasion of the author. Karl Marx as long ago as 1875 (1972) and Milton Friedman (1975) a century later, of opposing politics, are both critical of "free" higher education for the above "equity" reason.

These equity effects can be viewed in two ways: first, they arise through the subsidies on tuition costs which, given the socio-economic background of third-level, can be seen to aid the better off. As Boulding puts it:

> Subsidies to the state universities aid the rich and middle class.

The second source of subsidy occurs because, even though a minority of university students come from poor backgrounds, nearly all eventually obtain middle and better paid jobs. Subsidies to third-level students can also be seen to aid the future better off.

The examination of equity effects using annual measures of income (i.e., looking at students' "poverty") is limited. Lillard (1977) who focused attention specifically on this question concluded:

> To the extent that individuals are free to make inter-temporal choices about investment in earnings potential, and correspondingly are trading current earnings for later earnings, inequality in current earnings is inappropriate. Inequality in human wealth should be considered.

Thus Lillard and most other researchers in this field have considered a lifetime earnings (or human wealth) approach more appropriate. With this approach Layard (1977) tentatively concludes that:

> New cash subsidies to upper secondary education might be efficient and not too inequitable but that a reduction in higher education subsidies might be efficient and equitable.

The efficiency aspect to which he refers is that, with subsidies, too many persons (in economic terms) take up further education.[7]

The Pricing of Third-level Education

The question of fees is perhaps the most difficult of all the questions in the area because of the under-developed state of the theory, the lack of research and the serious implications of policy changes.

The major problem of the theory is that prescriptions cannot easily be made in a second-best world, which is a world where there are distortions of market prices or problems of distribution. If some goods or services are priced above or below the marginal cost of their provision then pricing of goods like education at their marginal costs would not be optimal.[8] Similarly, problems arise if there are externalities or if there are any disagreements on distribution.

Such caveats are seemingly devastating to any prescriptions. There are, however, considerations which may suggest and only suggest, directions for improvement. The first consideration follows from theoretical work by Broadway and Harris (1977) who show that in general, for the setting of prices proportional to marginal cost to be optimal, stringent conditions are required. These are that there should be no substitutability between the goods concerned and other goods, either in demand (i.e., to the consumer) or in supply (i.e., to the producer). In the third-level education sector substitutability would seem to be small, and in the absence of any rationale for any other type of pricing, this would seem to provide a prima-facie case for changing fees in this direction. The factor of proportionality depends upon the degree of distortion elsewhere and the equity considerations. With regard to the former factor, fees will have to be commensurately adjusted from marginal costs in line with the degree of distortion elsewhere. The latter equity aspects include the consideration that, since the good is consumed by the better off, the price should be above marginal cost if one wished the effect to be equalising.

However, it should be noted that in so far as the screening hypothesis has validity, the social return to education is less than the private return.

7. Lest it be thought that such an outcome can be inefficient, it is well to consider that many US students wishing to enter medical school, first need to obtain a largely unrelated liberal arts degree or equivalent. In addition, Freeman's (1976) *The Over Educated American* has a further endorsement of this problem.

8. In static Paretian terms.

This is because students invest in education not only to the optimum level from a financial viewpoint, but beyond this to improve their ranking. This latter investment has a productive value to society less than its cost. To curb such excess investment Riley (1979) has suggested that fees should exceed costs.

Thus on distributional grounds and on allocative grounds, the case would seem to be for fees to be nearer an economic level. However, counter arguments are strongly voiced, usually based upon the lack of resources of students whilst they are studying, particularly those who come from less well-off families. This resource problem is in fact, for most students, a temporary problem lasting only until they are established in their employment. If this problem could be resolved the weight of their arguments would suggest that fees should be raised to match costs.

Even then, there remains a further important problem – what is the appropriate measure of cost? The relevant cost concept for achieving the "optimal" level of demand is the marginal or incremental cost and attempts have been made to estimate this.[9] Probably the most appropriate estimates came from work by Layard and Verry (1975) for UK universities. By relating the differing costs for the various universities to differences in the numbers of under-graduate and post-graduate students in different subjects in these universities, they were able to compute marginal cost estimates for various groups. These showed marginal costs as in Table 2.5, standardised by taking the costs of an under-graduate arts course as 100. However, even these estimates are limited to the extent that the marginal costs were not determined under market prices and conditions.

The most striking feature of this table is the substantial differences in

Table 2.5: *Current departmental-plus-central marginal costs of under-graduates and post-graduates (Standardised with arts undergraduates = 100)*

	Arts	*Social Science*	*Maths*	*Physical science*	*Biological science*	*Engineering*
Under-graduate	100	100	113	155	177	219
Post-graduate	229	277	474	677	510	519

Source: Table VII Verry and Layard 1975.

9. In these studies the marginal cost refers to the incremental cost of education of an additional student for one year. This evades the problem of attempting to measure the output of "education" itself.

costs between the various groups. Faculties are arranged from left to right approximately in their order of hardware intensity, and marginal costs rise progressively in the same direction, with the exception of post-graduate physical science which is probably the most hardware intensive of them all. Post-graduate costs are all substantially greater than for under-graduates, even for departments like arts and social science whose hardware requirements are very low. One major reason for this would seem to be that economies of scale are not being exploited, many courses being given to small numbers of students.

Despite these arguments, Woodhall (1978 p. vi) observed in a survey of ten OECD states[10] that there is "an important trend towards reductions in the level of fees, and in the proportions of total costs of education covered by fees".

The arguments and evidence of this chapter have attempted to provide an assessment of our understanding of the economic aspects of third-level education relevant to the issue of student financing. In the following chapter the attention will focus directly upon these issues in an Irish context.

10. Australia, Canada, France, Germany, Japan, The Netherlands, Norway, Sweden, United Kingdom and United States.

Chapter 3

ECONOMIC ASPECTS OF THIRD-LEVEL EDUCATION IN IRELAND

This chapter will continue discussion of the issues of the previous chapter, but in this case with specific reference to Ireland. The chapter begins with consideration of the economic effects of third-level education in Ireland. This is followed by examination of the factors which have given rise to the rapid increase in the level of enrolment which has taken place over the last three decades, with particular consideration of the effects of fees and higher education grants. As in the previous chapter the socio-economic distribution of uptake of third-level education is studied, in this case examining the Irish evidence. However, unlike the previous chapter the equity aspects of third level are not considered here, but are discussed in Chapter 5. This chapter concludes with consideration of the appropriate level of fees. In the course of deliberating the above, a number of regression equations are estimated to give insight into a number of the causes.

The Economic Effects of Higher Education in Ireland

Evidence of the rate of return to third-level education in the Republic is not available due to the lack of suitable data. What are required are data on earnings and education for a sample large enough to include a good number of persons who have had third-level education together with other information on their background, age etc. The sort of data that would be available if the census had included a question on income. It might appear possible to make some approximate estimates using public service salary scales for "second-level" and "third-level" jobs. Such a technique, however, is likely to produce biased estimates. For many positions in the public services, particularly "second-level" ones, there is usually a substantial excess of applicants over available places, whereas for others (e.g., dentists) there are shortfalls. For this reason, it is neither possible to put forward the scales as typical, nor is it easy to measure how representative they are. Two major benefits of third-level are the increased likelihood of employment for all graduates, and participation in the labour force by married women graduates. These beneficial financial effects are ignored in using salary profiles for particular jobs. All these reasons are likely to render any such procedure liable to produce sizeable underestimates of rates of return.

Some estimates of the returns to second-level vocational education,

special training and apprenticeships have been obtained by Walsh and Whelan, (1976) who used data on a sample of redundant workers, for this purpose. Their results for the returns to an additional years training ranged from insignificant values for vocational training for women to around 8 per cent per annum for apprenticeships. These results must be treated with caution given the nature of the sample, and it is questionable to what extent they have implications for the returns to third-level.

In the absence of third-level estimates the closest comparison is perhaps the evidence from the U K. Given the openness of the labour market and the significant inward and outward migration flows that have taken, and do take place, the figures are particularly pertinent. As Keenan (1978) notes "the real earnings gap between the two countries has closed substantially in the last twenty years and it is quite plausible to assume that real earnings in both countries may move in the same direction in the future".

In so far as wage and salary levels for different amounts of training are in line between the two countries then there will be parallels in the rate of return. However, such parallels as there are have to be qualified by some important differences. First, the degree of subsidy and student assistance to third-level has been, and is, considerably lower in Ireland than in Britain. Whereas student fees which are not paid by government (i.e., those generally paid by better-off parents) amount to over 10 per cent of university current expenditure in Ireland they constitute a lesser proportion in the U K universities; although the position in the two non-university sectors is closer. The major difference is in the size of student maintenance awards which in Ireland are just over half the UK level. Secondly, the degree of rationing for different subjects of study varies somewhat from the position in Ireland. Although the Medical, Dental and Legal faculties are the most difficult in both countries, it was in 1979 much more difficult to enter to study English and rather easier, relatively, to enter the various Engineering faculties in the U K as compared to Ireland.

Thirdly, the pattern of graduate employment differs between the two countries (in Ireland 28.6 per cent of 1979 first degree graduates entered teacher training compared with 9.0 per cent of U K students).

Finally, emigration is much more of a feature for Irish graduates (of whom 8.6 per cent[1] emigrated in 1979 compared with 0.8 percent of U K graduates). From the above differences the lower level of third-level subsidy implies a lower private rate of return in Ireland but no difference in the social rate whereas the converse is true for emigration (i.e., the private rate is the same and the social rate is lower).

1. This emigration rate is computed as a percentage of all first degree graduates.

The rate of return to higher education in Britain has been discussed in the previous chapter. On this basis and with emigration and the degree of subsidy in mind it may well be that the social rates of return have been small but the private rates have been sizeable. In addition the private rates of return almost certainly differ markedly according to subject, and this will be referred to later. It may also be that they differ by sex, although neither Woodhall (1973) nor Morris (1973) found marked differences in the rates of return in the U K. All findings are that, generally, returns to post-graduate education are lower, although these are not corrected to allow for non-pecuniary returns which many conceive as particularly important for post-graduate students.

Factors Influencing the Uptake of Third-level Education in Ireland

In the previous chapter there was considerable discussion of the effect of economic factors on the decision to undertake third-level education. This chapter will consider this same question in Ireland, first, with regard to total enrolments and, secondly, with regard to enrolment in particular faculties. Overall enrolment has grown enormously in the last three decades from less than six thousand in the academic year 1946/47 to over thirty-five thousand in 1976/77.

Of particular importance in this increase has been the growth in the universities' enrolment with 3,868 students in the academic year 1946/47 and 22,064 in 1976/77. To attempt to use econometric methods to explain the overall growth of third-level would present serious difficulties because of the growth of new institutions with different entry standards.[2] However, it is possible to focus on the important university sector where few changes have been made in entry requirements.[3]

Most studies of the demand for education use a similar set of factors to explain enrolment levels (for example, Handa and Skolnik (1972 and 1975) and McMahon (1974a)), despite the fact that they generally have alternative theoretical origins. (See McMahon for a full treatment of the theoretical basis.) On the one hand, models may be developed from a consumption approach, whence price, income and the catchment group are the important variables. On the other hand, models may be developed from an investment view, whence the principal variables are price, the expected

2. The growth of new institutions with different entry standards has given rise to a relatively heterogeneous student body. Any attempt to explain such growth would need to take account of the growth rates in each institution (because the different entry standards for each college imply different catchment groups) and the introduction of new institutions themselves.

3. Only three changes have been made since the Second World War: in 1967 the entry requirement was raised from five Leaving Certificate passes to include one subject at honours level; from 1968 two honours were required and from 1972 six passes were also needed.

stream of future earnings, the probability of completing the course, the expected working life and the catchment group.

Despite these different beginnings, the final demand equations are usually fairly similar, at least for time series studies. This is because the expected probability of completion may either not be known to students, or may not vary, and is thus not generally included; and because the variable used to capture the effect of expected returns is usually approximated by income.

Nevertheless, differences remain in so far as the "expected return" varies independently of income. Further, it is reasonable to suggest that the expected working lives of women are different from those of men.

In this study no attempt is made to discriminate empirically between the models. The basic model used is a single equation demand model estimated in linear[4] form over the period 1951-68.

The dependent variable is full-time enrolment in the NUI and TCD. Although first-time enrolment would be more appropriate, unfortunately, statistics on this measure were not available. The independent variables used, measuring the factors likely to influence the decision to enrol are (1) a measure of income, the average weekly earnings in the transportable goods industries in 1968 prices; (2) a measure of the direct costs of entering third-level education, the average fee per student in 1968 prices. This fee variable was constructed by dividing the total fees paid by enrolment.

In addition a scale variable to measure the catchment population was included, being the number of Leaving Certificate students passing with honours that year. Of the coefficients, those on income and the catchment group would be expected to be positive and that on fees, negative.

In view of the lower expected working lives of women the impact of the various explanatory factors might be expected to be different in their case, thus equations are estimated separately for men and women, in addition to those for total enrolment.

Throughout this paper 1951 is used as the starting date for time-series regressions because it was generally the earliest date for complete series for all variables and for consistency.

The period of this particular regression was terminated in 1968 because of the major changes in that year: the introduction of the higher education grant scheme, free secondary education and a change in the university entrants requirements. In addition, the post-1968 period was a time when many new institutions were opened and for all these reasons this era is

4. Although the range over which enrolment is examined is possibly where the relationship with other variables is linear, it is not possible that this relationship is linear for all enrolment since the participation rate in higher education is bounded. Thus, caution should be exercised in using the equation to examine enrolment levels outside the range estimated.

given separate treatment later. In the original model a dummy variable was introduced to see if the change in entry requirements in 1967 (the only one, over the period) affected enrolment but it proved to be insignificant at the 20 per cent level and is not reported.

Table 3.1 shows the results of regression analysis over the period. All of the equations suggest that student enrolment is significantly increased by rises in the level of real income.

The effect of income may be due either to its effect on family resources or due to its effect as a proxy for expected salaries for graduates. In the light of other work on this problem by Handa and Skolnik (1975) and McMahon (1974a) the resource effect seems the more likely. The effect of fees is less well determined, but in each case the coefficient is negative and, in the case of female enrolment, is significant. In the case of male enrolment the coefficient is smaller and statistically insignificant.

The coefficient on Leaving Certificate Honours suggests that for every student receiving honours at the Leaving Certificate, 1.70 more students are enrolled in total (i.e., including students who have completed more than one year). Given that most students enrol for three or more years, the number of new students associated with an increase in students with Leaving Certificate Honours is commensurately less.[5]

In each of the equations an attempt was made to see whether the state of the labour market had influenced enrolment. On theoretical considerations its net affect is ambiguous since, from one view it may reflect opportunities alternative to third-level, whence a buoyant labour market would lower enrolment. Alternatively, it may reflect the probability of employment from third-level, whence a buoyant labour market improves the returns on third-level education and thereby raises enrolment. In the event, none of the variables entered to capture this effect, including both unemployment and employment rates, proved significant at the 5 per cent level, although this may reflect the absence of suitable data series over the period (i.e., a series on the unemployment rate of graduates), or that the two effects balance.

As a further test of the model similar equations were used to explain enrolment at UCC.[6]

In this analysis the direct costs of entering UCC is measured by the Arts fee in constant prices and since fees for different faculties generally moved

5. The importance of the economic variables in this and ensuing equations may be underestimated. This is because the decision to attempt third-level will involve a decision to undertake Leaving Certificate examinations. As such, the effects of the economic variables may, in part, be captured by the Leaving Certificate (honours) variable.

6. However, since the total enrolment figures contain the UCC figures, the test is relatively a weak one.

Table 3.1: *Regression equations of university student enrolment (1951-68)*

Dependent variable	*Constant term*	*Real annual earnings*[a] *£*	*Real fees £*	*Leaving Certificate honours (LCH)*	$\bar{R}^2$	*DW*[b]
	Coefficients of independent variables/(t-statistics)					
1 All students	-2654.46	13.78*	-22.95	1.70**	0.95	2.13R
	(0.82)	(2.03)	(1.67)	(2.39)		
				Male LCH		
2 Male students	-3747.76**	10.95***	-1.62	2.20**	0.92	2.11R
	(2.16)	(3.39)	(0.16)	(2.71)		
				Female LCH		
3 Female students	-2857.48***	6.70***	-7.76**	1.09***	0.98	1.85R
	(3.86)	(4.36)	(2.47)	(3.89)		

* are significant at 90 per cent level
** are significant at 95 per cent level
*** are significant at 99 per cent level

a. Real weekly earnings annualised in 1968 prices
b. At the 5 per cent level of significance the Durbin Watson test indicates
R = absence of autocorrelation.

The interpretation of the results of the equations can be illustrated with regard to Equation 1. This may be interpreted as follows. The number of students at university rises significantly with real weekly earnings (since the t-statistic is above the level of 2.13 at which level there is only a 5 per cent probability that the coefficient might really be zero, and the reported result be a chance result). The number falls significantly with rises in the real level of fees and there are 1.78 more students *in* university for every additional honours Leaving Certificate student. The $\bar{R}^2$ indicates the degree of explanation of the changes in student numbers attributable to the equation. The DW statistic is a measure of an econometric problem of autocorrelation. If this latter statistic is 2, it indicates the problem is absent and as the number deviates from 2 (either above or below) it indicates its presence.

together this seems a tolerable approximation for the explicit entry cost for all students. In two of the equations the Durbin Watson test for autocorrelation proved inconclusive. In this case, and in every case when this test was either inconclusive or indicated autocorrelation, the equation was re-estimated by generalised least squares (which renders all the standard statistical tests valid). The results in Table 3.2 broadly confirm the overall picture with the fee variable somewhat better determined.

Unfortunately, data are not available on graduate earnings, to test many of the more interesting hypothesis, but an examination of the post-1968 era yields further information. The earlier model is used with three changes. First, since the data on the numbers receiving honours at the Leaving Certificate were not available after 1968, the figure for the number who entered the Leaving Certificate examination, which was available throughout the period, was used. Since the overall percentage who pass the Leaving Certificate and receive honours is reasonably stable this seems a reasonable index of the catchment group. Secondly, because the introduction of free education and the new third-level institutions may have influenced the number of persons wishing to complete the Leaving Certificate an additional explanatory variable, the number of Leaving Certificate entrants post-1968, was added. Thus a variable, which took the value zero up to 1968 and the actual number of Leaving Certificate entrants thereafter, was introduced to test for a shift in the coefficient of the catchment group variable. Thirdly, to allow for the influence of grants and the payment of tuition fees for grant-aided students after 1972, a variable which reflects the direct cost of attending college for such persons, was also added. Before the grant scheme, this cost was, as for all students, the fee (the arts fee is used as a proxy measure). After the scheme was introduced the financial outlay (or receipt) was the fee less the maintenance grant. Thus after 1968 the financial "cost" for fully grant-aided students was negative.

Most of the results are in line with those of the earlier equations, except that these results suggest that the effect of fees in discouraging enrolment seems to work through the real cost for grant-aided students. What this implies is that the disincentive effect of fees is mainly via its effect on those from poorer backgrounds, presumably because they just cannot afford the costs. The other result of note is that the proportion of Leaving Certificate holders going to *university* since 1968 has fallen, as witnessed by the negative sign on the Leaving Certificate (post-1968) variable. Three possible explanations may account for this: that more students went on to complete the Leaving Certificate post-1968 with no intention of proceeding to third-level, or that many of these students did proceed to third-level, but to the new institutions which began to be set up after that time. The third possibility

Table 3.2: *Regression equations of University College Cork student enrolment (1951-68)*

Dependent variable	*Coefficients of independent variables/(t-statistics)*				$\bar{R}^2$	*DW[b] autocorrelation coefficient (p)*
	Constant term	*Real annual earnings[a]*	*UCC Arts fee in real terms*	*Leaving Certificate honours (LCH)*		
4a All UCC students	-865.94*	2.68**	-8.37*	0.40***	0.98	1.40U
	(1.92)	(2.57)	(2.04)	(3.69)		
4b	-685.56	2.19**	-7.10	0.44***	0.96	1.92R
	(1.55)	(2.19)	(1.57)	(4.31)		p= 0.35
5a Male UCC students	-846.15	2.55***	-5.94	0.37*	0.94	1.094U
	(2.35)	(3.08)	(1.55)	(1.84)		
5b	-560.43	2.03***	-5.40	0.43**	0.85	1.67R
	(1.59)	(3.00)	(1.34)	(2.86)		p=0.57
6 Female UCC students	-588.07***	1.52***	-4.68***	0.16**	0.98	2.24R
	(3.51)	(4.00)	(3.08)	(2.44)		

* are significant at 90 per cent level
** are significant at 95 per cent level
*** are significant at 99 per cent level

a Real weekly earnings annualised in 1968 prices
b At the 5 per cent level of significance the Durbin Watson test indicates
R = absence of autocorrelation
U = the test for autocorrelation is inconclusive.

Table 3.3: *Regression equations of university student enrolment (1951-76)*

	Dependent variables	*Coefficients of independent variables/(t-statistics)*						$\bar{R}^2$	DW^c/p
		Constant term	*Real annual earnings*[a][b]	*Real fees*[b]	*Real net costs for grant-aided students*[b]	*Leaving Certificate entrants*	*Leaving Certificate entrants (post-1968)*		
7	All students	-147.07 (0.04)	7.79 (1.08)	-7.23 (0.51) UCC Arts fee in real terms	-18.06*** (8.40)	0.73*** (2.94)	-0.48*** (5.36)	0.98	1.87R
8a	All UCC students	-1053.18 (1.28)	2.85 (1.73)	-3.22 (0.51)	-3.55*** (5.24)	0.11*** (1.90)	-0.893*** (3.97)	0.98	1.21U
8b		-296.13 (0.44)	1.43 (1.15)	-3.02 (0.70)	-4.08*** (6.75)	0.16*** (3.25)	-0.090*** (4.81)	0.98	2.16R /p1=0.59 /p2=-0.49
9a	Male UCC students	-205.25 (0.42)	1.01 (1.04)	-0.82 (0.22)	-2.89*** (7.25)	0.10*** (2.91)	-0.078*** (6.39)	0.97	1.20U
9b		212.80 (0.57)	0.26 (0.38)	-0.76 (0.32)	-3.20*** (9.64)	0.12*** (4.56)	0.082*** (7.76)	0.98	2.29U /p1= 0.63 /p2=-0.56
10a	Female UCC students	-843.29*** (2.21)	1.83 (2.41)	-2.40 (0.83)	-0.67** (2.13)	0.012 (0.44)	-0.0048 (0.50)	0.98	1.26U
10b		-458.01 (1.37)	1.06* (1.76)	-2.32 (1.07)	-0.90*** (2.88)	0.039 (1.67)	-0.012 (1.21)	0.98	1.97R /p1= 0.60 /p2=-0.39

* are significant at 90 per cent level
** are significant at 95 per cent level
*** are significant at 99 per cent level
[a]average weekly earnings (first quarter annualised)
[b]in 1968 prices
[c]at the 5 per cent level of significance the Durbin Watson indicates
U: the test for autocorrelation is inconclusive
R: the absence of autocorrelation.

is that the negative sign reflects the fact that the entry of students to university was constrained by the availability of places since entry to some faculties required more than matriculation towards the end of the 1960s. In fact, until the end of the period only the minimum qualifications were required for more than half of the enrolled students, and for just over 75 per cent until 1973, in the NUI colleges, (the position in Trinity was more complex but not substantially different). The extent to which these limitations affected total enrolment demand depends upon the ease of substitution of places in different faculties. Implicitly the formulation of the equation assumes perfect substitutability places which is clearly too strong. However, substitutability would seem to be significant on the basis of the number of applicants to the Central Admissions office who put forward preferences for a large number of courses, on average 6 in 1979/80, including many in different faculties. Thus the problem may not be overly severe.

It is noteworthy that even though the coefficient on the real level of fees is never significant in these equations it is sizeable for females but not for males. Conversely, the coefficient on the real cost to grant-aided students is large for males relative to that for females, and is significant in each case.

One further area of interest is the factors influencing choice of subjects, and in the light of the discussions in Chapter 2 it might be expected that the salary levels in different occupations might be important. The lack of data on such salary levels limits the possible findings. In the National University of Ireland the greatest competition seems generally to be for places in those faculties with the longest courses, for which remuneration in later life is thought to be higher and employment more secure.[7] Table 3.4 shows the minimum points requirement for entry to the different faculties in University College Cork from 1973-80 and for those in the other colleges of the NUI and TCD in 1980 (points are awarded according to the results of the Leaving Certificate examinations). The rankings of the requirements for the different colleges are broadly similar in all colleges, with the requirements in TCD and UCD being generally slightly above, and UCG slightly below, UCC. However, even if the main factors influencing subject choice are security and remuneration other factors are also likely to be important. In the context of earlier results, it might be expected that the level of fees would be of some importance in influencing faculty choice, for those students for whom fees are payable, whether they pay themselves or their parents pay. One would not expect fees to be influential in faculty choice for those on higher education grants since their fees are paid for them. As such the

7. Since earnings data by occupation are not available, it is not possible to produce evidence to support this impression.

Table 3.4: *Minimum number of points required for entry[a] into various faculties in University College Cork from 1973 to 1980 and University Colleges Dublin and Galway and Trinity College Dublin in 1980*

		UCC								*UCD*	*UCG*	*TCD[e]*
Minimum full duration of course in years	*Faculty*	1973	1974	1975	1976	1977	1978	1979	1980	1980	1980	1980
3	Arts	M	M	M	M	M	M	M	M	M	M	A/B/C/D
3 UCD, UCG 4 UCC	Commerce	M	M	M	M	M	13	14	13[b]	15	43[b]	
3	Science (Common)	M	11	M	M	12	15	15	12[b]	15	42[b]	C
3	Social Science	13	10	15	15	15[b]	17	17	15	15	-	C
3	Law	10	10	16	17	19[b]	20[b]	20[b]	20[b]	20	-	D
4	Engineering Civil				20[b]	20	18	M[c]	16[b]		C[d] 61	C
	Electrical	M	M	18	18[b]	15	18[b]	18	23[b]		I[d] 55	
5	Dentistry	c	c	17	20	22	21[b]	22[b]	21[b]	-	-57[b]	C
	Medicine	c	c	21	23	24[b]	24	23[b]	22[b]	22[b]	73[b]	D

a. Course requirements listed as M were open to all matriculated students.

b. Only some of the applications on these points were accepted.

c. In 1973 and 1974 the pre-medical and pre-dental courses were amalgamated into 1st Science (common) and entry into the 1st Medical and 1st Dental was determined by the marks in the 1st Science examination.

d. C = Civil Engineering
I = Industrial Engineering
M = Mechanical Engineering

e. TCD ranks courses in their order of difficulty of entry A being the easiest and D being the most difficult. The Arts faculty has courses with different entry requirements.

number of persons on grants should be greater, given the total size of the faculty, the higher the fees. To test this hypothesis a single equation model for 1976/77 data was estimated in which the number of grant-aided students was regressed upon the total number of students in the faculty, the cost of entering the faculty for non-grant-aided students and the length of the course. Given the reasoning above it was expected that the coefficient on total students and faculty fee would both be positive. The sign of the coefficient on the length of the course reflects the relative influence of course duration on grant-aided and non-grant-aided students. This coefficient was expected to be negative since grant-aided students may be expected to have a greater concern for early employment given their home financial circumstances. The equation was estimated in linear form but a case can be made for measuring the dependent variable as a proportion. In the event the qualitative results were the same with the dependent variable measured in this form. Because the independent variable contains the dependent variable in the model, the equation was estimated by two stage least squares. (The identity, defining the total number of students as those in the faculty and those not, completes the model.)

The results in Table 3.5 show equations 11-13 for the Dublin colleges, and equations 14-16 for the provincial colleges. The separation between the Dublin colleges and the provincial colleges was made as a result of two considerations: first, that the number of grant holders was likely to be less in the capital, due to the higher incomes there, and secondly, because the proportion of students from farming backgrounds is lower in the Dublin colleges, both implying reduced eligibility for grants (given either that the eligibility limits were less severe for the farming community or that the incomes of parents on farms were relatively low). These considerations are also supported with the finding from the equation that approximately one-third of an increase in the size of the Dublin faculties came from students on grants, other things equal, compared with sixty per cent for the provincial faculties. In the equation, the effect of fees is consistently negative, indicating that high fees in a faculty increase the likelihood of entry of students on grants, for whom these fees are paid by the state.

Two other findings are of interest. One is that the length of the course is also significant (in UCC, UCG and Maynooth) in explaining the number of grant holders, suggesting that grant-aided students are better represented in shorter courses as postulated. The statistical insignificance of this coefficient in equations 11-13 may reflect the lower importance of this factor in the two Dublin colleges, perhaps due to the higher incomes and lower proportions of students from manual backgrounds in these colleges (see p. 53). The other finding is that the number of grant holders is greater in

the Arts Faculties other things equal, including the level of fees (estimated by the inclusion of a dummy variable for the Arts Faculty). This finding is at first sight surprising in that Arts Faculties in the NUI colleges and Maynooth have the minimum points requirements and much more than this minimum is required to obtain a grant. Thus, a greater proportion of non-grant-aided students might be expected. As against this, the finding by Kelly (1976) for Scottish university students studying for the teaching profession perhaps provides a clue (p. 30). It may be that students from low-income backgrounds also prefer teaching which, for many of them, will involve doing Arts (since this faculty has most secondary teaching subjects). In further tests other faculties were not found to have significantly different numbers of grant-aided students, nor were there found to be any statistically significant differences amongst the two Dublin colleges and the three provincial colleges respectively, though the results of these tests are not reported. The conclusions of these results are that the differences in relative fees do influence faculty choice and that because grant-aided students do not pay such fees, the fee structure reduces the number of students from better-off families in the more expensive faculties, other things equal.

Socio-economic Distribution of Uptake at Third-level

The strong evidence of differences in the background of those taking up third-level education in the U K and the U S is also apparent in the evidence available for Ireland. Table 3.6 gives figures in Columns 1, 2 and 3 of the percentage of UCD students from various social groups based upon surveys carried out for 1978/79, 1975/76 and 1964/65. It can be seen that, apart from a sizeable swing in the percentage from the skilled manual group, little change has taken place between the dates. Column 4 shows the percentage from each group obtaining honours in the Intermediate Certificate according to a 1973 survey and Column 5 the 1971 census distribution of males over 35 from the 1971 Census of Population. In so far as the percentages are stable, the table can be read as follows: the proportion of children from skilled manual backgrounds in education falls off at the Intermediate Certificate and falls off still further at university. The same story holds for all the other manual groups except that the fall off is in each case proportionately more. By dividing the figures in Column 1 by those in Column 5 the representativeness of each social group in UCD relative to the population proportions is obtained in Column 6. When this is done it turns out that the child of a parent from a professional, managerial, senior salaried and intermediate non-manual employment is 302 per cent as likely to be at university (UCD) than is the average child, whereas the child of a father from an unskilled manual occupation is only

Table 3.5: *Regression equations*[a] *of some factors influencing faculty choice (1976/77)*

	Dependent variable	*Coefficients of independent variables/(t-statistics)*[b] *Constant term*	*Faculty fee (£)*	*Length of course (years)*	*Number of students in faculty*	*Arts faculty =1 for Arts faculty = 0 Otherwise*	*Number of observations*	$\bar{R}^2$
Trinity College and University College, Dublin								
11	Number of grant and scholarship holders in each faculty	-140.92** (2.17)	0.63** (2.19)		0.33*** (16.49)		19	0.94
12	As above	-122.31* (1.82)	0.86** (2.44)	-14.41 (1.10)	0.33*** (16.01)		19	0.94
13	As above	-123.74* (1.91)	1.02** (2.93)	-18.02 (1.41)	0.28*** (9.09)	107.09* (1.96)	19	0.95
University College Cork, University College Galway and St. Patrick's College Maynooth								
14	Number of grant and scholarship holders in each faculty	-49.64 (1.15)	0.063 (0.33)		0.61*** (25.78)		18	0.98
15	As above	-32.45 (0.83)	0.50* (1.81)	-25.12** (2.24)	0.59*** (27.49)		18	0.98
16	As above	-83.24** (2.42)	0.79*** (3.26)	-25.99*** (2.82)	0.55*** (19.86)	75.44** (2.67)	18	0.99

[a]All equations estimated by two stage least squares.
[b]Notes as for Table 3.3.

Table 3.6: *Social class of UCD entrants as defined by father's occupation in various years; of those achieving honours in the Intermediate Certificate in 1973, and of males aged 35 and over in 1971*

Occupation of father	*UCD entrants*			*Percentage receiving honours in Intermediate Certificate in 1973*	*Percentage males aged 35 and over*	*Representativeness relative to population proportion*
	1978/79	*1975/76*	*1964/65*			
	[a] (1)	[a] (2)	[a] (3)	[b] (4)	[c] (5)	(6) = (1)/(5)
Farmers	13.4	13.2	13.9	26.9	26.2	0.51
Professional, managerial senior salaried and intermediate non-manual employees	70.3	69.8	74.0	41.8	23.3	3.02
Other non-manual (e.g. porters, drivers and roundsmen)	2.8	4.3	3.3	9.0	9.8	0.29
Skilled manual	5.0	9.1	5.5	13.2	16.1	0.31
Semi-skilled manual	0.9	1.7	0.6	2.3	4.1	0.22
Unskilled manual agricultural workers and fishermen	1.8	1.1	1.1	3.9	15.2	0.12
Unknown	5.8	0.8	1.5	2.5	5.3	1.09

[a] *Source*: J.P. McHale (1979) and M. Nevin (1966/67).
[b] *Source*: Survey by J. Rudd (1974)
[c] 1971 Census Vol. IV.

12 per cent as likely. Similar results are also apparent at the other colleges (see Table 3.7) with a number of additional aspects and differences. One is that the farming sector is better represented at the provincial colleges (UCC, UCG, Maynooth and the NIHE Limerick) and, conversely, for the professional and managerial sectors, which might be expected on locational grounds alone. In addition, the proportion of students from manual backgrounds is also greater at the provincial colleges (greater than 10 per cent in each case with the 17.8 per cent at UCC particularly notable) compared with UCD and TCD which have less than 7 per cent of students from such backgrounds.

An examination of these proportions broken down by sex (not provided) reveals some interesting differences. Whereas only 16.07 per cent of males entering all the colleges had farming backgrounds the proportions of females was 23.8 per cent. In Maynooth and the NIHE Limerick over 15 per cent of males compared with 9 per cent and 6 per cent of females respectively were from farming backgrounds.

The socio-economic background of students at the primary teachers training colleges is different to that of university students. The results of a study of lay entrants to the teacher training colleges in 1963 are shown in Table 3.7 together with some results from a study of 1977 entrants by Dunn and Morgan (1979). As may be seen the 1963 classification is similar to that for university entrants and shows significantly less students from professional etc., backgrounds than Nevin's (1966/67) study, and very high

Table 3.7: *Percentage of first-time entrants to various colleges by socio-economic background (of the father) 1978/79*

	UCD	*UCC*	*UCG*	*TCD*	*MAY*	*NIHEL*	*Total*
Farmers	14.26	24.33	30.69	12.32	27.53	25.82	19.55
Other agricultural	1.25	0.37	0.23	1.47	2.02	0.33	0.95
Higher professional	20.32	13.60	14.04	23.07	4.86	12.74	17.54
Lower professional	7.76	4.72	7.36	7.11	8.50	4.57	6.84
Employers and managers	23.22	13.88	14.27	23.59	13.36	14.38	19.21
Salaried employees	13.21	6.94	8.04	15.09	12.15	12.09	11.48
Intermediate non-manual	10.06	15.63	12.57	7.54	13.76	12.09	11.27
Other non-manual	3.00	2.68	2.15	2.86	6.48	4.57	3.02
Skilled manual	5.25	9.90	7.02	5.55	7.29	10.13	6.83
Semi-skilled manual	1.00	6.47	2.15	0.78	3.64	1.31	2.31
Unskilled manual	0.65	1.48	1.47	0.61	0.40	1.96	0.99

Source: Higher Education Authority Student Statistics (1980).

proportions from farming backgrounds (although the high percentage giving no information is a serious qualification to these results).

The 1977 study has no category for farmers. Most students of farming backgrounds categorised themselves as skilled manual although it appears that others may be included as unskilled manual. In the face of the problems of classification it is not possible to draw any clear conclusions, however, it would seem that the socio-economic background of primary teacher training entrants is significantly less confined to the upper socio-economic groups.

No data are yet available as to the socio-economic background of RTC students. Evidence form Benson and Clancy (1979) shows that in the Dublin Institutes of Technology (Bolton Street, Kevin Street and the College of Commerce, Rathmines) skilled manual workers are slightly better represented (10 per cent as against 5.5 per cent), and professional workers less well represented (13.2 per cent as against 25.1 per cent), than in the Dublin university colleges (UCD, TCD and Maynooth). Aside from this the picture is almost identical. The evidence also suggests that students of manual backgrounds are better represented in shorter courses Thus, RTC students, many of whom follow shorter courses are likely to be more representative of the general population than university students.

An examination of the socio-economic background broken down by faculty at UCC is presented in Table 3.9. In this table the actual number

Table 3.8: *Socio-economic background of primary-teacher training entrants in 1963 and 1977*

Background	*1977*	*Background*	*1963*
	per cent		*per cent*
Professional	31.9	Professional, employer, manager	
		Senior-salaried employee	17.4
Non-manual	18.2	Intermediate non-manual	12.3
		Other non-manual	4.8
Skilled manual	29.1	Skilled manual	5.3
		Semi-skilled and unskilled	5.3
Unskilled manual	18.0	Unemployed and deceased	3.3
		Farmer	32.5
Not given	2.8	No information	19.1
	100.0		100.0

Sources: Dunn and Morgan (1979), Investment in Education (1965) p. 6.

of students is divided by the number of students that would be expected if faculty choice was independent of student background. For example, Table 3.9 suggests that 65 per cent as many students in Arts were from professional backgrounds than would be expected if students from such backgrounds were evenly represented in each faculty.

From the table it can be seen that those from higher professional backgrounds are much better represented in the Law and Medical Faculties and less well represented in Arts and Commerce, than others. In contrast, students from manual backgrounds are well represented in Arts and particularly poorly represented in Medicine and Law. The table seems to bear out Kelly's (1976) findings for Scottish students (see p. 48) that students are likely to follow the subjects required to enter their parents' occupations. The separate figures for female students are in line with those for males (neither of which are reported) except that more Arts and Science students are from higher socio-economic backgrounds (presumably to enter teaching where opportunities are *relatively* favourable for women).

To summarise, the participation of students from manual backgrounds

Table 3.9: *Socio-economic background*[a] *of students in UCC by faculty*[a] *in March 1979: observed frequencies divided by frequencies expected if distribution in each faculty were the same as for the whole college*

	Socio-economic background[a]								
Faculty[a]	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9 & 10*	*12*
Arts	0.65	1.00	0.76	0.99	1.03	1.06	1.26	1.38	1.20
Commerce	0.63	0.83	1.31	1.01	1.15	1.06	0.94	1.07	0.98
Law	1.85	0.68	1.34	0.78	1.29	0.50	0.93	0.30	0.44
Science	0.87	0.87	1.06	1.09	0.92	1.12	0.91	1.12	1.11
Engineering	1.17	1.03	0.99	0.86	1.25	0.80	1.22	0.63	0.85
Medicine	1.93	1.24	1.15	1.10	0.96	0.86	0.56	0.70	0.62

Key to Background
2 = Higher professional
3 = Lower professional
4 = Managerial and executive
5 = Senior salaried workers
6 = Intermediate non-manual
7 = Other non-manual
8 = Skilled workers
9 & 10 = Semi-skilled and unskilled
12 = Farmers.

[a]Background categories and faculties with less than one hundred students are omitted.

is low and their participation is even lower in the professional courses, (that is in so far as UCC figures are representative of the whole student body).

The hypothesis mentioned in Chapter 2 to account for the low participation of students from manual backgrounds in Britain was that the major problem was the failure of such students to complete their schooling.

To attempt to investigate the factors responsible for students not finishing school, a regression equation was estimated to explain the numbers of students dropping out between the Intermediate and the Leaving Certificate over the period 1951/72. The dependent variable was measured as the number of entrants for the Intermediate Certificate less the numbers entering the Leaving Certificate two years hence. The variables considered likely to influence the decision to finish school and used as independent variables in the equation included an income variable to approximate the influence of family income (average annual earnings in transportable goods industry) and a variable reflecting the costs of staying on (average annual wage of persons under 18 in transportable goods industries). This variable ceased to be published after 1972 which explains the estimation period of the equation. The number of persons entering the Intermediate Certificate was added as a scale variable to capture the size of the group from which the drop-outs occur.

The equations were estimated in linear[8] form for all drop-outs and for males and females separately. The results in Table 3.10 suggest that real income reduces the number of drop-outs whereas the costs of study generally increases the number of drop-outs. The scale-variable is consistently positive and indicates that an increase in the number of Intermediate Certificate students by 100 is likely to increase the number of drop-outs by 28 (estimates at the mean and subject to the standard errors of estimate). The estimated coefficients on the income and earnings variables should be treated cautiously since they are strongly collinear.

Some attempt was made to discover if the state of the labour market, using several measures, influenced the drop-out rate but the results (not reported) were generally in the negative (i.e., not significant at the 20 per cent level). In addition, an attempt was made to see if the coefficient on the number of Intermediate Certificate entrants changed after 1968 with the introduction of free education. However, the results (again not reported) gave no support to this hypothesis, the coefficients also not being significant at the 20 per cent level.

In 1965/66, approximately 26 per cent of 16 and 17 year olds were, in

8. A similar problem arises here with the linear functional form as with the enrolment equations (see note 4) and the same comment applies.

Table 3.10: *Regression equations of the proportions of students who drop out between Intermediate and Leaving Certificate (1951-72)*

Dependent variable	*Coefficients of independent variables/(t statistics)*[a]					
	Constant term	*Real annual*[b] *earnings*	*Real annual*[c] *earnings 18 year-old males*	*Intermediate Certificate entrants*	$\bar{R}^2$	*DW*[c]*/p*
17						
Intermediate Certificate entrants						
Less Leaving Certificate entrants						
two years hence	10,107.3***	-12.51***	7.76*	0.28***	0.93	2.02R
	(6.19)	(3.54)	(2.00)	(2.96)		
18						
Males as above	5,378.59***	-11.51***	9.95**	0.39***	0.94	2.30R
	(6.50)	(6.52)	(2.52)	(2.86)		
			Females			
19a						
Females as above	544.17***	-5.16	-8.7	0.57***	0.87	.92A
	(4.76)	(1.47)	(1.02)	(4.90)		
19b						
Females as above	4,853.88***	-7.39***	10.74***	0.20**	0.84	1.79R
	(7.56)	(6.11)	(3.07)	(2.38)		/p1= 1.27
						/p2=-0.80

[a]Notes as in Table 3.3.
[b]Average weekly earnings in transportable goods industries in 1968 prices annualised.
[c]Average annual earnings in transportable goods industries for those under 18, 1968 prices.
A: indicates presence of autocorrelation.
R: indicates absence of autocorrelation.
U: test for autocorrelation is inconclusive.

general, second-level senior-cycle, a figure which rose to 44 per cent by 1970/76 and somewhere between 55 and 60 per cent in 1978/79. Thus, it seems that the failure to complete second-level has become less important as a factor explaining the unrepresentativeness of third-level, though it may, nevertheless, still be significant.

To conclude, students in third-level education are, at present, highly unrepresentative of the population in terms of their socio-economic background, and this seems due in part to the level of family incomes.

The Pricing of Third-level Education in Ireland

The rationale for the present level of fees and the differences between them is unclear. In recent years agreement has been reached between the universities to charge similar fees for the same courses in the different colleges. The relative sizes of such fees in different faculties at undergraduate level do seem to vary approximately with the relative marginal costs in different departments (if the relative cost figures for the U K universities in Table 2.5 apply), but they are at a substantially lower level. This implies greater absolute levels of subsidy in the more expensive courses, for the post-graduate fee levels are not only much lower in proportion to their costs, but also bear no relation to the same relative cost estimates. In addition, it is far from clear why fees comprise more than 10 per cent of income in the university colleges and less than 5 per cent in the technological and technical colleges.

In principle, and in the absence of substantially greater knowledge, prescriptions cannot be made with theoretical support, but it is possible to at least aim for consistency. If other areas of the public sector are generally priced approximately at or proportional to (marginal) cost, then the consistency requirement would support this being done for third-level education. Similarly, if the effects of other public services are operated to be equalising in their distributional implications, it would be inconsistent to price higher education services so as to accentuate inequality; to do so would imply that distribution was relatively unimportant. The pricing of other public sector services would not seem to be (fully) consistent in these respects but few appear to deviate from the theoretical guidelines to the same extent as do fees in third-level educational institutions.

There are, however, a number of special considerations with regard to post-graduate students that must caution against the applicability of even marginal costing procedures or some variant. These include the use of post-graduates for small group teaching, where they are often very lowly paid, and more problematical still, the research work which they help to generate may be valuable in itself and may be considered a necessary part of the

development of a "good" academic department. The use of post-graduates for small group teaching at low rates of pay is compensated for by the very heavily subsidised fees for their tuition. This contrasts with the US system where fees are high and post-graduate teaching duties are commensurately more highly remunerated. For those who do not undertake teaching duties whilst studying for their higher degrees the Irish universities are providing very heavy subsidies with no compensating "cheap labour", mostly to those who are amongst the better off of the post-graduates and who will, in addition, be proceeding to highly rewarding careers: such subsidies further increase inequality.

This chapter has provided evidence of some factors influencing enrolment in third-level and choice between subjects. These suggest that the major cause of the rise in enrolment over the period has been the rise in real incomes together with the rise in the number of secondary school leavers with qualifications sufficient to enter third-level. These two, together with the small fall in the real level of fees and the introduction of higher education grants, explain nearly all of the rise in numbers over the period. Evidence has also been provided to show that the net financial costs of different subjects, whether such costs are fees or the opportunity costs of extra years of study, influence students' choices between faculties.

In addition, evidence was provided which suggested that higher real incomes increased, and higher wages available to young people decreased the numbers continuing to third-level. The importance of the level of income was suggested as part, at least, of the explanation of the socio-economic distribution of third-level students who, as in other countries, are drawn mainly from the homes of the better-off. Finally, it has been suggested that the fee policy of third-level institutions is wanting. This background provides part of the basis for the assessment of the present system of finance of third-level in Chapter 5. The following chapter considers which objectives are appropriate for such an assessment.

Appendix 3

The conclusion depends upon the relationship between socio-economic groups and income (or rather lifetime earnings). Evidence on this relationship between socio-economic background and weekly income is available from the 1978 urban household budget survey as below. (Average income set equal to 100)

Household Income by Socio-Economic Group	*1978 Gross*	*1973 Net*	*Gross*
1. Higher Professional, Lower Professional, Employer or Manager	156	141	154
2. Salaried Employee, Intermediate non-manual worker	118	107	118
3. Other non-manual worker	105	97	103
4. Skilled manual worker	108	100	113
5. Semi-skilled manual worker Unskilled manual worker	93	87	94
6. Farmer, Farmer's relative or Farm Manager, Other Agricultural Worker or Fisherman, Unknown.	52	52	75
	100	100	100
Average urban household	£91.8	£83.4	£41.3

Such estimates are qualified in the introduction to the National Household Budget Survey (1973) as follows: "The income estimates are generally appreciably lower than National Accounts levels indicate. Taken over all households the average expenditure exceeded disposable income by some 13 per cent." Notwithstanding this reservation and other qualifications (see survey) the general relationship is unlikely to be substantially affected.

Chapter 4

VIEWS AND OBJECTIVES

In the broadest perspective all people in Ireland are involved in education at some time in their lives, but only a minority of those leaving school undertake third-level education. This minority and certain other groups have more direct interests than others, and it is on the views and objectives of these groups that attention will be concentrated. Amongst them are the consumers of education, the students; and the producers, the college authorities and its employees. The parents and the general population as taxpayers represented by the politicians bear most of the cost of financing higher education and are thus important parties to be considered.

This chapter is intended, not to analyse the various proposals of different groups, but to outline the fundamental objectives of the various groups so as to provide a framework within which the various possible schemes can be appraised. In this approach it differs from other work in the area where the framework is usually comprised of aspects of the theory and tradition of public finance, and elements considered to be of concern by particular authors (see Crew and Young (1977), Prest (1966), Woodhall (1978) and Zacharias (1977)).

The views considered are those of students who, like the general public, have a multiplicity of perspectives – no paper could do justice to their rich diversity. Some, but by no means all, of their views, are represented by the Union of Students in Ireland (USI). The USI view is expressed most fully in their booklet *Education and Social Inequality (1974)* with some development in *The Missing Link (1978)*. These documents argued in favour of a comprehensive grant scheme (see Chapter 6 for the explanation of this and other schemes), but it should be noted that not all students seem to concur with these views. In a 1975 referendum a large minority of UCC students voted for a loans scheme. In Trinity College Dublin three out of four (1975-76) students union sabbatical officers supported (and were elected in the knowledge of that support) a graduate tax/income-contingent loan scheme. It would seem that either students vary in their priorities or that they weigh the same priorities in different ways.

In a similar fashion, some of the views of academic staff are put forward by a major representative body, the Irish Federation of University Teachers (IFUT) representing about 80 per cent of academic staff in the universities

and colleges of education.[1] Amongst the institutions, there are the views of the various governing bodies, their presidents, directors and other representatives to consider. The various Irish governments have had different approaches to higher education but they have many objectives in common. Many such objectives have been expressed in speeches in the Oireachtas, others in various white and green papers.

After examining all of these sources, the following objectives seemed to be of most importance to the above parties. (In some sources the stated objectives are proposed in a form which is not strictly commensurate with those under which they are labelled, and a small measure of interpretation is involved in the ensuing groupings.)

1 *Equality of Opportunity*

That higher education should be equally available to all persons independent of their financial, social or geographical background has been emphasised by most contributors to the debate:

by students;

USI's *The Missing Link* (1978) states (item 15) that:

> USI will continue to campaign for resources to be allocated to the Grants Scheme to promote educational opportunity

and later (item 8) in the same vein:

> The position of women students could also be severely worsened by a loans scheme

by staff;

IFUT in a statement of 21 March 1976 said:

> The council firmly believes that university education should be equally available to all the citizens of our country with selection based solely on merit and ability and not on the financial or social status of applicants

by institutions;

The UCC governing body, perhaps somewhat less explicitly than the USI and IFUT, stated (20 May, 1976):

1. IFUT is the only trade union (or staff organisation) that is solely representative of third-level (teaching) staff.

> It is the view of the governing body that a fundamental objective of any government policy in relation to third-level education must be to ensure that no individual capable of benefiting from third-level education, should be denied access to it by reason of financial stringency

by politicians;

> In 1968 when introducing the Higher Education Grants Bill, the then Minister for Education, B. Linehan, T.D., said:
>
> The purpose of the Bill . . . is to make available sufficient additional money to enable all students who reach the required standard and who satisfy the means conditions, to have the higher reaches of education, thrown open to them (Dáil Debates, Volume 234, 24 April, 1968)

and in legislation;

> An t-Udaras shall . . . have the general functions of: promoting the attainment of equality of opportunity in higher education Higher Education Authority Act, 1971, Section 3 (d)

The only criterion for selection would be some measure of academic suitability. Whether this means that entry should be given to all those of *sufficient* merit to complete a course of study, or merely that available places should be allocated to those of greatest merit is not always clear.

2 *Economic Equality*

That any finance scheme should reduce inequality by transferring resources from the rich to the poor is mentioned:
by USI:

> USI's *Education and Social Inequality* (1974) states (p. 35) that:
>
> The basis of USI's policy has already been stated as 'Education is a right – not a privilege' . . . This demand for a comprehensive grant scheme is based not on self interest but on the fact that poorer people in Ireland may avail of higher education, rather than having it monopolised by the more prosperous middle-class.

and later in its case against loans it ennunciates (p.49)

> There is no socially progressive element (in loans) as in grants: the latter works by transferring money from the rich to the poor. It is thus a method of promoting social equality.

and is implicit in statements by IFUT:

IFUT statement 21 March, 1974:

> As each place in the university is at present subsidised by the state . . . the public are in effect supplying the education of the already better-off sector of our society.

In June 1978, the Director of the NIHE in Limerick showed concern in this regard, calling for a loans scheme on the grounds of economic equality (and for other reasons).

The government Green Paper (June, 1978, p. 74) notes:

> The state grant to the Higher Education Authority represents some 83 per cent of this year's total income of the institutions under the Authority. The state also pays a sum for fees and maintenance costs of those students benefiting under the Higher Education Grant Scheme. It should be kept in mind that these high levels of benefit, paid for by all taxpayers, accrue in large part to a small and relatively privileged section of the community who also enjoy the prospect, as future graduates, of relatively high earnings. Consequently, it would seem equitable to increase the fees charged.

This consideration is given varying weight by different groups and is not mentioned by others.

3 *Social Mobility*

Many sociologists and policy makers have seen education as a means for promoting a socially mobile society so that the child from the least favourable positions on the social scale can attain the highest positions. Amongst the contributors, USI have made explicit reference to this point.

USI continuing its statements opposing loans in *Education and Social Inequality* (1974) states (p. 49) that:

> There would be little inducement (under loans) to working-class students to enter higher education.

4 *Efficiency*

Concern was reflected in the terms of reference of the Commission on Higher Education (1967) and also in the National Economic and Social Council Report on Educational Expenditure (1976) with regard to the effect of any scheme on the uptake of third-level education. Efficiency in obtaining an optimal[2] uptake in total and between faculties and achieving an efficient use of resources inside third-level are objectives against which any scheme can be measured and are likely to be so appraised by the interested parties.

USI in *Education and Social Inequality* (1974 p. 49) continue that:

> A loans system would be more wasteful . . . drop-out rates would certainly rise; the already severe stress of assessment and examination would be further aggravated by financial worries.

Dr. G. FitzGerald in the Seanad debate of the Higher Education Grants Bill (19 June 1968) addressed himself to the question of fees:

> The present method is that the government give block grants to the universities to cover two-thirds of the cost. That is a scheme of finance which is unsatisfactory because it has meant that up to now those who can pay the £65 to £100 fee get the rest for nothing . . . We felt (see Fine Gael – *Towards a Just Society (1965)*), that the cost of the various types of university varies widely, so widely, indeed that at present some of the universities do not know themselves what the cost is. This is not a good way to run any institution, to run it without knowledge of the cost and we think it is important that all courses and faculties should be costed and charged at the appropriate fees.

5 *Practicalities*

A further set of factors which, though generally less explicit, have been of crucial importance to governments, are the financial, political and administrative practicalities of any changes in policy or extensions of the existing policy. That is, whether the scheme can be afforded by the public finances,[3] whether it will be well received politically, and whether it is

2. See page 81 for discussion of what is meant by optimal, in this context.

3. Such consideration was presumably in mind when the Green Paper laid out options for consideration for "the phasing out of publicly financed schemes which are no longer appropriate to the attainment of priority objectives" (p. 74), and noted under this heading the subsidisation of institutions under the HEA.

capable of easy administration.

6 *Economic Independence*

Economic independence is an aim of the decision makers within institutions and of students. The former wish to be able to make independent choices as to the availability of courses, and research and as to the facilities for their provision. The latter wish to be able to make independent choices of whether or not to undertake these courses. These elements have usually been expressed informally. First, USI have been primarily concerned with the student from the less well-off home; rather than the student financed by his family, where the question of independence arises. However this is not a reason to underestimate its importance (see p. 92-3). Secondly, institutions have been reluctant to complain explicitly that the acceptance of finance has tied their hands for fear of endangering future funding.

7 *Emigration/Foreign Students*

Many have voiced concern over the effect of any scheme on the emigration of graduates. Some like USI have shown concern that a particular scheme like loans might induce emigration by persons wishing to avoid repayment.

USI's *Education and Social Inequality* (1974) states (p. 35).

> Having to repay a loan would act as a powerful incentive for emigration.

Others, including politicians, have been concerned over the emigration of graduates who have received taxpayers' subsidies;

Mr. M. O'Leary in the Dáil Debates of 21 April 1968 (Dáil Debates Vol. 234) voiced such concern

> I suggest that we should look at the situation in which we are producing professional people, that the Irish taxpayers have paid to educate, and exporting them to fully developed countries.

and also the subsidisation of fees for foreign students. (Debated by Dr. G. FitzGerald in the Seanad 24 April 1968 (Seanad Debates, Vol. 64).

The fact that concern has been voiced over these elements does not indicate the usefulness or relevance of them. The intensity of concern of the interested parties, and the motivations behind this concern are further

considerations. With regard to this latter, some, perhaps many, might suggest that the motives of student, staff and college representatives are primarily those of pursuing the interests, economic and otherwise, of their members; and that purported general objectives are mainly instrumental to these ends. Notwithstanding its interest and relevance, speculation on such matters would involve attempting to assess the degree of veracity and sincerity behind the various statements. This is likely to be difficult, if not hazardous, and is not pursued. Nevertheless, it is worth noting that the greater the sincerity and concern for these issues, the more heed should be paid to the conclusions of the analysis. Finally, whatever may be the reasons for highlighting these areas of conern, the issues raised involve matters of national importance for the financing of third-level education.

The following chapter will assess the existing scheme on the basis of these objectives and Chapter 7 will be addressed to the effects of the different schemes on the seven parameters.

Chapter 5

AN ANALYSIS OF THE PRESENT SYSTEM OF FINANCING THIRD-LEVEL EDUCATION IN IRELAND

The existing system of finance of higher education and maintenance of students has been criticised by many sections of the community. Most vocally, students have persistently complained of inadequate finance and of fees that, in their view, are too high. Both administrative and teaching staff of the colleges have been unhappy with the staff-student ratios they have had to accept given the finance received by the institutions. The major government justification for these alledged short-comings has been lack of finance.

In this chapter an assessment of the various strengths and weaknesses of the present system is carried out within the framework of the seven principles derived from Chapter 4. The effects of the existing schemes on measures of these principles are used as criteria for assessing this system: whether the system furthers equality of opportunity, economic equality and social mobility; whether it is efficient and practical; whether it enhances economic independence and its effects upon emigration and foreign students. The criteria are further developed below in the context of the present system, and are used again in Chapter 7 for assessing alternative schemes.

Equality of Opportunity

The effect of any scheme upon the equality of opportunity to avail of third-level education may be assessed in three ways. First, to the extent to which it compensates for any lack of opportunity, that would otherwise exist. Secondly, in so far as it treats persons equally beyond this point it will contribute to full equality of opportunity, in that were the scheme to over compensate any group, then a new inequality would arise. Thirdly, it will increase equality of opportunity to the extent that it widens and increases opportunities for all potential students, thereby reducing *relative* differences in opportunities.

It is very difficult to measure opportunity and it is thus difficult to assess whether or to what extent the existing scheme affects it. However, there are a number of points that are relevant:

(1) It is clear that the existing higher education grant scheme has varied

in the level of support it has provided since it began. Due to inflation the economic position of a student, receiving a full award under the schemes, worsened considerably after 1968 despite a number of rises in grants and the state payment of fees after 1972. Table 5.1 shows the value of the money received by UCC students on full awards in different faculties in February 1981 prices.[1] It can be seen that in the period up to 1981/82 the grant varied substantially in real terms. In some periods for many students the real value of the grant was more than halved. Their position in relative terms was, of course, bleaker still, since average earnings (in real terms) for the average industrial worker rose by as much as one-half over the same period. There is no procedure to ensure that the recent real increase in the grant is maintained.

(2) In the same vein, it is difficult to assess whether the eligibility thresholds, under the existing scheme, are such that support is provided at levels of parental income that might be necessary to equalise opportunities. Nevertheless, it is again clear that the scheme has involved variations in the income levels (in real terms) at which support is forthcoming. Due to inflation the parental income limits (in real terms) varied substantially since the scheme was introduced, and they have fallen relative to average earnings. Table 5.2 shows the limits for a non-farming family with four children for each year since the scheme commenced in current and constant prices. Even more relevant is the fall relative to incomes which is shown in the fifth and sixth columns of the table. In these columns the income limits are measured relative to the average annual earnings of workers in the transportable goods industries and the fall can be seen to be sizeable. Whereas in 1968 the lower limit was over twice the average level of industrial earnings, in 1981/82 it will be only 50 per cent greater.

The income limits have been operating differently for students from farming backgrounds. For farming families the eligibility levels and the land valuations upon which they were based remained unchanged from the commencement of the grant scheme up to and including 1976/77. During that period a student from a family of four children would qualify for a grant if the holding was less than £100 valuation and would receive a full award if it was less than £60. For 1977/78 and in 1979/80 these valuation levels were reduced and the income limits were effectively made more restrictive. They have subsequently been eased. Using estimates of agricultural income and the total rateable valuation of agricultural land in the country, a multiplier can be calculated. This gives the average income per pound rateable valuation. Estimates of the income limits for a farming family with four

1. As the results from other colleges are almost identical, UCC figures are chosen to illustrate this point.

Table 5.1: *Money available*[a] *to students in different faculties after payment of fees in February 1981 prices in different years*[b]

	68/69	*69/70*	*70/71*	*71/72*	*72/73*	*73/74*[a]	*74/75*	*75/76*	*76/77*	*77/78*	*78/79*	*79/80*	*80/81*	*81/82*
Arts, Social Science Commerce, Law, Music	964	897	767	708	694									
Dairy Science, Engineering, Science, Pre-Med. Pre-Dent.	850	791	651	601	611									
1st Dent.						630	631	539	448	471	624	669	600	1000
1st & 2nd Med.	810	754	601	554	583									
2nd, 3rd & 4th Dentistry	672	625	467	431	483									
3rd, 4th & 5th Medicine	731	680	517	477	526									
Higher Dip.	1008	938	817	740	725									

[a]Between 1968/69 and 1972/73 a grant was paid to students and they were responsible for their own fees. The figures in the table are, for a student living away from home, the cash remaining after fees have been paid. From 1973/74 all fees were paid on behalf of grant holders so that the money available was the same for all students regardless of faculty.

[b]Calculated using the consumer price index for each year.

Source: Department of Education and UCC.

Table 5.2: *Income limits for non-farming family with four children in current prices, in constant (1981) prices and relative to annual average industrial earnings*

	Current prices		*Constant (1981) prices*[a]		*Income limits divided by average yearly earnings in industry*[b]	
	Lower Limit[c]	*Upper Limit*[c]	*Lower Limit*[c]	*Upper Limit*[c]	*Lower Limit*[c]	*Upper Limit*[c]
1968-69	1,500	2,000	6,700	9,535	2.25	3.00
1969-70	1,500	2,000	6,328	8,934	2.03	2.71
1970-71	1,500	2,000	5,755	8,437	1.82	2.43
1971-72	1,500	2,000	5,263	7,674	1.56	2.07
1972-73	2,005	2,680	6,396	9,404	1.80	2.41
1973-74	2,005	2,680	5,635	8,549	1.56	2.09
1974-75	2,005	2,680	4,551	7,531	1.30	1.73
1975-76	2,005	2,680	3,926	6,083	1.07	1.43
1976-77	2,005	2,680	3,361	5,247	0.83	1.10
1977-78	3,150	3,850	4,879	6,454	1.09	1.33
1978-79	3,825	4,675	5,345	7,241	1.14	1.39
1979-80	4,825	5,675	5,837	6,865	1.23	1.44
1980-81	4,825	5,675	4,825	5,675	1.08	1.27
1981-82	9,200	11,500	9,200[d]	11,500[d]	1.50	1.86

[a]Deflated using the consumer price index (February) each year.

[b]Average weekly earnings in manufacturing industries annualised. Since income for assessment is income in previous years, earnings are taken accordingly.

[c]The lower limit is the income below which a full award is received. The upper limit is the income above which no award would be received.

[d]Not inflated.

Table 5.3: *Estimated income limits for farming families with four children in current prices and relative to those of a non-farming family*

	Current prices		*Income limits for farming families divided by income limits for non-farming families*	
	Lower	*Upper*	*Lower*	*Upper*
1968/69	1374	2290	0.92	1.15
1969/70	1380	2300	0.92	1.15
1970/71	1458	2430	0.97	1.21
1971/72	1626	2710	1.08	1.31
1972/73	2208	3680	1.10	1.37
1973/74	2910	4850	1.45	1.81
1974/75	2388	3980	1.19	1.49
1975/76	3714	6190	1.85	2.31
1976/77	4086	6810	2.04	2.54
1977/78	4302	5258	1.37	1.37
1978/79	4743	5797	1.24	1.24
1979/80	3120	3680	0.65	0.65
1980/81	2453	2893	0.51	0.51
1981/82[a]	4991	6365	0.54	0.55

[a] 1981 family farm income estimated to be 15 per cent greater than 1980.

Source: Income data from Professor Sheehy; Department of Agricultural Economics, UCD. His figures are lower than those of the Central Statistics Office mainly due to the allowance he makes for interest costs. Rateable valuation figures are from the Department of Environment.

children are shown in Table 5.3 where it can be seen that the eligibility position of those from farming backgrounds grew unevenly up to 1976/77. Thereafter, their relative position declined continuously, and is now almost twice as restrictive as for those from non-farming families.

Inequalities still remain within the farming group due to the use of land valuation levels which were assessed in the middle of the last century. These are no longer adequate as measures of the different actual or potential incomes within that sector.

For both sectors the proportion of students eligible for grants fell substantially up to 1980/81 and this is presumably why, despite an increase in student numbers[2] of more than one-third between 1968/69 and 1980/81, the number of new grants awarded *fell* to 1,154 from 1,233 at the earlier date.

(3) For those who do not qualify for a full award it is important to consider whether the support declines at an appropriate rate as parental income rises and eligibility falls. In this regard, it is worth noting that for a non-farming family with four children the grant awarded falls by £200 for each rise of £600 in parental income. As income rises through the income brackets approximately one-third of any additional income is lost to the family as a whole.

As the grant awarded to the student falls, the parents are expected to make a compensating contribution to the grant. Some Scottish evidence is available on the more generous UK grant scheme. This suggests that although most families who, according to the means test, are able fully or partially to support their sons and daughters, do so as far as possible, a considerable section do not make their full contribution to the grant.[3] This is probably because the parents find it hard to do so, but it may also be because they are unwilling. Whatever the reasons such students may be in the worst position of all having virtually no method of support. They may, of course, obtain any open or college scholarships, but few of these are available. The options are usually either not to study, or to study and work at the same time which, obviously, is not helpful to their work and performance at the college. They may also borrow to the extent that facilities are available.

Combining points (1), (2) and (3) gave the following bleak picture of these aspects of the grant scheme up to 1980/81 – the threshold fell (2), so that only students from very poor families became eligible. Increasingly, grants had to be supplemented from other sources (1). Yet families were unable or unwilling to assist (3). As noted above there is no procedure to ensure this will not occur again.

(4) Notwithstanding the reductions in the eligibility limits as noted in point (2), the method of assessing these limits gives rise to further anomalies. The eligibility limits rise in line with increased family size but reach a maximum at a family size of six children. No additional allowance is made to the many families with larger numbers of offspring (6.5 per cent of families, 1971 Census Vol. VII). There are also restrictions on the extent to which study

2. Student numbers from the major institutions offering eligible courses (the NUI, TCD, Maynooth and the NIHE in Limerick).

3. This is based upon a survey of student expenditure at the university of Stirling by Saunders and Levin (1976).

may be postponed after completing the Leaving Certificate examination (see Barlow 1980/81).

(5) Two further aspects give rise to less than equal opportunities. These relate to the various academic requirements for entry into different faculties and for eligibility for a grant.

Students of sufficient ability to enter a third-level institution do not have equal opportunity to enter the different faculties. The limited number of places in most university faculties are allocated according to results at the Leaving Certificate. Evidence from Crowley and Moran (1978/79) on 1,142 first year students at University College Cork in 1976/77 indicates that those with a higher number of points in their Leaving Certificate are more likely to pass their first year examinations. Thus, there is some support for the view that the higher entry standards work as "screens" for the ability to complete a course. Nevertheless, they do find substantial overlap between the distributions of points scores for students who pass and those who fail, respectively.

In line with Crowley and Moran, an attempt was made to assess the influence of entry points on the survival rates of students to their second year (after which few drop-outs occur). Survival rates were calculated as the proportion of students in each faculty who reach their second year (using HEA statistics of enrolment for each year). The survival rates were then regressed upon the entry points requirements in each faculty in linear form for the three years for which figures were available.

In addition, an attempt was made to see if the grant scheme had any effect on survival rates. In an attempt to test this, the proportion of students on grants in the faculty was an additional variable. The proportion of students on grants in the first year would have been most appropriate, but was not available. As such, the proportion of *all* students on grants in the faculty, which was available, was used.

As expected the signs of the coefficients on the entry points requirement are positive (and highly significant) in each case and suggest (at the mean) that an increase in the entry points requirement of one point in any faculty would reduce the drop-out rate by between 1.2 per cent (Equation 22) and 1.6 per cent (Equation 20) in that faculty, (although these figures should be interpreted subject to their standard errors of estimate). These results give further support to the view that entry points requirements do operate as a screen for the ability to complete the course.

It has been suggested that the grant schemes are an important factor influencing drop-out rates (National Union of Students (1980)), but the relative insignificance of the coefficient on this variable gives this view little

Table 5.4: *Regression equations of the survival rate of students into their second year in various[a] NUI faculties[b]*

Dependent variable	*Independent variables/(t-statistics)*				
	Constant term	*Entry points requirement[c]*	*Proportion of faculty receiving grants or scholarships*	$\overline{R}^2$	*Number of observations*
20 Survival rate 1978/79	= 0.50*** (5.68)	0.016*** (5.04)	0.36 (1.47)	0.59	21
21 Survival rate 1977/78	= 0.54*** (6.37)	0.015*** (5.02)	0.25 (1.07)	0.58	21
22 Survival rate 1976/77	= 0.58*** (7.19)	0.012*** (4.11)	0.25 (1.10)	0.48	21

*** Significant at the 1 per cent level.

[a]Includes Maynooth.

[b]Some faculties were omitted due to changes that occurred in one or other years.

[c]The entry point requirements for UCG are computed differently to the other colleges. Their computed scores were scaled down to provide equivalent estimates which provided scores approximately one-third of the original UCG numbers except in the case of the Arts Faculty where the entry points requirements was matriculation for all colleges.

(The use of linear regression in models of this sort where the dependent variable is constrained to lie between 0 and 1 is inappropriate if the predicted values of the equation lie outside this constraint. In this application the problem did not arise. Further, even though the survival rates are bounded, it is arguable that the entry points requirements are bounded too. Thus, a linear relationship is plausible.)

support. Nevertheless, the sign on this variable is positive in each case and, because the variable used was not the most appropriate, the result is not conclusive.

It is interesting to note that the survival ratio of men and women students in these years were virtually identical. To see if this was still the case after controlling for entry requirements, a variable measuring the proportion of women in each faculty was added to each equation. The variable was never significant, and gives no support to the view that there are significant differences in drop-out rates between men and women.

Notwithstanding the value of entry points as a screen, it seems questionable that the height of this screen should differ between faculties: why prospective doctors and dentists must be more able (or rather, better qualified) than prospective teachers and accountants. It gives rise to the curious situation

whereby Arts students who may have obtained just two honours in the Leaving Certificate, may continue to become teachers, often attempting to assist their pupils to obtain Leaving Certificate results better than they obtained themselves (if they wish their pupils to enter almost any of the other faculties).

Secondly, the university admission requirement of two honours in the Leaving Certificate and the different admission requirements in the NIHE, the RTCs and other third-level colleges are juxtaposed with a requirement of four honours and attendance on a course of university degree level for eligibility for a grant. As such, students with outside financial support have lower effective academic entry requirements than those, generally from less well-off backgrounds, who must rely on the state or other sources. Those on non-recognised courses receive no direct aid at all under the scheme,[4] though they may receive a Vocational Education Committee (VEC) scholarship (see (6) below) or grants or loans if they attend a primary teacher training college (see (8) below). The 1980 White Paper on Education reduced the eligibility requirement for a grant to two honours, providing these were in technologically orientated subjects. Due to the increased faculty entry requirements, few students outside of the Arts faculty fail to qualify for grants due to academic requirements. For example, in UCC only 90 degree students entering in 1979/80 had less than four honours (i.e., 8.6 per cent of all degree entrants) and most of these were Arts students who are unlikely to have the requisite technical subjects. As such, the change in the White Paper made little difference.

(6) In addition to the grant scheme for university level courses, Vocational Education Committee scholarships are available for third-level students in the technological sector. These, in principle, operate in a similar fashion to the grant scheme, in that they depend upon the same means test and also a measure of merit, based upon results in five subjects which are Irish or English; three from a list of subjects which are considered relevant to technological study and any one other (there are very slight variations between the VECs in the subjects included within the three "technical" subjects).

(7) A further aspect of the third-level education system that does not attempt to compensate students from less well-off homes is related to the funds dispensed by the European Social Fund. These were provided at a fixed rate (1979/81) for each week, except during the summer vacation, plus payment of fees. The funds go to students attending specialist, mainly two-year courses of technician type. Students (in 1980/81) were selected by an

4. They do receive aid indirectly, in so far as the community via the state subsidises the institution itself.

aptitude test plus an interview, with no means test. Such a scheme widens opportunities for all eligible students and, to this very limited extent, increases the equality of opportunity.

However, because these awards are not available for "academic training" they are not available for university, national institute or teacher training students. This results in students in the technical and technological colleges being treated very favourably relative to others. In universities, approximately one-quarter received some grant in 1980/81, approximately 40 per cent of students at primary teacher training and approximately 40 per cent of students (in 1978/79) in the technical and technological sector.

(8) The last major scheme is for the financing of primary teacher training which operated in three ways in 1980/81. First, for students entering college immediately after their Leaving Certificate there is a grant scheme similar to that for university students. In order to qualify, students require four honours and must satisfy a means test identical to that used for the higher education grant schemes. The colleges are residential and thus, the grant for additional maintenance is lower. Secondly, for those who fail to achieve four honours in their Leaving Certificate, and who satisfy the same means test, there is a loan available. This is interest free and repayable over five years. Finally, there is a special provision for mature students,[5] who receive a full grant providing they were working for a full year previous to entry; the position for graduates is similar. The same criticisms made with regard to the higher education grant scheme on grounds of equality of opportunity hold for these schemes, although the loan scheme does provide a further avenue of opportunity for those of lesser attainment.

(9) Perhaps the most serious aspect of all is the absence of any consideration of those who do not undertake third-level education or further training. This may be due to lack of ability or skill or the desire to continue their education. However, it may be due to the lack of means to complete second-level. Whatever the reason, non-third-level students receive least support of all.

Social Mobility

Social mobility involves the movement of persons to a different socio-economic group from that of their parents, which is generally assessed according to the occupation of the father as he is normally the prime earner. Higher education does not have a major effect on social mobility since the majority of students become members of high socio-economic groups and

5. These are defined as those aged 21 or over for those entering in 1981/82 though there are plans to increase this age to 24 for the following year.

Table 5.5: *Socio-economic status (as measured by occupation) of active persons who have undertaken university education*

	1966	*1971*	*Numbers active in 1971 less numbers active in 1966*
	per cent	*per cent*	*per cent*
Agricultural workers	0.6	1.0	3.3
Farmers, farm managers	2.7	2.2	—,[a]
Professional	76.0	75.0	69.2
Managerial, executive and senior salaried employees	6.7	6.6	6.1
Intermediate non-manual	9.5	9.6	10.3
Other non-manual	1.0	1.2	1.9
Manual	2.9	3.5	6.5
Unemployed	0.6	0.9	2.7
Total per cent	100.0	100.0	100.0
Number	58,290	69,193	10,903

[a]A small decline of 76 persons here was ignored for the purposes of the table.
Sources: Derived from Censuses of Population 1966 Vol. VII and 1971 Vol. XII.

the majority are also drawn from such backgrounds. The net effect on mobility depends upon whether proportionately fewer third-level students are drawn from the higher socio-economic backgrounds than eventually achieve such occupations. If so, higher education on balance assists upward social mobility. The census estimates suggest that in so far as higher education does effect mobility it provides an avenue for some significant upward mobility: whereas 55 per cent of the 1978/79 sample of entrants to the NUI, TCD, Maynooth and the NIHE in Limerick were drawn from professional, managerial and senior salaried backgrounds, 83 per cent of persons with university education in 1966[6] and 82 per cent in 1971 were employed in such occupations (see Table 5.5). Further, 75 per cent of the increase in the numbers of persons with such education were employed in such occupations.

6. This was the first census for which there was a question on education.

Thus, in so far as the socio-economic background and the future socio-economic status of university students are not much changed, as seems to be the case on present evidence, then it does seem that higher education (or at least university education) does give rise to some significant upward mobility. Nevertheless, if the participation rate of students in third-level education continues to rise in the future, as is likely, then the extent of social mobility provided through higher education may well be reduced.

A further important issue is whether the higher education grant scheme promotes social mobility. The equations in Table 3.3 suggest that enrolment was strongly affected by the introduction of grants and, since the eligibility requirements for such grants are fairly stringently confined to persons from low income backgrounds, this would suggest that the grant scheme does aid (upward) mobility.

However, a survey of students who entered UCC for the first time in 1979/80 and 1980/81, and who held higher education grants, provides a different picture. In 1979/80 (figures for 1980/81 in parentheses) one-third of all grants went to students from professional, managerial or senior salaried backgrounds (14.9 per cent), almost one-third to farmers (27.7 per cent), and less than 20 per cent (24.3 per cent) went to students from manual backgrounds. This latter figure is despite the fact that UCC had a significantly higher proportion of students from manual backgrounds than any of the other university colleges or Maynooth or the NIHE Limerick (see Table 3.7). The differences between the 1979/80 and 1980/81 figures partly reflect the reduced eligibility limits (in real terms) for grant assistance in 1980/81, but they may also reflect the different sources administering the classification.

The full figures in Table 5.6 show that of all the 1979/80 (1980/81) students from manual backgrounds 42.3 per cent (36.6 per cent) held grants, compared with 22 per cent (18.7 per cent) of the remaining students. These differences are such that it seems fair to conclude that the higher education grant scheme itself does not have any substantial effect on social mobility.

Economic Equality

As shown in Chapter 3 (pp. 50-55), the background of Irish third-level students is highly unrepresentative of the population as a whole, in a similar fashion to the UK and the US. Most students come from the homes of the better off. According to the figures in Table 3.7, 66 per cent of the first-time entrants to the third-level colleges in the table came from the better-off professional, employer, managerial, senior salaried and intermediate non-manual backgrounds (see Appendix 3 for evidence on the relationship of income and socio-economic background).

In addition, as argued in Chapter 2 (p. 35), and supported in the previous

Table 5.6: *Full-time undergraduate grant-holding students entering UCC[a] for the first time in 1979/80 and 1980/81, broken down by the socio-economic group of their father*

Socio-economic group of father[b]	*Number of first-time undergraduate students holding higher education grants*		*Percentage of first-time undergraduate students who held grants in each socio-economic group*	
	1980/81	*1979/80*	*1980/81*	*1979/80*
Agricultural worker	2	7	22.3	46.7
Higher professional	9	11	8.0	9.0
Lower professional	6	12	6.8	12.8
Managerial/executive	7	53	5.3	23.8
Senior salaried employees	13	34	12.0	29.8
Intermediate non-manual	22	12	13.2	28.8
Other non-manual	22	12	36.7	48.0
Skilled worker	31	52	31.3	47.7
Semi-skilled worker	16	10	42.1	50.0
Unskilled worker	10	9	58.8	45.0
Other	32	2	41.0	11.8
Farmer	65	92	32.7	43.2
Total	235	315	21.2	30.1

[a]There is a small discrepancy between the total number of students on grants according to the computer tapes used here and the UCC Registry.

[b]The classification for 1980/81 was done by the HEA, for 1979/80 by UCC.

Source: UCC student records.

section, most students go to high income employment. Further, they appear to experience lower unemployment rates than others over the life cycle (see Table 5.5). Thus, from the viewpoint of family background and from the perspective of lifetime earnings, the subsidies to the third-level colleges are regressive. Even the means-tested student grant schemes are regressive from the lifetime earnings perspective.

Efficiency

The existing system will be assessed along six dimensions of efficiency: (1) whether it brings about an efficient level of enrolment; (2) whether it produces an appropriate mix of graduates; (3) whether it is technically efficient and uses the optimal levels and mixes of staff and equipment; (4) whether it is dynamically efficient in terms of its enrolment and expenditure over time; (5) whether it gives rise to an appropriate mix of teaching and research; and (6) whether it is "X-efficient" and produces the maximum possible output with the inputs it uses. Each dimension will be considered in turn.

(1) *Enrolment*: Although the average private rate of return to third-level education in Ireland would appear to be substantial, the marginal private rate is lower; and the marginal social rate is likely to be lower still due to emigration (society in this section defined so as to exclude the individual involved). For this reason, and because it is the marginal student who is important when considering optimal enrolment, the high average rates of return do not necessarily imply that further expansion is desirable.

From a social viewpoint, uptake should continue until the social net present value attributable to further expansion falls to zero. By social net present value is meant the discounted stream of net incremental output and benefits attributable to third-level education. For educational investments, this is generally the equivalent of requiring that the social rate of return be positive for the marginal student. To use this criterion precisely would require knowledge of the earnings and employment record of such a student both in the case where he or she were to enter third-level and in the case where he or she did not. Plainly, it is impossible to obtain this sort of knowledge. Thus, a different but related criterion will be used, namely, whether the level of enrolment is sufficient for, or in excess of, the requirements of the home market as measured by unemployment and emigration rates.[7] This is related to the former criterion by the loss of taxation from the graduates if they are

7. Emigration rates reflect relative market conditions and, if conditions in the recipient labour markets were sufficiently favourable, emigration may coexist with home labour market shortages.

not employed or emigrate. The greater the extent to which graduates are employed abroad or are unemployed, the lower the social rate of return.

Nevertheless, the use of such unemployment and emigration rates must be qualified in two ways. First, the rates partly reflect the cyclical position of the economy. For this reason, a longer period than one year is necessary for assessment and, accordingly, data spanning a number of years are used in the ensuing tables. Secondly, the figures relate to the employment situation of the student six months after graduation. The subsequent employment position and return migration of students may significantly mitigate the apparent indications of the figures. Some evidence on the longer term position has

Table 5.7: *Emigration and unemployment*[a] *rates*[b] *for all graduates in university colleges*[cd] *1975-80*

	Emigration	*Unemployment*
	per cent	*per cent*
1975	12.6	11.1
1976	13.4	9.7
1977	11.1	8.7
1978	8.9	6.5
1979	10.2	5.9
1980	10.5	8.2

[a]Those seeking employment in January following graduation.

[b]In the case of both emigration and unemployment rates the figures are derived from statistics on the further employment and training of undergraduates. The fields which students enter are classified into (A) research work or further academic study; (B) teacher training; (C) other vocational and professional training; (D) not available for employment; (E) seeking employment; and (F) gained employment. (A), (B), (C) and (F) are further subdivided as to whether the graduate pursues the field at home or overseas. Many persons who enter fields (A) and (B) subsequently become unemployed or emigrate. To compute the figures in the table above it is assumed that those who do not enter teacher training and higher degrees experience the same emigration and unemployment rates as do the Higher Diploma (teacher training) graduates and other postgraduates respectively, in the same year. Except in the case of law those undertaking professional training are omitted (their numbers are small and their inclusion makes very little difference to the results).

[c]First degree graduates from UCC, UCD, UCG, TCD and St. Patrick's College, Maynooth.

[d]Average survey response rates are of the order of 90 per cent.

Source: The Pattern of Graduate Employment 1974/75-1979; Association of Irish University Careers and Appointments Services.

been provided by Scholefield (1980) for Arts graduates and this is referred to below.

Table 5.7 suggests an overall emigration rate of university students of between 8 and 14 per cent over the period covered, (this compares with an emigration rate of 16.7 per cent of the 20-24 age group between 1966 and 1971: that is 3.35 per cent per annum on average (Census 1971 Vol. II) together with between 6 and 12 per cent of students still seeking employment six months after graduation (this compares with 5.5 per cent of the full labour force who were still unemployed, six months after becoming unemployed (February 1979)). Both of these rates exceed those for the overall population of the same age group. (In fact, data are not available on duration of unemployment by age but, since the percentage of the whole labour force unemployed for more than six months is less than the graduate unemployment figure, and since the duration of unemployment is generally lower for younger age groups, this is a reasonable inference.)

These differences are not sufficient for a definitive conclusion but do suggest a slight excess aggregate supply of university graduates. However, this excess in aggregate supply may be attributable to surpluses in particular specialisms rather than be an overall phenomenon. This is the subject of the following section.

(2) *Graduate Mix*: The same criterion is used as for (1) but it is applied to the emigration and unemployment rates in the different faculties. This gives a stronger indication of misallocation of output. Table 5.8 shows average emigration and unemployment rates for 1975-79 and for 1980 for graduates in the various faculties, and indicates substantial variations.

First, the Arts/Social Science faculty has high emigration *and* unemployment rates which suggest an excess supply from this faculty. Secondly, in contrast, both Commerce and Law graduates experienced lower than average emigration and unemployment rates over the period, which suggests a more buoyant home labour market for these disciplines. Thirdly, other professional faculties such as Engineering, Architecture, Medicine[8] and Dentistry and Veterinary medicine frequently showed higher than average emigration but lower than average unemployment rates.[9] These rates may reflect good opportunities abroad encouraging emigration and holding down unemployment. They may also reflect temporary movement to gain experience. Thus, it is the long-run migration position which is important. In the case of

8. Medical graduates show zero emigration rates immediately after graduation, but a substantial number (about one-third in 1976) emigrate after a year as interns.

9. Despite the high *average* unemployment in architecture and veterinary science, between 1975 and 1979 the faculties experienced 3 and 4 years respectively of less than 2 per cent unemployment.

Table 5.8: *Emigration and unemployment[a] rates[b] in various faculties in University Colleges[cd] 1975-80*

	Emigration		*Unemployment*		*Average sample size*
	Average '75-'79	*1980*	*Average '75-'79*	*1980*	*'75-'80*
Arts and Social science	11.0	8.4	11.2	12.4	1707
Commerce	6.1	1.5	6.3	7.2	457
Law	1.9	0.0	1.9	2.2	181
Engineering	21.0	19.1	7.4	3.8	365
Science	10.5	9.2	6.8	7.7	575
Medicine and Dentistry	15.8	15.9	0.4	0.5	361
Dairy science	2.7	9.5	6.5	14.3	21
Agriculture	5.0	10.0	25.2	18.0	81
Veterinary medicine	16.7	23.1	9.6	0.0	47
Architecture	11.8	26.5	13.2	0.0	30
All faculties	11.2	10.5	8.4	8.2	3830

Notes and source as for Table 5.7.

Engineering, a study by O'Donovan (1978) provided evidence on this position for different Engineering specialists. He found a net outflow of 1,000 civil and a net inflow of 90 mechanical and 50 electrical engineers during the 1960s. It would appear from this study that the breakdown by faculty in this case is insufficient to reveal the full position, and a narrower classification by subject is necessary. A preliminary attempt at such a breakdown indicates significantly better labour market conditions for electrical than for civil engineers over the period.

Fourthly, agricultural science had low emigration (except in 1980) but high unemployment in every year. This may indicate an over-supply of such graduates with few opportunities available for them. The full conclusion on these third and fourth groups cannot be definitive without further evidence, though there may well be excesses in the size of some of these faculties.[10]

As mentioned, for all of these groups the conclusions have to be qualified because the results pertain to the position six months after graduation. In this context, the study by Scholefield (1980) of the position of Arts graduates

10. Consistent with this view was the report of the Higher Education Authority's sub-committee on numbers of students in medical schools (1978) which suggested a reduction in intake on the basis of the numbers of doctors needed in 1991.

five years after graduation is of considerable interest. This survey of 563 graduates of 1975, which had a 68 per cent response, showed that only 1.8 per cent of these graduates were seeking employment. However, 11.7 per cent had experienced about six months of unemployment over the five years and 5.4 per cent about a year (there was no category on the questionnaire for spells in excess of one year). Such spells of unemployment would seem significant and consistent with the view of the size of the faculty expressed above.

Reviewing this aspect of efficiency, it is unfortunate to have to note that amongst the courses which seem to be producing higher proportions of emigrant graduates are those which are the more costly to provide, some (Dentistry and Medicine) costing, according to the UK estimates of Dunworth and Cook (1976), more than five times the cost of business studies or education training for each additional student.

Having examined the position of various faculties, it would be valuable to consider the position in the other sectors of third-level. Unfortunately, little hard evidence is available, although this deficiency is being redressed to some extent. Two pilot surveys of recipients of National Council for Educational Awards have been undertaken and this has been followed by a full scale survey of 1979 award recipients. More than 70 per cent of those surveyed were from the RTCs, with another 18 per cent mainly from Bolton St., the NIHE, Limerick and Limerick Technical College. The survey revealed that 5.8 per cent of such students were seeking employment in December of the same year, almost identical to the figures for university graduates. However, the percentage of emigrants (1 per cent) was substantially lower than the comparable university figure. Nineteen-seventy-nine was a very good year for employment generally, so that more data will be required to provide a comparable assessment of this area.

(3) *Technical Efficiency*: Staff, buildings and equipment should be used up to the point where their respective effects on performance are equal to their marginal (factor) costs.

In this regard, two aspects of Irish third-level colleges are worthy of comment, the first is their system of financial management. The universities receive funds from the HEA, and other third-level colleges from the Vocational Education Committees (VECs) and the Department of Education, and then these funds are allocated via budgets for different functions, academic, library, computer and so forth. Departments are allocated staff by committee decision. This sort of functionalisation can be compared with an alternative of divisionalisation where each department is allocated budgets to buy services internally and externally. According to Williamson (1970) divisonali-

sation avoids the loss of control of costs and performance from the central authority, and is becoming widespread in the commercial world (pp. 117-119). The reasons for its use in the commercial world would appear to apply to Irish third-level colleges, with the divisions being the departments. In the same vein, Dunworth and Cook (1976) suggest that funds should be allocated to departments according to a formulation of fixed and variable costs, with a falling marginal allocation per student to effect economies of scale. These funds could be spent on staff, equipment or whatever. This suggestion has to be qualified to the extent that some departments are too small to operate in such a fashion.

The second aspect is the technical efficiency of teaching within third-level colleges. Layard (1974), after investigating the new media of television, videotape, film and computers comments that "so far there is no clear evidence of widespread gains in performance per student-hour using the new media, but equally no evidence of loss. If this is so, the media should be judged on the basis of cost, where we find that they are cheaper, provided the materials are used on a large enough scale. This scale often exceeds the pitifully small scale on which they are typically used at present".

Elton (1977) with regard to Ireland, and the same subject comments "in order for them to become cost-effective, radical changes in the institutions are required, and these cannot be achieved gradually . . . . As regards the institutions, they need one radical change in outlook if we are to get anywhere, and that is that teaching should be recognised for promotion in a very real way – and until this happens I don't think very much innovation will ever take place".

In the absence of detailed knowledge of the effect on performance of additional staff and equipment, it is difficult to assess this dimension of efficiency. The above discussion suggests there may be scope for significant improvement in this area. However, the statement of objectives in the form of staff-student ratios as by the Commission on Higher Education (1967) and Irish Federation of University Teachers (IFUT) 1976 intrinsically rules out developments which might involve reducing these ratios.

(4) *Dynamic Efficiency*: The efficiency of the timing of education expenditure and expansion may be considered. Increasing expenditure on higher education (and research) and expanding third-level numbers during recessions can be an important anti-recession strategy (Walsh 1978 Ch. 4 pp. 8-10), in particular for this country with its relatively large population of young people. Expansion in numbers can delay the entry of large numbers into the labour market and may also provide employment for post-graduates (as academic staff). The additional training should, if wisely chosen, also prove

useful when the economy improves. This may well be when their training is complete (i.e., three to four years later). Expenditure on capital projects involving construction work generates further employment. Both expenditure and expansion involve few direct imports and the persons occupied (the young and workers in construction) are amongst those who suffer most severely in recession times (see Walsh 1974). Thus, to be efficient higher education numbers and expenditure should vary countercyclically.[11] Nevertheless, there are countervailing considerations. First, that an attempt at countercyclical expenditure and expansion could give rise to an uneven development of the sector with inadequate consideration of pressure of enrolment demand. This consideration would suggest that the arguments for a countercyclical approach apply to capital more than to current expenditure. Second, that long-term planning may be rendered more difficult by such a policy.

To examine whether capital expenditure has varied in this way to date, regression equations were estimated to see whether the past fluctuations of such (university) expenditures were, or were not, countercyclical (with generalised least squares estimates to correct for autocorrelation). The functional form used in an attempt to assess this was linear in logarithims. The form of the equation implies that expenditure rises at a constant growth rate measured by the coefficient of the trend term. The last term is to capture any components which vary with or against employment. Thus, if the sign of the coefficient on the employment term is positive this suggests that expenditure is procyclical, if negative that it is countercyclical.

In fact, capital expenditure appeared to have varied procyclically over the period of estimation. In Equation 23 (Table 5.9) capital educational expenditure was positively correlated with employment in transportable goods industries after allowing for the rising trend in expenditure. Strictly, one wishes to know whether or not higher educational expenditure varies countercyclically, without the expenditure itself. However, the variations in the level of capital expenditure for higher education are unlikely to be sufficient, in themselves, to reverse these findings. Equation 24 was an attempt to examine whether the relationship with capital expenditure changed after the establishment of the HEA in 1968. Such a change could have occurred due to the additional decision making/advisory tier involved with the introduction of this body. To this end, the trend and level of employment variables were added with values of zero up to 1967/68 and their values thereafter, to test for a shift of their coefficients after this date. It can be seen that the coefficient with employment has risen significantly since 1968 suggesting

11. Strictly, countercyclical policy should be distributionally neutral which is not the case for higher education (and strictly, is never the case).

Table 5.9: *Regression equations of university capital expenditure (1951-1974)*

	Dependent Variable	*Coefficient of independent variables/(t-statistics)*						
		Constant Term	*Trend*	*Log employment in transportable goods industries*	*Trend post-1968*	*Log employment in transportable goods industries post-1968*	$\bar{R}^2$	*DW[b]/auto-correlation coefficient*
23	Log Capital University Expenditure[a]	-49.23**	-0.027	11.76**			0.70	1.3OU
		(2.19)	(0.31)	(2.45)				
		-55.49***	-0.042	13.05***			0.84	2.15R
		(3.24)	(0.65)	(3.62)				P_1=0.31
								P_2=0.76
24	Log Capital University Expenditure[a]	-44.01**	-0.016	10.69**	-0.31**	1.78**	0.80	1.31
		(2.20)	(0.21)	(2.54)	(2.63)	(2.50)		
		-51.77***	0.031	12.27***	-0.27**	1.50**	0.90	2.07R
		(3.38)	(0.54)	(3.81)	(2.79)	(2.57)		*p*1=0.59
								*p*2=0.72

[a]Deflated by index of wholesale building prices.
[b]DW Statistic at 5 per cent level indicates U = Tests for autocorrelation inconclusive R = Autocorrelation absent.
***significant at 1 per cent level.
**significant at 5 per cent level.

that such expenditure has become more procyclical. This is *not* to suggest that the decision to vary capital expenditure countercyclically rests with the HEA. Ultimately, at least, this is a government decision.

(5) *Teaching/Research Mix*: It is yet again difficult to assess what is the appropriate mix of these two aspects of university output. The notion that there is some appropriate *mix* is itself questionable and rests on a belief as to the complementarity of teaching and research. Carter (1980), in a reflective examination of this issue, ventures that there is no reason to wholly support such a belief. He continues, ... "I know of no proof of this argument and from my own observations I take liberty to doubt it". He notes that "the argument as it is usually presented, depends heavily on the example of the natural sciences where it is said, that liveliness in teaching is encouraged by the activity of observing, experimenting and testing theory on the frontiers of knowledge". However, "in the sciences the enormous expansion of knowledge means that discoverers are working on a tiny section of a long circumference, and what they do may be remote from their teaching interests, except in relation to a few research students."

The correlation which seems to him to be more significant is between "scholarship and good teaching. The truly learned man, drawing from knowledge much more extensive and professional than that expected of his students, has a quality which is recognised and which has a strong educational influence, even if expressed in halting words."

The consequences of this substitution of "scholarship" for the imprecise word research are that time and other resources, promotion and inducements should be devoted to encouraging staff to become genuinely learned scholars, rather than to pursue research in general. Under the present system, the proportion of university staff time spent on teaching is almost certainly greater than that spent on research.[12] It seems questionable then that staff promotion and encouragement is generally heavily weighted towards the ability to produce (publish) research, as it seems to be.

Nevertheless, in so far as third-level teaching involves the training of students to undertake research, then it would seem crucial that such teachers had at least undertaken research, even if not actively involved subsequently. In so far as teaching involves the interpretation and analysis of other research

12. According to the Robbins Report (1963 Appendix III, Tables 61 and 62) teachers in UK universities spent more time on teaching (34 per cent of time) than on research (28 per cent of time) at a time when staff-student ratios were 1:7.6 (ibid Table 1). It would seem reasonable to suggest that the proportion of time spent on teaching duties in Ireland is greater, given the lower staff-student ratios (1:16.3 in 1977/78). A study of the division of time of Irish engineering teachers by Dooge (1981) supports this view. He found, from a sample of 118 teachers that 28 per cent of the time of university staff was devoted to research. This compared with less than 5 per cent in the colleges of technology and regional technical colleges.

work, an experience of research may be vital for the teacher to make informed judgements and effective appraisal.

Subject to these qualifications, in so far as the substitution of "scholarship" for research is appropriate, the case for every university teacher and department undertaking research is weakened. The training of postgraduate students to do research is a very important reason, but the proliferation of postgraduate research degrees with very small levels of enrolment is called into question. In March 1979 of the 27 *faculties* of the four university colleges enrolling full-time postgraduates, excluding teacher training, one third had less than ten students. A breakdown by department would reveal more evidence of small enrolment levels. This training is generally very expensive and subject to considerable economies of scale. As against this is the use of postgraduate students as demonstrators and tutors. On balance, the concentration of such programmes in particular institutions might or might not be cost effective. If it was, this concentration need not be injurious to the quality of teaching in the other colleges, providing provisions are made for the maintenance of the scholarship of their teaching staff.

Finally, the "appropriate mix" of research subjects is seldom considered. In the present system a considerable proportion of each university teacher's time is given to research and the number of such teachers is related to student enrolment. Thus, perhaps unwittingly, the research time devoted to particular subject areas is also related to these same enrolment levels (assuming university teachers research their own subjects). There is no clear reason why, if the number of biology students doubles, research (that is, theorising, experimenting and theory-testing) in biology should also double.

(6) *X-efficiency*: Is the efficiency of combination of resources within the institutions which control them (Leibenstein (1966)). Here it will be considered whether the present system hinders or promotes the developments of organisational structures which facilitate efficient use of given resources. It has been suggested that the efficiency of the third-level institutions as organisations leaves something to be desired. Some evidence from the work commissioned by the OECD (Bottomley *et al.*, 1972) suggests just this: that significant potential economies exist including the exploitation of economies of scale (in terms of class size) and more efficient and fuller use of existing resources. These involve the neglect of the possibility of college teaching for more weeks of the year than the present half to three-quarters, and more hours of the day. These two could reduce the training time of students and ensure that laboratories, lecture rooms and other buildings were used more fully. Another economy which does not seem to receive full consideration on the grounds of cost is the use of more part-time, postgraduate and outside

staff.

A further area of concern is in the technological sector. The staff-student ratios in these colleges are of a similar order to those in other third-level colleges yet these colleges produce far less research output. This is largely because teachers are involved in long class-contact hours, but also partly because, generally speaking, their classes are smaller. The latter is justified by the greater difficulty in teaching to large groups in this technological area. However, a number of courses that they provide, like business studies, are not technological. Further, many courses in the universities, and particularly the NIHE colleges, *are* technological. The main result of the extra teaching by staff is that students also have very long class-contact hours. It is questionable whether such long class-contact hours for students are beneficial. If they were reduced, then either staff could undertake more course development and research or, perhaps, less staff might be required.

Depressingly, preliminary research that has been done in Britain on improvements in efficiency of higher education by Blaug and Woodhall (1971), found that productivity had declined continuously between 1938 and 1962. They concluded that "all efforts of universities appear to be directed towards decreasing productivity rather than increasing it." For example, they note that there is a constant pressure for smaller classes and higher staff-pupil ratios, despite a considerable body of research, particularly in America, which has demonstrated that class-size in itself is a relatively minor factor in educational efficiency as measured in terms of student achievement or any other measurable outcome.[13,14] Notwithstanding the poignancy of their view, it does neglect the value of the research output of universities and the extent to which that output has increased.

The conclusion of the above sombre analysis is that in each respect the existing scheme is, to some degree, inefficient. However, the above critique of the efficiency of third-level colleges does not include an assessment of their dynamic adaptability. In this respect, the colleges have been noted by Hayden (1981) to be responsive to demands for course development. According to this source, the colleges, in response to skilled manpower shortages in the late 1970s, increased intake into 22 existing courses, introduced additional options into 5 courses, established 30 new courses and introduced 15 short-

13. In this study, output was measured in terms of the number of degrees and attempt was made to allow for quality differences. The inputs of labour materials and buildings were combined into a single index using current money values. The authors fully acknowledge the difficulties of their approach and their comments are made in the light of such difficulties.

14. The authors cite Pennsylvania State University (1958) "Abstracts and Bibliography of Studies in Class-size". A more recent survey of literature in this area by Siegfried and Fels (1979) states that "Studies of class-size are almost unanimous in finding no influence on test scores . . . but it appears that students are happier and perhaps learn to think better in small classes, but performance on standardised tests is independent of class size".

term conversion courses for graduates. This was all done on what Hayden describes as a miniscule budget, and he thus considers that no one could accuse the colleges of being inflexible.

Practicality

The practicality of the existing system will be assessed upon whether it is administratively, financially and politically practical. With regard to the first two of these, the scheme will be considered more practical the less public administration and public finance that it requires. With regard to political practicality, the scheme will be considered more practical the more it is likely to receive popular support.

The existing system is not very complex administratively, and has been found to present few major organisational problems. Politically, it is a system that will always evoke criticism that either not enough aid is being provided (according to the recipients and their families) or sometimes, (the donors feel), too much. In addition, the system requires difficult judgements to be made as to who is to be covered by the scheme, and the present exclusion of many third-level students is a serious source of discontent. Financially the most serious problems arise: there has been an enormous rise in government spending on third-level education which has taken place over the past two decades. The future prospects for expenditure seem likely to show further dramatic increases (see Chapter 8).

Economic Independence

Economic independence refers to the capacity to make economic decisions without reference to outside persons or bodies. Naturally, such decision-making capability is constrained by legislation and by the availability of resources. In this section students will be considered economically independent in so far as they can make economic decisions consistent with their *full* wealth. By full wealth is meant the sum of the human and non-human components.

Under the present scheme, all students who do not receive full grants are, at least in part, dependent upon their parents (and even those who do receive full grants are dependent to the extent of the inadequacy of the grant). Thus, despite considerable human wealth such students are not economically independent (the reasons for this state of affairs are discussed in the following chapter). In their survey of the opinions of 688 UK students on their more generous grants scheme, the authors, (Lewis, Sandford and Thompson (1980)) commented "the two outstanding dissatisfactions arose from the dependence on parents of students who are legally of age and the plight of students whose grants are not made up (by their parents)" (p. 58).

To the extent that the Irish grant system is similar, yet less generous, the degree of their dependence on their parents and their lack of independence are greater.

It is not possible to use the same approach in assessing the economic independence of third-level institutions. Here the existing dependence upon the government as the main financiers has to be compared with dependence on the market. It is not clear which avenue is, over the long run, more constraining. In the early years of government financing, it appeared that third-level institutions had more freedom and less financial constraints along this route. Under more austere government financial circumstances and with the rapidly increasing costs of higher education, the willingness of government to provide support seems to have diminished and their desire to control seems to have increased.[15] Thus, at present, the way in which the existing system affects the economic independence of third-level institutions is unclear. However, in so far as third-level institutions take an even larger slice of government funds as is likely under the present system (see Chapter 8), one can be less optimistic as to their *future* economic independence.

Emigration/Foreign Students

The emigration of graduates and the training of foreign students affect the remainder of the population through their implications for taxation and via any externalities they entail. Accordingly, the present scheme will be assessed upon the extent to which it involves a cost to the taxpayers. Any loss of external benefits reinforces the argument.

The existing scheme subsidises both emigrant graduates and foreign students via the subsidies on their training. In addition, emigrant graduates usually convey a net benefit to the host country. This is because the net fiscal receipts and contributions of persons are not distributed evenly throughout their lifetime: they are usually net recipients during their earlier and later years and net contributors whilst working. Their net receipts when young and net contributions when working are normally both higher if they undertake third-level education. Thus, emigrant graduates have passed through some years of being net recipients of the fiscal system in the home country and are, on balance, likely to be net contributors in the country of destination. To this extent, the financing of graduates for emigration involves an international transfer of resources, a form of international aid. Paradoxically, such aid usually goes to relatively better off nations like Britain; the destination of most emigrant graduates. Typically, an emigrant graduate

15. In the late 1970s, the Department of Education "indicated" to the colleges the extent to which they could increase fees, thus effectively determining their income.

Table 5.10: *Domicilliary origin of full-time students from outside the Republic of Ireland in the Irish University Colleges and Maynooth and the Royal College of Surgeons (RCSI) in various years*[a,b]

Country/Area	*University Colleges and Maynooth*			*RCSI*
	1976/77	*1977/78*	*1978/79*	*1978/79*
Northern Ireland	658	651	660	1
Great Britain	177	138	121	30
United States of America	170	224	205	52
Nigeria	84	79	101	8
Malaysia	54	55	52	39
South Africa	45	50	53	79
Canada	19	19	18	20
Federal Republic of Germany	18	19	23	9
Hong Kong	15	18	20	20
Iraq	11	22	20	16
Norway	7	2	2	64
Kuwait	2	3	2	21
Others	170	215	196	124
Total	1,430	1,495	1,473	483
Percentage of total students from *overseas*	3.5	3.6	3.8	
Percentage of total students from outside the Republic of Ireland	6.5	6.5	6.4	

[a]Only countries with more than twenty students in at least one column are included.
[b]In the NIHE Limerick and the National College of Art and Design there were 20 and 13 students from outside the Republic of Ireland of which 4 and 5 respectively were from Northern Ireland.
Source: HEA student statistics 1976/77 to 1978/79 and the Royal College of Surgeons.

will (in 1981 prices) have cost the taxpayer between £8,000 and £14,000 in third-level subsidies. (Based upon estimates of the average current cost per student in 1980/81 for the case of a student undertaking three years of study and paying full fees at the minimum, and undertaking four years of study and receiving a full grant at the maximum.) In the most extreme case, each dental student who emigrates is likely to have cost the taxpayer between £35,000 and £85,000 in such subsidies.[16]

16. These estimates are based upon costings made in UCC to report to the HEA on "University Organisation in so far as it related to Dental Teaching" (unpublished). The estimates made then (January 1973) have been inflated by the rise in the index of industrial earnings figures to 1981, which is an underestimate of the average increase in university costs per student over the period.

It is sometimes contended that the emigrant graduate only emigrates because there is no available employment at home and that since the home country has failed to provide employment, it does at least owe them a good education before they leave. This argument neglects the earlier point (Table 5.5) that long-term unemployment rates are lower for graduates than the remainder of the population who are at present subsidising this education; it ignores the fact that some graduates emigrate from less attractive rather than non-existent opportunities at home; and finally, that graduates who do emigrate are likely to achieve financially worthwhile employment abroad.

Similarly, most foreign students come from richer nations, or if they do come from poorer nations, often from the wealthier families of these countries. Thus, the existing subsidies[17] on their education are generally inegalitarian from an international perspective.[18] Table 5.10 shows the breakdown of the major countries from which foreign students in the universities are drawn. It can be seen that most of these students are from the wealthier nations of the world.

Notwithstanding the above argument, it is sometimes held that a cosmopolitan student body enriches the experience of all students and thus foreign students should be encouraged to come here even if it means subsidising them. However valid this argument may be, it neglects the fact that the existing system subsidises foreign students indiscriminately of their own economic background and that of their country of origin. It is also worthwhile noting that the spread of foreign students is, under the existing scheme, very uneven. Only Trinity College Dublin (with 8 per cent) and Maynooth (with 9 per cent) had more than three per cent of students from overseas in 1978/79 and only these two colleges had more than six per cent from outside of the Republic of Ireland. The full figures for 1978/79 are as below.

	UCC	UCD	UCG	TCD	Maynooth
% NI	0.9	3.2	0.4	7.5	1.2
% Overseas	2.2	2.2	1.6	8.0	9.3

Having assessed the present system and found it wanting, it remains to consider the alternatives and to examine whether they might effect an improvement, this is the task of the next two chapters.

17. At present, students from outside of the thirty-two counties normally pay a fee 50 per cent higher than home students. Nevertheless, there remains a substantial subsidy on their education. In addition, academic admission requirements are somewhat stiffer for such students.

18. Some externalities may be present in the case of foreign students in that they may undertake research relevant to the host country.

Chapter 6

ALTERNATIVE SCHEMES FOR FINANCING THIRD-LEVEL EDUCATION

Every country which is involved in higher education has some scheme or combination of schemes whereby its students and educational institutions are financed (even if that "scheme" is the absence of government involvement). The schemes in operation differ in their principles, the method and extent of their application and the institutions by which they are administered. In other countries, as in Ireland, direct forms of finance such as fees and government subsidies, are often supplemented by research funds and private benefactors. In this chapter the main types of scheme are outlined together with some evidence of the experience of their operation, in so far as this is available. Six schemes will be considered: Private Finance, General Grants, Comprehensive Grants, Means-tested Grants, Loans and Income-contingent Loans. These six, either singly or combined, underlie all the major existing schemes and the main alternatives that have been proposed. One scheme of financing education not considered here, but occasionally proposed, is that of educational vouchers. Such vouchers are allocated to all families with children under a number of distributional schemes and the vouchers can then be used for educational expenditure, and that only. The scheme is not generally proposed for third-level since only a minority of families have children who continue to third-level. If the vouchers were allocated to all families they would, for the majority serve no educational purpose. If they were allocated only to persons continuing to third-level (as has been suggested by Crew and Young (1977)) they would be highly inegalitarian.

Before describing the various schemes, it is worthwhile to consider why, if education is as economically worthwhile as it seems to be, any scheme is required. In fact the first alternative discussed is one of no state involvement, but this scheme is unusual in practice and most developed countries have some, and often considerable, state intervention in the third-level education sector. The main reason put forward to explain such intervention is the problem of the uncertainty of the returns to education, that although, on average, education at third-level is profitable for students, there are a significant number of cases when it is not. Three such important instances of financially unprofitable third-level education are first, when the graduate

pursues, either voluntarily or due to unfavourable economic conditions, a low paying occupation; secondly, when he or she is unable to obtain employment; and thirdly when he or, more often, she, drops out of the labour force (to look after the home, or through ill health or even death). In the face of this uncertainty lenders could be expected to be cautious as to the prospects of repayments, and borrowers are likely to be concerned as to whether they will be able to fulfil their repayment obligations.

In terms of the supply and demand for loans the problem is portrayed as that the interest rate at which suppliers would be prepared to offer loans is (for every amount) above that at which demanders are willing to pay. Both of these are important reasons why adequate loan markets have not developed. The problem is that there is no market for contingent claims (an insurance market), the absence of which is mainly attributable to the costs of acquiring information as to "the goodness of the risk", the problem of adverse selection (the worst risks are the ones which will come forward), and the problem of moral hazard (in this case a reduced incentive to earn since failure to do so is compensated by the insurer).

Where such uncertainty is present in the case of non-human investments, part of their finance is generally dependent upon the equity market or some state body like the Industrial Development Authority. In the first case, the shareholder acquires some form of property right. In the second case the state provides assistance. For human capital the sale of property rights in individuals would, in the limit,[1] imply slavery. For legal and moral reasons such markets are not fostered.

Even if the above reasons are able to account for the lack of loan markets for the financing of third-level, the absence of such markets is not the only reason put forward for government intervention. In particular the "external" benefits of third-level education have been considered to be a rationale for support. These are benefits that accrue to persons other than the direct recipients. Amongst them the following are usually listed: general research[2] and public services provided by academics; the development of scholarship and scientific and religious enquiry; public policy analysis; the cultivation of literature and fine arts; and the provision of direct public services (e.g., via college dental schools). (For a fuller discussion see Embling (1974)). Such benefits are important, even though it is hard to measure them. For the purpose of this study a major caveat is that some could probably be provided more efficiently by other means: in research institutes and other bodies, set up for such purposes. Then the various external benefits would

1. The limit meaning the holding of property rights on all the future living hours of the individual.
2. Such research should be freely available to any potential user. Private research and consulting services which are not so available should be self-supporting and are not included under this heading.

be the objectives of such institutions, rather than accidental by-products.

As has been argued in the previous chapter (pp. 89-90) such benefits, apart from scholarship, are not directly related to the training function of third-level colleges. In the USSR, for example, the universities are largely confined to teaching (Robbins, 1980 p. 6); research tends primarily to be carried on in separate institutes. Nevertheless, to the extent that such external benefits are so provided, and subject to questions as to the appropriate scale of such activities, they should receive public (government) support[3] (Johnson 1974; Robbins 1980).

Such external benefits are largely produced in the universities so the training cost attributable to their students is a commensurately lower proportion of total cost. Given that the costs per full-time student in all third-level institutions are of a similar order the above reasoning implies that the *training* costs per full-time student is probably lowest in universities. There are two main reasons for this. First, the mix of subjects studied in universities includes a greater number of low cost areas. Secondly, either because the students are more able, or because they are believed to be, such students have less staff contact hours.

In this chapter and those that follow the focus will be upon various aspects of possible schemes for financing the training component of third-level education (that is excluding research and other costs not directly associated with training).

Private Finance

This scheme is one of no government involvement either in the form of assistance towards the costs of training, or in the form of support for the maintenance of students whilst studying. Finance for the institution is obtained by fees, research scholarships or private benefactions. For the students, finance comes from their own or their parents' resources, though most private institutions provide some, and a few considerable, scholarship schemes. This form of finance has been experienced in the history of most countries (in particular through support from the religious bodies), and still exists to varying extents in some. Accordingly, private universities and other professional schools have existed in most states, though they have frequently come to accept and request assistance from the state as they have met difficulties in raising finance; particularly when trying to compete with those colleges which do receive state aid.

Despite the problems of raising finance the suggestion that state aid is

3. Williamson's (1975) Chapter 10 examination of research carried out by industry indicates that the amount of basic research carried out in firms is very limited. This suggests that without public support the level of research would be sub-optimal.

inevitable, and that there is no scope for private finance is not a corollary. In Ireland fees are still a significant, though small, part of the income of third-level colleges; and an even more significant proportion of the maintenance and opportunity costs of students comes from private sources. In the United States different forms of loan finance have been proposed to "solve" the difficulties in the payment of fees in the private colleges and universities, though the proportion of students enrolled in such institutions declined steadily from 50 per cent in 1950 to 21 per cent in 1970.[4] By contrast in Japan, over 70 per cent of all students in 1970 were in private universities or colleges, and enrolment has risen faster in the private sector than in public institutions. (Woodhall, 1978, p. 10). In Ireland the Royal College of Surgeons is almost entirely privately financed. (It received £18,000 from the Higher Education Authority (HEA) in recent years, less than 5 per cent of its income.) In the U K, without recourse to new methods of finance, the private enterprise University of Buckingham has recently been launched and is now in operation.

Despite these important exceptions the problems of finance, particularly for students from less well of backgrounds, have resulted in most countries adopting some form of assistance to the third-level sector.

A General Grant Scheme

Professor Gareth Williams, a leading British researcher in the economics of higher education, once commented in regard to the subsidies paid to this sector: ". . . I have always wondered what happens to those who feel they can invest in themselves in others ways (than by undertaking further education) by becoming a professional footballer, or by setting up a business to buy second-hand cars or indeed by buying a house rather than paying rent to others . . . are those who advocate (subsidies) really interested in promoting equality or in selling the service in which they have a vested interest?" (OECD, (1975) Education, Inequality and Life Chances, Paris.)

The view expressed in this comment provides the basis for what may be termed the "General Grant" proposal. Under such a scheme *all* persons[5] whatever their ability or background, are at a certain age, credited with an award of a given sum to be used to finance any "approved" investment. Such "approved" investments could include not only third-level education but also technical training, completing secondary schooling, providing

4. A National Policy for Private Higher Education: Report of the task force of the National Council of Independent Colleges and Universities, Washington D C: Association of American Colleges, 1974 p. 41 (Quoted in Woodhall (1978)). This statistic may slightly overstate the underlying structural changes as most of the private institutions (as measured by enrolments) are in the North-East USA which is losing population relative to other areas.

5. One further possibility is to make such grants subject to a means test.

funds toward the purchase of a house or even setting up in business. The award might only be sufficient to finance a part of the selected investment, where it involved a considerable outlay, or it might be used to contribute to more than one less expensive venture such as a craft course. This scheme would require an additional administrative organisation to keep account of a person's spending and also the co-operation of other state departments to decide what constitutes "approved" expenditure. This scheme differs from all the other schemes discussed here in that it benefits those who do not receive third-level education, as well as those who do. Thus, like private finance, it does not benefit those undertaking third-level education relative to those who do not. (This scheme was suggested by Sandford (1969) p. 249 under the name of a "negative capital tax", although without the requirement that expenditure be "approved".)

Such a proposal has never yet been tried anywhere, although Ireland and other countries have introduced schemes which attempt to give financial assistance to aid one or more of these personal investments. At present in Ireland these include the £1,000 first-time house-buyers grant, the Higher Education Grant scheme and the Industrial Development Authority aid for first-time entrepreneurs. An advantage of this scheme, as against the specific ones is that it is substitutable amongst a number of alternatives and thus all persons can avail of it. Each existing subsidy (to third-level institutions, students, house-buyers etc.) leads to distortion of the price mechanism. First, in so far as the level is inappropriate, and, secondly, due to the taxes whereby it is financed. With this scheme the distortions are only those of its financing and any inappropriateness of the level of subsidy *as a whole.*

Comprehensive Grants/Complete State Subsidy

Comprehensive grants or complete state subsidy schemes involve the state in meeting the full financial costs of third-level education, including both the costs of the institution and the cost of student maintenance. The scheme may be financed and administered at local or at central government level or, as in Ireland's means-tested schemes, both may be involved; the central government raising most of the finance and the local government carrying out much of the administration. Whichever procedure is used, the taxpayer meets the financial costs even though the payment mechanisms and the taxgroup making the payment may differ (e.g., ratepayer or income taxpayer). However, the taxpayer does not meet the costs of income forgone, (the net earnings of the individual less the maintenance grant), which is a major cost of education at this level.

It is also worth noting that although subsidies for maintenance for each student will be equal under this scheme, this will not be so for tuition

costs, since those pursuing longer and/or more expensive courses will effectively be receiving more subsidy.

Such a scheme has not yet been operated fully even in command economies, which generally operate means-tested schemes (discussed next). One version of this scheme has, however, been proposed by the Union of Students in Ireland in their 1971 document "GRANTS". In this report they advocated a scheme on the above lines with one major difference: that when the financial costs have been paid, they would then be deducted from the incomes of parents of students who could afford it. Those parents who could not afford to pay would not contribute, and a sliding scale would operate in between, the parents' contributions being directly related to their incomes. Naturally the above suggestion would reduce the cost of the scheme to public funds but may limit its appeal, which is perhaps why it has not been advocated in subsequent reports by the student organisation.

Although no country has the full scheme, there seemed to Woodhall to be an important trend amongst the ten OECD countries which she studied toward the reduction of such fees. Specifically in two of these ten, the U K and Canada, there was a fall in the proportion of university income derived from fees up to the mid-seventies as in Ireland, although in the U K recent policy has changed this trend (see p. 102). In Australia third-level fees were abolished in 1974 and fees are not charged in French, German, Norwegian or Swedish universities, amongst the other OECD nations in the above study. Reference to the growth of private third-level education in Japan and its relative decline in the U S has already been made (p. 99).

Means-Tested Grants

With this scheme, grants are given to individuals to assist in the payment of fees and/or maintenance, subject to a means test. The limitation of the grants according to means is resorted to in order to curb public expenditure, and to direct what is spent toward those considered to be in greatest need. The grant to the student may be subject to qualifications as regards the type or the level of the course, and the institutions at which he or she may study. Several schemes have limitations of this sort and some have further academic requirements beyond those necessary for acceptance to pursue an approved course of study. As has been noted, this is so in Ireland (p. 75), and it is also the case in France, Japan and the Netherlands that academic criteria are used to determine eligibility for aid, in addition to being required to gain acceptance for admission. In addition to the assistance toward the payment of fees, the institutions may, and generally do, receive direct government aid which benefits a student regardless of his or her means or financial background.

Although there has been a trend toward the reduction in fees and greater state subsidisation of education in most of the OECD states studied by Woodhall, a significant change in this policy was carried out under the British Labour Government for the U K in 1977. Fees were increased substantially, together with a largely compensating increase in the income limits of the means test, and the grant allowable under it. In addition all U K students were made eligible for a minimum award plus payment of fees. As a consequence, it was foreign students who were most affected.

The assessment of means under this scheme is usually some measure of income, with various deductible allowances which differ between countries. Though there are only small differences in the type of allowances, there is a substantial difference between the majority of countries operating this scheme which use parental income to assess means and at least two, Sweden and Norway, which use student income if any. Even those which do use parental income frequently cease to do so when the student reaches a certain age, often in the mid-twenties (as is the case in Australia, Canada, Germany and the U K). Such a distinction, which is not made in Ireland, can make a considerable difference to the financial independence of the student.

Such means-tested grants may add to the progressiveness of the tax system as in Ireland. This is because as income rises through discrete levels one loses eligibility for additional "lumps of subsidy". (Strictly, the grant only increases the progressiveness of the fiscal system if the elasticity of the subsidy with respect to income exceeds one.) It is possible, of course, for such subsidies to give rise to paradoxes where rises in earnings result in a person becoming worse off. This is where the increase in earnings results in a change in, or loss of, eligibility and a discrete fall in subsidy.

The administration of the scheme may be at central or local level as may be the finance; whichever is the case, the taxpayer pays. It has been widely adopted throughout developed western nations and each of Woodhall's ten OECD countries had such a scheme.

Loans

Any loan scheme is a variant of private finance in so far as the provider of the loans is a private organisation. For the purpose of this study a loans scheme is distinguished by the involvement of a financial intermediary outside of the family circle. Loans may be made within the family circle and, to the extent that this is the case, the analytical distinction is less meaningful. There is, however, no evidence that family support is provided on such a basis to any significant extent. In a different sense, though, family support may give rise to other forms of indebtedness, of obligation and the

like (Becker 1976).

Ordinary loans, as distinct from income-contingent loans, discussed next, are loans fixed in nominal value which must be repaid by the borrower after study has been completed. Interest charges on the loans may be at a commercial rate, which is generally the case if they are commercial loans, or they may be subsidised in part or in full, if they are government loans. The size of the loan and the period over which it may be repaid can both vary and larger loans can usually be repaid over a longer period than is allowed for smaller sums. There are usually conditions under which repayment may be postponed such as illness, unemployment or non-participation in the labour force.

Administration of the loans may be carried out by private organisations, such as the banks in Ireland, or they may be distributed and collected through government organisations, such as the Department of Education scheme for certain national teachers. Whichever the body carrying out the administration, there are likely to be significant costs of collection and administration.

Many nations of varying political outlook have operated loans schemes, the most noted perhaps being the United States and the Scandinavian countries. Their experience spreads over many years and has resolved some of the issues concerning the effects of loans, but, unfortunately not all (see Chapter 7). In Japan loans are the only source of aid and in Canada, France and in the Netherlands they are also important.

According to Woodhall (1978 p. v) there has been "a trend towards increasing the length of repayment period . . . and also to make the level of repayment depend in some way on the level of graduate's income".

Income-Contingent Loans

This scheme is based upon a suggestion by Friedman and Kuznets (1946) when they considered the question of why the private market did not seem to provide adequate funds for students' education. Their argument was the one suggested earlier that institutions are unwilling to take the risk involved in such lending. They proposed that this risk should be shared by the students by asking them to take a loan and repaying a *share* of their income; so that their repayments would depend upon their success in later life. If they became successful they would repay more than the value of their loan, if not so successful they would repay commensurately less and, in the limiting case, would not pay anything.

The income from which this share is taken may be the gross income of the student as advocated by Prest (1966) or that part of income which exceeded a given amount. Vickery (1962) suggested that the income upon which the

share is based is the amount by which income exceeds the average he or she would have earned as a secondary school graduate. In this case the risk of third-level education to the student becomes zero because "even if the educational investment fails to enhance earning power the individual will be no worse off than before".

Students may, or may not, be free to join the scheme; if they are free to choose then those who wished and were able to use alternative sources of income would be free to do so. The level of repayment could be set to recover the full training costs in which case the repayment rate would be based upon the average income expected of those in the scheme. But, as for ordinary loans, subsidies may accompany income-contingent ones, with less than full tuition charges, or reduced interest rates, or both. However, it is unlikely that explicit interest charges would be necessary under this scheme even without subsidies. This is because repayments are a proportion of incomes and will rise with inflation. Thus they will increase by the rate of inflation plus any growth in real incomes, and this rate of increase would be more than sufficient to cover interest costs, at least on the basis of post World War II experience.

The repayment period may vary but the options available should be such that the length of the repayment period would be inversely related to the tax rate, so that if the tax rate were 6 per cent for a 40-year period it would need to be 12 per cent for a twenty year period.

As an example, a student studying in 1981/82, for four years might annually receive £1,250 for maintenance and £2,900[6] for tuition costs, which over four years would amount to £16,600 (ignoring inflation and rises in fee levels). During his or her subsequent career he or she would repay a proportion of income, say five per cent, which, if his average income were £10,000 would mean £500 per year. This would involve full repayment, if the repayment period were 32 years, and less than this if the repayment period were shorter.

The scheme is not without its critics; Nerlove (1975) raises two particular problems: moral hazard as mentioned briefly above, is that those who participate may be influenced in (1) their choice of occupation and (2) their effort, by the prospect of repayment: they may choose less financially remunerative alternatives and/or work less hard at them. These effects are not confined to this loan scheme but are likely to be brought about by any rise in the income tax rate. This is not equally likely, however, since a rise in the tax rate via the income-contingent loan scheme discourages student choice of more costly courses. The effect on effort due to a rise

6. The average training cost per student for 1981/82 will be of this order.

in the tax rate is similar whether it be due to a general rise in income taxes or due to additional taxes to make repayments under the scheme. Since the additional tax is small, the effect is probably of minor importance, although no evidence is yet available to shed any light on this. Further, with regard to the effect of additional taxes on effort, most empirical work to date suggests that the labour supply curve (with respect to the wage rate) is backward-bending (Metcalf, Nickell and Richardson (1976) and Abbot and Ashenfelter (1976) are two examples). This implies that effort for persons with higher rates of pay would be increased and thus also their tax contributions.

The second problem of adverse selection is that there will be greater likelihood that the scheme will be taken up by those who expect to earn lower incomes than those who expect to earn higher. On his questionnaire findings at Yale, Storrs (1974) was confident that there was no evidence to support an adverse selection theory though West (1976), in appraising Storr's findings, concludes that "they suggest some mildly adverse selection".

Chapter 7

AN ANALYSIS OF THE ALTERNATIVE SCHEMES

In this chapter the seven aspects of third-level financing schemes of concern to the interested parties in the debate (see Chapter 4) will provide the headings under which the schemes outlined in Chapter 6 will be examined, compared and assessed. The present scheme comprises a mixture of schemes which makes it very difficult to analyse within this framework. However, in large part it combines a means-tested subsidy scheme with institutional subsidies. Consequently, to make a comparative assessment of the present system, as far as is possible, a distinction is made, under the final six headings (where it is important), between a means-tested subsidy scheme with and without institutional subsidies. The criteria used for assessment are those developed in Chapter 5 for the present system and these are summarised under each heading.

In so far as is possible, the experience of Ireland will be referred to in the context of the alternative schemes but, as one might expect in any one country, the experience of different schemes in Ireland is limited. Thus, considerable reference will be made to experience abroad, an important part of which is reviewed in the examination by Woodhall (1978) of aid schemes in major OECD countries. The evaluation draws on her work, with qualifications where appropriate having regard to Irish circumstances. Further, although relevant empirical evidence is used where possible, three of the schemes are not in operation anywhere on a nationwide basis so much of the analysis is developed upon an a priori basis.

The various schemes are measured ordinally, as far as is possible, according to each criterion. In the case of three of the headings, the evidence of previous chapters has indicated that no scheme is, in itself, likely to achieve the desired objectives. These three are those of equality of opportunity, economic equality and social mobility and it would also seem reasonable to add political practicality to these, since no scheme is likely to be acceptable to *all* groups. For expository purposes, the schemes will be considered relative to the present (means-tested institutional subsidy) scheme under these four headings.

Further, when discussing the level of enrolment under the various schemes, changes will be considered with reference to present levels. The estimates of changes in the level of enrolment are all based upon Equation 7, Table 3.3.

As estimates, they should be treated with considerable caution, given the sizeable standard errors of the estimates on the pertinent coefficients. A further reason for caution is that some of the changes discussed involve levels of fees beyond anything experienced over the period of estimation. Notwithstanding these caveats, the estimates provide some indication of the orders of magnitude of the changes in the level of enrolment which might ensue in the face of the changes under consideration. It should also be noted that those estimates which involve increases in enrolment may be rendered inappropriate by restrictions on space. That is, unless and until any requisite expansion of accommodation takes place. A summary table of the evaluation is provided in Table 7.5 at the end of the chapter.

Equality of Opportunity

The evidence from Chapter 3 indicated that one of the reasons for the inequality of uptake of third-level education between the various socio-economic groups is the decline in participation of persons from less well-off backgrounds during the last years of secondary schooling. In so far as this is the case, the appropriate method of increasing equality of opportunity would be to ensure that any scheme introduced begins to function from the earliest school-leaving age. Even if this were to be done, the effects of lesser attainment and any negative attitudes of peer groups would still remain (see pp. 31-32), and would limit the extent to which equal representativeness could be achieved. In the following assessment, the criteria used are the extent to which the scheme compensates for any disadvantages; whether it treats persons equally other than in compensating such disadvantages; and the extent to which it widens opportunities for all.

Under the private finance scheme, where no public aid exists, either for the student or the institution, fees would have to be at full cost (less any private benefactions) and be greatly increased (relative to the present). Such fees, together with the costs of maintenance, would constitute a considerable hurdle for those from families with limited resources. These persons would be at a substantial disadvantage and, as the evidence of Chapter 3 indicates, would be less likely to participate due to the rise in fees. Thus, this scheme would make opportunities less equal. As against this, the abolition of third-level subsidies, which favour the well-to-do, would provide scope for the reduction of taxes. In this event, the resultant rise in real incomes of the less well-off would raise their participation rates and might reverse this conclusion. However, the evidence of Equations 7 and 17, pp. 46, 57 does not indicate such a strong effect. (Under private finance, fees would need to be seven times the present level, other things equal, and they would be the same for all entrants. Making these adjustments in Equation 7 (p. 46) would

result in a fall in enrolment of 40 per cent. As against this, earnings would rise by around one per cent if the tax saving were distributed evenly to all members of the labour force, raising enrolments by 2.6 per cent. Finally, the numbers of leaving certificate entrants would also rise by 15 per cent on the basis of Equation 17, p. 57. This would, according to Equation 7, raise enrolments by between 1.2 per cent (if the Leaving Certificate post-1968 coefficient is interpreted as non-third-level entrants) and 3.6 per cent (if that coefficient represents entrants in other third-level institutions). Whatever, the net effect is a substantial fall of between 30 and 40 per cent.) Nevertheless, this effect does mitigate the suggested reduction in equality of opportunity attributable to this scheme. In practice, this scheme is still in operation at present (in Ireland) for those who do not qualify for scholarships or higher education grants. That is, to the extent that fees are charged and assistance for maintenance is not provided for these students.

The means-tested finance scheme attempts to compensate financially those from less well-off backgrounds to assist them through third-level. If they are sufficiently able and from a sufficiently poor background, tuition is free and maintenance is assisted. For such students, the direct financial effects of their lower resources are counteracted, as far as third-level is concerned, in so far as the maintenance payment is sufficient. For those who qualify for partial assistance, the financial effects of their background are only counteracted to the extent that the assistance does not decline too much for higher levels of family income or rateable valuation (for those from farming backgrounds). And also to the extent that assistance rises sufficiently with increases in family size. For income and maintenance levels denominated in money terms, problems arise during inflation and with the growth of incomes; in order that the real (or relative) value of assistance is maintained some form of index linking or regular review is necessary. The means-tested scheme also has price effects, as seemed to be the case in Chapter 3, where students on grants are not influenced by the differential tuition costs of different courses and are, in this respect, at an advantage relative to their colleagues from better-off homes.

In the case of the comprehensive grant scheme, opportunity is not constrained by financial factors, either in the uptake of third-level education or in the choice between courses. This is not to say that other factors, such as examination performance, used to control uptake are equal; merely that for the transition from second to third-level, this scheme (in so far as the maintenance support is sufficiently high), removes financial disadvantages. General grants would, if they were sufficiently large, overcome financial disadvantages for all students and would still leave the effects of relative prices as indicators of cost. However, due to the high cost of the scheme

(see Chapter 8), the level at which grants could be provided to all is not likely to be sufficient for this purpose. This would limit the extent to which the scheme would be capable of equalising opportunities. Nevertheless, it is important to note that this scheme improves opportunities, not just for those who go on to third-level, but for all young persons.

The two loan schemes would also provide the means to overcome financial disadvantages and would, in addition, leave fee levels to provide indications of costs. The costs of repayment would naturally act as a disincentive to undertaking third-level courses (as a charge acts as a disincentive to purchase any good), and the importance of this disincentive effect would depend upon the type of scheme. From the perspective of equality of opportunity, what matters is whether these prices (fees) affect persons differently. It is likely that for ordinary loans, where the eventuality of not being able to repay or of finding repayment very difficult is a serious possibility, significant numbers of prospective students may be discouraged. That is, they might be discouraged beyond considerations of facing the real cost because they are uncertain as to whether they will be able to meet future repayments. Nevertheless, according to Woodhall (1978), the "evidence from OECD countries shows that poor students are quite willing to accept loans to pay for either the direct or indirect costs of higher education, but their acceptability increases if the loans are combined with a grant, if they are long-term, and carry some guarantee that the debt will be written off in the case of serious illness". Recent research by Lazear (1980) supports this conclusion. If it were the case that borrowing costs discouraged poorer students, then they would be observed to undertake less education and their implicit rate of return would be higher. Lazear found there to be small differences in implicit rates of return between students from well-off and less well-off backgrounds, of the US students he studied.

For income-contingent loans, where repayments are related to resources, significant repayment difficulties do not arise, and the only disincentives are those of bearing the real cost. Thus, the problems of the low income graduate, and the graduate who is unemployed, do not arise. Similarly, the case of the negative dowry, that is women marrying with a debt on their hands, does not exist since, if they stop work after marriage and they have no other income, they are not liable to make repayments. However, to exempt those who withdraw from the labour force from repayment could lead to serious effects in economic equality. It is likely that those who withdraw most from the labour force will be predominantly wives of better-off husbands, whilst the wives of less well-off husbands are more likely to continue working. Thus, from a *lifetime family* income perspective, this contingency of repayments accentuates inequality. In addition, there would be an incen-

tive for those persons who have no intention of entering the labour force, to borrow under this scheme. The simplest way to mitigate both problems would be to use the suggestions of collecting repayments by reducing the personal tax allowance/tax credit of those who borrow. If they then marry and withdraw from the labour force, the working member of the couple would receive a doubly reduced tax allowance. If this was in operation, there would be no effect on the willingness to participate, which would be reduced slightly if repayments were contingent on such participation. Further, a negative dowry would still not exist – rather, a smaller positive one.

The schemes enhance equality of opportunity in two ways, by making finance available, and to the extent to which they compensate the disadvantaged. All the schemes, except private finance, enhance the equality of opportunity by making finance available, but the means-tested subsidy scheme is the only one which works directly to compensate the disadvantaged student. This does not imply that the other schemes might not be adequate in achieving equality of opportunity at third-level, in so far as this is possible. In addition, the subsidy schemes diminish equality in so far as they increase opportunities for those academically able enough to enter third-level education but fail to provide opportunities for those less qualified. Thus, if equality of opportunity is looked at more generally, then general grants are clearly the most effective since they give opportunity to all persons, not just the elite in the third-level educational sector.

Social Mobility

Social mobility involves the movement of persons to a different socio-economic group from that of their parents (see p. 77). It has been noted that higher education does not have a major effect on social mobility, although it would seem that it does at present give rise to some significant upward mobility on balance. Any scheme which assists those from lower socio-economic backgrounds to enter higher education contributes to upward social mobility, and any scheme which places those from higher socio-economic backgrounds at a disadvantage promotes downward mobility. Social mobility can be forcefully promoted, as in eastern Europe, by a form of positive discrimination which allows entry at lower academic standards to those from "peasant", "working-class" or other disadvantaged groups. Leaving aside such direct measures, the various schemes affect mobility by: (1) the provision of financial aid (or by its absence), and (2) the extent to which they discriminate in favour of those from lower socio-economic backgrounds. The schemes will be assessed with reference to the present scheme according to these two criteria.

Private finance does not involve aid, and therefore, would not assist social mobility. If such a scheme was implemented, financial backing, rather than academic merit, would become more important as a qualification for entry and even the downward mobility of "rich young fools" is likely to be prevented. Higher education might still be an avenue for some mobility but at an even lower level than at present. Further, private finance does not discriminate in favour of any group, although many private colleges do provide assistance to able persons of lesser means.

General grants and comprehensive grants would each assist the upward mobility of those lacking financial backing without specific discrimination in their favour. Means-tested grants not only assist in this same way, but also discriminate in favour of those from less well-off homes since the assistance is directed to them. With no institutional subsidies, the fees facing students from high-income backgrounds would reduce demand from this source. Thus, such a scheme would increase downward and maintain upward mobility relative to the present. With institutional subsidies, downward mobility would not be increased. Notwithstanding this a priori reasoning, the effectiveness of the scheme in promoting upward mobility would seem to be relatively modest (pp. 79, 81).

Ordinary loans make funds available for all students and, to this extent, aid mobility. The evidence available from the United States on the Federal loans programme suggests this: the figures in Table 7.1 show that those from less well-off families are the major recipients of such loans, particularly for longer courses. These figures also suggest that it is not only those from low income backgrounds who desire assistance with financing their studies.

Private loans, such as those from the commercial banks require, initially at least, parental indemnities. Therefore, students from lower income parents, who are likely to be less able to obtain such indemnities, are less likely to receive a loan. Thus, a private loan system would reduce social mobility. Public loans, presumably, would either not require such indemnities or, if they did, and there is a good case for them (see p. 129), the acceptance of the indemnity would be independent of the social and economic standing of the parent. Nevertheless, even public loans may provide a disincentive effect, particularly for women. However, Woodhall (1970) found no evidence from Sweden and Denmark to support this view: finding similar attitudes towards, as well as incidence of, the take up of loans for both sexes. The participation rates of women in the labour force are much higher in these countries than in Ireland and this may be an important consideration in weighing this evidence. Nevertheless, this difference is mitigated somewhat since women, in Ireland, who have third-level education, also have much higher participation rates. (1971 Census figures Vols. IV and VII show 64.6 per cent of active

Table 7.1: *Percentage of students enrolled in post-secondary education 1972-73 receiving Federal loans, by family income and type of aid, for the high school graduating class of 1972*

Family income	*Total*	*Vocational technical schools*	*Enrollees in 2 year institutions*	*Enrollees in 4 year institutions*
Less than $3,000	28	27	13	39
$3,000–5,999	25	23	14	37
$6,000–7,499	25	19	13	38
$7,500–8,999	25	20	9	36
$9,000–10,499	22	19	4	32
$10,500–11,999	18	19	7	25
$12,000–13,499	16	13	1	25
$13,500–14,499	18	27	4	23
$15,000–18,000	13	17	4	16
Over $18,000	6	10	2	7
All students	17.5	n.a.	n.a.	n.a.

n.a. Not available

Source: National Center for Education Statistics (1977) Sample.

women (employed and unemployed and over 15) who had attended university were at work outside the home, compared with 27 per cent of all women. See also Walsh and Whelan (1973-74) for evidence particular to *married* women).

The arguments for income-contingent loans are similar except that the disincentive effect is likely to be absent. In the US, the little evidence yet available suggests that what disincentive effect exists, is largely due to an unusual understanding of the scheme by some students. Such students considered the scheme more risky because the repayment level is uncertain (Johnstone and Dresch (1972) p. 46).

To summarise, the means-tested subsidy scheme does most to promote social mobility since it provides, when fully operational, adequate finance for entry into third-level for those from less well-off homes. In addition, it discriminates in their favour since it does not provide equivalent assistance for those from better off circumstances. The other schemes, except private finance, also assist mobility by providing aid to undertake third-level education, but they do not discriminate to this end. Further, the ordinary loan scheme might be less successful than other schemes in this respect.

Economic Equality

The effect of the schemes on economic equality will be considered from

the viewpoint of family background, although the main focus will be the effects of the schemes upon the more appropriate concept of lifetime earnings. The various schemes may affect equality in two ways: (1) they may involve transfers of resources between persons and social groups: and (2) they may improve, or fail to improve, individual earning potential by aiding, or failing to aid, entry into third-level education.

Private finance involves no transfers but, by failing to assist the entry of those from low-income families, effectively denies them the means to enter third-level education. This is what seemed to be the implication of the equations in Table 3.3, where the "cost" of entry to those eligible for grant assistance had an important and significant influence on enrolment.[1] From the lifetime income viewpoint, most potential third-level students, even without third-level education, have greater earnings capability than the average taxpayer: which gives rise to what appears to be a paradox, that the absence of transfers to them and the effective curtailment of their entry are all likely to be equalising. However, the overall demand for college education is affected and this will lead to a smaller output of graduates (relative to either the present or the other alternatives), which will either enhance the earning power and/or the ability of those who do graduate to obtain employment.[2] This effect accentuates inequality. From the viewpoint of parental income the system has two effects. (1) It reduces the degree of equality by reducing assistance and opportunity to what has been shown to be a highly remunerative investment as well as a route to power, influence and status. (2) On the other hand, it increases equality because better-off parents are now required to pay more in the form of higher fees.

The general grant scheme involves perfect equality in the distribution of its assistance and, if we assume the resources to provide this arise from general taxation, which is assumed to be progressive in its incidence, then the overall effect is equalising. Further, the rise in fees under this scheme would also be equalising, avoiding the subsidies to those already financially and academically better-off.

The comprehensive and means-tested grants schemes both involve transfers from the general taxpayer to those receiving third-level education and, from the viewpoint of lifetime earnings, these transfers accentuate inequality.

From the viewpoint of family background, the effect on inequality depends upon whether the benefits or the costs are more progressive in their incidence, i.e., whether there is a net gain to the better-off (whence inequality rises), or the less well-off (whence inequality falls). Of interest in this regard is

1. This is mitigated by any rise in real income attributable to any reduction in taxation following the reduced government subsidies.
2. In the context of the open Irish labour market, its major effect may be to stem emigration.

Table 7.2: *Tax revenue by social class compared with access to university in the United Kingdom*

	Social class	% of age group entering university 1968	ratio of entrants class V=1	average taxes paid per annum	ratio of taxes class V=1
I	Professional, managerial	35	17.5	1,700	5.2
II	Intermediate	12	6.0	860	2.6
IIIa	Clerical	13	6.5		
IIIb	Skilled, manual	4	2.0	545	1.7
IV	Semi-skilled	3	1.5	455	1.4
V	Unskilled	2	1.0	327	1.0

Sources: Employment Trends February 1971, University Central Council of Admission 1967-68 Report and Statistical Supplement. Department of Employment, Survey of earnings. (See Glennerster, 1972, p. 103).

Table 7.2 produced by Glennerster (1972) for the UK which operates a means-tested grant scheme. He divided the population into five social classes and discovered that "whilst the highest social group benefit seventeen times as much as the lowest group from expenditure on universities, they only contribute five times as much in taxes". In so far as the higher social groups are relatively better represented amongst more costly courses, for which there is some slight evidence (see Table 3.8), his comments are an underestimate of the inequality of benefits. With the above reservation, his views are applicable to a comprehensive grants scheme or a means-tested grant scheme with institutional subsidies since, under a means-tested scheme without such subsidies, expenditure on grants and subsidisation of fees would only be available to those from lower-income homes. This evidence strongly suggests a comprehensive grant scheme would accentuate inequality from the family background view. A means-tested grant scheme from this same view, however, would reduce inequality since the subsidies would go to those from less well-off homes. However, in so far as the scheme is incomplete, and subsidises tuition for all students, then such subsidies reduce inequality proportionately less: in fact, the net effect may be, as in Ireland, to increase inequality.

The ordinary loan scheme is one where finance is, eventually at least, provided by the student or his/her family so that the scheme results in the redistribution of income over the student's lifetime and does not involve any interpersonal transfers. In so far as students are discouraged from attending by the prospect of repaying the loan, as women in particular may be, then such discouragement is likely to affect those from less well-off backgrounds most and, to this extent, accentuate inequality, at least from the view-point of family background.

The analysis for income-contingent loans is similar and differs in only two respects to that for ordinary loans. First, the discouragement of students, particularly women, from attendance is likely to be a much less serious problem since repayments are contingent on earnings. Secondly, the loan is recovered by a tax proportional to earnings and thus reduces the net lifetime earnings of those who, from this perspective, are best off.

In summary, it can be said that any general subsidies to third-level education increase inequality, both because third-level students come predominantly from better-off families and because they go to better paid occupations.

From the perspective of family background, the most equalising scheme is the means-tested grant scheme (without institutional subsidies) followed by the general grant, income-contingent loan and, to a lesser extent, the ordinary loans schemes. As institutional subsidies per student increase, the less equalising the means-tested subsidy scheme becomes, and the scheme may accentuate inequality from this perspective.

From the perspective of lifetime earnings, the most equalising schemes are those which do not specifically subsidise third-level at all. The most successful schemes from this view are general grants (means-tested general grants would be even more effective) and income-contingent loans, followed by ordinary loans. The least successful is the comprehensive grant scheme with the means-test grant scheme in between. The latter scheme accentuates lifetime inequality in so far as it subsidises any student, regardless of background.

The private finance scheme's acceptability, from an equality standpoint, depends partly upon the extent to which it discourages the attendance of students from less well-off backgrounds. The evidence from Chapter 3 suggests that this extent would be quite sizeable. This may be equalising from a lifetime perspective, but clearly not from a family background view. The latter consideration may make the scheme unacceptable on equality grounds.

Efficiency

The alternative schemes are assessed upon the six criteria of efficiency used in Chapter 5 (p. 81), which are summarised at the beginning of each

section.

(1) *Enrolment*: this deals with the question of whether the scheme brings about an efficient level of enrolment. The basic criterion proposed in Chapter 5 was that the expected social rate of return on the marginal graduate should be positive. To assess this requires an estimate of the investment by the rest of society in this marginal graduate and the expected returns on such investment to the rest of society through the taxation system. In the case of schemes which do not involve subsidies, that is the private finance and the two loan schemes, no investment is made by the rest of society and their efficiency depends, in large part, upon whether they remedy the defects of the capital market in so far as these exist. In so far as they do and in so far as there are no externalities, the scheme will give rise to an efficient level of enrolment. Clearly, private finance does not remedy these defects but ordinary loans may, and income-contingent loans should, do so.

It was contended in Chapter 5 that in the case of the existing scheme the criterion was not operable and a different but related one, of the level of output (and enrolment) being in accord with the demands of the home market, was proposed. This criterion will also be used to assess the alternative subsidy schemes. Although it is a criterion which is somewhat ephemeral, with quantitative results contingent upon existing levels of demand, the qualitative findings may be more enduring.

The introduction of a private finance scheme in Ireland would, if costs were to remain the same, involve the raising of fees at least sevenfold since existing fees comprise less than 15 per cent of expenditure in the university colleges, where they are most important. Such a rise in fees, together with the abolition of grants, could result in a fall in enrolment of the order of 40 per cent. However, it is unlikely that costs would remain the same; major economies would almost certainly take place and thus costs would fall and the decline in enrolment would, to this extent, be mitigated. This figure neglects the demand side of the graduate labour market. In so far as salary levels are flexible, and in so far as they are determined by the state of labour markets in the country, changes in graduate output will, after a period, give rise to inverse changes in their relative reward, which may mitigate the original enrolment change. For example, a decline in enrolment of the order suggested above might make it difficult to attract sufficient graduates to become secondary teachers at current salary levels. Jobs in this profession would then become easier to come by and salary levels might be raised, both of which would enhance the attractiveness of teaching and mitigate the original drop in third-level uptake. In addition the colleges might make stronger attempts to augment their revenue from private sources. Notwith-

standing this, the net fall in demand under this scheme is likely to be seriously below the demand of the existing market and the scheme may be judged inefficient according to the weaker criterion.

In the case of the existing means-tested grant scheme with institutional subsidies, the level of output (enrolment) has been assessed as being slightly excessive relative to the demands of the home market. Were fees to be raised to cover costs, enrolment would fall by nearly 20 per cent. This fall would be mitigated by any raising of the income limits, the level of grant and general widening of the requirements for eligibility. Without these amendments, a fall of this order with just over 8 per cent graduate unemployment, and between 10 and 11 per cent emigrating would probably give rise to shortages and may be judged inefficient. This conclusion is again mitigated to the extent of any response in salary levels which stimulates uptake, and to the extent of any weakening of the demand for graduates.

Comprehensive grants would result in the abolition of fees which would raise enrolment by around 3 per cent, and the extension of existing grants to all students, which would raise uptake by a further 6 per cent. Both of these estimates should be qualified by the consideration that the existing quotas in many faculties and courses inhibit any growth. If such expansions were to take place, it would result in exacerbating the existing surpluses of graduates.

The effects of the three other schemes on uptake are much more speculative, given that each would involve a significant change in the structure of financing students and colleges. In each case, the real price of third-level education would increase and this aspect would induce a fall in enrolment, or a check to the present growth. This would be mitigated by the greater accessibility of finance. The net fall or check in demand would probably be greater under the ordinary loans scheme than the income-contingent version (see p. 108). Both might be reasonably efficient according to the weaker criterion, with the income contingent scheme slightly more so.

The effect of the general grant scheme would depend heavily on the level of the grant and is thus extremely difficult to judge. With this strong caveat in mind, assuming a general grant of £12,000 and average fees of £2,900, the effect might be to raise demand by 20 to 50 per cent;[3] the reduction in demand from grant-aided students being balanced by the increase from those not included at present. Thus this scheme, in full operation, would exacerbate the surpluses of graduates and, therefore, be inefficient.

3. The effect is difficult to gauge since students may invest their general grant in housing or some other area rather than education, and a net fall in uptake could even take place. A 50 per cent increase in enrolment would occur if students used all the funds for education. The 20 per cent figure assumes half the funds are used in this way.

(2) *Graduate Mix*: refers to the level of graduate enrolment in different sectors, faculties and subjects of third-level education. The criteria used in section (1) are equally appropriate for use in this section. Under the existing system, there are substantial subsidies on the cost of training all students, but the level varies between different sectors, faculties and subjects. This is partly due to the differing hardware requirements in different areas and, in part, due to the relative ease of staff recruitment, and consequentially higher staff costs in subject areas where recruitment is difficult. Such variations in the level of subsidy are mitigated, to an extent, by fee levels for the various subjects which are generally higher for those subjects that are more costly; for example, the fee level is approximately three times greater for the Medical than for the Arts faculties. However, over all third-level education, these variations in the level of subsidy are accentuated by the lower proportions of fees charged in the expensive technological sector.

Under private finance and the two loan schemes, where such subsidies are absent, fee rises would be greatest (in absolute terms) in the subjects with the greatest subsidies, and result in curtailment of demand for them. This effect is likely to be strongest for private finance since this scheme operates, not only by making expensive courses less attractive, but also effectively restrains those with limited resources from entering them. The loan schemes have only the former effect. Since these subjects are generally, but not always, those with the greatest pressure for places and with high entry points requirements, such a fall in demand would probably tend to equalise the academic requirements between faculties and thus equalise opportunities within university colleges. Since subsidies are not involved in any of these schemes they are, again, efficient to the extent that they remedy any capital market defects. Again, private finance is likely to be inefficient whereas the two loan schemes may not be. It may be noted that under these circumstances there is no reason why faculties should not expand to meet demand, with the warning to prospective students that job opportunities may not be available for them at home. However, if faculties should expand such that many graduates emigrate then the taxation returns attributable to the investment in their first-level and second-level training would be lost to the Exchequer.

Under general grants and the means-tested subsidy scheme without institutional subsidies, fees are used to ration places and, as noted under (1), in the former case the overall demand for places would rise whereas in the latter, it would fall. In either case there would be an adjustment in relative demand for places in different faculties, similar to that discussed in the previous paragraph. This would tend to align university student output more in accord with the market in different subjects, notwithstanding any

imbalances at the aggregate level. Thus, both these schemes may be considered relatively efficient on this criterion.

Under the means-tested scheme, with institutional subsidies and under the comprehensive grant scheme fees would not be used as a rationing device to any great extent. Thus, the courses which were most attractive would be in heaviest demand irrespective of their cost. It would be possible to satisfy these demands by expanding the number of places for each course but two factors caution against this. The courses in high demand, relative to supply, in Ireland are those which are generally relatively costly and where the demand for graduates is limited.[4] Such training of excess graduates would not be in the direct national interest and would be inefficient. This must be qualified to the extent that members of society receive psychic satisfaction from seeing some of its well educated graduates going abroad and to the extent of emigrants' remittances.

In these circumstances rationing has usually been carried out on the basis of ability, although other means have also been used. In The Netherlands, for example, scarce places in some faculties are allocated partly by ability, and partly by chance. Each student with sufficient ability to qualify for entry to the institution is given a probability of entry to the faculty of choice, that probability being greater for those who, according to their results, are more able. The students who receive places are then chosen by lottery.

In so far as the limitations of places were in accord with the demands of the home market, such schemes would be efficient. Nevertheless, since such accord seems unlikely on existing evidence, they are judged inefficient. In so far as the rationing process gives rise to a similar output of graduates as when subsidies are absent, the price of their services will remain the same. Then the rewards to those who join the exclusive professions will also remain the same. However, access to these rewards would depend more upon ability than other factors, that is relative to the schemes where full fees are charged and finance is available for all students when preferences would carry more weight. Under private finance, when funds may not be available, parental wealth would become more important.

(3) *Technical Efficiency*: refers to the use of alternative factors up to the point where they are just worthwhile in economic terms (p. 85). Under schemes where finance is raised by charging fees, there would be strong pressure for containment of costs which would also provide pressure toward

4. It is, therefore, paradoxical that graduates from these courses are also highly remunerated. The explanation lies, in part, in the occupational licencing system which operates to restrict entry to many of the professions involved.

a more efficient use of resources and improved efficiency in staff-student ratios.

The outcome of such pressure might involve less use of full-time staff and greater use of part-time and post-graduate staff. Another possible result might be greater use of the new media, that is, if such media are cost effective.

Without competition on fee levels and with open-ended subsidies, as at present, there will be weaker reason for alertness to considerations of technical efficiency. Should the mobility of students increase, as is likely with rising income levels, there may be increasing competition to attract them. The main means of competition open will be by the provision of relatively attractive courses and varying entry standards. Alertness to the provision of courses is likely to focus on considerations of availability and numerical viability (i.e., whether there is sufficient demand for the course), rather than economic viability, given that the policy makers will not face the costs. When consideration is given to discontinuing courses which have become less viable numerically, any pressure for closure is likely to be counteracted more by bargaining and political pressures and rather less than by economic considerations.

For example, if it was economic to merge or close any one faculty in any college, the initiative would probably arise from the financier who would be likely to face political and institutional opposition (cf. the transfer of the veterinary faculty from TCD to UCD and the suggested closure of the Cork Dental Hospital). Under schemes where the institutions bear the cost, it will be they who will desire to make any rationalisations and the only major political effect will be if the government assists as saviour. If it does step in, it will, of course, effectively change the scheme.

All above arguments suggest that the schemes with institutional subsidies would be less efficient than those where such subsidies are absent.

(4) *Dynamic Efficiency*: involves the relationship between the expansion of numbers and expenditure and the business cycle (p. 86). The main distinction here is again between the systems with institutional subsidies, where finance is more likely to be in the hands of a government institution, and those where it is in the hands of the institutions themselves. On the basis of Equations 23 and 24 based on the present system (p. 88), the prospects for countercyclical expenditure by the government are not promising. Neither was there much evidence of countercyclical enrolment from Equations 1-3 (p. 43). These findings, over a period when the levels of student and institutional subsidy varied substantially, do not give much hope for countercyclical effects, whatever scheme is in operation. The evidence that is avail-

able is slightly balanced against the subsidy schemes (i.e., Equations 23 and 24, p. 88).

(5) *Teaching/Research Mix*: the discussion of this aspect of third-level education did not result in the development of any explicit criterion of assessment. In particular, in Chapter 5, counter-balancing arguments were proposed regarding whether or not research students should be concentrated in fewer colleges. Further, although the existing subject mix of research was questioned, appropriate criteria were not developed and were considered beyond the scope of this paper.

Nevertheless, it was implicit in the discussion of Chapter 5 that the rewards accorded to the teaching and research of staff should be more consistent with their relative importance as university outputs.

In this latter, the major distinction is between schemes with and without subsidies. If it is reasoned that emphasis and effort are directed toward psychic and pecuniary rewards it would follow that, since little finance comes from fees under subsidy schemes, less emphasis and effort will be directed toward satisfying the payers of these fees. Conversely, under schemes where more finance comes via fees, student pressure is likely to carry more weight. It would also follow that under the subsidy schemes, resources are likely to be devoted to bargaining for subsidies and outside funds, and perhaps rewards will flow to those successful in such activities.

Under other schemes, the ability to raise outside funds for research or other purposes will be important but, unless there is state funding for fundamental research, this may be neglected, for lack of financial support.

(6) *X-efficiency*: is, in the present context, the efficiency of utilisation of given resources. Here, the arguments are similar to those used for section (3) but apply to waste, and the under-utilisation of existing resources.

Under-utilisation and waste of resources are much more likely to occur where the costs are not borne by the users of these resources, as under the subsidy schemes. The under-utilisation of existing capital equipment is the most obvious instance in the present system, but the large number of courses given to small numbers of students are a further important instance. The under-utilisation of buildings and equipment may also be partly attributable to the fee structure. Under subsidy schemes, as at present, usage of the buildings and equipment costs students little or nothing and thus they are used at the most convenient times. Were the usage to be fully priced, then less desirable times could be priced more cheaply, thus providing an incentive to use the resources at off-peak times.

Once again, these arguments suggest that direct subsidies to the institutions

are inefficient.

Most of the above sections are in accord and argue against subsidies. It is possible though, that proportional subsidies could mitigate these arguments considerably. That is, if the government committed itself to paying for a certain percentage of (marginal) expenditure, this would provide significant incentives for the institutions to become more efficient in their use of (extra) resources.

To summarise on all aspects of efficiency within institutions, i.e., items (3), (5) and (6), the subsidy schemes are likely to be less efficient. On item (4) the conclusion is less clear.

On enrolment (items (1) and (2)), private finance, the comprehensive grant scheme and the means-tested subsidy scheme with institutional subsidies are all inefficient. The ordinary loans scheme and the means-tested subsidy scheme without institutional subsidies may be efficient, but it is only the income contingent loan scheme which is likely to be fully efficient. The general grants scheme may lead to a relatively efficient mix of graduates but may well generate an overall excess supply of graduates.

Practicality

The financial, administrative and political practicality will be considered in turn, though a more detailed appraisal of the costs of the schemes is left to the following chapter. The lower the level of public finance and public administration required by a scheme, and the more the scheme is likely to receive political support, the more acceptable it will be deemed.

(1) *Financial practicality*: Private finance involves no cost to public funds and thus may be considered practical from this perspective.

For the schemes which involve subsidies, there is the problem of raising the taxes to pay for them which is mainly a political one, but it is worth noting that the magnitude of this problem will grow and become substantial for all of these schemes. It would initially be greatest for the general grant scheme (for the levels assumed) and then for the comprehensive grant scheme, followed by the means-tested scheme. However, the latter two schemes are likely to grow more quickly, due to the expected rise in participation at third-level. Further, the general grant scheme could be used to displace grants to first-time house buyers which would reduce its net costs to some extent.

With regard to the loan schemes, the problem is mainly a short-term one of the state raising money which will later be repaid. Nevertheless, if enrolments continue to rise, the financing problem will continue at a fairly high level. The financing may be done by government which will have to include

it as part of its borrowing requirement, or it may be done by a separate state sponsored body which could raise funds of its own accord. In each case, the schemes could be run so as to achieve whatever financial performance is desired, and thus they could be run by private financiers. However, there is a case for subsidising the body to the extent that repayments are not made because of the contingencies of illness, unemployment or withdrawal from the labour force. However, such exemptions could have serious effects on economic equality (see p. 109).

(2) *Administrative practicality*: Private finance involves no problems of public administration since the administration would be carried out by the institutions.

The administration of the subsidy schemes is also relatively straightforward. Under a comprehensive grant scheme, each student receives equal treatment and full payment of fees, so that once the problems of deciding eligibility and the level of maintenance support to be provided are settled the only remaining problem is the monitoring of the institutional expenditure. Such monitoring is a serious administrative problem since everyone in the institution may operate to maximise the allocation of funds outlaid (see Niskanen (1971)). However, it is not necessarily the case that outputs of such institutions are excessive. This is because they are faced by a single buyer, the government. The net effect of the two influences is uncertain (Breton and Wintrobe, 1975).

The problem of the monitoring of the institutional expenditure is similar for the means-tested scheme but, in addition, the level of the means have to be derived. The assessment of the level of means requires political judgements, but obtaining reliable measures has stretched the ability of tax legislators for many years. At present, similar evidence to that used by the tax authorities in assessing income is used to assess means, and although this is administratively straightforward it will provide an underestimate of means where there is tax evasion.

Under a general grant scheme no problem arises in assessing income or deciding criteria for eligibility since the scheme applies to all equally, at a certain age. Nevertheless, criteria would be required as to what is meant by "approved" expenditure and responsibility would need to be given to interpret such criteria. On the face of it this is not overly difficult: expenditure of the grant for educational or training purposes could presumably be well handled by the Department of Education itself; expenditure for housing possibly by agreement with the building societies or the Department of the Environment; and expenditure for setting up in business by agreement with the Industrial Development Authority. This would require inter-departmental

co-ordination and probably an additional administrative structure to organise it.

Ordinary loans schemes do present administrative difficulties in keeping accounts and in obtaining repayments, problems which are well nigh unavoidable. This problem can be quite serious. According to the US Students' Association, almost one-fifth of US students default on their loans (quoted in "The Case against Student Loans" (NUS, 1980)). However, the extent of such default is not clear. Hauptman (1977) finds serious problems with the statistics used to calculate such default rates and slight conceptual problems with the measure. As Mirandon (1977) notes "defaults are not write-offs . . . they are chiefly slow paying accounts". Thus, he contends the default statistics are exaggerated. But for an income contingent scheme, collection can be arranged by a reduction in the tax allowance of the graduate pro rata with his/her loan for a specified number of years (perhaps life), thereby reducing administrative difficulties considerably. However, inter-departmental co-ordination is again required.

(3) *Political acceptability*: possibly most important of all for the introduction of the schemes is their political acceptability. Although making such judgements is by no means part of the expertise of the economist, it is worthwhile to consider the interests which would be affected so as to interpret and understand future policy making. The re-introduction of private finance would almost certainly provoke considerable opposition from students and the educational institutions which would both lose heavily from such a move, although there might be some offset by the political acceptability of the reduction in taxation which would result from such a change. Furthermore, the civil servants, the staff of the HEA and the politicians might not welcome the reduced control and office. Large numbers of students and their families are, and would be, pleased to receive the grants and subsidies under the means-tested and comprehensive grant schemes respectively, even though there is, and will undoubtedly be, the continuous claim that the provisions are insufficient, even inadequate. Moreover, the taxation to pay for these provisions is never popular. There is also an interesting paradox involved with regard to the subsidisation of third-level education in that it generally receives the political support of the less well-off even though, as has been shown (pp. 50, 55), they gain far less than their share from it. This paradox has been rationalised as a "sweepstake" phenomenon – that although the individual is, on balance, likely to lose from the set up, if he/she does win (i.e., the son or daughter does enter third-level) then he or she is well looked after. The general grant scheme is again likely to be very popular with the majority of the electorate except for its taxation implications, which may

not be associated in the minds of the electorate. The loan schemes are likely to incur mixed reactions with considerable hostility from the student body which is understandable, given that they both involve a loss of student subsidy.

Members of the institutions are likely to be cautious about full loan schemes since neither involves their receiving any subsidy and they may regard the obtaining of funds through students less easy and attractive. For this, and for a different reason (see p. 112), the income-contingent loan scheme may meet some initial resistance. It may also meet resistance later on, from those who pay more than the cost of their borrowing, although this problem could be mitigated by limiting the "excess repayment". In the Yale Scheme, students can withdraw when their accumulated repayments are equal to 150 per cent of their loan plus a break-even finance charge based on Yale's borrowing and administrative costs (West (1976)).

It is interesting to consider that one reason why (rises in) fees are generally very strongly opposed may, in part, be due to their heavy incidence at any one time. Even at the present highly subsidised levels, they involve a significant proportion of most families' annual income. Therefore, the loan schemes which spread this cost over a number of years might not be so unwelcome to many families, particularly those who receive smaller subsidies at present.

Some attempts have been made to assess the acceptability of different schemes. Surveys of preferences have been carried out in the UK by Lewis, Sandford and Thomson (1980) and in Yale in the US. In the UK, samples of the public, parents of students and students from Bath and Exeter universities were asked their views on the best method of paying for student *living costs*. Their responses are shown in Table 7.3.

In the case of both parents and students, there was strong evidence of preferences varying in line with economic interests (not shown). Of parents with incomes less than £4,000 (in 1978), 47 per cent preferred means-tested grants and the percentage fell as income rose until only 9 per cent of those parents with incomes over £14,000 showed support for such a scheme. Conversely, support for a comprehensive (unconditional) grant generally rose continuously with income. However, the support for a pure loan scheme was highest at the middle-income group of the sample.

In the US, a sample of just under 200 Yale University students, financed by their income contingent loan scheme, were asked their preference amongst six alternative ways of finding additional finances. The figures in Table 7.4 show that the income contingent loan scheme was the most preferred *form of borrowing*.

Table 7.3: *Views of samples of the public, student parents and students on methods of paying for student living costs*

Method of Finance	*Sample group*		
	Public[a]	*Parents*[b]	*Students*
	per cent	*per cent*	*per cent*
Means-tested grant	25	30	22
Unconditional grant[c]	22	36	51
Loan	39	10	9
Loan-grant mixture	14	24	14
Sample size	1990	1069	688

[a]Excluding 8 per cent 'don't know'
[b]Excluding 5 per cent 'don't know'
[c]Equivalent to comprehensive grant scheme.
Source: Derived from Lewis, Sandford and Thomson (1980) pp. 37 and 49.

Table 7.4: *Survey of 1972-73 Yale students participating in income contingent Loan Schemes*
Preference for additional financing by category:[a]
(Number of responses for each category (if it were made available))

Preference	*Summer employment*	*School year employment*	*Living more cheaply*	*Guaranteed loan*	*Borrow from family or friends*	*Borrow more by Yale income contingent loan*
1	62	20	57	10	13	37
2	46	36	39	18	27	33
3	33	37	34	29	30	33
4	16	40	31	30	35	31
5	9	25	16	45	21	32
6	4	20	13	43	39	11
Average rate	2.3	3.4	2.7	4.2	3.9	3.1
Responses	170	178	190	175	175	176

[a]Choices were rated 1 to 6 on a scale of desirability with 1 = most desirable.
Source: West (1976). Table II.

Economic Independence

The economic independence of students is assessed according to whether they are able to make educational decisions at third-level consistent with their full wealth. The extent of independence is dependent upon the availability of finance and any conditions placed upon its availability.

Private finance often means family finance and students may be subject to influence as to whether to continue to third-level and in their choice of subjects. Since students are open to such pressure, possibly with the threat of withdrawal of finance, they cannot be said to be independent.

If general grants were available for each individual student to the extent that the finance was adequate they would provide economic independence. But, the finance is unlikely to be adequate and independence is qualified to the extent of its inadequacy.

Means-tested grants and comprehensive grants would both give independence to the extent that students qualified for full awards. Those whose parents were required to contribute under means-tested grants, because their parents' income was above the limit qualifying for a full award, or by means of a clawback, would be subject to possible influence. This problem could be avoided by using student income to assess means, as is done for students above the age of nineteen in Norway and Sweden. However, the implementation of this suggestion would have other important implications. In effect, it would make the scheme very similar to a comprehensive grant scheme because few students would, on the basis of their own income, fail to qualify. Thus, all the effects of a comprehensive grant scheme would become applicable. Of particular note is the effect upon economic equality since this suggestion would imply significant subsidies to most of those from better-off homes.

Under both types of loan scheme, a student can be reasonably independent since the admission criterion is the only entry constraint, though the relative costs of different courses is likely to influence his or her decision. With ordinary loans, the returns to education are likely to become relatively more important to the student since repayment has to be considered, and the repayment is not dependent upon circumstance.

All the schemes, except private finance, increase individual economic independence by making funds available for the student to make independent choices. Of these, the means-tested finance scheme is the *least* successful in this regard, since it only gives independence to those from families below the means-test limit.

The position of the institutions under different financing schemes ranges between dependence upon the market process and the political process, and both involve constraints. In the former case, the extent to which the market

fails to provide independence to the institutions depends, in part, upon the extent of inadequacy of markets to provide loan finance for students. In part also, independence depends upon the success of the institutions in attracting students and outside funds. It is likely that dependence upon the market would encourage institutions to seek a greater role from private benefactors. Such a source of finance may influence the direction of teaching and research, both implicitly and explicitly, and perhaps compromise independence. However, such influence may not necessarily be for the worse. Private benefactors could enable institutions to be made aware of the gaps in training facilities. On the other hand, this is likely to mean less support for fundamental research (see p. 98).

All third-level institutions are, in part at least, dependent on the political process, but those who receive finance in this way are, understandably, more subject to influence. The extent of influence varies from country to country depending, in part, upon the mechanism through which funds are channelled. Among these mechanisms are the continental European model where the higher education systems are state institutions in fact, as well as in name. However, the degree to which state control is exerted varies greatly, from detailed control in France and Eastern Europe, to considerably greater autonomy in West Germany (Grant, 1973).

In the US, there are no equivalent authorities and the state universities often have to live with complex regulations and a significant degree of political interference (Carter, 1980).

In the UK as in Ireland, the universities receive their block grants from a separate financing authority, in the UK this is known as the University Grants Committee. The authorities in both countries act as buffers between the government and the universities and thereby help to preserve the latters' independence. Nevertheless, the grants given by these authorities are dependent upon the finance received by the government.

In addition, in both countries the authorities have a decisive voice in the planning of the capital expenditure which they finance, although they allow a fair degree of flexibility in the use of current finance. In the non-university third-level sectors in both Ireland and the UK, the institutions are subject to substantially more detailed control of expenditure and operation.

Under both the market and political process, economic independence can vary considerably. Under the market process, the extent of independence is largely dependent upon success. Under the political process, it is dependent upon the largess of the government (or lack of it) and the mechanisms of control. At present, it is not clear which process gives rise to greater economic independence as a whole, though as higher education requires increasingly larger levels of funding, the prospects under the political process seem less

propitious. Thus, apart from the case of private finance, under which economic independence of many institutions is liable to be jeopardised, the relative ranking of the other schemes is unclear.

Emigration/Foreign Students

Two problems arise with respect to graduates who emigrate and foreign students who leave Ireland, perhaps to return to their countries of origin, after study. The first problem arises mainly in the case of schemes which give subsidies either to the cost of training or to the cost of student maintenance, that is the means-tested, comprehensive and general subsidy schemes; in each case the benefits of the education are wholly realised abroad, except for any remittances, and effectively involve an element of international aid. If such aid was intentional it might be a cause of pride but the fact that the majority of it is directed to richer countries than ourselves, suggest that it is unintended generosity.

Of the three schemes, the problem is likely to be least severe for the general grant scheme in that the grant would presumably not be given to foreign students. For all of these schemes, the problem could be resolved by making the subsidy contingent on remaining in the country and repayable as an ordinary loan for those living outside the country. To the extent of its being effective, this would provide a disincentive to emigration for graduates and a stimulus to those who do emigrate, to return.

Such aid does not arise under the schemes which do not involve subsidies, except to the extent that for Irish emigrants the same analysis is applicable to the subsidies on first and second level education.

However, a second problem is exclusively relevant to two of the non-subsidy schemes, the loan schemes. It is the problem of recoupment. According to Woodhall (1970, p. 81), recoupment of ordinary loans has not presented too difficult a problem for emigrants, nor does it seem to have done so for the banks in Ireland. In The Netherlands, the threat of refusal to renew the student's passport exists but its use has been rare, presumably because it has been so effective. A further possibility is to require a securely employed relative to indemnify the loan which could reduce the likelihood of loss due to this cause. The income contingent loan scheme would either require the co-operation of other governments or conversion to an ordinary loans scheme. Private finance, however, does not give rise to this problem except in so far as borrowing from private sources is engaged in, when presumably the lending institutions are themselves responsible to ensure repayment.

This chapter has attempted to provide an analysis of the different schemes of financing in third-level education. The analysis is summarised in the

attached Table 7.5 which provides a ranking of the schemes along the different dimensions. Two problems remain, the cost of the alternative schemes to public funds has not been adequately considered: this is the subject of the next chapter. Partly as a consequence of this, a final ranking of the schemes has yet to be drawn up. This is carried out in the concluding chapter.

Table 7.5: *Summary table of the various schemes*

	Equality of opportunity[1]	*Social mobility*[1]	*Economic Equality*[1] 1) *Lifetime* 2) *Background*	*Efficiency*[2] *Enrolment*[3]	*Graduate Mix*	*Within Institutions Items 3, 5 and 6*	*Financial cost*	*Practicality (to government)*[1] *Political Acceptability*	*Administrative cost*	*Economic Independence* 1) *Students* 2) *Institutions*	*Emigrants*	*Foreign students*
Private Finance	Reduced	Reduced	1) Increased 2) Increased	Inefficient	Efficient	Efficient	Nil	Unacceptable	Very small	1) Dependent on family 2) Dependent of the market	Benefits paid for	No subsidy
General Grants	Increased	Increased significantly	1) Increased 2) Increased	Inefficient	Efficient	Efficient	Very expensive	Very acceptable	Small	1) Fairly independent 2) Dependent upon the market	Benefits accrue abroad[4]	No subsidy
Complete State Subsidy (Comprehensive)	Decreased	Reduced slightly	1) Reduced 2) Reduced	Inefficient	Inefficient	Inefficient	Very expensive	Fairly acceptable of itself	Fairly small	1) Independent 2) Dependent on government (agency)	Benefits accrue abroad[4]	Subsidy to country of origin
Means-tested subsidies a) Without institutional subsidies (IS)	Increased	Increased significantly	1) Increased slightly 2) Increased	Inefficient	Efficient	Efficient	Expensive	Mixed	Small	1) Some independent some dependent 2) Dependent upon the market	Benefits accrue abroad[4]	Subsidy to country of origin
b) With (IS)	Same	Same	1) Same 2) Same	Inefficient	Inefficient	Inefficient	Very expensive	Acceptable of itself	Fairly small	1) Some independent some dependent 2) Dependent upon government (agency)		
Loans	Uncertain	Uncertain	1) Increased 2) Increased	Uncertain	Uncertain	Efficient	Expensive in first decade, relatively less expensive thereafter	Mixed	Considerable	1) Independent 2) Dependent upon the market	Benefits remitted	No subsidy
Income Contingent Loans	Increased	Increased	1) Increased 2) Increased	Efficient	Efficient	Efficient	Expensive in first decade, relatively less expensive thereafter	Mixed initial reaction	Significant	1) Independent 2) Dependent on the market	Benefits remitted	No subsidy

The above table being a summary emphasises the main conclusions and many important qualifications (mentioned in the text) are omitted.
[1]Measured relative to the present
[2]Item 4 is uncertain for all schemes and is thus excluded
[3]Based on present market for graduates
[4]These could be made repayable for emigrants.

Chapter 8

THE FINANCING COSTS OF THIRD-LEVEL EDUCATION UNDER ALTERNATIVE FINANCHING SCHEMES

This chapter has two purposes. Most importantly, it is to compare estimates of the costs to public funds of third-level education under alternative financing schemes for the next two decades. In addition, some attempt is made to forecast the future costs of third-level institutions independently of how such costs are financed.

The actual cost to public funds will depend upon the actual costs of provision of the education and the extent to which the government of the day gives support to the sector, which in turn will depend upon the scheme followed and the level at which it is financially supported. The chapter will begin by considering alternative forecasts of enrolment and of the future costs per student; and finally, the future costs to public funds, under the various schemes (under particular assumptions as to their operation) including the continuance of the existing state of affairs, will be estimated.

Population

Two recent attempts have been made to consider future enrolment by Tussing (1978) and Sheehan (1978). Each of these is based upon a forecast of the population age group from which the third-level sector is drawn together with a forecast of the participation rate. For the population age group, there are a number of alternative forecasts and projections up to the year 1986, from Walsh (see NESC (1975) and 1977)), the Central Statistics Office (see Tussing, 1978, p. 79[1] and Keating (1977)). The first three forecasters have two sets of figures, with differing assumptions as to the emigration rates, whilst Tussing uses the CSO zero emigration figure with adjustments where he considered appropriate.

For the total population in the 15 to 24 age group there is considerable variation in the population forecasts even this far ahead; from 584,500 (the minimum CSO estimate) to 633,400 (the maximum Keating estimate). Beyond 1986 the only projections available are from Sheehan (1978) who produced estimates ahead to 1991 with two sets of figures, depending upon

1. Tussing's forecasts differ in that they make some allowance for changes in the age structure of migration patterns.

the level of emigration assumed. The 1986 population forecasts and projections had been based upon the earlier official estimates with the aid of the 1975 Labour Force Survey in some cases. These projections and forecasts would require amendment in the light of the 1979 Census estimates. These estimates suggested levels of population which were significantly above the previous official ones and gave rise to an upward revision of the estimates in each year since the previous census. All forecasts would now require revision commensurate with this evidence and the 1981 Census estimates.

Enrolment

To project enrolment from population estimates requires additional assumptions as to the level of participation from each cohort. In this regard, Tussing (1978) notes (p. 89)

> . . . participation rates rarely grow in a linear fashion for very long. Normally they exhibit typical S-shaped growth curve patterns. That is, they grow first at a relatively moderate, but increasing rate. They then usually show a period of fairly rapid growth, in the midst of which growth participation rates begin to occur at a decreasing rate. The last phase is a return once again to growth at a moderate rate, or perhaps cessation of growth altogether. It can be taken that in Ireland, . . . that in third-level, growth is in the first, or moderate phase.

In line with this, Tussing predicts a rise in the participation rate (expressed as the number of third-level students as a percentage of 20-24 year olds) from 12.7 per cent in 1974 to 22.1 per cent in 1986. This implies a growth rate of enrolment over the whole period of 6.8 per cent.

Sheehan has also provided projections of student numbers under various assumptions. First, he shows that forecasts are not very sensitive to the assumptions on overall emigration, but are sensitive to those made as to the staying-on ratio from second to third-level. He shows that for 1986, on higher population estimates, enrolment would be 48,600 if the historically low staying-on ratio of 17 per cent (which he projected for 1979/80) was maintained; and 63,000 if a previous ratio of 22 per cent (1972/76) was restored (pp. 20, 21). On these two assumptions as to the staying-on ratio, he projects further to 1991, with implicit growth rates of 2.3 per cent and 4.3 per cent.

A third view on enrolment is expressed in the White Paper on Educational Development (1980). This paper indicates the additional number of places to be provided at third-level. These numbers are based upon estimates of the

expected growth of enrolment in the various sectors. The enrolment estimates are, in turn, based upon an age-survival model, which uses an average of survival rates over the last four years of the decade.

> This assumption gives higher enrolment projections than the use of the most recent (i.e., 1978/79-1979/80) estimates would provide (p. 1) ... The increases in enrolment are distributed to take account both of the present trends, and of present policies as regards building institutions of different administrative types (p. 105).

The total enrolments of 51,000 indicated by the White Paper for 1990/91 are slightly above the projections of Sheehan at 48,600.

A number of cautionary notes must be sounded with regard to each of these estimates. All of them leave aside the effect of economic factors on enrolment demand such as fee levels and grants. The White Paper's estimates use survival ratios which were, according to Tussing (1981), temporarily low due to short-run business-cycle effects. However, the major differences are that Tussing's work is derived from the viewpoint of enrolment *demand*, based upon comparisons with changes in demand for third-level in more developed economies, whereas Sheehan's analysis considers events from the viewpoint of what number of places it would be reasonable to *supply*.

The White Paper indicates what places are likely to be provided and, on this basis, assesses the building requirements. In so far as supply is the constraining factor, the projections of the White Paper are, as Tussing (1981) notes, in fact, decisions. This suggests the choice of the number of places to be provided, although, in so far as supply is flexible, this is probably a conservative forecast. In Table 8.1, figures based upon the numbers indicated by the White Paper are presented, broken down by sector,[2] together with projections based upon extrapolating the increases of the 'eighties to the 1991-2001 decade.

Costs

The growth of third-level costs in the last two decades, outlined in Chapter 1, has been enormous by most standards.

There are at least four important reasons for this increase. First, there has been a significant increase in staff-student ratios over the period, although

2. For the teacher training colleges and the HEA designated institutions, estimates of enrolment are given for 1980/81 and 1990/91. Figures for total third-level enrolment and for enrolment in "other" institutions in 1980/81 are also given. Enrolment in the VEC colleges is obtained by subtraction. All estimates for 1985/86 are interpolations.

Table 8.1: *Third-level enrolments by sector extrapolating projections from the White Paper on Educational Development*[a]

	1975/76[b]	*1980/81*	*1985/86*	*1990/91*	*1995/96*	*2000/2001*
Universities	21,172	23,000	26,200	28,400	30,600	32,800
Teacher training	2,386	3,200	3,400	3,600	3,800	4,000
Technological[c]	6,961	11,100	14,000	17,700	21,300	25,000
Other	2,484	1,500	1,400	1,300	1,200	1,100
Total	33,003	38,800	45,000	51,000	56,900	62,900

[a] Based upon paragraphs 1.22 to 1.24 with linear extrapolations to 2001.
[b] Actual figures.
[c] Includes RTCs, NIHEs, and Colleges of Technology.

it is worth noting that the share of university expenditures attributable to academic salaries has changed little, from 51 per cent in 1950/51 to 49 per cent in 1978/79. Secondly, as a corollary of the increase in staff-student ratios in the universities, there has been a substantial increase in research. At present there is little quantitative evidence of this in Ireland, although the casual evidence is of a substantial rise. Thirdly, partly as a corollary of the increase in research, there has been a substantial increase in departmental ancillary staff; in the number of technicians, secretaries, research assistants and so on. This increase has been such that "other departmental expenditure", under which these expenditures are classified, has increased from around 10 per cent of university expenditures in 1950/51 to over 20 per cent in the mid-1970s. It is interesting to note that, in contrast to the view of some, the share of university expenditure devoted to administration has fallen over the same period, from 10 to 8 per cent. It is also important to note that these findings do not necessarily reflect, well or badly, upon the efficiency of the various university groups. It seems reasonable to suppose that there are potential economies of scale in many areas. Thus a doubling of the number of students need not justify two university presidents, finance officers or registrars; nor need it necessarily justify doubling the number of security personnel.

The fourth reason for the increase in costs has become known amongst economists as "Baumol's disease". It is that the (third-level) education sector is one where there is little technological development to reduce the ratio of labour costs to output, and where labour costs are a major part of

total costs. Thus, given that salaries for those working in the sector rise in line with economic growth, the sector comes to constitute an increasing share of national expenditure. This is the major reason for the rise in costs per student.

In the appendix to this chapter, a model is presented which has been used to explain the growth in current university costs (in 1968 prices). This model has also been used to indicate the likely future growth in such costs under certain assumptions as to the growth rate of real earnings and student numbers. These are, that the growth rate of real earnings is 3.8 per cent based upon the trend rate from 1958 to 1978,[3] and that the growth in student numbers is in line with the projections of Table 8.1. It may be that this is an overestimate if, as is sometimes stated, public sector pay is temporarily above its long-run norm. If this is so, then the cost estimates would need commensurate downward revision. It is interesting to note that the forecasts of the rate of growth of the real current cost per student, according to the model, is relatively insensitive to changes in the assumption of student growth rates, varying from 4.142 (with a 2 per cent growth rate in numbers) to 4.814 (with a 5 per cent growth rate) over the 1981-2001 period. However, since the earnings index is used to deflate all expenditure figures, the growth in real current costs is directly related to the assumed rate of growth of earnings, rising 1 per cent for each 1 per cent increase in earnings growth.

For the non-university sectors, it is assumed that the growth in real current cost per student is at the same rate as for the universities over each

Table 8.2: *Third-level current institutional costs per full-time student (£ in February 1981 prices)*

	1975/76[a]	*1980/81*	*1985/86*	*1990/91*	*1995/96*	*2000/2001*
Universities	2,278	2,820	3,592	4,405	5,382	6,571
Teacher training	3,061	3,790	4,827	5,920	7,233	8,830
Technological	2,238	2,771	3,530	4,329	5,289	6,457
Average (to nearest hundred £)	2,300	2,900	3,700	4,500	5,500	6,700

[a] Actual costs in February 1981 prices

Source: see text, pp. 135 and 139.

3. Nineteen-fifty-eight was chosen as the starting point of this trend estimate since it was around this period that the economy's growth commenced its higher level. Nineteen-seventy-eight was the last year's data available at the time of developing the model.

five year interval. The projections of costs per student are laid out in Table 8.2, and these are then multiplied by the respective figure for enrolments to give the total cost figure in Table 8.3. (The "other" sector is excluded since this sector is largely privately financed.)

To project future costs under the alternative schemes, requires further assumptions to be made as to the scope and the level of their operation. Private finance is the exception in this regard in that, whatever way it is operated, public funds are not required. For the two loans schemes it is assumed that their costs and returns to public funds are the same. However, there are likely to be differences. In the first place, there is the question of interest charges under each scheme. For an ordinary loan scheme these will result in an increased level of repayment to cover these costs. For the income-contingent loan schemes, with the repayment level fixed as a proportion of income, there will be rises in repayments in line with any growth in real incomes. If the growth in real incomes is greater than the real rate of interest, a repayment based on current levels will more than cover interest costs. If the growth in real incomes is less than the real rate of interest, then such repayment levels will fail to cover interest costs. Extrapolating the experience of the last thirty years would indicate that the growth rate of earnings will exceed the interest rate. Thus, repayment should be a percentage of income which would repay the cost of the debt interest, with *current* income profiles. In the second place, there are differences in collection costs and problems of default. Both of these are serious problems for the ordinary loans scheme, but are likely to be less important for an income contingent scheme tied to the tax system. In the third place, repayments are unlikely to be at an even rate under the income contingent scheme, since they will follow earnings, which rise with the age of most graduates and with the growth of the economy. For both these reasons, repayment will be greatest towards the end of the period of repayment. Neverthless, if repayments under the income-contingent scheme were set to recover the full cost, in real terms, and this was also the stipulation under the ordinary loan scheme, the profile of costs to public funds should be similar.

To compare the remaining schemes it is necessary to make assumptions as to which costs will be covered by them, in particular, as regards capital and research costs. Research is, in large part, a cost which should not be included in these schemes since it is separable, at least in principle, from the training functions of the various colleges.

In the 1962 survey of UK university teachers (Robbins Report Appendix III Section 10) it was claimed by the teachers that 48 per cent of their time was attributable (as against actually spent on) research, compared with 52 per cent on teaching. In Ireland, with the present university staff-student

ratios at half the UK level at the time of the survey, research may be expected to take up a considerably lower fraction of staff-time (although this point is mitigated by the greater use of postgraduate demonstrators and tutors for undergraduate teaching in Ireland). As a very rough estimate, attributing somewhere between 20 and 40 per cent of university staff time and university costs to research would not seem unreasonable. In the non-university sector, research is usually only a minor activity and another rough estimate of around 5 per cent would seem reasonable.[4/5] Using the highest estimates would give a figure of around 25 per cent of total third-level costs attributable to research and, using the lowest, a figure of 15 per cent. However, to the extent that the research involves research training (as in the teaching of some post-graduate students) these are both overestimates.

Capital expenditure is a major element of third-level costs not included in these figures in Table 8.3, but which must be considered. Over the period 1958/59 to 1974/75 when consistent data were available it averaged 18 per cent of current expenditure. Since that date the level has been slightly lower, around 15 per cent (these two figures are respectively 15.3 and 13.0 per cent of total costs). There appears to be no good theoretical reason for subsidising the capital as against the current costs of the institutions and, consequently, such costs should be included in the training costs of the institutions.

Table 8.3: *Third-level current costs of institutions in three sectors*[a] *(£m February 1981 prices)*

	1975/76[b]	*1980/81*	*1985/86*	*1990/91*	*1995/96*	*2000/2001*
Universities	48	68	92	119	153	197
Teacher training	7	12	16	21	27	35
Technological	14	29	52	82	123	177
Total	69	109	160	222	303	409

[a] Computed by multiplying figures for cost per student (Table 8.1) by number of students (Table 8.2).
[b] Actual costs in February 1981 prices.

4. The importance of research in the NIHEs is more akin to that of the universities which suggests a higher estimate for this sector. However, the growing relative size of the technological sector as a whole suggests a fall in the *relative* importance of research.

5. A survey of engineers by Dooge (1981) revealed that, using the same method of calculation as Robbins, 40 per cent of university engineering teachers' time and 4 per cent of technological college engineering teachers' time was attributable to research.

It is noticeable that these rather crude estimates of research and capital costs roughly offset one another and, because the estimates of these two costs involve considerable approximation, they are certainly not significantly different. For this reason and for simplicity they are, for the purpose of the estimates which follow, assumed to fully offset one another. Thus, all schemes are projected to finance current institutional costs only.

Assumptions as to the Operation of the Various Schemes

In order to project expenditures under different schemes, assumptions as to their mode and level of operation are required. For each of the comprehensive grant scheme, three versions of the means-tested scheme, the general grant scheme, and the loan schemes, the following assumptions are made for the projections.

(1) The comprehensive grant scheme is interpreted as one under which no fees are charged. Grants are assumed to be raised to £1,250 (in February 1981 price terms)[6] and these are available for all students.
(2) Means-tested grants I is interpreted as maintaining all elements constant in *relative* terms. Fees would be maintained at a constant proportion of university income; that is they would rise in line with university costs. The level of grants would rise in line with incomes and one-quarter of the student body would qualify.
(3) Means-tested grants II is interpreted as maintaining all elements constant in *real* terms. The levels of fees and grants would both rise directly in line with price inflation.[7] Whilst one-quarter of the student body would qualify for awards in 1980/81, this proportion would decline evenly to 15 per cent of students by the year 2001 (due to the income limits becoming a lower proportion of actual earnings).
(4) Means-tested III is a fully means-tested scheme under which full fees are charged. Grants would be raised to £1,250, in February 1981 price terms, and income limits raised to a level such that 25 per cent of the student body would receive a full award plus fees, 50 per cent of the student body would receive half of this sum.
(5) General grants are projected to cover the equivalent of an average course for three years and to provide £1,250 per annum, in real February 1981 terms, for maintenance (the estimates of the number

6. USI suggested that £768 in June/July 1977 was the cost of maintenance and, in February 1981 price terms this would be £1,230. However, some more recent USI thinking is to achieve comparability with the UK.
7. In 1979 the average maintenance portion of the grant was £400. This level, in February 1981 prices, is used to compute costs under this scheme. (This figure would require upward revision in the light of the increased 1981 grant levels.)

of 15 year olds are taken from Sheehan's high population and low emigration figures (Table 2 p. 13). Figures for 1996 and 2001 are estimated by assuming the same rate of increase in numbers for each five year period, as between 1986 and 1991 in Table 3 of Sheehan. The estimates probably require significant upward revision in the light of the 1979 Census estimates, which merely serves to reinforce the conclusions with regard to the cost of a general grants scheme.)

(6) Loans are assumed to be taken up in full by one-quarter of all students at a level to pay the average cost of tuition plus £1,250 maintenance (in February 1981 price terms). An additional 50 per cent of students might borrow half the full costs and maintenance. Repayment is assumed to take place over 30 years at an even rate, commencing the year after leaving college.

The above assumptions for schemes (1), (2), (3) and (5) all involve policy decisions as to the operation of the schemes and thus represent possible ways forward. Those for (4) are of the same nature except that the policy decision to set eligibility levels to aid a particular target proportion of students would not be easy. It is not the real target anyway for a full means-tested scheme. The real target is to assist all who, it is judged, could not afford to enrol otherwise. However, the target here is an attempt at a rough practical expression of such an objective in the context of this scheme alone. For the loans scheme, the assumptions used for uptake are judgemental and are based on consideration of the operation of loans schemes elsewhere.

Under the schemes where rises in fees are involved, the increases in costs faced by students and/or their families could cause a fall in enrolment for some courses. The fall would occur mainly for the courses where the fee increases are greatest and where limitations in the number of places do not exist (beyond the minimum college entrance qualification, presuming that to remain constant).

For the courses where places are limited, and enrolment is at present constrained, there may be no fall consequent upon the fee rises, rather a reduction in the academic entry qualification.

To access the extent of the falls in enrolment, Equation 7 (p. 46) is once again extrapolated to provide indicative estimates (with a strong qualification that they should not be taken as any more than this). On this basis, the effect of the increase in the real level of fees under means-tested I would be more than offset by the contemparaneous rise in real incomes. Consequently, it is not necessary to adjust the estimates of enrolment based upon the supply of places in Table 8.1. In the case of the means-tested III scheme, the initial decline in enrolment would, according to the equations, be of the

order of 20 per cent. This decline would gradually be offset by the rise in real incomes (by about 1 per cent per year). By the year 2001 the income effect would have fully offset the fee effect.

The general grant scheme is far and away the most expensive and thus beyond conceivable expenditure levels. Nevertheless, it may serve as a powerful indicator of the costs that would arise if every young person was to receive the benefits of subsidy and grant that USI think should be given to existing students.

The comprehensive grant scheme is the next most expensive, but it may be noted that, though the extent by which it exceeds the means-tested I and means-tested II schemes is substantial at present (35 per cent – 1980/81), the percentage declines over the period. By 2001 the comprehensive grant scheme exceeds the cost of the means-tested I scheme by 18 per cent and the means-tested II scheme by 20 per cent, and all three are very expensive.[8]

Means-tested II involves an increasing cost to public funds because fee rises fail to match cost rises. However, the cost of grants under this scheme

Table 8.4: *Estimates of cost to public funds under the alternative schemes assuming enrolment falls[a] with fee rises (£m February 1981 prices)*

	Assumed decline in enrolment	*1975/76*	*1980/81*	*1985/86*	*1990/91*	*1995/96*	*2000/1*
General grant	-	609	813	1008	1202	1448	1748
Comprehensive	-	104	156	214	284	372	486
Means-tested I	-	73[b]	109[b]	153	213	293	397
Means-tested II	-	73[b]	109[b]	151	210	287	389
Means-tested III	20%	44	63	87	115	150	196
Loans	10%	n.a.	70	96	122	131	165
	20%	n.a.	62	85	99	116	138

n.a. not applicable: loans scheme assumed to start for new entrants in and after 1982/83.
[a]The cost estimates with enrolment falls are derived using simulations of the model of university costs (see appendix).
[b]Means-tested I and Means-tested II are assumed to operate equivalently until 1981/82.
Source: see text.

8. To understand the convergence of the schemes it is easiest to trace developments relative to means-tested I, where all elements rise with earnings, that is grants, and very roughly, costs and fees per student. The amount of fees and grants rise in absolute terms over the two decades, whilst under comprehensive grants, fees are zero and maintenance grants only rise with prices. Thus, the difference between the schemes increases in amount (due to fee rises under means-tested I exceeding the relative decline in grants under comprehensive grants), but falls in proportion.

does not rise as fast as with means-tested I and these components, very roughly, balance. Thus the schemes are approximately equal in cost over the period.

Under the loans schemes, the rise in fees and removal of grants would, *without* the schemes, reduce enrolment by 40 per cent. The combined impact on enrolment, *with* the schemes, is hard to gauge, and figures for initial falls of 10 and 20 per cent are produced. Again there is a reduction of the size of the fall in enrolment in the same way as for means-tested III.

All of the schemes are assumed to commence in 1982/83 but illustrative figures of their costs in 1975/76 and 1980/81 are provided (except in the case of the loans scheme).

The estimates of costs to public funds under these assumptions as to enrolment are set out in Table 8.4, ranked in descending order of their costs. On the alternative assumption that the supply of places *is* the constraint in enrolment, then such reductions in the level of enrolment are likely to be overestimates and the figures in Table 8.5, where no fall in enrolment is presumed, are more appropriate. The best estimate is probably somewhere between the two, since rationing of places does occur; but for some courses, only to the extent of prescribing the minimum entrance qualification to the college.

The results of the costings show that the likely costs to the taxpayer under all of the schemes is sizeable: even continuing at present, under means-tested II, will result in massive rises in real public costs.

In contrast, the means-tested III and loans schemes are both considerably

Table 8.5: *Estimates of cost to public funds under the alternative schemes assuming no falls in enrolment (£m February 1981 prices)*

	1975/76	*1980/81*	*1985/86*	*1990/91*	*1995/96*	*2000/1*
General grant	609	813	1008	1202	1448	1748
Comprehensive	104	156	214	284	372	486
Means-tested I	73[a]	109[a]	153	213	293	397
Means-tested II	73[a]	109[a]	151	210	287	389
Means-tested III	54	78	107	141	186	242
Loans	n.a.	n.a.	107	124	147	174

n.a. not applicable: loans scheme assumed to start in 1982/83

[a]Means-tested I and Means-tested II are assumed to operate in the same way until 1981/82.

cheaper, whatever the assumptions as to enrolment. This is because they both put the full cost of the training upon (at least some) students.

The loans schemes are cheapest, according to these estimates, and their cost is fairly insensitive to the assumptions of the effect of fees on enrolment. However, the figures are relatively optimistic in terms of repayment. They are not too unreasonable if the scheme is income-contingent; but under an ordinary scheme, default and possible subsidies on interest costs (in particular in times of inflation) are both likely to eat heavily into this figure, and it might be considered fortunate if the cost exceeded the figures listed by one half. Nevertheless, they are not substantially out of line with figures from other countries with loans systems. After 18 years of the scheme assessed here, repayments are 39 per cent of expenditure. After 20 years in Sweden, the comparable figure was nearly 25 per cent, in Norway 30 per cent and in The Netherlands 11 per cent (Woodhall 1978). Were the loans assumed to be repaid over 40 years, then repayments would be just under 30 per cent of expenditure, and very much in line with other countries.

At the turn of the next century, the continuation of the existing state of affairs (roughly equivalent to means-tested II) would be between 65 and 100 per cent more expensive than means-tested III, and between 130 and 200 per cent more expensive than loans.

As Robbins (1972) put it:

> Economics brings into full view that conflict of choice which is one of the permanent characteristics of human existence. Your economist is a true tragedian.

It might be considered more of a tragedy if these costs were ignored. Having discussed these costs, we proceed to a final summary and assessment of the alternative schemes.

Appendix 8

For the purpose of comparing future third-level expenditure under the alternative financing schemes, a model of university costs was developed. The model involved an attempt to explain the growth in the various cost components into which university expenditure in the Republic of Ireland is divided. (University current expenditure is classified into five groups in the consolidated university accounts in the Statistical Abstracts: administrative expenditure; expenditure on the maintenance of premises; expenditure on the salaries of academic staff; other departmental expenditure and miscellaneous expenditure. In addition, up to and including 1968, figures were published giving the number of lecturers (and demonstrators) and the number of professors employed). The equations formulated to this end were subsequently used to forecast aggregate current expenditure of universities and third-level as a whole (see Chapter 8).[9]

The various components of expenditure and two series on staff levels were all divided into three groups according to the structure of the decision making process by which they were determined. The first "group" consisted of just one equation for salaries of academic staff, which made up between 48 and 52 per cent of current expenditure over the period of estimation. This expenditure consists of the salary payments to existing staff members and thus no lags are involved. The expenditure was expressed as a simple linear function of the number of lecturers (and demonstrators) and the number of professors. The results in Equation 28 in Table 8.A1 suggest that each lecturer (demonstrator) increases university expenditure by about £1,500 (in 1968 prices), and each professor by about £6,000.[10] The relative size of these amounts would not seem consistent with (at least current) relative salaries of lecturers and professors. The majority of full-time lecturers' earnings range from anything between 30 per cent to the equivalent of the professional salary, compared with the figure of 25 per cent estimated in the model. However, the lecturers' figure includes a considerable number of demonstrators who may earn 10 per cent or less than professors. In addition, there were proportionately many more part-time lecturers than professors

9. All expenditure estimates were expressed in 1968 prices and deflated by the industrial earnings index. This deflator was deemed the most appropriate available because most university expenditure comprises payments to staff.

10. Such estimates are those of the mean and should be interpreted as subject to the standard errors of estimate and qualified in respect of the data used. In particular, the series on staff were considered to be particularly weak.

Table 8A.1: *A model of university costs[a] and staff numbers (1951-68)*

	Dependent variable	*Constant*	*Remaining expenditure*	*Students (-2)*	*Student (-2)^2*	*Staff[e]*	$\bar{R}^2$	*DW/ρ*
		Coefficients of independent variables[b]/(t-statistics)[bc]						
(25)	Administrative[d] expenditure	46,517.50*** (4.33)	0.07** (2.37)	13.50*** (3.14)		-122.73 (1.20)	0.98	2.01R
(26)	Expenditure on maintenance of premises[d]	419,564.00*** (4.49)	0.10*** (3.89)	-54.65** (2.63)	0.0029*** (3.39)		0.97	2.09R
(27)	Miscellaneous[d] expenditure	105,819.00** (2.36)	0.59** (2.16)	14.55 (1.33)			0.83	2.01/0.46
(28)	Salaries[d]	-657.158.00 (1.58)			Lecturers 1,538.03*** (5.90)	Professors 6323.15** (2.34)	0.99	2.00R
			Other departmental expenditure (-1)					
						Professors (-2)		h[f]
(29)	Other departmental[d] expenditure	-655,142.00*** (3.63)	0.66*** (3.54)	21.72 (1.60)		3,205.11*** (3.06)	0.99	0.58/-0.33
(30)	Lecturers (and demonstrators)	-213.77 (0.04)		0.031*** (2.99)		2.98*** (3.08)	0.55	DW 1.79/ 1.00
						Professors (-1)		h[f]
(31)	Professors	80.85*** (3.15)		0.007*** (4.48)		0.32 (1.71)	0.97	0.59/-0.4

(32) Total expenditure = Expenditure on administration + premises + salaries + other departmental + miscellaneous.

[a] costs and expenditure in 1968 prices
[b] lagged values denoted as (–1) where the number is the length of lag in years
[c] see notes to Table 3.3
[d] deflated by the industrial earnings index
[e] Staff = Lecturers + Professors
[f] Durbin h statistic (in both cases indicating no first order autocorrelation).

which also tends to result in an underestimate of the relative cost of lecturers.

The second group consisted of three equations to explain the level of expenditure on institutional services: administration, the maintenance of premises and miscellaneous expenditure. Many of the factors influencing these components of expenditure may be expected to affect all elements of expenditure equally (for example, a salary increase). For this reason, each component is expressed as a function of the remaining expenditure. In addition, each component is expressed as a function of demand/output pressures measured by the number of students. Although degrees awarded might be considered a better measure, it is unfortunately one which is not homogeneous: a six year medical course, a three year arts course and a one year postgraduate programme each lead to one degree. The response of such expenditure components to expansions in output will occur with lags reflecting the time taken to recognise the need for change, to decide upon the amount of change and to implement it. There is very little basis to decide what length of lag should be used and tests were made using one, two and three years. In each equation a lag of two years was found the most satisfactory statistically. This lag was then used in the remainder of the equations involving variables of this type.

Generally, the functional form used throughout the model is linear. However, in this group the relationship of the three components of expenditure with output is not necessarily linear: there may be economies or diseconomies of size. Economies may occur due to indivisibilities (e.g., in the size of equipment and buildings) and diseconomies may occur due to reductions in the efficiency of bureaucracies as organisations expand (e.g., due to problems of accurate communication between, and effective control over, increasing numbers of organisation members). To test for this, a student squared term was added to each equation. A positive coefficient on this term would suggest diseconomies, and a negative one, economies. In the case of both the administrative and the premises equations the student squared terms (not reported) were very small and insignificant at even the 20 per cent level. In the case of premises maintenance, however, the term was positive (and significant at the 1 per cent level) suggesting size diseconomies.

A further consideration, in the case of administrative expenditure is that academic staff undertake significant administrative duties and, to this extent, act as a substitute for administrative staff. On the other hand, academics also impose burdens on the bureaucracy and the net effect of their presence on administrative expenditure is uncertain. To capture these effects the number of staff members was added as a further explanatory variable in the equation. The results suggest very weakly that the net effect of an additional staff-member is to reduce administrative expenditure. In the context of the rise in

real administrative expenditure over the period, the actual effect may have been to reduce its growth on balance.

The general results of these equations are that each component is related to the remaining expenditure and the number of students. The coefficients with remaining expenditure are reflective of the percentage of total expenditure which each component represents. The coefficients on students in the equations for administrative and miscellaneous expenditure reflect the rise in expenditure (in 1968 pounds) attributable to an increase in one student, and in each case the estimates are just under £15.

The final grouping of staffing and expenditure components was of elements associated with departmental development. The group comprised the numbers of professors and lecturers and the level of other departmental expenditure. It was felt that the changes in these elements, in response to changes in the underlying explanatory factors, would occur more gradually than for the elements in group two, because of the educational and economic importance of the decisions involved. It has been noted that academic staff salaries comprise around 50 per cent of expenditure and other departmental expenditure rose from around 11 per cent to over 20 per cent of total expenditure over the estimated period. For these reasons an attempt was made to express the relationship of each of the factors concerned with explanatory variables in partial adjustment form. With this form, expenditure in any one year adjusts partially to a change in the explanatory variables. For example, in the results of the equation for other departmental expenditure, the proportions of total change taking place in the first year is 0.34 (one minus the coefficient on other departmental expenditure (-1)). In the following year, 1 minus 0.34 of the remainder (0.66) of the change takes place and so on for each future year. In the equation for the number of professors, the results suggest that 68 (1-0.32) per cent of the adjustment takes place in the first year. When full adjustment has taken place, they suggest further that every additional one hundred students gives rise to one additional professor.

The equation for lecturers and demonstrators was also initially estimated in partial adjustment form. The result was that the coefficient on lecturers (-1) was not significantly different from one. The estimated equation was

$$\begin{aligned} \text{Lecturers} = {} & -123.9 + \underset{(1.01)}{0.013}\ \text{Students}\ (-2) + \underset{(1.71)}{0.38}\ \text{Professors}\ (-2) \\ & + \underset{(0.50)}{0.95}\ \text{Lecturers}\ (-1) \\ & \underset{(9.6)}{} \end{aligned}$$

$R^2 = 0.99$ DW 1.86 $\rho = 0.19$

Because data consistent with the pre-1968 series on lecturers (and demonstrators) were not available it was not possible to obtain a clear assessment of the forecasting accuracy of this equation. However, a new series (unpublished) on staff numbers indicated that the forecasts were wildly inaccurate. Because of these problems, a simple linear relationship with students and professors was used and is reported. (Subsequent investigations indicated that the separate lag structure used in the second and third group of equations was not very important statistically. The simple lags used in the second group of equations were equally acceptable statistically in the third group. Thus, the choice of the partial adjustment form for the professors and other departmental expenditure equations rests on the reasons mentioned earlier.)

The estimates of this model suggest that each additional professor gives rise to three additional lecturers (or demonstrators) independently of the number of students. This may be attributable to some ideas on the minimum size of a department, or concepts as to structure, or purely the power of professors. After adjustments, the results of the model suggested that an extra 100 students results in an additional six lecturers or demonstrators. Three of these are the result of the additional professor which the 100 students give rise to, and three are directly attributable to the students. This implies a marginal staff-student ratio of around 1 to 14 (six lecturers and one professor to every 100 students) which compares with the actual ratio of around 1 to 20 at the time. Because demonstrators are included in the numbers of teaching staff, and because the weighting of part-time staff is variable, an exact correspondence could not have been expected. Given that the actual ratio is an average ratio and excludes demonstrators, which are included in the estimates from the model, the results would not appear incompatible.

Each equation in the model was estimated by two stage least squares with corrections for autocorrelation when the Durbin Watson statistic indicated its possible presence (at the five per cent level of significance). (In some instances, the equation contained a lagged endogenous variable in which case the Durbin Watson statistic is biased. The Durbin h statistic is used and indicates the absence of autocorrelation in each case.)

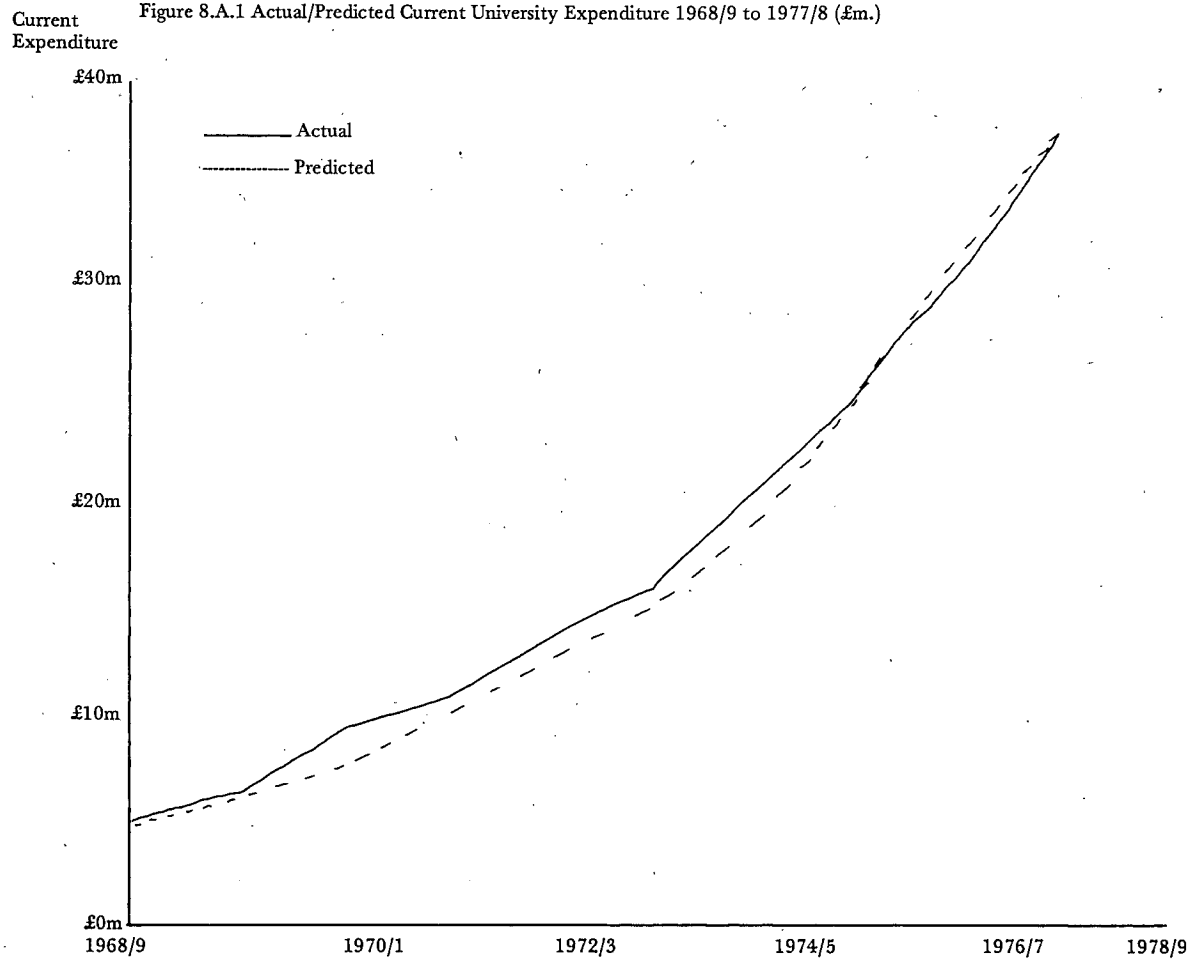
Evaluating the model as a whole, it can be seen that almost one-third of the coefficients are not significant.[11] The justification for leaving variables with insignificant coefficients in the equations was two-fold: insignificant variables may still be important; and experimenting with different functional

11. The test statistics referred to as t-ratios in Table 8.A1 are not in fact such. These test statistics under two stage least squares do *not* have a t-distribution. However, the t-distribution serves as a tolerable approximation of the true distribution since the Monte-Carlo evidence suggests the distortion is usually (although not always) reasonably small (see Kmenta (1971) p. 584).

forms, although it would have improved the significance of the coefficients, may not improve the forecasting ability of the model. The explanatory performance of the equations is high, but this is not unusual for such time-series equations. A more important result is that when the model was used to forecast the level of total expenditure through the 1970s up to the last date of publication of data roughly consistent with original series, 1974, (using approximately consistent figures) the forecasts of the model are in every case within 10 per cent of the actual out-turn and there was little evidence of the errors being, or becoming, consistently over- or under-estimates (see figure 8A). However, the model does not incorporate any explicit effects of differing costs of equipment due to different structures of student demand. Should the structure of student demand by faculty change toward more or less costly courses then the estimates would require revision commensurate with such changes.

In order to make the forecasts for Chapter 8, the model was first used to provide forecasts of staff numbers to 1978. It was then restarted with 1978 figures for expenditure, the estimated levels of staff numbers, student numbers and earnings, and simulated to 2001.

Figure 8.A.1 Actual/Predicted Current University Expenditure 1968/9 to 1977/8 (£m.)



Chapter 9

CONCLUSIONS

In this chapter the major features of the study are reviewed with some final conclusions on third-level education and its financing. The chapter begins with a summary and discussions of third-level enrolment and expenditure and continues with a concluding analysis on financing third-level education.

Enrolment

In Ireland, third-level education is the fastest growing area of education in terms of enrolment and expenditure. However, as in most other countries it is a minority who enrol in third level; in Ireland it is a small minority of around 20 per cent. (The number of entrants to third-level courses in 1978/79 was, according to the Department of Education Statistical Reports, almost 12,000. The number of 17 year-olds was estimated by Sheehan (1978) to be between 64.5 and 65.6 thousand.) As in other countries third-level enrolment in Ireland is mainly comprised of those from upper socio-economic groups. This is despite the provision of grants to those from lower income families. Nevertheless, it seems, at least in the case of the universities, that grants have increased enrolment substantially, but they have done little to change the composition of this enrolment. There are a number of reasons for this.

First, some do not wish to continue their studies beyond the earliest school-learning age, let alone continue to third-level. This appears to be mainly due to the attitude of the pupil to studying, with this being a product of attainment and the precedents of peer groups.

Secondly, this study has suggested that lower levels of (family) income and higher wage rates for school leavers both reduce the likelihood of pupils completing their studies at second-level.

Thirdly, the evidence in this study suggests that less than one-quarter of the grants to university students go to students from manual workers' homes. Further, more than half of the students from manual workers' homes were in college without grant assistance.

Fourthly, it may be that without grants the composition of third-level would have become less representative of those from lower socio-economic groups.

Whatever its socio-economic composition, enrolment in third-level is

likely to continue to expand rapidly in the future and this has important implications for expenditure.

Expenditure

Expenditure on third-level has risen more than five-fold over the last two decades. It is forecast that expenditures will, unless there is a significant policy change, increase rapidly in the future. By 1990/91, it is estimated that expenditure per student would be of the order of £4,500, and £6,700 by 2000/1 (both in 1981 prices). If the present system of finance is maintained, the cost to the tax payer could be nearly £400 million by the end of the nineteen nineties. Given these high forecasts the appropriateness of the means by which third-level is financed is clearly important.

Financing Third-level Education

As it stands, the existing system of financing third-level education has been found wanting on all the criteria used to assess it. Opportunities to enter third-level are not equal due to the lack of assistance to complete second-level, and the stringency of the present eligibility criteria of most of the grant schemes. In addition, the requirements needed to enter many courses are in excess of those necessary to complete the courses successfully. Thus, though opportunities may be equal to those of *equivalent* attainment, they are not open to all those of *sufficient* attainment.

Even though third-level is an important avenue for social mobility for some students, the majority merely maintain the socio-economic status of their family.

A high proportion of students come from better off homes, and since all students receive the benefit of the subsidies, these are regressive from this perspective. In addition, an even greater proportion of students go to secure occupations with above average incomes.

The efficiency of third-level leaves considerable scope for improvements and the present deficiencies are partly due to the subsidies to third-level training. Suggested improvements include changes in the level of enrolment of some university faculties; greater departmental autonomy within institutions; fuller use of existing resources; and greater emphasis on staff teaching performance. In line with this the present emphasis on staff-student ratios is not warranted.

The present system fails to provide economic independence for the majority of students. It is also expensive. However, this does not necessarily say that too much or too little is being spent on third-level overall.

What is clearer is that the present subsidies to third-level institutions have serious deficiencies. Institutional subsidies were regarded by most of 600 US-

based economists as inferior to cash support, such as grants to students, regardless of whether the economists were in academic, government or business employment (see Kearl, Pope, Whiting and Wimmer (1979)). In the case of education in Ireland the report by Tussing (1978) came to a similar view. The reason for these views are not only the cost of such schemes, and the lack of efficiency to which they tend to give rise but mainly their relative ineffectiveness is assisting those at whom they are aimed. The case of third-level education is a striking example. They impair efficiency at third-level; they are arbitrary in their effective assistance to individuals, aiding rich rather than poor, and foreigner and emigrant alike. Further, in so far as lower incomes are a factor in the failure to complete second-level, then these subsidies reduce opportunities for the majority who do not enrol at present.

All these arguments would suggest that if an adequate financing system were available for all students, then fees should be raised to reduce the subsidies on training. Subsidies should then be made a fixed proportion of (marginal) expenditure on training, or removed completely. Reducing the subsidies on training would involve lower levels of fees relative to expenditure for those institutions where research is more important; in particular, the universities. (It has also been argued by Walsh (1981) that the subsidies are relatively more justifiable for "Arts" courses, which he considered "maintain the stock of culture and tradition". Thus, it is implied, such courses have significant external benefits. However, it is also the case that these values are inculcated via the secondary schools. As such, the value of these benefits to society may be reflected in secondary teachers' salaries, and are thus internalised.)

It has been shown that the raising of fees would reduce enrolment on balance. That is in the absence of any additional scheme of assisting the financing of students. In particular, it would reduce demand for the courses most heavily subsidised. Since these courses are also those in greater demand, the effect on enrolment would be mitigated.

The raising of fees would, *on its own*, reduce enrolment substantially and would *not* foster the objectives of those most directly interested in third-level. It would involve a considerable financial burden on some families. Thus such a change should only be implemented *providing* appropriate mechanisms were developed to assist students finance their third-level education.

The reduction in subsidies would also affect overseas students substantially. In so far as such students are from better off backgrounds, as has been argued is frequently the case, then the change would appear warranted. Those that are from poorer backgrounds could, where it was considered appropriate, be aided by scholarships financed through the Department of Foreign Affairs.

However, the full analysis goes much further. On the basis of the objectives outlined, there was no basis for the different schemes of assistance to students and this suggests that all schemes should be on a national basis with no distinction in principle between the different sectors. In addition, in so far as the existing scheme is concerned, eligibility levels and levels of assistance should be kept in line with prices at the very least, and possibly with earnings.

The analysis and research in the previous chapters are now brought to bear upon the problem of choice of finance scheme. A rational choice would be one which best satisfied the objectives set out for it in Chapter 4, but as is evident, no one scheme fulfills *all* objectives better than the other schemes. Thus in order to make a choice, a ranking of the objectives must be decided upon. Some (many?) would probably argue that the prime objectives, given that the decisions are made by the government, are likely to be the political ones. The various interest groups and individuals are likely to have their own unique weightings and different orderings of objectives. With such diversity, attention will be confined to some general conclusions together with pairwise comparisons of the general schemes (private finance and general grant), the subsidy schemes (comprehensive and means-tested) and the loan schemes (ordinary and income-contingent) and conclude with alternative recommendations.

Whatever scheme is operated it should commence (at least in some form) from the earliest school-leaving age. The crucial distinction is between compulsory and non-compulsory schooling, rather than between second and third-level.

An overall examination of private finance records that it fails on most criteria decreasing the equality of opportunity, reducing social mobility and being relatively impractical politically. General grants have most of the virtues of private finance (except with regard to emigrants and financial practicality) and its defects are of a lesser order. It may thus be concluded that this is the preferable option of these two.

Of the two subsidy schemes the means-tested subsidy scheme has all the strength of the comprehensive grant scheme and less of its weaknesses and may thus be judged the superior of these two. This superiority is greater still for the scheme without institutional subsidies.

The income contingent loan scheme which has already been suggested in one form by Tussing (1978) avoids most of the pitfalls of the ordinary loan scheme and retains all its advantages.

To conclude there are three possible paths which can, on the basis of the objectives, be regarded as largely superior to other alternatives.

A. A fuller means-tested grant scheme with full fees (plus assistance for

Table 9.1: *Major advantages and disadvantages of selected finance schemes*

Policy	*Major advantages*	*Major disadvantages*
A. Means-tested grants scheme with full fees (plus income-contingent loan scheme)	Some increase in social mobility[a] Low short-term cost[b] Easy administration Non-subsidisation of foreign students	Subsidisation of emigrants Generally inefficient Lack of independence for many students
B. General grants (plus income-contingent loan scheme)	Economically equalising[a] Independence of students Equality of opportunity[a]	Very high cost in the short and long run[a] Subsidisation of emigrants
C. Income-contingent Loans	Independence of students Lower short-run and long-run cost[b] Non-subsidisation of emigrants or foreign students Efficient	

[a] Relative to other schemes
[b] Relative to continuation of existing schemes

ineligible students via loans, which would best be income-contingent).

B. A general grant scheme with full fees; although contraints on public funds would almost certainly mean it would not be adequate for students with no parental support. Such students could be aided by means-tested grants or income-contingent loans.
C. An income contingent loans scheme with full fees.

Amongst these three ways forward the choice depends upon the weighting given to particular aspects of the schemes. In Table 9.1 the major benefits and weaknesses of each scheme are shown. Although income contingent loans would not seem to have any major disadvantages, the reason it cannot be regarded as definitely superior is that it does not also have all the advantages of the other schemes. It is possible that it may not foster social mobility to the extent of a full means-tested grant scheme (although the ineffective-

ness of the existing scheme in this regard (see Chapter 5) substantially mitigates the force of this conclusion) and it may be more complex administratively than either of the alternatives. (Though the suggestion of using a reduction in tax allowances (or tax credits) as a mechanism for repayment weakens the force of this conclusion.) Finally, it may not enhance equality of opportunity to the same extent as a general grant scheme. Nevertheless, it is largely the superior scheme.

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