Pricing and Investment Decisions in Irish Education

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Irish third-level graduates benefit significantly from their education in the form of higher earnings. This private "rate of return" is higher in Ireland than in most other OECD countries. This implies a strong case in equity terms for tuition fees. The abolition of fees in 1994 did not increase equality of access to higher education as intended, but other labour market changes in the late 1990s affected the outcome - notably the increased earnings prospects for second-level school leavers. Also, the low achievement of some socio-economic groups at primary and secondary levels is a factor which makes third-level "free" education an ineffective policy in social terms. The return of tuition fees is advocated, together with improved student support schemes: in particular student grants should be subject to a much more gradually tapered means test. Higher education institutions which charge cost-related fees should be freed from government-imposed restrictions on intake, especially into medicine.

Introduction

The OECD is in the midst of one of the most significant reviews in recent history of the Irish education sector. This review will need to see through the increasingly muddy and jumbled mix of issues, perceptions and misperceptions that have grown up around the sector particularly over the last year.

A key issue that has emerged recently is the issue of third-level fees. While the Minister has placed this firmly in the "rainy day" category, various groups – most recently the Higher Education Authority (HEA) in their submission to the OECD review group – have raised the fee issue and the possible inevitability of the reintroduction of fees of some description. This is clearly a political minefield; witness the near collapse of the Blair Government in Britain in January 2004 over their plans. All the more reason therefore that some efforts are made to understand where policies such as this deliver, or fail to deliver, on objectives.

* Much of the work on rates of return in this paper is based on joint work between Harmon and Kevin Denny and Ian Walker. Their input and role in this work is considerable and we thank them. The research assistance of Vincent O'Sullivan is also noted. The usual disclaimer applies.
This paper is a contribution to this debate. It is largely confined to higher education because there is more scope for pricing at that level; at third level policy since 1995-96 has been to supply undergraduate education in the public sector at a close-to-zero price but to ration the number of places, using points as a surrogate price. Two and three-year "sub-degree" Certificate and Diploma programmes - the mainstay of the Institute of Technology (IT), formerly the Regional Technical College (RTC), sector - have always been free of tuition fees, largely because the EU policies under which they were developed required it. The paper outlines the evidence on the benefits of education to the individual and to society and examines the impact of a policy such as the abolition of fees in terms of assessing who actually benefits from such a change.

PRIVATE RETURN TO INDIVIDUALS FROM SCHOOLING

The first reference point is the payoff that education brings to individuals and to society. From a well-developed theoretical foundation, the estimation of the return to a year of schooling for the individual is now one of the most robust findings in empirical economics. This return is typically referred to as the "private" return as opposed to a "social" return which would take into account the costs and benefits of education to the economy, including the private return.

The standard format for econometric modelling of this issue is based on an earnings equation which generally models earnings (hourly or weekly) as a function of education (measured usually by years of education), experience (often proxied by age but possibly an actual measure of on the job experience) and a series of individual, geographical and if appropriate time-specific controls. In this model earnings foregone by not entering the labour force after completing a given level of education are the opportunity costs of remaining in fulltime education at the next level.

The evidence on private returns to the individual is compelling. Despite some of the subtleties involved in estimation there is an unambiguously positive effect on the earnings of an individual from education. Multivariate regression analysis based on Ordinary Least Square (or OLS) suggests a return to a year of schooling of between 7% and 9% when examined across countries. For Ireland standard estimation of the return to education gives returns of around 9% to 11% for males and around 14% for females. The international estimates are somewhat simplified in that they use gross wages as the dependent variable and ignore the impact of tuition fees or of student aid on rates of return.
Figure 1 is a summary of the returns broken down by gender. For some countries like the UK, Ireland, Germany, Greece and Italy there is a substantial variation in returns between genders - the returns to women are significantly higher than the returns to men. Scandinavia is characterised by relatively low returns. Ireland is at the top of the estimated returns in this cross-country review.

**Figure 1: Private Returns to Individuals from Schooling in Europe, Men and Women (Year closest to 1995)**

Source: Harmon, Walker and Westergaard-Nielsen (2001)
The size of the rate of return to education seems large relative to the returns on other investments. Ireland is no exception in relation to this point. Evidence comparing the net after-tax rate of return on schooling to the pre-tax real return on equity and government bonds illustrates this point well.\footnote{de la Fuente, 2003} With average returns for Ireland of about 10% based on figures calculated in the mid-1990s, the equivalent average annual return on equities was 7.9% and bonds 1.9%.\footnote{Computed over the period 1950-2000; short-term returns may be unreliable because of financial market volatility} Across most of the EU the corresponding returns to schooling were 9.7% compared to 7.7% for equities and 2.4% for bonds.

**EDUCATION AND ECONOMIC GROWTH**

Given the level of these private returns, there would need to be significant returns to society over and above what is accruing to the individual in order to justify state subsidies to higher education. In the economist's jargon one needs to see evidence of "externalities" to motivate the support of the taxpayer to individuals in the form of free higher/further education. If all society gets from the investment are higher paid individuals, it might be logical to suggest these individuals make some contribution to the costs of their education without belittling in any way the very positive outcome that this represents.

The growth literature tends to emphasise the impact on growth from education. If one considers the issues relating to education and growth, and in particular for the Irish economy in the last decade, a key aspect of the debate on the remarkable growth experienced during that period is the role played by education. In a basic growth model the rate of growth in the economy can be decomposed into the parts attributable to the growth in conventional inputs (physical capital and labour) and a residual component due to technological progress. Walsh (1998) reports how up to half of the recorded growth in some economies must be left to this residual, but that as this, in effect, measures the way in which a country can adopt modern technology via the educational standards of the labour force, Ireland's record here is in fact a good one. Walsh shows that the contribution of what is labelled Total Factor Productivity (TFP) to growth rates over the period 1960-1997 is more important in Ireland than in the EU generally. Durkan, Harmon and FitzGerald (1998) reach a similar conclusion by refining the growth in the labour force to take account of the changing composition of the education of that group. Whereas the labour force increased by 1.7% a year between 1986 and 1996, the education-adjusted labour force changed by 2.7% per annum.
However, while acknowledging the role of education in Ireland's recent economic improvement, Walsh points out that a number of other factors are as important: fiscal stabilisation and restoring investors' confidence in the economy; moderation in labour costs; reductions in the overall burden of taxation; avoidance of over-valuation of the exchange rate; increased flexibility in the labour market; and successful industrial policies especially in relation to foreign direct investment. In other words, education could be seen as a necessary condition to encourage growth but is of itself not sufficient. Moreover, it is not always clear that cross-country differences in education are a cause rather than a result of high income levels or past income growth.

ABOLITION OF FEES A FAILED EXPERIMENT?

The evidence on private returns is compelling and the evidence on social returns is, at best, unclear. Given this to be the case, a policy shift such as the 1994 move to free third-level education could perhaps be justified on the basis of expressed objectives of improving access to higher education; and in particular with the objective of decreasing the inequality of participation as evidenced in several HEA studies.\[3\]

Recent data seem to indicate that the policy has failed in these terms, as inequalities on participation have not decreased in recent years. Indeed, the most recent HEA study has been interpreted as showing that the long-run diminution in inequality (often under-emphasised in reporting the results) has been halted. However, this would seem to be an unwarranted and simplistic conclusion. The 1990s saw significant changes in the youth labour market which could have been expected to have an effect on foregone earnings and therefore on the demand for education. This is not to imply that rates of return actually fell, but that the impact of fees on private costs tells only part of the story. In particular the front-end loading of costs relative to return may have implications for the impact on demand by social class.

Table 1 uses data from School Leavers surveys between 1994 and 1998 (when the surveys were unfortunately discontinued). It takes those who graduate from second level with a Leaving Certificate and who enter the labour force, the annual unemployment rate one year later, the estimated earnings of Leaving Certificate labour force entrants and the expected wage (wage multiplied by the probability of employment) to show the following.

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TABLE 1: PERFORMANCE OF LEAVING CERTIFICATE GRADUATES

<table>
<thead>
<tr>
<th>Year</th>
<th>% Unemployment</th>
<th>Gross Wage (€)</th>
<th>Expected Gross Wage(€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>28.5</td>
<td>7,622</td>
<td>5,448</td>
</tr>
<tr>
<td>1998</td>
<td>8.6</td>
<td>8,471</td>
<td>7,739</td>
</tr>
</tbody>
</table>

Between 1994 and 1998, the annual gross wage of Leaving Certificate Labour Force entrants rose by about €850 or 11.1%. However, adjusting for the fall in unemployment, the expected gross wage increased by about €2300, an increase of 42%. This increase is roughly equivalent in size to the saving in fees, so if there was "no effect" coming from the abolition of fees this is no surprise: there was very little net change in the total private cost of education (fees plus foregone earnings).

Furthermore, the following considerations come into play.

- For those on lower incomes, who never had to pay fees in the first place, the labour market changes would have had a net negative effect on demand and participation.
- The higher one's rate of time preference, the greater the negative effect of increased post-secondary school expected earnings on the demand for higher education. If time preference rates vary across social classes this effect may be further magnified.
- There are some indications that, because of a fairly low income thresholds for grant eligibility, and sharp tapering-off of eligibility with respect to income, fee abolition may have been of benefit to lower-to-middle income families (that is, not poor enough to benefit from the means test for fee-grants). Given that the total number of places was rationed, abolition of fees may have led these people to "crowd out" prospective entrants from lower-income families who had previously passed the means test.

The abolition of tuition fees from 1994 onwards has been an expensive experiment. The cost has been recently (2002/03) estimated at around €211m or about 15% of all government expenditure on third-level education. The net cost (compared with the situation pre-1994 when some students qualified for means-tested fee grants) is close to 10% of the higher education budget. When tuition fees were abolished, the cost was offset by a restriction on covenanted income, which was calculated to make the policy largely self-financing. However, this is potentially misleading: whatever about the politics of the move, the resources saved by restriction of covenanted could have been used to finance a variety of interventions.
From an economic point of view the full opportunity cost of the funds devoted to fee remission is what matters, not the precise taxation measures used to finance them. The cumulative cost in 2003 prices is about €1.5 billion (there are no consistent or complete data on the annual costs over the period 1994-2003). The overall effectiveness of the experiment has not been evaluated with the degree of rigour which is warranted, given the amounts involved.

**ADJUSTING THE SUPPLY OF PLACES**

A well-functioning market for higher education would see the supply side adjusting to price signals. The nearest things that can be observed to "prices" are the points requirements for courses, given that tuition fees are zero (and even pre-1994 were an administered price). Is there any evidence that the supply of places has adjusted to the points "price"? For many years there has been a conscious attempt to increase the number of places in relation to perceived manpower requirements, the most recent being the increase in the ICT-related course provision during the past decade or so. However, these measures were based on manpower forecasts and not on rate-of-return criteria. Moreover, the abolition of tuition fees was to some extent a move in the opposite direction to a normal market response. Prior to 1994, tuition fees were charged for degree courses (at the time these were almost synonymous with university courses) and were not charged in the former RTC sector for Certificate and Diploma courses. Degree courses have in general attracted higher points at entry than Certificate/Diploma courses. Abolition of tuition fees therefore lowered the relative price of courses for which demand was highest, which is exactly the opposite of a normal efficient market adjustment.

Much of the expansion of the 1980s is to a significant extent accounted for by an increase in RTC/IT intake, whereas traditionally high excess demand areas, especially medicine, had their intakes largely frozen. There appears to have been little feedback of the type which would have produced a normal market adjustment. In the 1990s the increase was more evenly distributed across the system but many the restrictions remain, especially in medicine. During the past two years the downturn in the ICT sector has led to a dramatic fall in applications for computer courses. This is often depicted as causing a future shortage of ICT personnel, but do those who plan the increased intake know something that thousands of students and their parents do not? Or are students making long-term career choices on the basis of short-term cyclical labour market signals? Having free tuition does not help the market to adjust: if fees in ICT courses were free to move with the economic cycle, some of the large quantitative shifts in numbers demanding places could have been dampened.
SUGGESTED RESPONSES

This paper has outlined some of the summary evidence on rates of return to individuals from education and has considered some of the wider issues. A number of responses as follows appear appropriate.

(i) Introduce cost-related fees for all undergraduate courses. At present nearly all undergraduate tuition fees are paid directly to higher education institutions by the Department of Education and Science under the so-called "free fees initiative". These fees are an estimated 60% of unit costs in Arts, Law, Medicine and Business; 50% to 55% in Engineering and 25% to 30% in the very high cost areas of Veterinary Medicine and Dentistry. If institutions were allowed to charge a fee related to standard system-wide unit costs for an area of study, high-cost (inefficient?) courses would come under pressure.

(ii) Use the savings to finance extra student loans and grants. Some of the policy initiatives proposed in the Department of Education’s Supporting Equity in Higher Education study are modest, such as: extending grant thresholds by about €5,000 and introducing tapered tuition fees for those whose family incomes are between €115,000 and €130,000. The sums involved are small (less that €20m for each of the two measures compared with the estimated "free fees" cost of €211m and €1.4 billion of government expenditure on all higher education). A radical, across the board re-introduction of fees would yield a much higher revenue and enable a correspondingly radical change in student support measures.

(iii) Have a gradual tapering of grant eligibility with respect to income (say between €30,000 and €130,000). Some of the current (and proposed) tapering is much too steep: for example, it appears that, between a family income of €29,000 and €32,000, there is a loss of maintenance grants of €2,500. If a student from a family with an income of €30,000 were eligible for a full fee subsidy and a full maintenance grant, amounting to €10,000 in total, and if the subsidy were withdrawn at a rate of 20% with respect to income, then the €10,000 would be lost at an income of €80,000. Remembering that income tax at the margin would be as much as 42% (+PRSI), the total effective marginal tax rate is 62% (+PRSI). So a withdrawal or tapering rate of <20% might be warranted.
(iv) Target grants on social need and loans on prospective earnings if possible. One option might be to continue with grants to students but to recoup at least some of the costs through a graduate tax levied at a low rate. An alternative, income-contingent loan scheme would achieve a closer relation between individual repayments and sums advanced by way of student aid.

(v) If warranted, use the changes to transfer resources to earlier interventions at first and second levels but this should not be based on ad hoc measures.

(vi) If institutions can earn fees based on marginal costs, remove quantitative restrictions. This would also require that the HEA’s funding formula interacts with fee policy in a way which produces appropriate incentives for institutions. A glaring example is in medicine: intake of Irish students was limited in the 1980s when there was a perceived surplus of medical graduates. The limits are still in place.

The closing view is that the debate on these issues took place at entirely the wrong part of the argument. The simplistic argument is that free fees helped students from poorer backgrounds to gain access to higher education; so reintroducing fees would reverse this. It is based on the idea that students from poorer backgrounds are primarily financially constrained, which is a widely-held belief that has little empirical support; for example, higher education was free in the UK until 1997, but Professor Alison Wolf of the Institute of Education in Britain has shown that over the last five decades participation rates for students from lower socio-economic backgrounds has been a fraction of those whose father is a manager or professional.

Studies by Nobel Laureate in Economics, James Heckman, and by researchers at the Institute for the Study of Social Change at University College Dublin have shown that at all levels of education the decision to remain in school is more influenced by family characteristics than current financial situations. Heckman in particular has pushed for early interventions. If money is not that significant (at least not directly), the main constraints for staying on in education are academic ability (in as much as the state examination system measures this) but more crucially taste or preference for schooling. Therefore, the fees debate is simply taking place at the wrong part of the argument. The Supporting Equity in Higher Education (2003) study acknowledges that there is much more to inequality of access to higher education than student aid and student fees. Much of the inequality can be attributed to differential performance well before third-level entry: for example, in 1999 the proportion of children of higher and lower professionals getting less than five "D" grades in the Leaving Certificate was 9%, for children of manual workers it was 28% and for unemployed it was 51%. Changing
this relationship between family background and secondary school performance is more likely to deliver the sort of policy changes the Minister for Education and Science wants - an increase in achievement of children at risk.

Furthermore, choices in education investment must not become issues for "soft" argument. Policy should be shaped from coupling the best findings in empirical research with excellent and informative baseline data - economics, and microeconometrics in particular, has a huge amount to offer.

REFERENCES


