DISCUSSION PAPERS

GOVERNMENT FINANCING OF HIGHER EDUCATION IN AUSTRALIA: RATIONALE AND PERFORMANCE

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ABSTRACT

Higher education in Australia is dominated by heavily subsidised, government provided courses. Recent changes in higher education in Australia have included a large expansion in the number of places provided and in government funding, reflecting an emphasis on 'access'. There has been a movement towards loan financing with the introduction of the Higher Education Contribution Scheme.

Possible rationales for government intervention analysed here include: production of beneficial externalities; equalising the distribution of income; equalising financing opportunities; equalising educational attainment across social groups; that graduates will go on to pay more taxes; and the benefit principle. Equalising financing opportunities is the most convincing public interest justification for government intervention, but the benefit principle is misguided, the tax argument fallacious and quality of educational attainment may be both inefficient and inequitable.

These objectives are related to equity and efficiency and whether they provide a case for government involvement is examined. How the current system performs in meeting these objectives is assessed. The best ways to achieve objectives of government policy are set out.
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INTRODUCTION

Government intervention in higher education in Australia involves the provision of highly subsidised places to students. Almost all Australian higher education students attend public institutions. These institutions receive most of their funding from the Commonwealth Government, through the Department of Employment, Education and Training (DEET). Total Commonwealth funding of higher education institutions was $4,687 million in 1994, a 41 per cent increase in real terms since 1987 and amounting to 0.93 per cent of GDP.¹

Recent years have seen much hotly debated change in Australian higher education, such as the introduction of the Higher Education Contribution Scheme (HECS), an income-contingent loans program.

In this paper the case for subsidies to higher education and the performance of the current system of financing higher education will be examined. To what extent should higher education be subsidised by the government? Should it be publicly provided? What burden should be the burden borne by the student? Should the government provide students with grants or loans? Has the shift to income-contingent loans been a good idea?

It is important to carefully consider the rationale for government intervention in higher education before evaluating current policies. The justifications for current intervention analysed here include: production of beneficial externalities; equalising the distribution of income; equalising financing opportunities; equalising educational attainment across social groups; that graduates will go on to pay more taxes; and the benefit principle. These rationales are related to equity and efficiency and whether they provide a case for government involvement is examined. They are also related to other stated objectives of higher education policy, such as contributing to social benefit, overcoming capital market imperfections, promoting access, enhancing equality of opportunity and equity in participation. These objectives are seldom

¹ DEET (1994a) tables 3 and 4. The figures exclude Commonwealth funding of basic nursing education transferred to the Commonwealth from 1994. They include operating, research and capital grants.
explicitly defined, and often vary in meaning from author to author. For example, it is argued that equalising educational opportunities has more to do with efficiency than equity.

I also assess how well the current system performs in meeting these objectives, focusing on HECS and public provision. It will be argued that the current system of financing higher education is unlikely to be justified on the basis of externalities, even if it is believed that large externalities exist. Moreover, the current system is highly inefficient and highly inequitable. Although there is a case for moving towards financing higher education by loans, there are major problems with the HECS due to its subsidised interest rate and its failure to address the central problem of a lack of price signals and a lack of incentives for cost-efficiency. The interest subsidy is poorly targeted, and is responsible for many inefficiencies, such as the moral hazard effects of the marginal tax rates.

THE CURRENT SYSTEM AND RECENT CHANGES

The dramatic rise in government spending on higher education has been used to increase enrolments, by 46 per cent from 1987 to 1993, with a large increase in the proportion of the population participating in higher education. Total Commonwealth funding to universities per equivalent full-time student unit (EFTS) remained fairly constant, at $11,344 in 1994 dollars over that period.2

At the same time funding from non-government sources has increased, with the introduction of the Higher Education Contribution Scheme (HECS) in 1989 and fees for foreign and post-graduate students. HECS receipts were $349.4 million in 1994-95, cumulative receipts amounting to $1,333.9 million.3

Domestic undergraduate students pay the HECS charge which is payable directly to the Commonwealth Government. Nominally the charge was a fee of $2,355 (for a full-time student) in 1994.4 Students receive a 25 percent discount if the charge is paid per semester in advance, reducing it to $1,766.5

Alternatively the HECS fee can be repaid through the income tax system. The amount owed is indexed to the consumer price index and is repaid in years when earnings are above average weekly earnings, at a rate of between three and five percent of taxable income. Therefore the real interest rate charged on the loan is zero. Students will choose to defer payment if the expected present value of repayments to them is less than $1,766.

In effect, the HECS imposes a tuition fee at public universities and provides a subsidised income-contingent loan to pay it. The scheme is administered through the tax system. It increases the burden borne by students.

In addition to funding higher education institutions, the Commonwealth Government also provides personal benefit payments to students through the Austudy program. Austudy is means tested on student or parental income, depending on age. In 1991-92, 205,000 tertiary students received $735 million through Austudy,6 an average of $3,585 per recipient. In 1991, 43 percent of full-time tertiary students received Austudy, a proportion that has remained fairly constant since 1987.7 The average grant per recipient has also been fairly constant in real terms.8

The upshot of all this is that higher education students on average contribute approximately nothing to the direct costs of their education. The average full time student pays an annual fee of $1,766 or less in present value terms (in 1994) and received $1,526 = 0.43 x $3550 in Austudy payments (in 1991-92). These are averages. Some students pay a positive tuition fee. Some receive Austudy payments greater than their HECS liability, and so are paid to attend university, offsetting their forgone earnings cost.

Since 1993, students have had the option of trading up to $3,000 of their Austudy grant for double the amount as a loan repayable through the HECS (the Austudy supplement). A student will choose to do this if the present value of the repayments, evaluated at the student’s discount rate, is less than the grant forgone. About 20 per cent of Austudy recipients take up the loan option.

2 DEET (1994a) tables 2 and 7.
3 DEET (1993a) p.92.
4 DEET (1994).
5 In 1991, 24 per cent of liable students paid in advance (DEET 1993a, p.93). Then the discount for advance payment was 15 per cent.
7 DEET 1993a, p.204.
Those who fail to qualify for Austudy due to failing the means test may borrow up to $2,000 repayable through the HECS. These options increase the level of subsidy to students and involve a shift in student aid from grants to loans.

RATIONALES FOR GOVERNMENT INTERVENTION

Externalities

The traditional case for government intervention is the existence of external benefits from a student acquiring higher education. If social costs and benefits differ from private costs and benefits then government policy has the potential to increase total wealth. For example, if the social benefit from extra education is greater than the private benefit, then too little education will be undertaken if individuals bear the full social cost of their education (if fees covered all direct costs). A subsidy to education may then improve efficiency by encouraging extra education, of greater social benefit than its social cost, to be undertaken.

A comprehensive survey of externalities in higher education and what we know about them will not be presented here. Instead, a number of relevant observations on externalities and the case for subsidisation that can be drawn from the literature will be set out.

External benefits must be external

External benefits result when people other than the person receiving the education place a positive value on the user consuming extra education and the user cannot capture the benefits. These spillover benefits "must take the form of raising the productivity and/or psychic satisfaction of Smith in sole consequence of the education of Jones".

There is often confusion as to what is meant by an external benefit. For example, Chapman and Chia quote the superior ability of educated individuals to deal with new problems, shocks and information ("the ability to deal with disequilibria") as a neglected external benefit of education. But this ability is only an external benefit if it is of value to people other than the educated individual and this value is not reflected in higher earnings. In the example quoted in their paper (the effect of education on adoption of new technology by farmers), educated farmers were rewarded by higher income. To the extent that education makes an individual more productive (whether the economy is in or out of equilibrium), it is almost certainly going to raise an individual's earnings, allowing the graduate to capture the value of the increased productivity.

The benefits from education or the payments to the educated person need not be pecuniary. Often the focus of economics is on pecuniary benefits because these are more easily measured. This is not to deny the importance of non-pecuniary benefits of education, including non-market benefits such as immediate and future consumption benefits, and market benefits, such as better working conditions.

One non-pecuniary benefit sometimes quoted to justify subsidies to higher education is the benefit of living in an educated community. There is a question as to how large the consumption benefits to others are from having an extra graduate around. It may be that people get benefits from associating with those that have similar education levels rather than higher education levels. But if it is true, and educated people who produce external benefits are accorded respect and prestige, there may not be a need for further payment.

That is, some externalities may be internalised by private negotiations. The Coase theorem shows that subsidies and taxes are only needed to get an efficient outcome if transactions costs of private negotiations are high. If bargaining has already taken place, then it would be inefficient to subsidise further. If the externalities involve small numbers, they may be solved through private negotiation. Spillovers to family and fellow workers are likely to be paid for in terms of higher wages and prestige. For example, the documented benefit to children from a mother's education may be internalized within the family.

Another oft quoted reason for subsidising higher education is the relationship

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12 Brennan (1971) makes this point.
between education and economic growth. In a recent paper it is argued that “many models of economic growth suggest that human capital accumulation is vital in the growth process” and argues higher education should therefore be subsidised. Although human capital (broadly defined) may be a critical element in the growth process, the models do not explain what kinds of human capital investment are best for growth. It is a large step to claim it is formal higher education that drives growth, rather than, say, on-the-job training.

There is much empirical evidence that education is correlated with growth. But estimates of the contribution of education to economic growth are often highly sensitive to arbitrary assumptions, such as the proportion of earnings differences at different schooling levels attributed to education, rather than to ability and other factors, and the portion of the unexplained residual ascribed to education. But even if it is established that education makes a large contribution to growth, that does not necessarily imply that there is an external benefit to education that requires a subsidy. It could merely reflect a high private return to education, with the educated capturing all the productivity benefits resulting from their education.

It should also be kept in mind here, and in assessing much of the empirical work on education and externalities, that correlation does not imply causation. For example, to the extent that education is consumption, higher income may cause more education.

The externalities must be marginal
For a subsidy to be justified, the benefits must be marginal so that a subsidy to higher education increases their production. The question is not only whether higher education produces external benefits but whether those benefits are significantly increased with subsidies. As Blaug says:

What we have to show is not that higher education has many unintended social consequences, because so does every other human activity, but that these consequences have economic value and are functionally related to the size of the higher education system. No doubt higher education has all sorts of consequences, some of which are even desirable, but so has going to work at 18 and that is hardly a reason for subsidising wage employment.\(^{14}\)

In addition, Blaug points out that it is claimed many other public expenditures result in external benefits. The question is whether extra government expenditure on education gives rise to more external benefits at the margin than more spending on defence, health, infrastructure or any other of the competing claims on government expenditure.

Principle of targeting
If there are marginal external benefits, and transactions costs are too large for them to be internalised, then subsidisation of the activity may increase efficiency. The wealth maximising policy would be to pay a subsidy equal to marginal external benefit. The subsidy should be targeted at whatever is producing external benefits. For example, if only arts degrees produce external benefits and accounting degrees do not, only arts degrees should be subsidised. If it is research that produces external benefits, by adding to the general stock of knowledge, then research should be subsidised. It is highly inefficient to subsidise all students just because some small proportion of them may continue into research activities.

External benefits may differ across different types of education and different students. If external benefits to society are produced by those who make the best use of education, then merit based aid may be the best way to increase their production.

Alternatively, external benefits may come from increasing the number of graduates, so that a larger proportion of the population is exposed to higher education.

On the other hand, Sowell\(^{15}\) argues that increasing the proportion of high school students going through college is wasteful because not only does it throw resources at those who do not have the ability to benefit from higher education, it also lowers standards and the quality of education, reducing the gains to those with high ability. As a result, externality production may be reduced.

\(^{13}\) See for example Devlin et. al. (1994) p.4.


\(^{15}\) In Sowell (1966).
Externalities are difficult to measure

The fact that there is no market for externalities makes it difficult to accurately measure them and difficult to determine the optimum subsidy arrangement.

It is almost impossible to obtain a measure of the importance of many externalities. For example, consider trying to measure whether there is an external benefit from graduates raising the productivity of their fellow workers. To measure the significance of this possible externality we need to estimate the effect of more graduates on total production, disentangling from all other changes affecting worker productivity (technical progress, the business cycle, changes in demand patterns, changes in the amounts of other factors). Next we need to determine the extent to which the productivity effects hid up graduate wages, since only the productivity improvements due to graduates that do not raise graduate earnings are external benefits. However, graduate wages will be affected by the relative supply of graduates and high school leavers, and the quantities supplied will respond to changes in relative graduate and non-graduate wages. Assuming we can sort out these different effects, it is another step to determine how the extra graduates resulting from an increase in the subsidy will affect the production of external benefits.

The productivity effects of education are at least measurable in principle, if not in practice. Most of the other claimed external benefits for higher education defy objective measurement.

Often ‘social rates of return to education’ are calculated, but they invariably do not include any estimate of external costs and benefits due to these measurement difficulties. What is usually calculated would be better labelled the public rate of return. A calculation similar to that for private rates of return is made, except pre-tax earnings are used and all direct costs (not just those borne by the student) are included. As education is highly subsidised, the measured social return is usually below the private return. The estimates are subject to the same biases that plague private rate of return estimates (such as ability bias, the effect of other human capital investments and family background and the exclusion of consumption benefits).

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The lack of evidence on externalities

Not surprisingly, there is no convincing evidence on the size of externalities associated with higher education.

Examples of external benefits arising from higher education quoted by economists include additions to knowledge through research and developments in technical knowledge which improve production techniques and increase output. On the other hand, education may impose external costs on others if it is used as a screening device to identify innate talent. If more education identifies someone as high ability and raises his wage, someone who did not acquire the education is identified as low ability and has his wage reduced.

According to screening theory, education is a sorting device, used to categorise people. Education qualifications may be used as a hiring screen by employers because they have been a good predictor of success in the past. If education merely identifies (and does not develop) innate talents, then it will not raise the productivity of the individual. If the screening view is correct, then an educational expansion will merely result in ‘credential inflation’, decreasing the significance of educational qualifications, with little social economic benefit.

Empirically testing whether education is screening or productivity improving is almost impossible, because it is difficult to test directly whether education raises a person’s productivity (if innate productivity could be easily measured, there would be no need to use education as a screen) and both theories have similar implications for the observed data. From an individual’s perspective, it does not matter by which method education increases his job prospects. The private gain from education is not affected.

The existence of large external benefits justifying current high levels of subsidy to higher education has been questioned. For example, a leading education economist states:

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16 See, for example, the summary of studies in Psacharopoulos (1981).
18 This point is made in Sowell (1966), Blaug (1983) and Fane (1988).
19 Even if education merely identifies innate ability, the information produced may be socially valuable, as it can be used to sort workers into appropriate jobs. Nevertheless, there is still an external cost imposed on those who do not acquire the education.
The idea that the external benefits of higher education are enormous in magnitude and vastly exceed the direct personal benefits to the ‘educatee’ is one of the myths of our times ... It is a myth because there is virtually no evidence of any kind to support it.20

The case for government subsidy to education does not gain the support it once did in the economics profession due to the lack of evidence on the existence of spillover benefits21 and the possibility of spillover costs from the screening role of education. Furthermore, it is almost impossible to obtain a measure of the importance of many externalities (positive or negative). Therefore the appropriate level of subsidy to higher education must be a matter of opinion.

Equity
In this section the equity case for government intervention in higher education is examined. Policies that redistribute income from the rich to the poor are defined as promoting equity. Again, this is not a comprehensive survey of the Australian empirical work on equity, but draws conclusions from that empirical work.22

First consider two facts about higher education students:
1. On average they come from relatively well off families. Participation in higher education is positively correlated with socioeconomic background, whether measured by parent’s income, wealth, occupation, education or residential area.
2. On average they have relatively high lifetime earnings.

Subsidies to higher education involve a regressive transfer from the average taxpayer to a privileged group, worsening equity rather than improving it. Of course the above statements are about averages, and some from poor backgrounds attend university, and some from rich backgrounds do not. The point is that subsidies to all higher students, the vast bulk of whom are from well off backgrounds, is inequitable and a very poorly targeted way to help the disadvantaged. Large subsidies go to those not in need, leaving less to help those in need.

There is some evidence that within the university system, subsidies are inequitably distributed. Students from higher income backgrounds are more likely to be in those universities and courses receiving the most funding.23

A better way to help those from poor backgrounds would be to target the subsidies to them. For example, if you believe that Austudy currently goes to those in need, fees could be introduced and the revenue used to expand the Austudy program.

In fact, many poor cannot benefit from subsidies at the higher education level and if the aim is to increase the proportion of the disadvantaged in higher education, subsidies and reform efforts need to be targeted earlier in the education process. Many disadvantaged students do not go onto higher education due to low academic ability and aspirations. The poorest often drop out at the end of compulsory schooling.

Discussion of equity issues in higher education inevitably involve examining ways to increase the participation of the disadvantaged in higher education. Equity objectives in higher education tend to be expressed as ‘equity in participation’ or access.24 For example, Barr states ‘equity aims relate to the distribution of higher education by socio-economic group.’25 Government reports quote the proportion of higher education students from each social group, measured by parental income, parental occupation, ethnicity, race, gender and or any other characteristic that can be measured. The aim seems to be the same distribution of educational attainment within each group.26

It should be noted that this is not the standard definition of equity, which is concerned about making the distribution of income more equal. In fact, the access objective may make the distribution of income less equal.

On average, higher education students have relatively high lifetime earnings. Therefore, a subsidy to higher education students, whether they are from rich

21 See, for example, Milton Friedman’s change of mind between Friedman (1962) and Friedman (1979).
26 See for example DEET (1993a) p.194.
or poor backgrounds, may be inequitable. In a lifetime income sense, higher education students are not disadvantaged. Even subsidies targeted at students from poor backgrounds may be regressive, as they are better off than those from poor backgrounds who do not qualify for university, and may even be better off than those from rich backgrounds who do not qualify for university. At best, targeted higher education subsidies move individuals from the bottom half to the top half of the income distribution (measured in a lifetime sense), and do not help those at the bottom of the income distribution. Subsidies to higher education are not a good instrument for making the distribution of income more equal.

In addition, increasing the proportion of the poor going on to higher education is usually achieved by expanding the whole higher education system. Educational attainment is equalised by bringing those groups with low attainment up to the rest, increasing overall educational attainment. If the screening view of higher education is correct, then education expansion will result in credential inflation. Not only is this inefficient, it is unclear whether the result improves equity. It may result in more barriers being thrown up for a poor person to overcome in order to obtain an opportunity to demonstrate his ability to do a job.  

For example, post-graduate qualifications are becoming necessary in many fields, and charging of post-graduate fees may deter the poor. Again, because the subsidies are poorly targeted, and so much is wasted on those not in need, the result may be that the subsidies are not enough to help those in need.

The access objective has as much to do with efficiency as equity, and I think it is best explained in terms of equality of opportunity.

**Equality of opportunity**

A commonly stated, but seldom defined, objective is that the government should promote “equality of opportunity” in education. What does equality of opportunity mean when applied to higher education? Economists would interpret this goal as equalising financing opportunities, which may differ between individuals because of differences in the willingness or capacity of their families to support them. Financing opportunities will depend on family background and will differ between rich and poor because human capital cannot be used as collateral. By and large a person cannot even voluntarily sell a legal binding claim on future earning power. But even without the laws against indentured servitude, the fact that the productivity of human capital depends on the co-operation of the original borrower would make it difficult to use human capital as collateral. The resulting default risk on a loan to finance human capital investment may mean very high interest rates or rationing, as lenders cannot get security for their loan. Because students cannot use capital markets to finance their human capital investment, family resources and holdings of non-human wealth become important. The rich can finance more out of their own resources, while the poor will find financing more difficult as they are more likely to have to borrow and face capital market constraints. Even if tuition is subsidised, the poor will find it more difficult to cover the indirect costs of education (forgone wages). The result is inter-generational transmission of inequality. Types of human capital investment with large up front costs (such as a lengthy medical degree) will have the greatest under-investment, especially by the poor.

Policies which help the poor finance their education so that children of equal ability and motivation will achieve similar levels of educational attainment, independent of parental income, will be considered as promoting equality of opportunity.

Equality of financing opportunities is related to equity, because financial barriers are highest for the poor. Therefore equalising opportunities will help the poor the most. But it is not the same as equity, especially at the higher education level, where those receiving the benefits often have above average incomes. A loans scheme rather than subsidies may be the most equitable way to equalise opportunities at the higher education level. Capital market imperfections may also be faced by groups other than the poor, especially those who desire an expensive education or do not have parental support.

Equality of opportunity may be given an efficiency rationale. If financing opportunities differ, then marginal rates of return to human capital investment will differ across individuals, which is inefficient.

As pointed out in the last section, in practice the objectives of equality of
opportunity and access become equality of educational attainment. A policy of equalising financing opportunities would equalise marginal rates of return and so would be efficient, although it may well make the distribution of income less equal. However, equalising educational attainment by social group is an inefficient policy if abilities and motivations differ between social groups. It may also be inequitable.

These conclusions can be illustrated by Rosen's simple schooling model. The model is a simplified version of the Becker's Wofinsky lecture. It focuses on the schooling decision, ignoring school-quality choice, hours of work and non-school investments. It is assumed that human capital is homogeneous, that the only private cost to schooling is forgone earnings (tuition fees are zero), age-earnings profiles are flat, students attend school full-time and individuals live forever.

Let the human capital production function, a deterministic relationship between annual earnings $y$ and years of schooling, for person $i$ be:

$$ y_i = f(S, A_i), f_A > 0, f_S > 0, f_{SS} < 0 \quad (1) $$

where $S$ is years of schooling and $A_i$ is a person specific scalar which measures $i$'s economic ability and is exogenously given to the individual the time schooling decisions are made. Changes in economic ability shift the earnings-schooling relationship. Economic ability depends on motivation, as well as intelligence and other traditional measures of ability. Higher values of $A$ indicate higher ability. $f$ is the technology that transforms years of schooling and ability into earnings and can be thought of as earnings capacity.

Age-earnings profiles are a step function, earnings are zero while at school and then jump to a level determined by ability and years of schooling, and stay there forever.

The decision the individual needs to make is how many years of schooling to acquire. It is assumed that each individual can borrow and lend at a constant interest rate, $r$, so that each individual will choose schooling to maximise wealth, independent of preferences. By the Fisher separation theorem, wealth maximisation is a necessary condition to maximise utility. If an individual faced a rising marginal cost of finance, subjective time preference will play a role in the investment decision.

Differences in financing opportunities are incorporated by assuming that the interest rate faced differs across individuals. For example, family background influences financing opportunities, and the poor find it more difficult to finance than the rich. We will model this by assuming that the rich can borrow and lend at lower interest rates than the poor. A loan at a given interest rate is worth more to a poor person than a rich.

Individuals school for $S$ years, then leave and receive income in a continuous flow, at a rate of $y = f(S, A_i)$ per year forever. The present value of earnings from having $S$ years of schooling, at time $t=0$ (the beginning of schooling) is

$$ W(S, A_i) = \int_0^\infty y(S, A_i) e^{-rt} dt = \frac{y(S, A_i)}{r_i} e^{-S} $$

The individual chooses $S$ to maximise wealth. The necessary first-order condition this problem is:

$$ W'(S, A_i) = \frac{1}{r_i} \left[ y'(S, A_i) e^{-S} - ry(S, A_i) e^{-S} \right] = 0 $$

$$ \Rightarrow e^{-S} \left[ y'(S, A_i) - ry(S, A_i) \right] = 0 $$

Which gives

$$ \frac{y'(S, A_i)}{y(S, A_i)} = r_i $$

The left hand side can be written as,

$$ \frac{\partial \ln y}{\partial S} = \frac{\partial \ln f(S, A_i)}{\partial S} = \frac{\partial \ln f(S, A_i)}{\partial S} $$

which is the marginal internal rate of return to investment in schooling. The

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28 Rosen (1977). The diagrammatic exposition here is based on Willis (1986), section 3.3.
29 Contained in Becker (1975) pp.94-117.
first order condition can be written as:

\[ \rho(S, A) = r_i \]  \hspace{1cm} (2)

Investment is pushed to the point where the internal rate of return equals the rate of interest. To find the optimal schooling choice \( S \) we invert \( \rho \) and solve for \( S \). Substituting back into the human capital production function gives the individual's optimal earnings.

The model is illustrated diagrammatically in figures 1 and 2. If we let \( y(S) \) be the constant earning stream starting in period \( S \) which has the present value \( W_0 \), then

\[ W_0 = \int_0^\infty y(S) e^{-r_t t} dt = \frac{y(S)}{r_i} e^{-r_i S} \]

Taking natural logs gives:

\[ \ln y(S) = \ln(r_i W_0) + r_i S \]

This defines a family of lines (iso-wealth curves) in the \((\ln y, s)\) plane with a slope \( r_i \), parametric on \( W_0 \). The individual's opportunities are represented by the curve \( \ln y = \ln f(S, A_i) \), from equation (1). The individual maximises wealth (reaches the highest possible iso-wealth curve) by choosing schooling where an iso-wealth curve is tangential to the opportunities constraint.

The wealth maximising level of schooling is illustrated for individuals with the human capital function \( y(S, A_i) \) in figure 1. Two people with the same ability, but who could borrow and lend at different interest rates (and so have different sloped iso-wealth curves) are compared. The person facing the lower interest rate would school more. Person 1, who can borrow and lend at \( r_1 \), schools for \( S_1^* \) years and earns \( y_1 \) per year upon leaving school. Person 2, who can borrow and lend at \( r_2 \) (< \( r_1 \)), schools for \( S_2^* \) years and earns \( y_2 \) per year. The top diagram shows opportunities and iso-wealth curves in the \((\ln y, s)\) plane. The bottom diagram shows the marginal rate of return. The outcome is inefficient as the marginal rates of return to schooling are not equalised, person 1 has a higher rate of return than person 2.
If financing opportunities are equalised (everyone can borrow and lend at the same interest rate), marginal rates of return will be equalised and human capital investment allocated efficiently. Those with the same abilities will school the same amount. This is the efficiency justification for the equality of opportunity objective.

But note that educational attainment also depends on ability. Even if financing opportunities are equalised, education attainment will differ across individuals. For example, take two individuals who can both borrow and lend at interest rate $r$, but differ in ability. Person 1 has the human capital production function $f(S, A_1)$, person 2 has $f(S, A_2)$, $A_1 < A_2$. Assume that higher ability increases the rate of return to schooling ($\beta_{sa} > 0$). Then the person with higher ability will school more, as illustrated in figure 2.

In figure 2, both individuals have the same sloped iso-wealth curves. Person 1 schools for $S_1^*$ years, earns $y_1$, upon leaving school and is on iso-wealth curve $W_1$. Person 2 schools for $S_2^*$ years, earns $y_2$ and reaches iso-wealth curve $W_2$. The outcome is efficient, marginal rates of return are equalised. Schooling differences increase inequality in the sense that the extra schooling the high ability person receives widens disparities in lifetime income. If we were to equalise schooling attainment at $S_1^*$ (say by banning person 2 from taking any more) then the distribution of lifetime income would be more equal. Person 2 would earn $y_2$ and receive wealth $W_1$ (more than person 1, because he has greater ability). This promotes equity, but only by lowering the wealth of person 2. The result is inefficient, marginal rates of return are not equalised. The deadweight loss is represented by the shaded area in the right hand figure.

But government policy is to equalise educational attainment by bringing those with lower levels of attainment up to the rest. Bringing everyone to $S_2^*$ years of schooling (say by making it compulsory) would be both inefficient and inequitable. Again, marginal rates of return are not equalised, the resulting deadweight loss is represented by the striped area in figure 2. But it also moves person 1 to a lower iso-wealth curve ($W_1$), increasing inequality. It is important not to mix up equality of annual incomes with equality of wealth (the present value of lifetime income). Although the extra schooling increases person 1's annual earnings (from $y_1$ to $y_2$), this does not compensate for the forgone income cost of the extra schooling and lowers his wealth.
Schooling for 5 years will lower the wealth of low ability people if they bear the forgone income cost themselves, either due to compulsion or because they are induced to school more by subsidies financed by taxes which they bear. In practice, the extra schooling is encouraged by subsidies and some of the burden of paying for these may fall on the high ability people. The net result may or may not be equitable, but it certainly is an inefficient way to redistribute income.

The only way for someone of given ability to increase their earnings in the Rosen schooling model is to school for longer. Alternative ways individuals may increase their earnings, such as on-the-job training, are ignored. Further, the model implicitly assumes that there is only one type of ability that affects earnings. These assumptions are most favourable to the proponents of equality of schooling attainment as a way to achieve equality of wealth, as schooling determines wealth (along with given ability). In reality, the link between years of schooling and wealth will be weaker.

In summary, promoting equality of financing opportunities will be efficient. But a policy of equality of educational attainment will be inefficient and may be inequitable. The question is whether the differences in educational attainment between various social groups are due to differences in financing opportunities or differences in the distribution of ability. Certainly there is much evidence that both are strongly related to family background.

Graduates will pay higher taxes anyway

A common argument is that higher education should be subsidised because graduates will go on to pay more taxes out of their higher incomes. This argument is also made for business investment subsidies. In fact, it is true for any profitable investment and is not a reason for subsidising education. In order to provide a reason for subsidising education relative to other investments, it needs to be explained why education is different from other investments, such as the existence of positive externalities. The fact that it pays off is not enough. Furthermore, human capital investment already receives favourable tax treatment relative to many other investments, because forgone wage costs of investment, the bulk of the cost, are able to be immediately

expensed.  

Blaug has observed that the proponents of the argument that graduates will pay for their higher education out of their taxes ought to advocate the distribution of free annuities to all eighteen-year-olds on the grounds that part of the resulting annual payments will after all be recovered eventually via income tax.

Those who did not attend higher education, but earn the same income as someone who did, still pay the same amount of taxes. The graduate is contributing less towards public expenditure than others on the same income. As a result, non-graduates will bear some of the burden of financing higher education. As the New Zealand Business Roundtable points out:

Proponents of the view that graduates repay the costs of their education through their future taxes should not object to lower subsidies for tertiary education accompanied by a commensurate reduction in income taxes, since this would have no distributional effect. They are likely to object, however, because the tax reduction for graduates would therefore be less than the increase in private contributions resulting from subsidy reductions. This merely serves to illustrate the fact that non-beneficiaries of tertiary education and training bear much of the burden of its financing through the tax system.

The question of appropriate taxes to be paid by those on different incomes is a separate one from the appropriate subsidy to higher education. Although graduates tend to earn above average incomes and pay above average amounts of tax, vertical equity requires that those on higher incomes should pay more tax.

Benefit principle

An argument that is sometimes made for charging higher education fees is the benefit principle, 'he who benefits pays'. The fact that the measured private rate of return to higher education is high has been used to argue for reducing the subsidy to higher education. Although equity and efficiency arguments may lead to the same recommendation, the difference in logic is crucial. It is important to be clear about the case for higher education fees. The benefit rationale has led to confused policy ideas.

31 See Becker (1975).
Private benefits are irrelevant to determine the level of fees to maximise efficiency. We all benefit a lot from sleeping, breathing, etc. but that does not mean that we should be taxed or charged for doing these things. People should be charged from doing or consuming certain things because of the costs of such things, not because of the benefits they derive. Even if they don't derive benefit from them, they should still pay for them. The amount of benefits they derive is their business. We may want to charge for higher education because it is costly. For economic efficiency, we want to charge full (marginal) cost less the amount of marginal external benefits. The amount of benefits graduates enjoy is their business; it does not affect the efficient amount of fees to be imposed.35

The private benefits determine whether the education is undertaken once the fee is set. If private benefits were low, that does not provide a case for a subsidy. Low private benefits do not imply external benefits are high.

The benefit principle may be related to equity considerations. Evidence that university graduates have above average incomes show that it may be equitable to charge them. But some have taken this one step further. A recent government discussion paper on future higher education policy states that for reasons of 'social benefit and equity' the HECS charge should vary by type of course undertaken and reflect both cost of provision and the rate of private return. For example, the HECS charge for law degrees could be higher than those for arts degrees reflecting potentially greater private returns despite the similarity in cost of provision.36 It is clearly not efficient to set prices to encourage students into areas with relatively low private returns. Nor is setting fees according to measured private returns a particularly good equity instrument.

First, imagine we could accurately measure everyone's private return to education. It is not necessarily true that those with the highest rates of returns also have the highest incomes. This is clearest in the case of students who have high non-wage income. But also those with the highest wage income may have had high incomes without going to university, so receive a low private return. Equity involves redistributing from the rich to the poor. To the extent that the benefits received from attending university are not closely related to income, taxing according to benefits is a poor equity instrument.

Second, in practice returns to education are not measured accurately. At best we have estimates by field, and there is a lot of variance in the returns to individuals within each field. The estimates are subject to well-known biases which are impossible to correct for except in an arbitrary manner. For example, the estimates suffer from ability bias (a problem of censored data), usually resulting in an arbitrary correction through an assumption about the proportion of earnings differences at different schooling levels attributable to education. The estimates do not measure the non-pecuniary private benefits of education (impossible to correct due to lack of data). The estimates are therefore inaccurate not only on an aggregate level, but between fields and between individuals within a field, making it impossible to charge benefits received even if it were desirable. Such a poorly measured variable makes a poor equity instrument.

In addition, the estimates are highly sensitive to the researchers' assumptions. For example, two recent papers37 using exactly the same data and techniques estimated the private rates of rate of return to Australian higher education students with vastly different results. For example, the return with no charge was 13.17 per cent for men and 24.55 per cent for women in the Chapman and Harding paper. In Chapman and Chia the equivalent estimates were 7.85 and 8.14 per cent. The reason for the difference is that the lower estimates assumed a degree took four years, the other that it took three.

PERFORMANCE
How the government actually intervenes in higher education in Australia will now be analysed and related to the rationales set out in the previous section. Government intervention in higher education in Australia involves the provision of highly subsidised places to students. Student fees are uniform across courses. Many students receive Austudy and on average students pay approximately nothing to the direct cost of their education. Substantial excess demand for places is rationed by academic merit. There has been a shift in direct student aid from grants to loans. Do these interventions promote equity and efficiency?

Public provision

None of the rationales we have examined provide a case for government provision. Financing opportunities can be equalised through a loan program without the need for public provision. Targeted subsidies can be used to promote equity aims. If externalities exist, efficiency can be reached by private provision and targeted government subsidisation to increase external benefit production.

In fact, if it is believed that there are significant externalities associated with higher education, then public provision is not an appropriate response for two reasons.

First, nationalised industries are notoriously cost inefficient. Government owned firms in practice have less incentive to cost-minimise due to ineffective control and performance monitoring and the influence of political objectives. When the government runs an industry, there are more layers of the principal-agent problem and the industry is subject to the political process. Political objectives may be in conflict with cost-minimisation.

The higher costs of public education imply that fewer external benefits are produced for given expenditure. Subsidies are superior to public provision as a way to produce more externalities.

Second, public provision crowds out private expenditure. Public provision involves a subsidy in kind, you only receive the subsidy by doing a course offered by a public institution. As a result, private consumption is displaced.

The education provided is difficult to supplement as there is an element of indivisibility. Once a student enrols in the government institution he must undertake the level of education offered by that institution. The cost of supplementing can result in public provision reducing the amount of education consumed by an individual. This possibility arises because the student may be induced to do the course offered by the government, rather than a higher quality (and more expensive) private course, in order to receive the subsidy.

If there are enough students who reduce their consumption of education when they enrol in a public university, provision of subsidised government higher education places may even reduce the total quality weighted amount of education consumed. The production of spillover benefits may be decreased rather than increased (if they are related to the quality of the course).

In addition, the cost of government provision is met by taxpayers. The higher taxes needed to pay for the public system reduces everyone’s income and so results in a further reduction in private education spending. The taxes also impose deadweight losses, and may affect growth.

Whether public provision raises or lowers total consumption of education, there is a crowding out of private education. Peltzman found that in the US the largest part of expenditures and enrolment at government higher education institutions appears to substitute for private expenditures and enrolment.

If the motivation for the subsidy to higher education is associated positive externalities, a subsidy in kind is unlikely to be the best way to increase them. It has smaller output effects than giving the subsidy directly in the form of money.

One argument in favour of government provision is that it can be used to direct subsidies where they have the greatest benefit. It is possible that the positive externalities only arise from particular types of education. For example, taxpayers might not want their money to fund colleges which provide mainly consumption benefits to students. Peltzman suggests that because of employer group pressure, the government institution’s curriculum contains more human capital investment and less consumption than the student alone would choose with a money subsidy and presents some supporting evidence.

But this can be achieved through subsidisation and regulation. Government provision may be an administratively cheaper way to achieve the same end, but this is more of an ex post rationalisation for public provision than a convincing justification.

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38 This point is made in Peltzman (1973).

39 In Peltzman (1973) at p.25.
Inevitably, a conflict arises between the government wishing to direct where subsidies are spent and university autonomy. There has been an increase in the degree to which the Commonwealth Government intervenes in higher education over the past five years. DEET is in continuous correspondence with the institutions. Funding is based on annual profile negotiations between DEET and each university. Institutions are expected to conform with "national priorities" laid down by DEET and also respond to a stream of reports and government initiatives.  

The argument that government provision is the cheapest way to ensure the subsidy to higher education is spent so as to maximize externality production is weakened by the absence of evidence on what types of education produce external benefits and the fact that it is difficult to argue that only the kind of education provided by state schools produce externalities. For example, external benefits are often said to be associated with research. It is the private universities that dominate research output in the US.

There is also some question as to whether the objective of government provision really is to increase efficiency by producing more external benefits. In many countries, special interest groups dominate the political process and the government’s powers may be used to benefit politically powerful groups, including concentrated producer interests in the higher education sector. Government provision may be the best way to benefit special interest groups, such as those employed at State universities, especially when the maintenance of the subsidy relies on it being hidden. As Peltzman says:

A subsidy provided directly by state-operated universities may simply be the most economical method of ensuring that the subsidy is used in the politically appropriate manner.

Who are the main beneficiaries of public education? The domination of producer interests may mean that students get poor value for money and others capture the benefits of the subsidy (for example, the expenditure may be used to reduce academic teaching loads, increase research time and employ more bureaucrats).

Public provision cannot be explained as being for the benefit of students. Because public education is cost-inefficient and a subsidy-in-kind (resulting in unsuitable quality provision), all students who attend public universities will value the places at below their cost of provision. The subsidy in kind is less valuable to them than the equal cost money subsidy.

Subsidies can be given out in a decentralised way, to introduce price signals, increase cost-minimisation incentives, avoid the concentration of power, increase university independence and diversity and increase pressure on higher education institutions to respond to student desires. Some authors argue that grants should be given directly to students (i.e. as vouchers or scholarships), to be spent at any institution of their choice. Under a decentralised system, the universities would set their own fee levels. Both a loan or grants scheme can be run in a decentralised way, where the subsidy is portable with the student.

The HECS

One of the major changes in the way higher education is financed in Australia has been the introduction of the HECS. The HECS in effect imposes a tuition fee at public universities and provides an income-contingent loan program, with a zero real interest rate, to repay the fee. There are a number of problems with the HECS.

Lack of price signals

The HECS is a uniform fee for all courses, despite widely varying course costs. Economics students pay the same as medical students despite the fact that the direct cost of educating an economics student is much less than the cost of educating the medical student. As a result, the level of subsidy varies widely amongst courses.

The Industry Commission set out funding relativities between different disciplines that DEET uses as a starting point to determine funding in 1990. The cheapest courses are undergraduate accounting, economics, administration, law and other humanities ($5,075). The most expensive undergraduate courses were agriculture, dentistry, medicine and veterinary science at $13,703 per year. The most expensive courses were higher degree research in agriculture.

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41 In Peltzman (1973) p.25.
42 See, for example, Friedman (1968), Harrison (1993) and Karmel (1991).
dentistry, behavioral science, engineering, medicine, science, surveying and veterinary science at $23,853 per year.

A uniform fee automatically gives larger subsidies to the courses with higher costs. To justify the uniform fee, externalities production needs to be higher in more expensive courses, and for those courses of below average cost, externalities production need to be lower. It is unlikely that the production of externalities varies with the cost of the course.

The uniform fee yields little information to universities about the relative value of different courses to students. Students face no price signals reflecting the costs of different courses.

This lack of price signals makes it difficult to judge whether the mixes of subjects and courses are correct, or to judge whether appropriate quality courses are being offered. All we know is that students currently value the courses they enrol in more than the amount they have to pay under the HECS. But we do not know which courses are most highly valued relative to costs. Under current funding arrangements universities have little incentive to reallocate resources to those areas most valued by students, and little information to do so.44

**Subsidised interest rate**

When payment is deferred under the HECS, the outstanding debt increases only with inflation and students have no further liability once the debt is repaid. The real interest rate charged to students on the loan is zero. Therefore the real rate of return to the government from the program must be zero or less. The government receives a zero real return from those who repay their debts fully and a negative return from those whose payments over their working life do not discharge the debt. A recent study estimated that 11 per cent of male and 47 per cent of female borrowers would not fully repay their debt.45 Although the nominal annual HECS fee is $2,355, the present value of payments received from those who defer is much less than that.

The implicit subsidy given by the zero real interest rate is quite large. Table 1 shows the implicit subsidy rate to someone starting repayment under the HECS program. It assumes constant annual payments. If income rises over the borrower's life, so payments are concentrated towards the end, the degree of subsidy will be greater.

**Table 1 Implicit subsidy from zero real interest rate**

<table>
<thead>
<tr>
<th>Years to repay</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>18</th>
<th>20</th>
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<td>7.0</td>
<td>11.4</td>
<td>15.4</td>
<td>19.2</td>
<td>22.8</td>
<td>26.1</td>
<td>29.3</td>
<td>30.8</td>
<td>32.3</td>
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<td>rate</td>
<td>10</td>
<td>13.2</td>
<td>20.8</td>
<td>27.4</td>
<td>33.3</td>
<td>38.6</td>
<td>43.2</td>
<td>47.4</td>
<td>49.3</td>
<td>51.1</td>
<td>54.4</td>
</tr>
<tr>
<td>15</td>
<td>18.7</td>
<td>28.6</td>
<td>36.9</td>
<td>43.9</td>
<td>49.8</td>
<td>54.8</td>
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<td>61.0</td>
<td>62.8</td>
<td>66.0</td>
<td>68.7</td>
</tr>
</tbody>
</table>

Shows percentage subsidy per dollar owed under the HECS. Assumes equal annual payments during repayment period. Payments made at the end of the year.

Those who take the longest to pay receive the greatest subsidies. The higher the real interest rate, the greater the degree of subsidy given by a loan with a zero real interest. To work out the cost of the subsidy to the government, the government's real discount rate should be used. To work out the value to the borrower, the borrower's discount rate should be used.

DEET estimated in 1993 that the repayment period for the typical graduate was 15 years.46 According to table 1, the zero real interest rate means that the present value of repayments are only half (49.3%) the accumulated HECS debt using a 10 per cent real discount rate. Miller and Volkor (1993) estimate a 10 year average repayment period for men and 12 years for women. Since these estimates were made, the repayment tax rates have been raised, speeding up repayment and reducing the degree of subsidy.

Table 1 shows the implicit subsidy to accumulated debt when an individual enters the workforce and started repaying. But if repayment is delayed, the implicit subsidy rises, as illustrated in table 2. That is, there is a bigger subsidy to borrowing early in a degree and a bigger subsidy to those who stay at university longer or take longer to enter the workforce.


45 Harding (1994).

Table 2 Implicit subsidy under the HECS for 5 per cent discount rate

<table>
<thead>
<tr>
<th>Years to repay</th>
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<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
<th>18</th>
<th>20</th>
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</thead>
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<td>0</td>
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<td>11.4</td>
<td>15.4</td>
<td>19.2</td>
<td>22.8</td>
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<td>15.6</td>
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<td>55.4</td>
<td>56.3</td>
<td>58.1</td>
</tr>
</tbody>
</table>

Shows percentage subsidy per dollar borrowed under the HECS. Assumes equal annual payments during repayment period. Payments made at the end of the year.

Under the HECS, students receive a subsidised loan equal to expenditures on tuition at public universities, increasing the subsidy to attending these institutions. To choose the repayment option, the implicit value of the subsidy to the borrower must be greater than 25 per cent (otherwise he would pay up front and receive the discount). Tables 1 and 2 shows that for many borrowers, the implicit subsidies are much greater than this.

The HECS involves an income contingent loan. Borrowers with high incomes pay more than borrowers with low incomes for two reasons. One, total repayments vary with income. Those who never earn above average weekly earnings never make any repayments and have their tuition completely subsidised by the government. Others may not fully repay their loan over their working life. Two, borrowers with low incomes repay slower than those with high incomes and receive a greater benefit from the interest subsidy.

The larger implicit subsidies to graduates with lower incomes has been given an equity justification. But HECS is a poor equity instrument. At best it gives greater subsidies to graduates with low incomes, not necessarily the most needy in society. Further, the interest subsidies given out through HECS are a poorly targeted, as the degree of subsidy varies with the pattern as well as the amount of lifetime income. Interest subsidies also benefit those who delay repayment for other reasons. For example, persistence in education is subsidised. It is even possible, if the accumulated HECS debt is large enough, for a student to reduce the net present value of his total HECS burden by attending university for an extra year. The value of delaying repayment on his accumulated debt may outweigh the HECS charge for the additional year.

The HECS gives greater subsidies to those who earn less or spend more time out of the workforce. For example, women receive a greater subsidy than men. Those who expect high earnings quickly receive a smaller subsidy (but if it is expected to fall below 25 percent, they will pay now to receive the discount). For example, students studying part-time and earning more than average weekly earnings will pay now rather than through the tax system. One of the few studies on the impact of the HECS found that the highest proportion of those who cited the HECS as very important in their decision not to apply or re-enrol were post-graduate students and those earning incomes over $35,000 per year. This could be due to the smaller subsidy received by these students under the HECS or because they are more likely to have low course valuations.

There seems to be little efficiency justification for these variations in subsidy. For example, those who never intend to work receive a larger subsidy. It unlikely that those who never work produce the biggest external benefits, especially if externalities relate to productivity and growth.

**Moral hazard effects**

Because loan repayments depend on pecuniary income, the HECS reduces the incentive to earn pecuniary income, affecting labor-leisure and occupational choices. But the effects are broader than that, the program will reduce the incentive to undertake any costly investment that raises pecuniary income, including diligence at college and in the workforce. The effect of the terms of the HECS on the ex post choices of borrowers is the moral hazard effect. Moral hazard problems are especially important for women, as their child-bearing and other decisions will have a major effect on their labor force participation and earnings.

The repayments rates under the HECS are three per cent is paid if taxable

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47 See the figures in Chapman and Harding (1993).
48 See Robertson et al. (1990).
income is between $26,403 to $30,004; four per cent if between 30,005 to $42,005; and five per cent if $42,006 or more.49 The program tax rate is added to already high Commonwealth income taxes, raising marginal tax rates faced by those in the program. As the costs of moral hazard effects associated with a tax on income rise much faster than the tax rate, the potential efficiency cost of the HECS is large. Once a threshold is reached, the payment is calculated on all taxable income, not just the incremental income, resulting in extremely high marginal tax rates around the threshold limits.

The HECS tax rates only have the same moral hazard effects as the income tax for borrowers who do not repay the loan over their entire working life (non-completers). These borrowers always remain subject to the tax rates. For example, for a non-completer subject to the HECS tax rate $\tau$, working an extra hour to earn $W$ increases repayments by $(1-\tau)W$, lowering the returns to working by a proportion $\tau$.

For the vast majority of borrowers who fully repay the loan at some stage of their working life (exiters), earnings are only taxed until the loan is repaid, reducing the moral hazard effects. If an exiter is subject to the HECS tax rate $\tau$, working an extra hour to earn $W$ increases current repayments by $\tau W$, reducing the value of the debt and future payments on the loan.

If an exiter had a discount rate $r$, and the debt accumulated at rate $r$, then an extra payment of $\tau W$ reduces future payments by a present value of $\tau W$ and working an extra hour does not affect the present value of repayments, and so the scheme provides no disincentives to work.

But if the program interest rate is subsidised and the debt accumulates at a rate less than $r$, then there will be a moral hazard effect. A subsidised interest rate reduces the incentive to pay off the loan quickly, higher current repayments mean forgoing some of the interest subsidy. Now working an extra hour, earning $W$ and increasing current payments by $\tau W$ does increase the present value of repayments (but by less than $\tau W$), providing some disincentive to working, but not as large as for non-completers. This may even turn someone who would otherwise be an exiter into a non-completer, increasing the moral hazard effects.

The zero real interest rate in the HECS, well below all borrowers’ discount rates, is responsible for any moral hazard effects.

**CONCLUSIONS**

Economics is useful to answer two relevant questions. What is the appropriate amount of resources to devote to education? How do we maximise the benefits from a given amount of resources devoted to education?

The appropriate level of subsidy to higher education is a difficult question to answer. The information needed to determine it is just not available. Nonetheless, economics provides a framework for comparing alternatives and making clear assumptions and judgments. For example, we can determine the level of external benefits necessary to justify current levels of subsidy.

The average subsidy per higher education student is around $10,000 per year. If the real discount rate is 10% (often used to evaluate government investment), the future value of this subsidy after three years is $33,100. The average graduate needs to produce $3,310 per year in spillovers forever to justify the subsidy to his degree. In fact, this is an underestimate because the average student takes longer than three years to complete university and does not live forever.

Arguments about the level of subsidization can be separated from arguments about the method of subsidization. Given the amount we spend on education, do we spend it in an appropriate manner? How do we maximise the benefits from a given amount of resources devoted to education?

It is difficult to rationalise current government intervention in higher education on the basis of externalities even if it is believed that large external benefits exist. Public provision, interest subsidies and uniform fees mean that the heavy subsidies are poorly targeted.

If there are external benefits, then subsidies should be targeted at the externality producing activities to maximize efficiency. For example, assume the governments objective is to increase the number of higher education

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49 DEET (1994)
students. This is certainly consistent with government rhetoric.\(^{50}\)

The current system does not maximise the number of students attending higher education. Subsidized government provision does increase enrolment, but a cash grant to everyone who enrolls in higher education would have the enrolment enhancing effect without the expenditure reduction effects of subsidized public provision.

But in both cases students who would have attended higher education anyway receive highly subsidised places. A further improvement would be to direct the subsidies at groups that would not otherwise have gone to college, such as the poor, in order to get a bigger increase in enrolment for a given amount of expenditure (that is, direct to those with the greatest elasticity of response).

One possibility is to offer a subsidized loan to all those who enrol. This will give bigger subsidies to those who borrow the most and take the longest to repay. If those characteristics are correlated with being on the margin of enrolment then the loan scheme may be an effective way to promote the enrolment objective. This is most unlikely. In practice, interest subsidies are poorly targeted on equity and efficiency grounds. Grants can be better targeted.

The way in which direct student financial aid has been awarded in Australia has changed from being based on merit (under the Commonwealth scholarship scheme from 1951 to 1973), to being given on the basis of 'need' (parents' taxable income or independence) since 1973 (under the TEAS and Austudy programs). This can be seen as promoting the enrolment objective. But the interest subsidies given out through HECS are poorly targeted and the bulk of subsidies to higher education are given out through public provision. The rationing of places to school leavers by high school performance introduces an academic merit element to the distribution of these subsidies. The current system provides huge rewards to high school performance. It is not clear whether extra effort in the Higher School Certificate is associated with any external benefits. That is certainly not what is claimed by the proponents of subsidies to higher education.

\(^{51}\) Australian Education Council (1993), table 13, p.23.
If there is not a strong equity and efficiency case for subsidies and there is a substantial shift in the financing burden onto students, then capital market imperfections become more important. Inability to borrow against future income may restrict investment in higher education, especially by the poor. On the other hand, if higher education is heavily subsidised, then capital market imperfections are less important.

Does the current system promote equality of financing opportunities? The best way to promote this aim is with loan programs, targeted at overcoming the relevant capital market imperfections. For example, income-contingency is best interpreted as a response to uncertainty rather than as an equity mechanism. If a loans scheme that overcomes capital market imperfections is introduced, there is less case for grants.

Equality of opportunity can justify grants, and subsidised places but they are a second-best way of dealing with capital market imperfections. Those not subject to capital market imperfections are also subsidised and so unrestricted subsidies will result in over-investment. If the subsidies are restricted, not only do we get the efficiency costs of rationing, but the grants are also likely to be a poorly targeted response to some capital market imperfections. Some who do not face capital market imperfections will receive subsidies. Some who do need help will not receive it. Even if the grants are targeted at those from poor backgrounds, they will not assist all those facing capital market imperfections. In addition, grants are less equitable than loans, because they benefit a privileged group.

So if the motivation for government intervention is to promote financing opportunities, the movement to loans from grants is a good idea. But the HECS program, has faults, the interest subsidy ill-targeted, it is highly centralised and does not introduce price signals or address the problems with public provision. The budgetary cost of the interest subsidies prevents the program’s extension.


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