Student Fees and the Demand for University Places

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Higher student fees need not be inconsistent with equity considerations, according to ***Kenneth Gannicott****, Head of the Graduate School of Education, University of Wollongong.*

The failure of up to 50 000 eligible applicants to obtain university places in 1992 has reinforced evidence from earlier years that demand for university places remains strong (AVCC, 1992). This increased competition has not only left many applicants disappointed, but has also led to a sharp rise in entrance scores, overcrowding on many campuses, and spillover demand for TAFE courses. The debate on the reasons for this high demand has focused on the combination of increased year-12 participation rates and a greater propensity to seek university entrance in tight economic circumstances. The underlying reasons, whatever they are, are translated into effective demand through the 'price' that students are willing to pay.

At the same time, the 'Chapman debate' on alternative methods of student finance has taken place (Chapman, 1992). The student-finance issue is concerned with the efficiency and equity of helping students to meet the price of education, whether through Austudy, loans, or schemes such as the Higher Education Contribution Scheme (HECS).

Yet the two debates have not impinged on one another; the relationship between the current level of student finance and excess demand for places has apparently not been considered. For example, Karmel (1991) has suggested a voucher scheme that would provide a partial rebate on fees, with the balance between fee and rebate to be paid through HECS-type arrangements. Karmel rightly defends his proposal as giving greater rein to market forces. But he nowhere discusses the option of setting the number and value of vouchers at a level sufficient to clear excess demand for university places. Meanwhile, the responses to the problem of excess demand have been almost entirely administrative in nature, such as diverting the demand into TAFE or into off-campus suppliers like the television Open Learning project.

In this article I suggest a different approach, which explicitly links the present level of excess demand to the fees that students pay through the HECS system.

A Simple Model of Supply and Demand

The international pattern of state subsidies for education reflects the widespread view that relating demand for education to market prices is neither economically appropriate nor socially equitable. If net social benefits arise from higher education, relying on private finance may result in social underinvestment. And fees are thought to be inequitable because, allegedly, only the children of richer families could afford the cost. But in recent years the persistent failure of governments, in both advanced and developing countries, to meet the demand for enrolments, combined with *de facto* limitations on any significant increase in the public-educational budget, has strengthened interest in the role of fees (see, for example, World Bank, 1986).

Consider Figure 1, in which there is excess demand for university places. The level of fees charged is F_1. The government is short of money, and can only fund E_1 places at current subsidy levels. The number of students who would like to enrol is given by E_2. The number who can actually enrol is, of course, equal to E_1, and the amount of excess demand is given by the difference between E_2 and E_1.

If fees are raised beyond F_1, the demand for places will fall. The precise amount of the fall will depend upon the elasticity of demand: the lower the responsiveness of quantity demanded, the smaller the reduction in enrolments for any given increase in fees. If we now assume that all the additional fee revenues are used by government to expand the supply of university places, a knowledge of the unit cost of such places will allow us to trace out SS_1, the supply curve of university places made possible by any given level of fees. The higher the fees charged, the larger the potential supply of places.

It follows that the market-clearing level of fees is F_2. At this price there is no excess demand for university places, and, more important, total enrolment at this higher level of fees is greater than in the initial situation. Despite the inverse relationship between fees and enrolments, the fact of initial excess demand means that realised enrolment under a fee rise to F_2 is actually greater (E_3) than before (E_1).

But is this expansion inequitable? It may in fact be less inequitable than a combination of low user charges and a low level of service. When fees are low and a limited public budget causes excess demand for services such as education, some people will be denied the service and/or the quality of the service will suffer. Both these outcomes tend to hurt the poor more than the rich, and increasing the supply of places is likely to improve, not reduce, equity in the system.

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The relationship between fees and enrolments

Fig 1

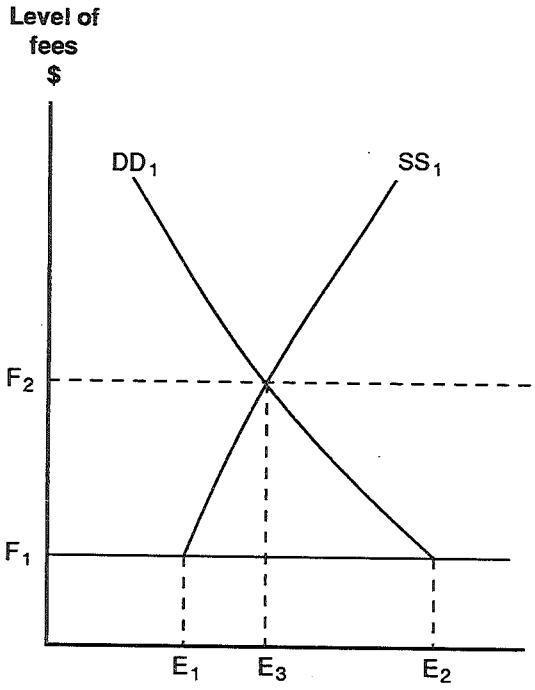
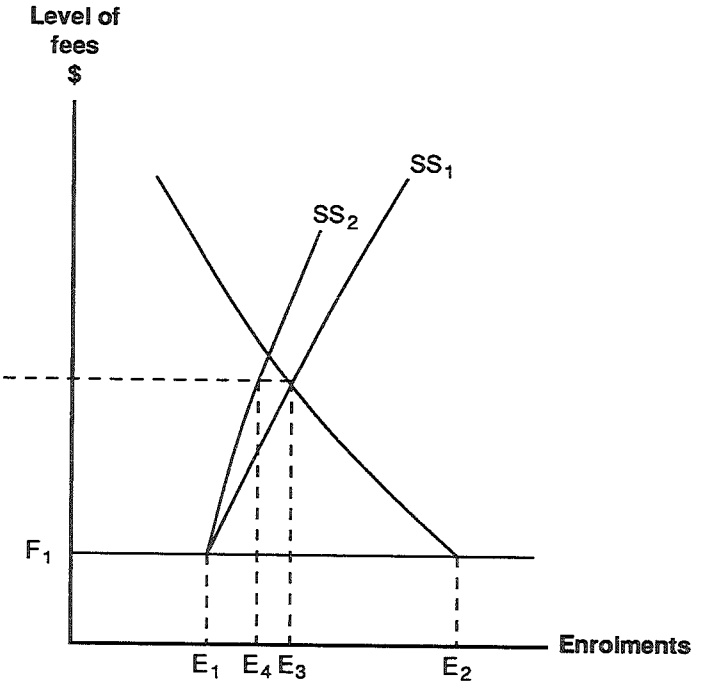


Fig 2



It is nonetheless true that financing expansion through increased user charges is likely to disadvantage the less well-off members of the initial student population. The poor will drop out and be replaced by those able to afford the higher fees. One way to avoid this is through fee remissions or scholarships. If we know enough about the elasticity of demand for university education to be able to draw demand curve DD_1, then we can also calculate the numbers likely to withdraw when fees increase from F_1 to F_2. We can then calculate how much of the additional fee revenue is necessary to provide scholarships so that no student in the initial population drops out when fees are increased. Since these scholarships are diverted from revenue that would otherwise be used to build additional places, the supply curve now pivots to the left (SS_2 on Figure 2). With the same level of fees (F_2) as before, actual enrolment becomes E_4, which is still greater than the initial situation E_1. The difference between E_3 and E_4 represents the cost of equity expressed in terms of sacrificed university places.

Some Illustrative Calculations for Australian Universities

I applied this simple framework to Australian data, and estimated the number of extra places that could be created at no additional cost to the taxpayer. My results indicate that 39 000 additional places could be created if fees were increased by one third.

Estimation of the supply curve was relatively simple. My starting point was the number of student places funded by government in 1992. Nearly 6 per cent of these places (mostly graduate students) are exempt from fees. I assumed that the government would want to maintain this research subsidy, and so I excluded these places from the calculations. This adjustment gives 342 265 as the number corresponding to E_1 in Figure 1 (and a corresponding fee level of $2250) (DEET, 1991:table 7.1). I assumed also that costs per place remained constant at $9727, resulting in government spending, net of fee revenue, of $2.559 billion. The supply of places can then be calculated from the formula S = GB/(C-F), where GB represents the government budget, C represents the cost of student places and F is the fee level.

In constructing the demand curve, the first issue is the quantity of excess demand. Although most attention has focused on the difficulties faced by new applicants, it is by no means clear that excess demand is limited to disappointed but eligible new applicants. On the assumption that the student load funded by government is intended to provide education of a given quality, I included in my measure of excess demand an estimate of the 'pipeline' effect of overenrolments in 1990 and 1991.[1] This gives a total excess demand of 68 850, and the corresponding number for E_2 in Figure 1 thus becomes 411 115 students.

How does the quantity demanded respond to price changes? Since we have no firm quantitative measure of this for Australia, I made the heroic assumption that quantity demanded would fall by one quarter of 1 per cent for every 1 per cent increase in fees. While this is no more than an approximation, it is consistent with the indicative evidence. Because the great majority of students in Australia choose to exercise the deferred option for paying fees (since the inception of the HECS scheme, the proportion of students choosing to exercise the deferred option has stayed constant at around 85 per

cent), we would expect HECS to have very little effect on decisions to participate in higher education. The early evidence is that this is indeed the case (Higher Education Council, 1992). This finding is also broadly consistent with a range of international evidence: whereas the demand for education is relatively responsive to changes in total costs (fees, room, board, books, incidental expenses, and earnings forgone), it is inelastic with respect to fees alone, simply because fees rarely constitute a major portion of the total private costs of education (Jimenez, 1987; Leslie & Brinkman, 1987).

With both the demand and supply curves constructed, the equilibrium price and quantity could be established. At a fee of $3018, a total of 381 600 students would be engaged in university study and there would be no excess demand (i.e. $3018 and 381 600 would correspond to E_3 and F_2 in Figure 1). This means that the government could create an additional 39 335 places without increasing its outlay on tertiary education if it increased fees by one third.

What are the equity effects of this expansion? It could be argued that in Australian circumstances no special adjustment for equity is necessary, since fees are already paid through an income-contingent scheme (HECS) that is expressly designed to allow students to defer the payment of fees until they are in a stronger financial position. We have, nevertheless, done the calculations implied by Figure 2. Given the assumed demand elasticity of –0.25, we can calculate the number of students currently enrolled who might drop out following a fee increase to $3018, together with the total cost of scholarships necessary to avoid this outcome. These scholarships are then deducted from the total fee revenue to calculate a modified supply of places, as in Figure 2.[2] At a fee level of $3018, allowing for equity means that the number of places can be expanded by 36 370. Although this is naturally less than the without-equity outcome, it still results in a substantial increase in places compared with the initial situation. The loss of places, or the trade-off between equity and quantity, is relatively modest, at fewer than 3000 places forgone. A fees policy that includes an appropriate scholarship scheme need not sacrifice equity considerations.

Policy Implications

These specific quantitative results should not be taken too seriously. Estimates of HECS revenue, mixtures of weighted and raw student numbers, no separate analysis of undergraduates and postgraduates, and, above all, uncertainties about the elasticity of demand all ensure that our quantitative outcomes should be viewed as indicative rather than specific. Moreover, the simple model presented here takes no account of capital costs, of cost differences between subjects, of the scope for scale economies in coping with increased numbers of students, or of the practical problem of actually identifying scholarship recipients. These deficiencies need to be addressed if the model is to be genuinely useful in a policy discussion of fees.

But even with all the caveats, it seems likely that the main thrust of our results will hold, if only because we used a very conservative estimate for the demand elasticity. The major policy implication is that in an era when the public budget for universities is effectively fixed, fee revenue can play an important role in providing extra places without sacrificing equity. Students everywhere object to paying increased fees and criticise them in terms of equity, but my results indicate that the trade-off between quantity and equity is not a major problem. While raising fees by a substantial amount would be politically contentious, university students in Australia are heavily subsidised at present fee levels. A recent World Bank survey of student loan schemes remarked that in Australia 'effective cost recovery is extremely low [and] fee levels generally do not represent significant portions of the costs of higher education' (Albrecht & Ziderman, 1991:21).

At the wider policy level (and to return to the theme of the introduction), the calculations provide a useful perspective on the role of prices as opposed to administered solutions. This applies not only to the specific problem of excess demand but to the more general issue of growth of the university sector. Excess demand for university entrance has generated much debate (and a formal inquiry) into the balance of growth between universities and the TAFE system. There is no reason to suppose that the present level of Commonwealth-determined university enrolments (the funded student load) has any intrinsic value (Brennan, 1988; Lee Hansen, 1988). One contribution to better resource allocation would be to ensure that growth in TAFE is based on rather stronger grounds than spillover demand from universities, and setting the price of university places at a level at least sufficient to clear excess demand would be a useful first step.

Similarly, if vouchers are introduced at some future stage, their purpose will be to increase price competition between universities and to encourage them to become more responsive to student choice. This article has indicated the sorts of issues that will need to be taken into account in setting the value of vouchers, and emphasises that improved resource allocation through the price mechanism is not incompatible with a careful consideration of equity requirements.

Notes

1. In both 1990 and 1991, universities 'overenrolled' more students than their funded load. The resultant overcrowding (and presumed reduction in the quality of the education supplied) received wide publicity. Given the fact that those who enrolled in 1990 and 1991 are almost all still in the system, there is a cumulative or 'pipeline' effect. The funded student load is intended to provide education of a given quality, and so excess demand in 1992 **for education of that given quality** should logically be measured as the sum of unmet demand by new applicants in 1992 (41 850 is the midpoint of the range in the AVCC survey) plus the overenrolments in earlier years who are still in the system and receiving that lower

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quality. This latter total was calculated as the sum of overenrolments in 1990 and 1991 (8800 plus 23 000) minus the 4800 additional places funded by the government in 1992. This gives a total excess demand of 68 850 and point E_2 therefore becomes 411 115.

2. At an elasticity of −0.25, it would be expected that raising HECS to $3018 would lead to approximately 24 360 students dropping out of the current enrolment of 342 265. On the conservative assumption that such potential dropouts should be compensated for the full amount of the fee increase, the total funds required for scholarship provision (SP) are given by SP = 24 360(3018–2250) = $18.7 million. The modified supply of places at a fee of $3018 is then given by SS_2 = (GB−18.7)/(C−F), where as before GB is the government budget net of fee receipts, C is unit cost and F is the level of fees.

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