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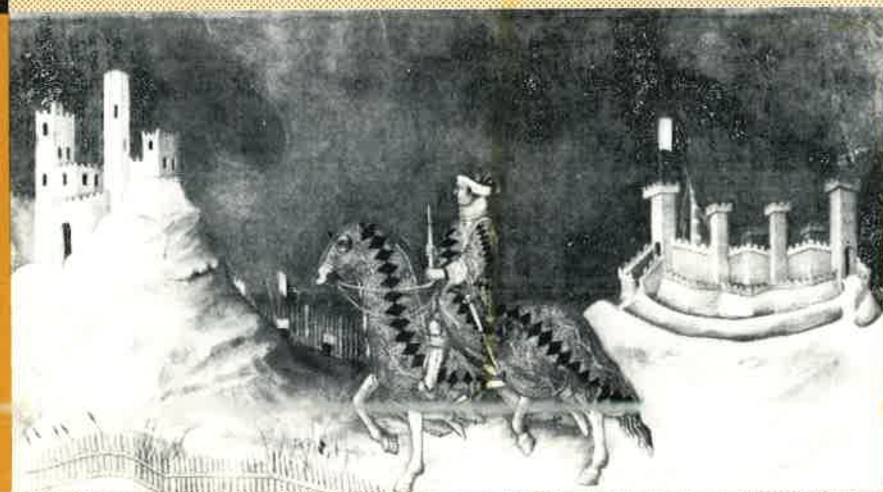
FRANK HAHN

AN ECONOMIST'S VIEW OF HIGHER EDUCATION



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I am very sensible of the honour of being asked to deliver this address. My qualifications I fear are dubious. I am a recent arrival, I had to rely on Dr. Dimitri's kindness for a translation, and efforts have been made to coach me in pronunciation. This last, I fear, remains barbaric. Added to this is my profession of economist and the subject of my talk. Ruskin called economics a "dismal science". Burke lamented over the "age of calculators and economists". There must be qualms in having the academic year of a jewel of European civilisation inaugurated by an economist. But I console myself somewhat by the presence of the statue of an economist in Salimbeni square, and by reflecting on the long line of Italian economists of great distinction. I feel that perhaps, in spite of my handicaps, this occasion may at least turn out to be stimulating.

For I propose to investigate what may seem to you to be an outrageous suggestion: the possibility of a private university sector. This possibility must certainly be more shocking to Italian than, say, American or even British ears. I propose to proceed by first describing what may be called an idealised model of such an arrangement. The idealisation is in the assumptions which are made. I shall then go on to remove the assumptions one by one. As we proceed we shall find that we cannot keep the government out altogether, and we end with a kind of mixed system which, however, in many respects is quite different from the present system in most countries.

I do not wish to be taken as advocating the system which I shall describe. There are many, largely non-economic, arguments which would have to be thoroughly considered before reaching a definitive conclusion. Economic arguments are always relevant but quite often not decisive. But now that there has been a large and continuing expansion in university education almost everywhere, it seems to me more important than ever that we should not act in a traditional way for the sole reason that it is traditional. Looking at radical alternatives is a way of making us think and argue coherently.

Economics as a subject has a lively sense of original sin. It is not denied that people are often kind and benevolent, but when it comes to policy and institutions we think that self-interest had better be given pride of place. Dennis Robertson, a great Cambridge economist, argued that love and benevolence were amongst the scarcest of goods. Since they are so scarce we need to economise in them. That is, we need institutions which do not primarily call on these virtues for their operation. What we need is to harness self-interest for the social good. We shall never want, or be able, to do without benevolence and love altogether. They will not wither from disuse. But economists are disinclined to rely on them. Indeed it may be argued that many of the socialist experiments have come to grief because they gave self-interest too low a role in the design of institutions. In particular it seems foolhardy to believe in the benevolence of governments. One must remember than an injunction: "act for the common good" generally is without content and so not easy to obey.

Universities have always carried a kind of elevated aura: "A community of scholars disinterestedly devoted to the pursuit and dissemination of knowledge". Whatever may have been true in the past, most of us recognise this as a highly stylised description at best. Academics too are largely governed by self-interest, although this need not be of a pecuniary kind. Most students enter university to gain qualifications which lead to jobs and social esteem, not in order to pursue the truth. Of course there are exceptions, but these make bad rules. Importantly also governments which run and finance universities may be interested in the prestige great scholars and scientists bring to a country, but their main motives are far more earthy than given by the elevated view of universities. For all these reasons I regard the exercise which I shall lay before you as having at least the virtue of avoiding humbug and self-delusion. Ruskin and Burke and many others were repelled by what economists regard as a good working hypothesis: "to a first approximation many actions are motivated by self-interest". But I do not think that they understood what is needed for a theory, nor does the fact that the working hypothesis is morally unattractive make it false.

With these attempts to placate you out of the way I shall begin.

I

Suppose for a moment that universities were private profit-seeking firms. They would charge fees to students. Students, so the argument goes, will consider the extra income a university education would enable them to earn. This they would compare with the cost, which are earnings foregone and interest charges on a possible loan, or interest lost on wealth that could have been invested. Firms in hiring workers of all kinds compare the cost of hire with the contribution the worker makes to their receipts. If a university educated worker commands a wage higher than one without this qualification, then it must be that this worker's contribution is also higher.

We now add to this picture competition amongst universities for students and competition amongst firms which employ them. A university which is just on the margin of profitability will, (under an assumption to which I return), charge a fee to a student which accurately reflects the extra cost incurred by the university in taking him on. The student who is just willing to to go to university is one for whom the income he expects to gain from so doing just equals the cost, that is, roughly, the fees he has to pay. But the gain to the student is the higher wage he can earn, and that, by our assumptions, reflects the extra contribution he makes to a firm's revenue.

All this is a sketch of a theory, and any undergraduate in economics can elaborate it. The claim which would be made for the arrangement which I have outlined is that it would be efficient, that is, that in a precise sense just the "right" amount of resources would be devoted to higher education. The notion of efficiency here derives from, and is called after, the celebrated Italian economist Pareto. An arrangement is Pareto-efficient if there is no feasible change in it which would be preferred by all agents. The arrangement for higher education

which I have outlined would be Pareto-efficient if a number of implicit as well as the explicit assumptions which I have made are justified. It is a denial that they are justified which must lie behind the preference for state provision of higher education.

Before I consider this it may be useful to draw attention to some features of the argument.

Pareto-efficiency is a very weak form of value judgment. It is after all not at all clear that one wants to forego a change which makes some people better off while making others worse off. An argument from Pareto-efficiency would only be compelling if the existing distribution of welfare amongst a country's citizens is judged desirable. This however is rarely the case, and it is also understood that a conflict is likely to arise between distributional and efficiency aims. Therefore even if one accepted all the assumptions which make the arrangement I have sketched for the provision of higher education Pareto-efficient, this would still not be a compelling reason for accepting the arrangement.

On the other hand we should grant that there are a number of attractive features of the proposal which do not depend or, at least, do not depend crucially on an argument from Pareto-efficiency. One of these is the competition between universities. This competition, given that they are supposed to seek profits, will lead them towards efficiency in the provision of their services. That is, they will not be in a situation where they could produce more of those without incurring extra costs or providing the same quantity (and quality) at lower costs. The search for profits would also tend to lead to a diversity in what is provided. Some universities may provide rather general education while others will differentiate their product, by providing specialised ones. There will also arise a variety in quality of the education provided so that prospective students with relatively little taste for intellectual work and requiring only a modicum of further education will be catered for. Lastly of course there will be competition for university teachers and by these. Outstanding academics are likely to be better paid than less able ones. There is no reason why employment contracts should not include tenure, but this will be bought at the cost of a lower salary. Risk-averse teachers will opt for tenure, those less risk-averse or more confident will opt for higher pay.

II

But now it is time to turn to the assumptions. These can conveniently be grouped under three headings: information, externalities and the nature of the production process of universities, as well as their motives. I start with the first.

It is clear that since universities offer a rather complex product, prospective students will have difficulties distinguishing between universities. Kenneth Arrow has discussed a related difficulty in the market for medical services where prospective patients lack the information required to choose between doctors and hospitals. One could imagine this information to be provided privately, as indeed it is in Britain for private schools and in America for some private universities.

But information is a public good - that is, consumption of this good by one person does not diminish the amount of it available for others. Hence when someone charges me a price to reveal some information he already has I may not buy it even though my acquiring the information is costless to society. There are straightforward arguments to show that this would be Pareto-inefficient: too little information will be provided and acquired.

There is therefore a good case for public goods like information to be provided publicly. One could think of a public authority which annually grades universities. This grading could be quite sophisticated. For instance university A has a high grade for General Education and a low one for special subjects, and so on. One expects that fees and the wages earned by graduates will reflect such a grading. Just such an exercise - but for a different purpose - is now being undertaken in Britain. The research performance of all departments in all universities is assessed and graded on a scale from one to five. Universities which are graded worse than two receive no or very little financial support for research and their income is purely related to the number of undergraduates. So grading is practicable, but having been involved in it on both sides, I admit that it is not without difficulties. However one could make do with a less ambitious scheme of simply certifying universities as fit or unfit to award a degree.

But as such the informational problem here does not constitute a strong case against private universities. Even less is it a reason for governments to lay down in any detail what the universities are to provide. No one would argue that the difficulties experienced by the ordinary consumer in distinguishing between different makes of motor cars should be overcome by having car design specified publicly. Variety in cars as well as in education is itself a "good" and centrally imposed degree courses are surely an over-reaction to the informational problem. Of course this may be justified on other grounds, and I return to this matter. In any case, the account of a market-university system will have to include provisions of information - of course at a cost - as to university quality.

Just as is the case in the grading of hotels and restaurants, a public grading system of universities may be expected to overcome the temptation to lower quality and in particular to lower the examination standards. But there is not one 'ideal' standard. A degree from a university graded as middling will be a "middling degree" and that will be known to prospective students and employers. There is however a difficulty which is also informational. A prospective student may not know his or her ability. Even school performance is only a partial signal of ability. Thus a student may choose a middling university when he should have easily satisfied the requirements of a highly classed one. This is largely a problem which arises when a student is "locked into" the university of first choice. But there is no reason why he should be, and transfers between universities would be in the latter's as well as the student's interest.

But grading private universities will inevitably lead to some of them being selective in the students whom they admit. That is because universities which find it profitable to aim for high quality do not want their grading reduced by mediocre exam results. This may be regarded as objectionable, but I postpone a discussion of the matter until later.

I now consider the student. One of the assumptions behind the idealised market story is that students can freely borrow at a given market interest rate. The story here is very similar to that of investing in productive capital, only now it is investment in human capital that is of concern. The informational problem here arises from neither the student nor the prospective lender knowing the quality of the borrower. Agents who lend face the uncertainty of the student performing badly and finding himself unable to repay. The student himself is investing in human capital with an uncertain pay-off. It used to be believed by economists that in these situations higher interest rates would compensate for risks so that there was always some rate at which the student could borrow. We now know this to be false. (Stiglitz and Weiss) Raising interest rates leads to adverse selection - that is, bad risks drive out good risks. Knowing this, banks and other lenders will be more inclined to <u>ration</u> credit: that is, students may not be able to borrow what they need at any price.

There is also another undesirable feature. Richer students or students with richer parents will either not need to borrow or will find that their credit ration is larger than that of poorer students. The private university system would thus have undesirable distributional consequences quite apart from leading to an underutilisation of a country's talents when able poor students cannot borrow.

But while we have here an argument for government action, it is not yet an argument against the market-university system. In the situation which I have described, much of the uncertainty in granting credit disappears if the law of large numbers can operate. That is when many students borrow from the same source, while some will default - there will be a straightforward actuarial calculation to set the terms of the loan so that on average the lender makes no loss. Evidently a government is well suited to be the lender. Indeed it would suffice if it guaranteed the loan. It is likely that students wishing to go to highly graded, and so expensive, universities would have to undergo some form of screening to obtain a loan. But as I have already noted, such screening will almost certainly be already a feature of that university's admission system. I conclude that in the matter of student finance, government will have to be involved.

Recall that in describing a student's choice I supposed him or her to calculate costs and benefits. I am well aware that both elements include "psychic" as well as pecuniary elements. Indeed an economist would be inclined to postulate that calculations are in terms of losses and gains in utility, and utility depends on more than lire. Everything I have to say can be formulated in these terms, but it would somewhat reduce the clarity of exposition were I to do so. The point now is that the degree or diploma the student obtains, from the point of view of

the employer, is a signal, although a noisy one, of ability and knowledge. It is not easy to observe these two directly. Suppose a person of mediocre ability obtains a degree from a second class university. The better student will have to obtain a degree from a better university if he is to signal his superior ability. The employer will reason that the degree from the superior university signals that the student was of sufficiently high ability as to make the higher costs of this education less risky for him and therefore he is indeed of higher ability. But notice: the abler student could have signalled the same thing if he had gone to a second class university provided the less able one had gone to a third class one. That is, the benefit to the student of his choice depends on the choices made by others.

In many instances it can be shown that there are many possible market outcomes and that it is likely that too much is being spent on universities. There is an escalation of qualifications which need not contribute to performance in the job. This of course is reinforced by social considerations: status is a relative matter, so that if most have a first degree there will be obvious social inducements to some to get a second. In any case it is no longer possible to argue that the outcome of the market-university system will be Pareto-efficient. In particular, private universities will have an interest in over-selling qualifications.

It is here that government intervention can be plausibly defended - for instance by limiting the number of university places or the number of places for particular subjects. It may seem perverse to you to argue that there may be "too much" higher education. But when you consider the number of young people who are uncongenially driving themselves through university when they could be engaged in productive and self-fulfilling jobs, and do so only because others are doing so, you may come to agree that over-qualification may be a problem. In any case we seem here to have a case for government regulation but not yet for government as the sole provider of higher education.

III

I now turn to what economists call externalities, where the last argument is to some extent turned on its head. An externality is present when the actions of an agent have good or bad consequences for other agents and these do not enter the calculations of the agent taking the action. A favourite example is environmental damage resulting from the actions of some private firm or person. Externalities are all-pervasive and are one of the main reasons why market economies may not perform satisfactorily.

In the present case, suppose that a firm can indeed correctly estimate the contribution made by variously qualified workers to its revenue. A student can then calculate the rate of return on the addition to his human capital which results from his choice of higher education. These returns have also been calculated by statisticians who take salary-differentials as a basis for their calculations. These rates turn out to be rather modest, particularly for second degrees like Ph.D's. But it can be argued that these "private" rates of return underestimate the "social rates of return" - that is, they ignore the external

benefits of another university educated person. Now I attempt to be more concrete.

One of the main externalities of higher education economists have discussed concerns its effect on the pace of technical progress. This depends, it would seem, on a minimum quantum of qualified people. There are lone inventors, but systematic technological improvement depends on interactions of a number of people, and there are often complementary skills and know-how which are required. Moreover, as the stock of knowledge grows, it cannot be stored by a single person (nor can anyone understand all the knowledge which is stored somewhere). The individual employer in his hiring decision takes the number and variety of qualified people as given. He does not consider the benefits conferred on others in hiring another qualified person, and so the wage paid underestimates that person's contribution.

Closely related is another, inter-temporal, externality (see Weale). Technical advance benefits future generations as well as the present one. In particular, if a high level of education leads to faster growth this is a benefit for future generations, and this benefit is only partly captured by the market. It should here be noticed that these externality arguments are almost as strong for an economy which is not itself the source of innovations. To understand, leave alone utilise, innovations and new knowledge produced elsewhere requires very similar skills as those for producing them for oneself. An economy's capacity to "catch up" with more advanced economies seems to depend quite strongly on its educational level.

That these externalities are real seems certain, but attempts to estimate them have so far yielded only small numbers. This may be due to insufficient attention having been given to increasing returns in the production of new knowledge and techniques. For certain ranges, more knowledge makes it easier to generate new knowledge. One need only think of the effects of increased knowledge in molecular biology. It has opened up a large number of applications which previously were not thought possible or were too costly. But no individual firm would probably have found it profitable to employ Crick and Watson, and now no firm will take account of how some new application of genetic engineering may benefit other firms.

These considerations now point us in the opposite direction from the conclusions of the analysis of signalling. Private choices may lead to too little higher education being undertaken. How this comes out in a final calculation I do not know, although a good deal of empirical work is now going on and may eventually allow a more definite judgment. But if we reach the conclusion that there is too little then this becomes a case for subsidising either students or universities by government. It does not of itself provide a case for governments being the main or sole provider of university education.

It will have been noticed that so far I have paid no attention to universities as centres for research. In particular as centres for "pure" research. In the picture of market universities which I have given, not all universities would opt for research. But on the narrow scope which I have given to the aims of universities - that is, profit - none of them would

undertake such research unless it allowed them to charge students higher fees and/or attract more of them. The reason is simple and I have already discussed it in another context. The fruit of pure research is information, and information is a public good. In particular, if I buy information I could resell it without losing it. So it would have a zero price in a market economy. It is for this reason of course that there are patent laws. But it is difficult and almost surely undesirable to patent the outcome of pure research.

So here there is a rather massive externality. The market value of new fundamental knowledge is zero while its social value may be immense. There is no doubt that government action is required here. In many countries it takes the form of Research Councils which are the route by which pure research can be financed by the government. Difficulties arise since many engaged in this sort of research also teach. If universities are private, these Councils might buy some of the teaching time of their employees and of course provide finance for equipment. Inevitably such support will have to be selective. How the selection is to be made is another difficult story.

IV

So far I have successively modified the private university system without yet running into a fatal objection. Government intervention was needed but could be of a kind which left the system essentially intact. It is now time to ask whether the picture of competing private universities is actually coherent.

There is no doubt that university services are produced under increasing returns. There are the set-up costs of buildings, libraries etc. A teacher can normally teach a number of students as well or even better than a single one. There is a minimum size of the teaching staff which is independent of the number of students. That is because most subject areas have specialisms and because an isolated teacher will be a bad teacher. All of these fixed costs are deterrents to the entry of new universities, and so to competition between them. Moreover it is known that if costs are falling with size that a certain monopoly power may arise. This may not be a serious objection if economies of scale are exhausted with relatively small size.

Whether private individuals would be willing to invest in universities is an open question, but there is no a priori reason to suppose that they would not. Nowadays we have not only private investment in hospitals but also in prisons. However it would certainly follow that the universities would be run for profit. This would have one advantage: there would be pressure to produce the services at minimum cost - that is, efficiently.

So we now face the question: do we have reasons to object to universities being run for profit? Given our traditions we are inclined to recoil in horror from the very question. Universities, we are used to believe, are to act as guardians of culture and as conveyers and discoverers of new knowledge. How can that be reconciled with the profit motive? In principle I do not see why it should not be reconciled.

Profit seeking universities will supply what is demanded. We have already agreed that there would have to be public certification of some kind. Suppose then that society - rather

the government - considers that the study of Greek vases or of the history of Mongolia is desirable. As now, it would have to be prepared to pay for this - unless it is also in the private interest of some potential students of these subjects. It might well be. For instance for a long time the study of classics was the entré into the higher reaches of the British Civil Service. Training of intellectual muscles can be achieved through all sorts of subjects, and employers are aware of this. (Wall Street and the City of London employ engineers, mathematicians and historians and I believe economists are in a minority.) So obstacles in the way of private universities providing "cultural" or not immediately useful subject training are not intrinsically connected with their being private. Rather it is the opportunities of making a living which cultural training affords, and so the student's willingness to pay for this training that is the issue. And here if the government want it, it will have to subsidise or provide employment opportunities, for instance in museums. In any case private universities are only bound to be philistine if the customers, including the government, are philistine.

But for the reasons I have given, namely relatively large set-up costs, the university industry would ideally be a "regulated" industry. That is, the government would have to set a limit on the loans to students it is willing to guarantee and so on the fees universities can charge. One would expect these limits to be different for differently graded universities.

For the reasons to do with externalities and signally it is not at all clear that privately operated universities would provide the socially desirable variety and number of places. This would be another occasion for government policy which could take the form of subsidies and taxes. But in the present scheme there is no reason why the government should not go into the university business itself, provided it remains only a part of the system. Indeed for all sorts of reasons, competition between privately and publicly run universities might be very beneficial.

There is of course a danger of undue interference in academic matters by the owners, and indeed the tradition of academics running academic matters might be at risk. Recall however that there is no reason why academic contracts with tenure should not be available - at a price. More importantly, interfering owners may learn that interference reduces efficiency and performance, and there will be many opportunities for academics to leave the interfering owner for a less interfering one. Indeed they may accept a lower salary as the price of non-interference. But there is an even stronger answer to the objection. That is that government owned universities are likely increasingly to suffer much more serious interference in their affairs. The recent history of British government policy is a pretty dreadful example. Not only will governments interfere but since all universities are under its control there is no escape. Governments in general know far less about how universities function than would owners and managers, leave alone academics. So I am not impressed with this objection. I would expect a much larger variety of higher education to be offer and a much more sensible allocation of teaching talent in the private system,

without running grave risks of academics in thrall to some nasty businessmen.

V

As I conjectured at the outset, some of you will have been shocked by what I have been saying. Let me assure you that I am not a fanatical market advocate and that many intellectual miles separate me from Milton Friedman. But the partial market solution which I have been discussing seems to have merit, and I have tried to deal with some of the main objections. One of these remains to be looked at - the social consequences might be bad.

I have regarded diversity in universities as desirable, while I understand that in Italy the aim is a broad uniformity and equality between universities. The reason why I favour diversity is that there is diversity in people. I do not claim that this is genetic - it just is a fact. No one should invest in training me in carpentry, or preparing me for Wimbledon. The investment would be wasted. I have had bright students for whom even the simplest mathematical reasoning was impossible. For whatever reason some people are better at intellectual work than others, some learn more easily and some are more creative. They need different teaching and they need to interact with each other. The main objection to having universities which are designed for rigorous high level training as well as universities that provide a more general or vocational education is that this would be reflected in social esteem and so promote social inequality. There is something in this objection - to have a

Harvard degree for instance does seem to confer social caché however bad the graduate, but judging by America their extreme hierarchy between universities has not fostered more inequality than elsewhere.

For similar reasons there may be objections to selectivity of students by some universities. The system of admitting all who want to come leads to large drop-out rates, large classes and lack of contact between teacher and taught. It is very costly, even if it is true that drop-outs gain something from their university stay. Whether students who do not complete their course are less socially disadvantaged than students who would not get admitted in the first place must be open to doubt. But in any case with the variety of universities which I envisage, students should more readily find one which admits them and offers courses which the student can complete.

You will gather that my view of universities is both less lofty and more lofty than seems usual. I do not see why all universities should teach and research at the frontiers of knowledge, nor why they should all cover all branches. Very many people and indeed society and the economy would gain from universities with less exacting standards. On the other hand I regard it as essential that there should be some universities which have the highest possible intellectual ambitions both for their students and for their teachers. This kind of variety may well be easiest to achieve by some kind of mixed economy university system.

VI

I have come to the end of my argument. On a different

occasion I would have illustrated some of the points by data which are now becoming increasingly available. I can however report that so far the measures of externalities have not yielded large numbers. This of course may be due to difficulties in measuring intangibles such as the social benefits of an educated population.

It is interesting to note that America is now the only country with a highly decentralised university system not controlled by the Federal government. It is true that ostensibly private universities there are not profit maximisers pure and simple, and that their initial overhead finance has come from gifts. They also make appeals for such gifts. But there is sufficient similarity to the model I have produced to allow one to take the American case as at least weak evidence that the arrangement is viable. I think we must agree that American universities are at present pre-eminent in the world, and we cannot deny that a very large fraction of its citizens receive some form of higher education. The latter also provides a great deal of variety from junior colleges all the way to Princeton. Lastly, it would be hard to deny that America scores highly on social equality.

So once again there is weak evidence that the scheme which I have discussed will not be socially harmful. I have purposely taken the extreme case of profit-maximising universities in order to highlight a stark alternative. But there are other ways of decentralising, for instance to something analogous to worker-run firms or co-operatives. There is no time to deal with these alternatives. What is now needed is to look more closely at arguments - indeed to engage in an argument.

Frank Hahn

September 18, 1992

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