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Universities and the Rise of the Global Meritocracy

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Foreword

At the David Hume Institute we always look forward with great anticipation to the annual Hume Lecture. The lecturer is chosen with great care by the Trustees and Director and we know that the audience will be an excellent cross section of key players in Scotland from business, academia and policy making – with a significant proportion of these attending very experienced in and knowledgeable about the selected speaker's topic.

This year we were exceptionally fortunate that Frances Cairncross, Rector of Exeter College Oxford, agreed to deliver the lecture. Not only is Ms Cairncross an acknowledged expert on tertiary education she is also a highly regarded member of the First Minister's Council of Economic Advisers. We were delighted that she accepted our invitation to speak, in a private capacity, and thrilled with the lecture that she delivered. We are now pleased to make this splendid lecture more widely available.

Frances Cairncross's talk was clearly extremely well prepared – and entirely tailor-made for the occasion. Her audience listened with rapt attention throughout. I shall not attempt to summarise, but will rather pick out a few of the key points that came through to me on the night.

Our speaker emphasised that universities in Scotland are both very old institutions and very successful ventures. It is remarkable that there are now 132 million Higher Education (HE) students across the globe - and growing fast. University is no longer solely for the elite. I was the first member of my family to actually attend university, although my father was rightly proud of his external B.Com from Glasgow University. Now going on to university is the rule rather than the exception for many families. And the growth in the emerging economies is truly remarkable. There are even universities with over 1 million students each!

Universities, in Frances Cairncross's words 'produce the key ingredient of economic competition; intellectual capital'. She sees knowledge as 'not just power' but 'also wealth and welfare'.

For Scotland universities are critical to competiveness in the knowledge economy and more broadly, but Frances Cairncross sees a real risk to these institutions due to chronic underfunding.

A core element of this paper is with regard to the future for funding. It is emphasised that a degree is 'a wonderful investment for a young person'. (Student loans are really a graduate tax and 'a sensible and logical innovation'.) The returns are high to individuals as well as society. However, the approach to university funding has reinforced social divisions rather than removing them and the huge expansion of higher education has not resulted in students from lower income homes having similar opportunities to those from the middle classes. The new places in the expanding university sector in the UK and elsewhere have largely gone to the children of the middle classes.

Frances Cairncross explains this phenomenon by the willingness of the middle classes across the globe to invest in their children's future – seeing the returns that can be achieved via higher incomes following investment in higher education. Her solution to the question as to how to increase access from poor families is not 'to bully universities to change their selection procedures', but rather to target significantly increased public spending on education for the very young. Efforts to promote equality could achieve more if the focus is on the early years.

Our speaker also emphasised that the effect of capping student fees is to increase the share of benefits flowing to higher income groups. In England, where fees may vary within strict limits, the children of the higher paid are more likely to go to the most subsidised universities and hence reap the lion's share of the subsidy. In Scotland too the benefit of the policy of no fees goes to those who go to universities – still mainly from the middle classes; and in practice the benefit is higher to those who attend the top universities. Again this implies a subsidy, the receipt of which is skewed to the higher income groups. How many students from lower income groups attend St Andrews, Frances Cairncross mused, where the benefit from no fees is presumably particularly high?

I could go on at great length, but shall restrict myself to some final thoughts on the implications of the lecture. There are issues to be addressed so far as 'early stage intervention' in education is concerned. Does this imply real social and economic gains from a re-balancing of priorities in spending towards primary and pre-primary? Then there is the question of the funding of the costs of HE in Scotland. Is the policy of no fees regressive in impact rather than progressive? Would a more diverse funding stream benefit the HE sector? Taken together, could a policy of greater emphasis on early stage education coupled with one involving increasing the costs to graduates of their education bring benefits in terms of both economic efficiency and a wider spread of benefits?

Generally how do we continue to finance the growth of HE in Scotland in the years ahead when enhancing competitiveness will be even more critical, but public sector funding will be far, far, tighter than in recent decades? These are all questions raised by this lecture and important for all of us – including not least our policymakers. Please read on and draw your own conclusions.

Finally, I wish to thank our sponsors for this Hume Lecture, the Royal Bank of Scotland, and our chair for the evening Mr Donald Workman who is both a senior Executive of RBS and a Trustee of the Institute. Also I must stress that the views expressed in this paper are those of the author and not of the Institute, which as a charity has no collective view. Last, but by no means least, my thanks again to our speaker Frances Cairncross for a brilliant Hume Lecture.

Jeremy A Peat
Director
March 2009

Universities and the Rise of the Global Meritocracy

When, at the age that most children today are just settling into secondary school, David Hume went to the University of Edinburgh, that institution had been in existence for almost a century and a half. It was, of course, Scotland's youngest university (and was to remain so until the foundation in the mid 1960s of what is now the University of Strathclyde).

So Scotland has been in the university business for a long, long time. Indeed, Scotland's ancient universities, with their secular tradition, their broad access and their strong focus on useful learning and philosophical inquiry, resemble the modern ideal more closely than did the collegiate university where I now work, which long excluded students with the wrong religious beliefs. But Exeter College is another reminder that the idea of the university is astonishingly old: older than almost any other institution of modern society. It was founded in 1314 – by Edward II's finance minister, who might have changed the course of national history if he had restrained his master that year, instead of worrying about the education of poor West Country boys for the priesthood. And it has been on the same spot since 1315. It does, roughly speaking, what it did in the 14th century: it is a community of people who study and teach and conduct research.

So universities are among the world's most venerable institutions. Among the world's top ten, as measured in the league table compiled annually by Shanghai's Jiao Tong University, only one – CalTech – is a child of the 20th century. The 2008 table includes not just Oxford and Cambridge, in continuous existence since the early Middle Ages, but also three relics of the 17th and 18th centuries: Harvard, Columbia and Princeton. But they are not just ancient: they are also among the world's most successful institutions, and that is what I want to talk about tonight.

The story is astonishing. Global student numbers in higher education have doubled in a decade, to 132m people – growing by 5% a year which is much, much faster than numbers in either primary or secondary education. Until a century ago – and even in Scotland – only a tiny fraction of the population had a university education.

My father's family was highly unusual (and had the advantage of being Scots): five of eight children went to university (and one of the others to Do School). Even when I went to Oxford from my Glasgow school, in 1962, only one in three of children from families like my own went to university. Indeed, there were one-third as many students in higher education as there are *teachers* in the sector today.

Now, Scotland has 14 universities and several other fine institutions of higher education. More than half the current generation of young people of student age are now in higher education. That is true for several rich countries. In the United States, three-quarters of high-school graduates now go on to higher education. And in the OECD as a whole, the proportion of adults with higher educational qualifications almost doubled between 1975 and 2000, from 22% to 41%, and is still rising.

What has already happened in the rich world is also taking place elsewhere. In China, the transformation has been breathtaking. University education was for the elite in the early 1990s: today, there are 24m university students. The quality is patchy – but the trend indisputable: by 2015, more students may graduate in China than in Europe and the United States put together. Around the world, there are now 50 universities with more than 100,000 students, most of them in developing countries.

The largest, the Allama Iqbal Open University of Islamabad, and the Indira Ghandi National Open University of New Delhi, both have around 1.8 million registered students. The Islamic Azad University of Tehran has 1.3 million. Welcome to the global meritocracy. Mass higher education is here to stay, almost everywhere. It is hard to think of many industries that have enjoyed such stellar and uninterrupted expansion all around the world.

Moreover, universities produce the key ingredient of economic competition: intellectual capital. Knowledge is not just power – it is also wealth and welfare. Universities both discover and sift knowledge, in their laboratories, libraries and classrooms, and develop in the young the ability to use it effectively and innovatively.
In the world of the knowledge economy, where a growing share of company assets are intangibles such as patents and brands and where the clever use of information technology is a key skill, universities perform two crucial functions: they train undergraduates and graduates, and they undertake research. Increasingly they also give birth to small businesses that commercialise and market the fruits of these two activities.

Finally, the best universities increasingly perform another highly important function: they suck in young talent from around the world. They are becoming the key recruiting agencies of the knowledge economy. And, given the importance of the English language as the universal operating system of the communications revolution, British universities have a special advantage in this regard. However, if we continue to take that for granted, as we have done up to now, we will jeopardise our current strength. Impoverished universities will not indefinitely enjoy international success.

In the next hour or so, I want to explore the reasons for the worldwide explosion of demand for higher education. I will talk partly about the UK, but, I will also argue that top universities are becoming even more important than individual companies in the competitiveness of nations. And I will suggest ways that universities need to develop, if we are all to benefit from their potential international clout.

For Scotland, this is an area of tremendous opportunity. To be part of the global meritocracy means appearing in the international rankings of universities. You may dislike the whole principle of league tables, arguing that they measure the wrong aspects of education, but they are the measure that everyone uses. In the exclusive Shanghai Jiao Tong index of the world's top 500 universities, the University of Edinburgh is in the top 100 and Glasgow in the top 150.

If you prefer the QS rankings, published annually in the Times Higher Educational Supplement and far kinder to British universities, Edinburgh is in the top 25, and Glasgow and St Andrews in the top 100. No other country as small as Scotland does as well. So in the rapidly growing international market for university education, Scotland punches far above its weight.

But another of my themes will be that Scotland is endangering the international potential of its universities by chronically underfunding them. That perilous policy is a response to powerful domestic political pressures to treat universities as a free social service. It is absolutely proper to help children from poor homes to gain university places alongside the children of the middle class. But it is absolutely wrong – and unnecessary - to help them in ways that undermine one of Scotland's most precious assets.

I accept that my approach will sound disagreeably utilitarian to some of you. I should say at once that I firmly believe that the first goal of a university ought to be the fostering of good scholarship among students and academics. But my interests tonight are the economic forces that are at work in the groves of academe, and their implications for competitiveness and for government policy. While I am on the subject, I should say that I am speaking in a private capacity, and that by no means all of my colleagues on the Scottish Council of Economic Advisers would agree with some of the points I will make.

Let me begin, then, with my key proposition: universities are increasingly important to a country's competitiveness. Higher education has a powerful impact on economic performance, through its effect on productivity, innovation and the diffusion of new technologies. And, of course, this effect is likely to grow stronger in a society that depends on innovation and creativity to earn its way in the world. As you doubtless know, assets such as patents, technologies and brands now account for the greater part of the value of most publicly traded companies.

Some of this economic impact comes through high quality research; and some of it through teaching students. Let's take research first. As in the United States, British universities have played an important role in basic research in many areas. To evaluate what they do, we have the Research Assessment Exercise. It is a cumbersome and expensive way of judging the quality of research – but it is hard to think of a fair alternative as a basis to share out public funds.

But the role of research in universities is complex. When prime ministers talk of it, they are generally thinking of scientific boffins and folk in white lab coats. In fact, some of the most interesting research I see around me in Oxford is in the humanities and the social sciences. This, moreover, is the sort of research that every university can afford to undertake, not just the wealthiest: it does not require expensive laboratories and equipment. It is generally research about human behaviour in one form or another, or about our shared culture. And if you don't think it is as worthy of public financial support as basic science, think for a moment of the international box-office success of historical masterpieces, or of the importance of legal academics in shaping the International Criminal Court, or of the need for good social science to tackle everything from obesity to youthful violence. We mustn't starve it merely to protect those boffins and lab coats.

However, even the best research does not necessarily yield direct financial pay-offs, and attempts to force such links can corrupt the whole activity. Instead, it has influence in other ways. For the association of research with good universities is probably essential to keep the best academics, to ensure the best teaching and to guarantee a slot at the top of those increasingly important international league tables.

Good research may thus be even more important for its impact on the quality of students a university attracts than for the business opportunities it may eventually create. If Scotland is to have the best academics teaching its students, one of the best ways to attract them is by funding research.

And good research enters the economy, first and foremost, not through the products it eventually creates, but through its impact on students and what they learn. In all the talk of knowledge transfer, much too little emphasis is put on the way that students who work in labs and study in libraries then fan out through the economy to deploy their fresh learning in the workplace.

Innovation these days sometimes takes the form of the discovery of a new chemical process or of a new drug. But it also involves creativity in day-to-day management – such as the development of flexible pricing for online ticket sales, say, or new ways to manage the supply chain. Young graduates, with up-to-date skills and knowledge, are ideally placed to spot such opportunities.

As you will have gathered, I think the role of research is important for driving economic competitiveness, although not necessarily in the way that politicians often suppose. But what about students, the second key output of universities? What are the gains to the wider economy from expanding their numbers?

Here the story grows complex. The most measurable economic gains from a university education accrue not to society at large, but to the individual student, in the form of higher lifetime earnings. Everywhere, graduates earn more than non-graduates. Indeed, that single fact accounts for much of the international rise in demand for higher education. It also raises questions about the extent to which governments should take money from taxpayers, most of whom have never been to university, and use it to subsidise students. I'll come to those questions in a moment.

The earnings gain from a university degree is remarkably widespread and persistent. Thus, in the United States, the real median earnings of male college graduates have risen by about 15% in the past decade, whereas the earnings of high-school graduates have declined by 10%. Moreover, that relationship does not seem to have changed – at least, not yet - with the vast expansion of university education.

And graduates get jobs that are simply not available to non-graduates. In America, for instance, the number of jobs requiring a college degree grew in the early years of this decade at roughly twice the pace of those needing only on-the-job training.

So a degree is – on average - a wonderful investment for a young person. One set of calculations, by the OECD, found that a higher educational qualification brought the individual gains of between 4% and 14% in the 21 countries studied, with an average of 8.5%.
And there are other pay-offs. For instance, graduates may enjoy better access to pleasant jobs. And there is evidence that individuals with a university degree are less likely to drink too much alcohol, to suffer from depression or eat badly – although it may be, of course, that people who are likely to be drunk, depressed or obese come from backgrounds that make them less likely to go to university in the first place.

Of course, some subjects – and some universities – seem to yield higher returns than others. Students who go to universities like Oxford and Cambridge earn considerably more, on average over their lifetimes, than students who go to the University of East Grinstead. Again, this is true not just in Britain: every country has its elite institutions, whose alumni earn on average more than graduates of other places. They may be the Indian Institutes of Technology that take a small number of India's most brilliant students each year, or France's highly selective Grandes Ecoles. But the result is immense pressure to get students through an extremely narrow gate. Indeed, one of the most disagreeable aspects of my job is dealing with alumni – especially those who have been generous to us in the past – whose children have failed to win a place at their old college. Some of them say crossly, "An American university wouldn't treat me like this" – and they are right: the admissions office of a top American university regularly drops a "feather in the scale", to use the delicate euphemism, when it sees an application from the child of a generous alumnus.

But why do students with degrees earn more than non-graduates? The answer is not straightforward. To some extent, of course, three or four years at university give skills to a young person that he or she would not otherwise have had. I have no doubt at all that the students at my college develop, in the course of acquiring their degrees, an ability to analyse and to reason, in speech and in their written work, which they did not have when they arrived – and indeed would not have acquired at most other universities around the world. But there are at least two other factors that undoubtedly help to account for the rewards from going to university, or to a particular university.

One is the other students. What American researchers call "peer quality" seems to be an important influence on what a student draws from time at university. Moreover, university is the place where students will meet many of the people who will be their lifelong friends – and perhaps also their future spouse. It is what economists call "a strongly networked good". Larry Summers, an economist who has been President of Harvard, argues that this characteristic as much as any other explains the durability of a few famous universities in the upper echelons of university rankings. "After all," he says, "if the main reason you entered a hotel was to run into the right people in the lobby, it would be almost impossible to break into the ranks of top hotels."

The other non-academic factor that helps to explain the links between universities and earnings is the formal selection process for university entry, and the signals it conveys. From the point of view of an employer, this is invaluable. If an employer wants to hire a smart 22-year-old, why not stipulate that the person should be a graduate? That may exclude a few bright youngsters who decided not to go to university, but most of the candidates you want will be ones with a degree. So, even if the degree is not particularly relevant to the job you have to offer or indeed even if the job doesn't really need a graduate at all, the sensible way to attract a good candidate is to advertise for a graduate.

And if you are an employer with a top company, short of managerial time to interview but hungry for young talent, then the brutal but efficient course is to go to just a few of the most selective universities. You may reasonably expect that these universities will have done a good job of educating their students, and that their students will have done an excellent job of educating each other.

But you also know that these are the toughest universities to get into, and you therefore reason that the admissions process has done a lot of your job for you. After all, there is no limit to the number of A grades that examiners can award at secondary level, but tight limits on the total number of places at – say - Edinburgh University.

This signalling role of a university degree means that the choice for an ambitious and able school-leaver is now a no-brainer. The easiest route to the best jobs is through the University careers service. Only those with exceptional connections can afford *not* to take a degree. And if that is true for British youngsters, how much more so is it for the millions of young Chinese and Indians who are part of the largest generation of middle-class kids that the world has ever known?

So a great deal of the measurable benefit of a university education accrues to the individual. But not all of it. Society also gains, although it is much harder to measure those gains. As I said earlier, higher education is a powerful mechanism for ensuring that advances in knowledge and understanding are speedily diffused through the economy. In addition, education influences economic performance through its impact on productivity and innovation.

Rapid technological changes – the widespread use of IT, the complexity of medicine, the demands of modern management – have all increased the need for graduate skills. I am a fan of the work of Erik Brynjolfsson, a professor at MIT, who argues that well-educated employees, working in teams and largely controlling their own work processes, are especially effective in companies that rely on IT for competitive advantage. These are the sort of settings in which good graduates are the vital ingredient for applying good academic thinking and for raising corporate productivity.

Society reaps other benefits that are hard to quantify and harder still to value, although they are undoubtedly important. Several studies have suggested that university graduates are more likely to undertake volunteer work and to join voluntary organisations than those without degrees. More pragmatically, widespread university education may improve public health, or it may strengthen democracy and create a well-informed and vigilant electorate. And a well-educated society may be a more civilised place to live than an uneducated one, with flourishing literature and arts and a humane and tolerant populace.

But the fact that university education brings such clear and dominant gains to the *individual* raises important issues of social justice and public policy, and these are issues to which I now want to turn.
They matter, not just because universities have become institutions for reinforcing social divisions rather than removing them. They also matter because the individual gains from university education have shaped public policy in ways that are no help to the poor and profoundly damaging to higher education. Ironically, the impact of the private benefits is to jeopardise the broader gains to the economy that universities can deliver.

Most people would probably agree that, given the importance of higher education for future earnings, students from low-income homes should have the same chance to acquire this life-changing opportunity as the children of the middle class. Has the huge expansion of university education delivered that? Sadly, no. Let me explain.

University students are almost exclusively the children of the middle class – not just in Britain, but everywhere. In all the rich countries where student numbers have soared in the past half century, most of those new places have gone to the children of the middle classes Here in Britain, four out of five of children whose fathers are in the top professional groups go to university. So do almost half the children of middle managers and other professionals.

Moreover, Professor Alison Wolf, a perceptive scholar of this trend, has pointed out that the proportion of middle-class students in universities has risen in Japan, Germany, Australia and even the United States. Because overall numbers have grown so fast, the absolute number from poor households has *also* generally increased too. But it is the children of bankers and book-keepers, secretaries and solicitors, teachers and technicians who have been the big beneficiaries of university expansion.

Why is this? From very early on, the middle classes see education as a key to their children's future. They are prepared to spend heavily to get it, even in countries where state education is almost universal. In Korea, for instance, middle-income parents typically spend about 17% of their earnings on supplementary tutoring schools for their children.

In Britain, house prices are a good guide to the quality of local state schools: if you don't want to pay to send your child to an independent school, you will probably capitalise the fees to pay for a house in a desirable catchment area.

So how do we restore the balance? Many people assume that the main deterrent for students from poor families is the cost of taking a degree. In fact, the poorest children already effectively get full fee remission. Of course, they have to take out student loans to meet the costs of accommodation and maintenance. One consequence is that children from poorer homes are disproportionately likely to live at home rather than on campus. But the international evidence strongly suggests that the cost of going to university is not the main influence on participation rates. The United States, with the highest and most widespread tuition fees in the world, also has one of the world's highest rates of participation in university education – higher than several European countries where tuition is free. Its diverse universities, with their many different prices and courses, discriminate much less against poor students than any other system I know.

The most powerful tool to get more children from poor families into university is not to bully universities to change their selection procedures. These, as I know first hand, are already set to avoid any whiff of discrimination. Instead, the answer lies in early intervention – the earlier the better. Such children are much less likely than others to have the right school-leaving qualifications. I don't know the figures for Scotland, but south of the Border, where A levels are the easily the main university entry qualification, 80% of those who sit the exam are from non-manual families. These better-off youngsters also are more likely to have the appropriate aspirations. If your family does not expect you to go to university, you may not try hard to pass your GCSEs. Only 16% of 16-year-olds on free school meals get five good GCSEs with A to C grades. So already, the gate has shut.

Indeed, there is mounting evidence that it shuts much, much earlier. Work by Professor Leon Feinstein of the Institute of Education in London looked at the cognitive abilities of children at 22 months and then followed them to maturity.
He has found that, by about their seventh birthdays, the least able 25% of children in the top social group begin to perform better educationally than the cleverest quartile of youngsters from the bottom social group. The test scores of children from the poorest homes decline over their first few years; those of the middle classes increase.

So the most urgent target for public spending in education is on the very young, from the poorest homes. Almost as urgent is the need to ensure excellent teaching at primary and secondary schools. Both those goals are relatively inexpensive per child helped, compared with the huge cost of supporting university education. And the benefits of early intervention are much more evenly shared between the individual and society at large than are the benefits of a university education.

But the combined effect of the debate on social justice with the private gains that universities deliver has had a pernicious effect. It has helped to ensure an underfunded system that struggles to maintain quality. This has become more apparent as university education has become more international and competitive.

Governments see good reason to help disadvantaged children get to university – but they are also under huge electoral pressure to help middle class parents defray the cost of giving their children a foot on the ladder. The upshot is that the arguments for subsidy become jumbled, and universities are impoverished.

This is not by any means a problem unique to Britain, let alone to Scotland. In every country, public spending on universities has grown steeply. Much of the money has gone to subsidise tuition costs. In many European countries, it has helped to keep alive the tradition that university education should be free to all undergraduate students.

Free tuition, the long tradition of so many of Europe's universities, is now gradually changing. Of Europe's 29 countries (the EU plus Norway and Switzerland), 18 now charge fees. Germany, having abolished tuition fees in the 1970s, is now struggling to reintroduce them, worried by the rapid decline in the quality of its once-famous universities. Scotland, of course, does not charge fees to home or EU students, but south of the Border universities can (and most do) charge up to £3,145 a year.

There are two reasons why fees are creeping back in Europe. First, it is expensive to teach an undergraduate adequately. In the top layer of British universities, it costs around £8,000 to £10,000 a year – and more in the case of a science subject. It can be done more cheaply, but at the cost of larger class sizes and less student contact. Secondly, the direct contribution of public spending to the costs of teaching has risen far more slowly than teaching costs and numbers. Between 1985 and 2001, British universities experienced a fall of one-third in spending per student. Successive governments have welcomed the expansion in student enrolment, but been reluctant to accept the corollary: that university education is expensive, and needs to be paid for, one way or another.

So many British universities are selling a Bentley at Fiesta prices. They fill the gap by using cheap graduate students to teach, underpaying their more senior staff, shuffling cash across out of research grants (which tend to be better funded), hiring fund-raisers, and gouging foreign students. They cannot easily add to their British student numbers, because the government caps the numbers. A price cap necessitates a cap on quantity. This is not a sustainable way to provide world-class education.

Far better would be to accept two home truths. First, governments will never be able to carry the cost of mass-market higher education. If the cash has to come from taxpayers, universities will be relentlessly squeezed. It therefore has to come mainly from students and their families. Secondly, the overwhelming beneficiaries of the ceiling on university tuition fees are middle-class children, because they have been the overwhelming beneficiaries of the expansion of university places. Moreover, the better the university, the bigger the benefit the cap provides. To be blunt, the young people who win a place at St Andrews are far more lavishly rewarded than those who go to Queen Margaret University.

The cap survives for obvious reasons. It suits parents, who understandably don't want to pay any more for their children's education than they can help – especially now that university education has become the essential entry ticket to the job market. It suits the government: higher tuition costs would mean a bigger bill for helping students who could not afford them. And it even suits some universities. When, in 2004, Charles Clarke announced variable tuition fees, some of the fiercest opposition came from the least selective universities. They also happen to be the ones with the highest share of the poorest students. Why were they opposed? Because they reasoned that they and their academics would be stigmatised if they charged a lower fee than more selective universities.

And what about student loans, regarded with such horror by many commentators? These are intended to help students pay for tuition, maintenance and living expenses. They are a thoroughly good idea.

First, they reflect the fact that a university education is an investment of sorts, and will pay dividends in the future. Of course, the value of an investment can go up or down – but this investment is a great deal more solid than shares in the Royal Bank of Scotland. Secondly, these loans are not like credit card debt, which has to be repaid within a set term, regardless of the borrower's circumstances. The repayment is much more like a graduate tax: a deduction from payroll once the student earns more than a certain amount. So loans are a sensible and logical innovation.

As Germany has found, it takes a long time for a decline in well-established institution to become apparent. The corrosive impact of decades of underfunding in Britain has been concealed partly by the fact that Europe's universities have suffered even worse, and partly by the fact that all British universities have suffered much the same squeeze. But Europe is not our main competitor. It is hard to think of a global industry where American domination is so entrenched as is the case with universities. We will never compete effectively with America if we do not adopt much of America's funding model for higher education: a mix of regulated and unregulated tuition fees, public grants, student loans, energetic fund-raising and effective marketing.

The result, I repeat, is a country that spends more of its GNP on higher education than anywhere else in the world – more than twice Britain's share - and which sends a considerably higher proportion of young people to college than Britain does. Almost all the world's best universities are American. They can afford to buy our best academics, and they increasingly attract the best students. We simply cannot continue to compete with the United States with our present approach to funding higher education.

Instead, British universities will stagnate. They cannot rely entirely or even mainly on the public sector. Moreover, even if public spending were not under pressure, it is surely unhealthy for academic communities to depend too much on government to pay their bills.

Better, surely, to have *many* paymasters than a single one who is able to set the rules and call the shots. And certainly better not to raid the drawer marked "research funding" to keep teaching afloat.

Europe, as I say, is not our main competitor in this field. At Oxford we already lose some of our brightest undergraduate applicants to Harvard, Yale and Princeton. These universities hand out such extraordinarily generous financial aid – even after the recent savage contraction of their endowments - that it may be less expensive even for a British middle-class child to go there than to stay in Britain. Remember that it was Harvard that picked off Laura Spence – a middle-class child from a state school. This competition will be most intense for our brightest students: the best American universities regard the world as their market.

The competition is even more ferocious at graduate level. Top US universities typically regard good graduates as a sort of loss leader: they give them grants that cover every conceivable cost, so that their education is free; they then use them as bait to lure the world's best academics, who regard the chance to work with the brightest youngsters as an even bigger attraction than a large salary; and the top academic names then attract the undergraduates, who become the donors of the future.

No British university has the funds to compete much with this, even with the assistance of the research councils. But it is at graduate level that most students, especially in the sciences, begin to make their most important contribution to research. And a student who leaves to do graduate studies in America may never return.

But there is more at stake than merely the defection of a few hundred British students each year. Britain is one of a handful of countries that compete for the growing pool of overseas students worldwide. It is that competition and its consequences that I will discuss for most of the remainder of my talk. For the competition is growing rapidly, and will play an increasingly important role in public policy and in the broad economic returns to education.

University education, as I have said, is no longer simply a national affair. A rapidly growing proportion of young people go to university abroad. At present, most go at graduate level. That will change in the next couple of decades. Already, the number of students around the world who are enrolled at a foreign university has more than doubled in a mere decade, rising even faster than overall student numbers, to 2.9million in 2006. One forecast guesses that almost 6m students will study abroad by 2020, and that the numbers will still be rising.

Almost all the students who currently study abroad head for wealthy countries. Top of the list by far is the United States, which takes 20% of all foreign students, but next in line is Britain, which takes 11% - a much larger share, relative to the size of our total student population. Germany, France and Australia are the other main competitors. No surprise that three of the five are English-speaking; or that Continental European universities increasingly offer courses in English, partly to attract these migrants. Australia and New Zealand take fewer students in absolute terms, but many in relation to the size of their own student base.

For universities, the need to attract foreign students frequently begins as a way of raising revenues. This is particularly true in Britain, of course, and in Australia, both countries that charge overseas students higher fees.
In fact, Britain charges higher fees only to students from outside the EU: the legal imperative to treat all EU citizens equally means that their tuition fees are subject to the cap. (One curious result is that English students at Scottish universities pay fees whereas Continental Europeans do not.) It has always seemed to me perverse that our Indian, Chinese and African undergraduates pay more for their degrees than those from Germany, France and Luxembourg.

In addition, in Britain, Australia and New Zealand, higher education has increasingly become a significant export industry in its own right. In Australia and New Zealand, indeed, educational services are the third largest service export. For Britain, the British Council estimates that international students contribute £2.5bn to the economy in tuition fees alone.

The Council thinks that, if sterling's weakness continues, Britain could double its global share of the market for foreign students. Already, applications are sharply up. One top London university reports a rise of 22% in overseas undergraduate applications this year.

Foreign students bring several direct benefits to the university that imports them. They keep alive some departments that would otherwise lack students: at some universities in this country, the undergraduates studying science subjects come almost entirely from overseas. Without them, the department would close. Indeed, foreign students may keep going some universities that might otherwise have to shut down. For demography will run against universities in most wealthy countries for the foreseeable future. This will happen first in Japan, where there are now half as many children at primary school as there were in the late 1950s. Japan has little room to increase student numbers by attracting more young people to further education: 70% of school leavers already go to university.

The migrants may also encourage universities to think of students as customers, and pay more attention to the quality of service they receive. That can be a mixed blessing. I can think of examples of penurious universities turning a blind eye to deliberate plagiarism by foreign students rather than expelling them, because their high fees were too valuable to lose.

But on the whole, my impression is that foreign students –and especially those from North America – complain more frequently, judiciously and effectively than do British students when they feel short-changed by the university.

However, attracting foreign students has two much bigger advantages than acquiring a better quality of complaint. First, it is at university that young people build the first network of contacts that will see them through their careers. In the course of doing – say – a physics degree or an MBA, students will meet people in their field of specialism and will use equipment and consult books produced in the country where they study.

When they return to their own country, these contacts and experiences will continue to influence them in many subtle ways. If, in time, they come to control substantial budgets, the experience will direct their purchasing and investment decisions. So attracting foreign students is a way to develop "soft power" – benign influence, both political and economic.

Secondly, a significant proportion of foreign students remain for at least part of their career in the country that has educated them. In Britain, a survey of EU students six months after graduation in 2005 found that around 27% of respondents had stayed on to work. Figures from the United States suggest that more than half of all foreign nationals who take a doctorate in science and engineering stay on. They may also boost the overall quality of research. A study of the impact of international students in the United States found that a 10% increase in the number of foreign graduate students appeared to raise patent applications by 4.5%, university patent grants by 6.8% and non-university patent grants by 5.0%.

Of course, staying on is a controversial benefit. The country may worry that student visas are being abused as a backdoor route for immigration; and the exporting country may worry about losing its best and brightest young people. But in truth, there are gains for both the host country and the young person. There may also be some smaller gains for the student's homeland.

From the student's point of view, a student visa offers a much higher chance to gain permission to enter a wealthy country than does any other path; and, once educated, a better chance to be allowed to stay on as a skilled migrant. From the point of view of the host country, well educated immigrants are easier to absorb than the unskilled.

Scotland used this to good effect by offering overseas students from Scottish universities a two-year work permit. Australia, eager at the end of the 1990s to attract highly skilled migrants, decided that international students should become eligible immediately to apply for highly-skilled migrant status. Within five years, more than half of the country's highly skilled migrants had graduated from its universities.

Britain might consider joining the ranks of Canada, Australia and New Zealand, all of which award migrants extra points if they have a degree from one of the host country's university.

Foreign students tend to take degrees in fields where the skills they acquire can easily be transferred abroad, such as engineering, technological studies and physical and natural sciences rather than geographically limited fields such as law and the humanities. Students like those can bring big gains to the receiving country's competitiveness. A recent study by Vivek Wadhwa of Duke University found that one in four technology and engineering companies founded in the United States between 1995 and 2005 had at least one founder who was foreign-born. Many of them were from India and China; 70% of them had a master's degree or doctorate, usually in maths, science or engineering; and 55% of them came to America as students and stayed on.

The success of American universities in attracting the brightest youngsters from around the world will be the underpinning of American economic progress in the coming century. Note that this is not the result of a policy imposed by national government. The hunt for the world's best foreign students, which American universities so ruthlessly pursue, grew instead from their drive to compete with each other. That in turn grew from the diversity that uniquely characterizes the American model.

We all know the names of Harvard, Yale, Princeton and Stanford, the great private research universities with their vast endowments (even after recent losses), high fees, generous financial aid and huge salaries for academics. But there is also a whole range of state universities, local universities, community colleges and for-profit universities. Moreover, the modular structure of American courses and the system of transferable credits allow good students to work their way up the hierarchy. A clever student from a poor home might start at a local community college, progress to complete a degree at the state university and go on to do a doctorate at an Ivy League university.

Only one other country that I know of has made it a matter of deliberate national policy to try to emulate America's success in deploying the university as a tool of national competitiveness, and that is Singapore. The country's Global Schoolhouse Strategy aims to develop the country as a hub for Asian higher education, and to attract 150,000 students by 2015. The policy is a deliberate response to a low birthrate and the imperatives of a knowledge economy in a country low in natural resources. The strategy is therefore to develop human capital instead, attracting foreign talent that may remain in the country, bringing in foreign revenue as students pay for education, and helping to draw more world-class research and development firms and multinational companies to Singapore.

Its immigration service welcomes foreign students with an online letter that begins, "Singapore is a global school, a hub for educational excellence. Getting an education here may be your key to building up a great career. You have participated in an education system that endorses meritocracy, an economy that emphasizes excellence and a cosmopolitan community that exudes vitality. There are ample employment opportunities for you as graduates of the Singapore education system." It is hard to imagine such a welcome from our own immigration service.

How can Scotland build on some of the trends I have described tonight? It has a number of wonderful advantages. It has had universities for 600 years; its people speak English, the world's language of education; it has a four-year system, which is much closer to the global norm than England's three-year model. It has an exceptionally high participation rate in higher education. And it has already shown imagination in using preferential visa treatment as a lure for foreign students. That is a good beginning.

To build on it, Scotland's universities need more diversity: especially in sources of revenue, but also in the student market that they cater to, in scale, and in their relationship with government at every level.

My Oxford college has close links with Williams College in the United States, a private and independent liberal-arts college with 2,000 undergraduates, which pays far more attention to social and ethnic mix than we do, and gives more generous support to students in financial difficulties. I would like to see a version of Williams in Scotland.

I would also like to see a system of junior colleges that gave students two years of higher education and then encouraged the most ambitious to transfer elsewhere to complete an honours degree. I would also, incidentally, like to see more small but excellent Scottish universities bolstering cultural and economic life in the emptier quarters of this beautiful country. Given my ties with Galloway, you won't be surprised to hear that. Like Elizabeth Grierson, I long to see a fully fledged university in Dumfries.

Of course, I would like Scottish universities to be hotbeds of technological research and business development. But that will not come if government forces the pace. And remember that the most powerful mechanisms of knowledge transfer and business creation are students themselves. In my estimation, academics are better at research and teaching than at venture capitalism, even in the United States.

Above all, Scotland needs to protect its academic reputation. That is still impressive, but once lost, would be hard to revive. So Scotland's mission should be to build well-funded, well-run universities, diverse and entrepreneurial, scouting the world for top talent and turning out students whose education will improve their quality of life and raise their lifetime earnings. These are not tasks that government is good at directing. But David Hume could have told you that.

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