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**Getting European Universities
into Shape**

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Getting European Universities into Shape

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Abstract

Most European universities trail behind the best universities in the Anglo-Saxon world. A key challenge is to raise resources per student in Europe to US levels. The Lisbon agenda demands fundamental reforms of the European university system that enhance efficiency yet avoid grade inflation, foster more competition, allow for much larger private contributions accompanied with income-contingent student loans, and attract a higher fraction of foreign students. European universities will be pushed to compete with each other, face better incentives and generate substantial more income. Universities will be stimulated to provide sufficient diversity and quality to meet the demands of a growing and diverse student body. Their ambition should be to educate the best minds in society irrespective of whether their parents are rich or poor, academics or uneducated. The shift from grants towards loans and the increase in tuition fees are justified by high returns. The reforms should lead to a better and more equitable system of European universities.

Keywords

universities, policy reform, central planning, income-contingent student loans, tuition fees, subsidies, vouchers, variety, selection, peer review, grade inflation, input funding, output funding, equity, monopoly, transparency

1. Introduction*

Knowledge and creativity, not land, mineral resources or physical capital, are nowadays the engines of economic growth. A golden age for universities has arrived. Still, as *The Economist* (The Brains Business, 10 September 2005) points out, academia in Europe are not ready for the challenges ahead. Realising mass access without sacrificing excellence demands a dynamic and competitive university system. The European challenge is to get the diversity and quality of the US without hurting accessibility. A key problem is that central planning and steering cause a generic lack of variety, monopolistic behaviour, scale increases and grade inflation. The explosive growth in enrolment has led to erosion of academic standards. Reforms of the European university system should tackle these issues. European universities also have much less resources per student than their US counterparts, so it is crucial to raise tuition fees without harming access.

2. Higher education in Europe

Figure 1 (see Annex 1) indicates that enrolment rates more than doubled during the last thirty years in virtually every country. Figure 2 (see Annex 1) informs us that although real expenditures and government contributions per student declined in Australia, New Zealand and the UK, they remained constant in most countries. Figure 3 (see Annex 1) suggest that declining expenditure per student have gone hand in hand with less intensive teaching. From a lifetime perspective students will not be poor and can borrow more. Lifetime earnings in, for example, the Netherlands vary from 1.2 million euros for economics, medical, agriculture and technical university male graduates to 0.9 for behavioural and social graduates and 0.8 million euros for arts male graduates (Jacobs, 2002). Costs of higher education (45 thousand euros) are much less than lifetime earnings, hence higher education is an excellent investment. Also, earnings for different studies are different, but tuition fees are often the same.

No tuition fees exist in Denmark, Germany and Sweden. Other countries have fixed but positive tuition fees that may differ between various fields of study (Australia, France, Netherlands, and the UK). Typically, prices charged to students do not depend on costs. In recent years, governments (Australia, Belgium, France, Netherlands and UK) increased tuition rates to maintain resources per student in the face of increasing enrolment. This also happened in the US and New Zealand where institutions are free to set fees. Some countries (Belgium, Netherlands, UK) have decreased student grants and increased loan facilities. In contrast, Germany, Sweden and Denmark, have increased grants and loan facilities. France only increased grants. New Zealand and Australia both substantially increased loan facilities. In Australia this is organised through the so-called Higher Education Contribution Scheme. Conditions governing student grants have become tighter in some countries by linking grants/loans to academic progress (Denmark, Germany, Netherlands, and Sweden).

European universities suffer from bureaucracy and lack of autonomy. Almost all parameters are fixed: subsidies per student are fixed, tuition fees cannot be varied, the number of places for each course is often fixed by the ministry of education, and applicants cannot be refused once they have passed their national exams. Universities find it thus tough to respond to changes in demand and engage in competition. Much time and energy goes into securing government subsidies for education and research rather than into academic entrepreneurship.

Governments rely more and more on (lump-sum) 'block grants' with both output and input criteria. Most countries fund on the basis of inputs such as number of enrolled students (Australia, Belgium, France, and New Zealand). Funding in Denmark stresses output, since universities receive funding on number of grade points that students receive (the 'taxi-meter model'). The Netherlands and Sweden

* Abridged version to appear in *European Political Science*, July 2006, Vol. 5, No. 3.

take intermediate positions. About half of funding in the Netherlands depends on the number of diplomas. A similar share of resources depends on number of grade points in Sweden. Germany and the UK differ as funds are allocated on historical grounds independently of the number of students or output criteria, but funding is based on negotiations and enrolment forecasts. However, the UK government puts a growing emphasis on output and performance in teaching and research. More details on European higher education can be found in Eurydice (2000, 2001).

Partial correlations suggest that incentives matter for performance (Jacobs and van der Ploeg, 2006):

- Higher PISA (Programme for International Student Assessment) scores suggest higher educational attainment, lower dropout rates, shorter study lengths for those who actually graduate and higher wage returns.
- Lower student/staff ratios are associated with higher educational attainment, lower dropout rates, shorter enrolment duration for graduates and higher wage returns.
- Targeting government funding at students rather than universities suggest higher attainment, higher dropout rates, slightly shorter study duration for those who graduate and lower wage returns.

If students borrow more and get less grants, or the share of private expenditures increases in general, this may be associated with higher attainment shorter duration of study for those who graduate, lower dropout rates and bigger wage returns.

3. Stratification, variety and quality

The nature of universities

Students, state and sponsors lack the information necessary to judge the quality of higher education. Higher education is a one-off purchase and often it is the parents that do it on behalf of their children. Still, the nature of academic interchange changes if a price is attached to it. Intrinsic motivation of students and staff and trust are vital and diminish if too many monetary incentives are introduced. This is why higher education is probably best operated as a non-profit enterprise. Objectives are typically not profits, but how well they do compared to their peers. Rankings and peer reviews and the competition that result from it, is thus what drives universities. Peer effects are also crucial for students as they form values, academic interests and aspirations in the interchange with other students. Universities also need funding from students, alumni, estates and sponsors. However, non-profit enterprises also have a tendency for bureaucratic slack; witness big offices for central administration, 'prestige projects', etc. They also tend to under-estimate the costs of its capital services such as buildings and campuses.

How to avoid stratification?

Most US and UK universities create a niche in the hierarchy of universities and compete with their peers. In Europe the differences in ability to tap money are much less marked than in the US. The European market for higher education therefore has much fewer niches. In the US access to top ranked universities is generally unaffordable by the poor without further assistance. Many students with insufficient academic quality from well-off backgrounds can also be found at the best universities.

Universities are 'communities', where individuals invest in their human capital. It is the gathering of the best students, professors and researchers at one location that determines the attractiveness of the university. A stratification and hierarchy in higher education according to incomes emerges if students cannot borrow to finance their studies. Conditional upon academic talent, the wealthiest individuals go to the best universities. Without capital market imperfections, only the most able students have the

highest willingness to pay and therefore go to the best universities (e.g., Fernández, 1998). Then, the hierarchy of universities is determined by differences in academic capacities only, not incomes, and local externalities and peer effects will make the stratification along academic abilities more pronounced. With credit market imperfections preventing the poor but able students to enrol in the best universities, these externalities reinforce the adverse effects of capital market imperfections and strengthen stratification along incomes. This is not efficient, not a just outcome and certainly not our intention in our pleas for a move towards larger private contributions in Europe. Therefore, the poor must obtain sufficient funds to finance their study by making income-contingent loans available. We want to encourage elitism in a purely academic sense.

Potential merits of the Bologna reforms

The Bologna reforms towards introducing system of bachelors and masters in Europe may have the following potential merits:

- Reduce the risk of choosing the wrong study and encourages students to take more demanding studies. A first degree in mathematics or science that lasts three rather than five or six years is a less daunting prospect. Those who like mathematics and science go on afterwards with a specialised degree. By the same token, the Bologna reforms allow students to wait in the presence of uncertainty with regards to their capacities, interests and job market circumstances.
- Stimulate students to combine different studies. Much of technological and economic progress in contemporary society occurs in the twilight zone between different disciplines. Moreover, university students who discover that they have more of a professional interest can switch to a professional master course at a college of professional higher education and some of the more academically minded vocational bachelors may switch to university.
- Stimulate variety. Many European countries offer a higher average quality than the US, but have less centres of excellence, less diversity and less flexibility, and less choice between intensive and extensive forms of education.
- Encourage students to finish their studies more quickly as students will be matched better with universities because risks of doing a wrong study diminishes, variety increases, and students have the option to return. The Anglo-Saxon system of higher education features almost no dropouts, because students know exactly when to study and when they can work or have fun.
- Engender competition between a larger number of shorter degree programmes. Currently, however, many universities in Europe are stifling competition as may be witnessed from many mergers and the standardisation of many degrees. If students are unhappy with a particular degree programme, they should vote with their feet and go to another programme.
- It makes the European system compatible with systems of higher education found in UK, US, Canada, Australia, New Zealand, India, Pakistan and much of Asia and Latin America. This enhanced transparency encourages European universities to compete on a global scale.

The quest for quality

The Times Higher Education ranking of the world's top 200 universities considers peer review, international faculty, international students, student/staff ratios and faculty citations scores. Interesting is that Table 1 indicates that 41 of the top fifty universities are from countries with an Anglo-Saxon system of education. Continental Europe (excluding Switzerland) only has three universities in the top fifty. Despite ferocious competition among students, Japan has only two top universities. China and India will deliver more top universities in future.

Table 1: The THES list of the world's top universities

1. Harvard University	1000	26. UCLA	316.4
2. UC, Berkeley	880.2	27. Ecole Polytechnique	315.5
3. MIT	788.9	28. Pennsylvania University	306.9
4. California Institute of Technology	738.9	29. Kyoto University	303.7
5. Oxford University	731.8	30. ENS, Paris	298.4
6. Cambridge University	725.4	31. Michigan University	293.3
7. Stanford University	688.0	32. EPF, Lausanne	289.4
8. Yale University	582.8	33. Monash University	286.0
9. Princeton University	557.5	34. UCL, London	284.2
10. ETH Zurich	553.7	35. Illinois University	281.6
11. LSE, London	484.4	36. New South Wales University	275.7
12. Tokyo University	482.0	37. Toronto University	272.5
13. University of Chicago	444.0	38. Carnegie Mellon University	259.4
14. Imperial College, London	443.7	39. Hong Kong University	249.5
15. Austin, Texas	421.5	40. Sydney University	245.2
16. ANU, Canberra	417.7	41. India Institute of Technology	241.7
17. Beijing University	391.8	42. Hong Kong Un. Sc. and Tech.	240.6
18. National University, Singapore	385.9	43. Manchester University, UMIST	238.5
19. Columbia University	384.1	44. SOAS, London	235.8
20. UC, San Francisco	367.5	45. Massachusetts University	235.7
21. McGill University	364.1	46. UBC, Vancouver	230.4
22. Melbourne University	353.2	47. Heidelberg University	228.3
23. Cornell University	348.8	48. Edinburgh University	227.6
24. UC, San Diego	331.5	49. Queensland University	223.9
25. John Hopkins University	330.8	50. Nanyang University, Singapore	217.1

Table 2: Universities in top 50

US	20
Canada	3
Australia	6
UK	8
Hong Kong/Singapore	4
Europe excl. UK	5
Asia excl. HK/Singapore	4

European universities provide decent education for all with not much diversity in fare offered. Apart from some conservatoires, theatre schools and higher hotel schools, most universities are reluctant to select. The US has considerable experience in aptitude rather than ability tests. Ability or knowledge should not be used for selection because they can be crammed by the fortunate ones with extra training. Unfortunately, there are signals that during the last few years the aptitude tests have become more like ability tests. This threatens to move the US away from a meritocracy towards a system where family ties and background matter. Europe would benefit from more selective entries. The majority of universities in continental Europe accept on the basis of a high school diploma only. Hence, many first year students fail and real selection takes place after one year and sometimes even later. This leads to a huge waste of resources.

In much of Europe, the market for lecturers and professors is closed to outsiders. Many scholars with excellent publication records are defeated by local heroes with the right connections. In France, Italy and Germany outsiders and foreigners find it difficult to get a chair, and otherwise they get scared away by stifling bureaucracies. The UK, Scandinavia and the Netherlands have more open

recruitment, so benefit from a more competitive environment. Many European universities cannot reward and attract young talent, while older academics stay on even if their productivity has declined substantially. The severe tenure hurdles and the competitive publication race one sees in the US, is less pronounced in Europe.

Peer review gives incentives for high-quality research, but is weak in Europe. Where peer review of research has taken off, it tends to overshoot at the expense of educational quality, especially if professors mark their own exams. Apart from the UK and perhaps Denmark, external examiners are not used to audit contents or grades. But then there is a danger of grade inflation, especially if funding depends on the number of awarded degrees.

4. How to set subsidies and tuition fees?

Individuals invest more in a particular study if interest costs are low, they are not credit constrained, subsidies are high, tuition fees are low, expected graduate wages are high, and academic ability/aptitude for that study is large. A higher tax rate depresses after-tax graduate income and thus discourages investment in higher education. Students also invest more in studies that give them high immaterial value and more so if taxes are higher because immaterial returns escape the income tax. Alternatively, they choose such studies even if the expected wage is relatively low. Conversely, students are discouraged to take courses that give little esteem and a lot of sweat. It makes sense for the government to make sufficient borrowing possible, so that students are not credit constrained in financing their education and costs of living.

Education is a ‘customer-input technology’, where students are both consumers and co-producers of education (Rothschild and White, 1995). The cost function of degree programme increases with total student demand, but decreases with total human capital produced by the programme. If students are more able, more human capital is produced. Positive peer group and reputation effects then occur, the quality of education improves and consequently courses are easier and cheaper to teach (Winston, 1999). Institutions generate excess demand for their services by selling below cost in order to control who they sell to. Selecting and attracting the smartest students generates a positive feedback loop as it raises the quality and reputation of the institute and thus increases further demand from smart students. Having high-quality students improves academic excellence and makes it possible to attract much better employees/professors and funding from sponsors and the state.

Without peer group or reputation effects degree profit maximizing universities set prices to a mark-up on marginal cost. The mark-up is particularly high for courses with low price elasticity of demand such as pure mathematics or anthropology. These courses may have high marginal cost anyway, so are extra likely to be expensive in the absence of cross subsidies or special government support. If peer group and reputation effects matter, tuition fees are higher for the less able or less motivated students and lower for the smart students (cf., Rothschild and White, 1995). Hence, universities award scholarships or give discounts to bright students. If universities operate under perfect competition, the optimal tuition fees correctly internalise all peer group and reputation effects.

A government that maximises utilitarian social welfare (graduate utility minus tuition subsidies), and does not have any merit motives for intervening in higher education, sets optimal subsidies to zero if it can use non-distortionary taxes. The market outcome is thus efficient. However, the government may support merit studies that are of interest to society as a whole and will not be provided by the market, while generating public benefits (‘educational welfare’). One could think of, say, anthropology, Sanskrit or pure mathematics. The government may also support studies that contribute to citizenship, democratic participation and the transmission of (cultural) knowledge and values or that induce positive R&D externalities and growth. The government may want to reduce the popularity of studies that lead to excessive status or rent seeking and signalling. Educational welfare is a weighted sum of the educational investments by students in (de-)merit studies. The government may give a larger weight on individuals from a disadvantaged background with relatively poor parents. The

optimal education subsidies internalise the merit study externalities of education on total (i.e. private and public) welfare.

Optimal subsidies on higher education depend on four factors:

- The size of the externality which measures the merit good benefits. If society values a particular study more, education subsidies should be higher. Education subsidies (as a percentage of the costs) decrease with ability/aptitude of a student. The percentage shortfall in the private return from the social return to education is lower for high-ability than for low-ability students. Nevertheless, the total value of the education subsidy, is larger for high-ability than low-ability individuals, because high-ability individuals learn more and invest in more expensive education. Clearly, it is desirable to condition education subsidies on students' characteristics and selection is therefore desirable. If education causes social damage (rent seeking, signalling), education should optimally be taxed to correct for excessive investments in disciplines which are socially undesirable.
- A peer or reputation effect which lowers optimal subsidies, if the elasticity of prices with respect to peer and reputation effects is small and public funds are relatively scarce. Subsidies are lowered for smart students especially when universities find it profitable to offer scholarships or discounts to these brighter students.
- The costs of public funds. Subsidies on higher education should be lower if it is more costly to raise tax revenues.
- The price responsiveness of human capital investment. If the elasticity of educational effort with respect to the relevant subsidy is low, much tax revenue is needed to induce individuals to invest more in their studies. Hence, more subsidies will be wasted to those who study anyhow.

Uniform tuition fees are thus *never* optimal if social returns differ between disciplines and students. Subsidies should therefore be optimally targeted to fields of study that have the largest social returns. Furthermore, subsidies should be targeted towards the students that appear to generate most social value. Also, subsidies on studies with a relatively large private return compared to the social return violate optimal rules for education subsidies. Subsidies should be directed towards studies with a large social value, not a large private value. The mere fact that for some disciplines the marginal benefits are mainly non-monetary is not a reason for government subsidies. That will lead to over-investment in those disciplines. Students will take account of immaterial benefits themselves.

Three final remarks are necessary. First, most students go to their local university, perhaps as they prefer familiar surroundings. The optimal tuition fees are higher for such students, because their price elasticity of demand is lower. Second, the government has insufficient information about the preferences of individual students and the supply of courses and may wish to use vouchers rather than subsidies to universities. By giving students personal vouchers, which they can use to pay for their courses, the government encourages students to 'vote with their feet'. This fosters competition between universities. Third, our framework abstracts from problems of adverse selection (e.g., think of the access from students of less privileged backgrounds) and moral hazard (e.g., the problem of grade inflation).

5. Curbing monopolistic practices

In response to scarcer public budgets the scale of universities has increased at the expense of creating public monopolies. In the Netherlands the enormous increases in scale and monopolistic practices have gone hand in hand with huge increases in overhead and capital expenditures leading to substantial falls in resources for teaching. Such monopolies reduce quality ('grade inflation'), ignore demand of students and employers, and increase overhead costs. Universities engage in a race to attract students and thus more state funds, sometimes fuelled by funding based on student numbers, even when this induces grade inflation. Monopolistic price setting drives up tuition fees and lowers

quantity and quality of supply of education, especially if the price elasticity of demand is low. Subsidies for a course have to be large if the price elasticity of demand for that particular course is low. Since the price elasticity of demand differs between disciplines, subsidies should be differentiated accordingly.

Both output and input funding have unintended side effects. Output funding to curb monopolistic practices has the unintended disadvantage that it induces grade inflation and reduces incentives to cut costs. Input funding does not induce grade inflation but leaves monopolistic practices in tact and stimulates efficiency. One thus has to strike a tough trade-off between, on the one hand, avoiding grade inflation and inefficiently run universities, and, on the other hand, curbing monopolistic practices. Countries that rely on substantial output funding therefore often have quality safeguarding committees. If there is a lot of uncertainty and efforts of managers correlate little with cost reduction, high-powered incentives become less attractive.

Most funding schemes suffer from ‘ratchet effects’ arising from budgeting and accounting procedures. Managers do not pursue cost-effective policies, because the government cream skims or even penalises cost savings. Universities are not very aware of how much each programme costs. They do not use rational cost-based criteria and allow for various cross-subsidies. Little work has been done on estimating technical and allocative efficiency of universities, except perhaps for the UK (Glass, McKillop and Hyndman, 1995). And a high overall score on relative efficiency may imply that all universities are managed equally badly. It is also difficult to correct for the quality of both inputs and outputs. An increase in the student-staff ratio may appear as an improvement in technical efficiency, but may imply worse educational quality.

Both private and public universities are better able to compete if subsidies are allocated directly to students through vouchers/grants. Students can spend the vouchers on the institution and courses of their preference. Barriers to enter the market for higher education should be lowered by abolishing historical funding and barring cross-subsidies that hinder fair competition. It helps if an independent authority publishes yearly performance criteria of universities. These criteria should cover dropout rates, average enrolment durations, average exam marks, student evaluations, quality of scientific publications, evaluations of independent scientific committees, etc. A level playing field can open national markets to the international environment, especially if students can get student loans for study abroad and can spend their vouchers abroad. In some countries internal checks and balances have been destroyed by abolishing university democracy. Supervisory boards lack information from the ‘shop floor’ to act as effective countervailing powers. In fact, neither governments, nor students, nor stakeholders, nor potential entrants seem able to discipline administrators in Europe.

6. Universities should rely more on private funding

Gap between social and private returns is small and declining

Each additional year of education, typically, raises wage incomes with 5-10 per cent (e.g., Harmon, Oosterbeek and Walker, 2003). These returns are generally larger for higher education. If social returns exceed private returns, education causes positive external effects to society and the government should support education. Estimating macro-economic production functions where total output is explained by human as well as physical capital, one obtains macro returns to education of about 5-6 per cent for each year of education. This is at the lower end of the estimated micro returns (see, for example, De la Fuente and Domenech, 2006). Despite widespread belief in large externalities of education, social returns seem slightly lower than private returns. Signalling seems of minor importance, since macro estimates suggest that education is productive.

Empirical findings suggest that private returns to higher education are substantial. Still, in popular debates there is much confusion on the returns to education. A popular argument is that the government should expand investment on education rather than reduce public debt, because the *private* returns from study are higher than the safe real return on government bonds. But the

government should intervene in higher education because the social exceeds the private return to education, not whether private returns are large. The returns on education are higher than on government bonds because human capital is illiquid and more risky as labour incomes fluctuate due to business cycles, sectoral shifts, technological developments, international trade, etc. (Palacios-Huerta, 2004). Also, direct costs of higher education and finite time-horizons drive up the required returns. No wonder private (and social) returns are high.

Rising private returns warrant higher fees

If skilled graduates earn higher incomes than low-skilled workers, it is profitable to invest in higher education. Especially, the US and the UK have experienced dramatic increases of the skill premium. Similar but less dramatic stories can be told for many European countries. The main explanation is skill-biased technological change which boosts relative demand for skilled workers and thus the skill premium, especially after the ICT revolution (see Katz and Autor, 1999). Stimulating skill formation also increases the relative demand for skilled workers in R&D sectors. If this effect is strong enough, the skill premium may even rise in the long run (Acemoglu, 2002).

Another explanation for the rise in relative demand for skilled workers is that countries with an abundance of skilled workers specialise in skill-intensive production and low-wage countries specialise in labour-intensive production. Relative wages then depend on global relative supplies and demands for skilled workers. This explanation is disputed because the volume of international trade is too limited. Supply side factors play a role as well. For example, the relative supply of skilled workers may have decreased in the US due to ageing of the population, lower fertility and inflow of low-skilled migrants. Lower minimum wages and erosion of union power have increased wage inequality in the US. In Europe skill-biased labour demand shifts seem to result in higher unemployment rates among the low skilled, especially if their incomes are protected by minimum wages and strong unions (Katz and Autor, 1999).

The US skill-premium will continue to grow at about three per cent per year if relative supply of skilled workers remains fixed. In Sweden the premium will grow at one per cent (Edin and Holmlund, 1995) and in the Netherlands roughly two percent per year (Jacobs, 2004). Europe's growth in relative supply of skilled workers levels off, so returns to education will grow substantially.

Baumol's cost disease also suggests more private funding

Higher education is intrinsically labour intensive and has little scope for technological progress. Teaching and research need to be done by highly qualified people and cannot be replaced by technology. Productivity growth in universities inevitably lags behind, so the cost and price of university education rise over time (Baumol, 1967). This does not warrant a growing subsidy, since the increase in productivity elsewhere boosts purchasing power. Skill-biased technical change boosts the returns to study. Also, if higher education is a luxury good, it flourishes as technical progress makes people wealthier. Graduates can thus rationally use the higher returns to pay for the higher cost. Provided the opportunity costs of study do not increase as much as tuition fees, Baumol's cost disease expands the university sector. Hence, despite rising relative prices, the budget share of higher education rises over time.

Challenges: Individualisation and scarce public funds

Individualisation and increased heterogeneity imply that the demand for higher education becomes more diverse. An educational system which is a straitjacket to individuals increases the welfare costs of uniform prices as is the case under the current system. Hence, the government should allow more flexibility in setting of tuition fees rather than raise subsidies. Governments face increasing scarcity of

public funds due to ageing of the population and increased mobility of tax bases. The willingness to pay taxes for university funding diminishes as a consequence.

To conclude, the crisis of European universities is not due to lack of *public* funds. There is no evidence that the social return to study exceeds the private return sufficiently to warrant bigger state subsidies. If anything, the private return to higher education seems to be rising as may be witnessed from the growing skill premium that graduates command in the market. However, higher education in many parts of Europe is starved of funds. The lack of funds will worsen due to the relentless operation of Baumol's cost disease. Much more can be asked from students provided they can make use of income-contingent loans. Even though student poverty is a real issue, graduates are relatively well off.

7. Misguided equity motives in higher education

Empirical research suggests that the ability of the student and long-run background factors ('culture', 'family', 'environment') are the most important determinants of enrolment in higher education (Cunha et al., 2005). Increasing enrolment in higher education of children from lower socio-economic backgrounds requires therefore intervention in basic and secondary education and not generic subsidies for higher education. Equity grounds for large-scale subsidies to universities are doubtful. The vast majority of students in higher education belong to the richest half of the population. Moreover, the average tax payer has less lifetime income than the average graduate. All kind of politicians raise equity issues for the wrong reasons.

Some argue that university education is a 'basic right' and should be free of charge. Universities should be accessible to all with sufficient academic capabilities. But this does not imply that higher education should be free from charge, neither does it imply that all should pay the same price, or should pursue the same quality of education. Another misguided argument is that subsidies are good as graduates pay more taxes. But the extra tax revenues do not recoup subsidies as most governments over-subsidise education (De La Fuente and Jimeno, 2005). Also, high-income earners who do not study do not receive subsidies, but still pay higher net taxes compared to those who do study. The poor may benefit from regressive higher education subsidies as they allow the government to use the progressive income tax at lower efficiency costs. Education subsidies reduce the tax distortions on human capital investments. The costs of study should therefore be tax deductible, but not the interest as this induces over-investment and distorts saving.

Some politicians reject 'elitist' universities where the brightest students receive the best and most expensive education. This boils down to a plea for high taxes on investments in higher education and thus obstructs profitable investments in human capital. The best students migrate abroad. And individuals with lowest incomes are worse off than with direct redistribution. Both efficiency and equity are harmed by holding back talented students. Low tuition fees should not be used for equity reasons either, since it is inefficient to tax study at 100 per cent above the fixed tuition fee for those who want to pay. Income redistribution should be carried out through the tax system and not through the education system. Too low tuition fees erode the tax base by causing under-investment and the poor are eventually worse off than with more progressive taxes. If the purpose of low fees is to guarantee access to universities, and not income equality, an income-contingent loan scheme is sufficient.

8. From student grants towards income-contingent loans

Capital markets fail to deliver the loans to finance tuition and costs of living as banks cannot easily assess the risks of some students and face difficulties monitoring efforts by students and graduates. Resulting adverse selection and moral hazard effects give rise to high interest rates, credit rationing or even a collapse of the credit market for student loans. In addition, students are risk averse and hesitate to take up large loans. Indeed, risks associated with study cannot be insured due to incomplete contracts and information problems. Imperfect capital and insurance markets induce underinvestment

in higher education and hurt especially more loan-averse students from poorer backgrounds. Such students are forced to work, disturb the quality of teaching and more frequently dropout. Hence, there is a case to help such students so that they can pay higher tuition fees.

Income-contingent loans rather than student grants and subsidised tuition

To tackle student poverty, students should be allowed to borrow for fees and cost of living. Income-contingent loans (ICL) can overcome problems of capital market imperfections with risk-averse students (Barr, 1993; Chapman, 1997). ICL only require students to pay back principal and interest if their incomes after graduation are high enough. ICL thus offer a combination of loans and social insurance. If income risks of graduates are pooled, fewer subsidies are needed to eliminate risk aversion.

Commercial banks and insurers are unable to write contracts based on future incomes, but the government can enforce contracts through the tax authorities and verify earned incomes. By selection and tracking of student performance and denying funds to non-performing students, the government can more easily eliminate the ‘rotten apples’. It can also collaborate with other tax authorities in Europe to track down graduates who try to default. In principle ICL feature no subsidies. However, the risks of default may be borne by society. ICL avoid perverse redistribution from the average taxpayer to students, because the majority of students comes from higher income classes and will belong to the higher income classes after graduation.

An alternative is a graduate tax (GT) where graduates receive grants financed by issue of government debt. Graduates repay a fraction of their lifetime incomes. The government pools this income to repay government debt including interest. From the individual perspective, repayments under a GT can exceed loans (including interest) as graduates with high incomes under a GT typically pay more. A GT thus has more insurance and redistribution than ICL. In practice, there is only a gradual difference between a GT and ICL. Under a GT repayments by high-earning graduates exceed the costs of their education and the surplus is used to subsidise low-earning graduates. If a GT is budgetary neutral, it is like ICL with risk pooling. In the absence of moral hazard, a GT provides more insurance than ICL and thus dominates a pure loan. With moral hazard, however, ICL provide better incentives as it features less insurance and performs better than a GT if risks are pooled among students and not borne by the government.

Both ICL and a GT distort labour supply and encourage delay of career choices in order to avoid repayments that are contingent on future incomes. Students may not put enough effort in studying hard; they may study longer or enrol in ‘fun’ studies. These moral hazard problems can be avoided by selection and penalties for those who do not make satisfactory progress. A bigger loan warrants a higher tariff. This prevents cross-subsidies from cheap to expensive courses and avoids income redistribution from smart (high return, low risk) to less bright (low-return, high-risk) students. As a result, there is less moral hazard and more pure insurance. To prevent cross-subsidies from profitable to loss-making studies, tariffs per course and per discipline must be differentiated (see section 4). We prefer ICL to a GT, because they feature less insurance, allow more flexibility in repayment, and can be better tailored to avoid moral hazard. This is especially the case if repayment parameters are not very differentiated by size of loans, type of study or student performance. In that case, the GT causes a potentially large moral hazard problem as the link between funds received and repayments is weakened a lot.

Insurance of default risks may also give adverse selection. Rich students may avoid ICL or a GT to avoid risk pooling, except if the government finances the cost of bad debtors out of general funds rather than a surcharge on interest. These transfers benefit only students with very low lifetime incomes. An alternative is to make participation in ICL or a GT obligatory. Adverse selection also arises if talented but ‘poor’ youngsters do not participate due to loan aversion and work rather than study. Good information may convince them that it pays to study and that they do not run large income risks if they finance their studies with ICL.

Income-contingent loans versus education subsidies and means-tested student grants

Education subsidies involve large transfers to students who do not need financial assistance. Most students are not credit constrained in a lifecycle sense, since returns to education are so high. Education subsidies do not reduce risks of a particular study. Consequently, most subsidies are directed to students with relatively safe earnings prospects such as medical doctors, lawyers or business economists. Large subsidies also provoke excessive enrolment of less talented and lazy students with high dropout and low earning prospects. Student grants or subsidised tuition fees suffer from massive deadweight losses, so much more subsidies are needed to achieve the same accessibility. Large sums of money are directed towards students/graduates who on average do not face problems to finance their education, have no income uncertainty and/or have too low returns on their education. ICL feature less misallocation of students, lower tax need, less perverse redistribution, and weed out 'fun' students who are only there to delay work rather than study hard.

Means-tested student grants or subsidised tuition fees are meant to help poor students that suffer from credit market imperfections and the inability to insure human capital risks. But ICL appear to be more efficient in tackling these market imperfections and helping poor students. ICL also dominate subsidies based on parental incomes, since means-testing discourages parental savings (Feldstein, 1995). Means-tested subsidies are in any case unfair as graduates from poor backgrounds can also look forward to high lifetime incomes.

Transparency is crucial

European students are reluctant to borrow €50.000 for their university studies even though the return is very high and many do borrow after graduation to buy a car or home. Students express fears of unemployment, low incomes and high debt. Students should be better informed on the quality of various degree programmes, their own abilities, average returns to their education, the risks associated with such investments (employment probabilities, etc), the repayment obligations of student-loans in normal circumstances and in cases of low incomes, and so on. Well-informed students should have less debt aversion. They also boost competition between universities. Universities are likely to abuse their informational advantages to (price-) discriminate, select and cream-skim the best students and lower average educational quality. Government, secondary school teachers and universities should therefore invest in informing school children where they can best study in terms of quality of teaching, research reputation, extracurricular assets, etc. It help to publish achievements of universities in Michelin guides. These could contain average grade-marks, average number of times that exams are retaken, average enrolment durations, scientific accomplishments of dons, teaching evaluations, student evaluations, average salaries of graduates, average employment rates, average job-seeking durations, and so on.

9. Summing up

Private returns to higher education rise. The gap between social and private returns is not large enough to warrant more *public* investment in higher education. In spite of the expected rise in demand for higher education, governments in Europe do not allow supply to expand to meet demand through a battery of central planning and steering instruments. Politicians from the left and the right also form a 'cordon sanitaire' against structural reforms by misguided equity and accessibility arguments. Due to 'glass' ceilings on academic excellence many top academics flee to the US. Students are not challenged enough and drop out massively. European governments produce 'one size fits all' higher education systems that fail to adapt to an increasingly international and competitive market for higher education. Lack of transparency implies lack of competition between universities. In Europe, cartels are now firmly embedded through non-level playing fields between private and public institutions.

Inappropriate methods of funding give rise to ever-rising overhead costs and status-seeking university bureaucrats wasting scarce resources on nonsense projects. We therefore propose the following reforms:

1. Allow universities to charge substantially higher tuition fees and also allow them to differentiate them by type of course depending on demand and costs. Allow universities to give discounts or scholarships to the smartest students, especially if they are from poorer backgrounds. Uniform fees reward bad students and harm good students. Smart rich students will be happy to pay for quality in view of high expected returns. The objective is increase university budgets, attract the best students and improve the quality of teaching. If fees function as signals of scarcity, there will be less mismatch of supply and demand of graduates.

2. Provide students with income-contingent loans where graduates repay their according to a percentage of future earnings. The objective is to provide insurance and guarantee universal access at low public costs and to avoid, but also stop students taking disruptive, part-time jobs. The government may wish to fund default out general funds or make participation obligatory.

3. Only subsidise studies whose social benefits exceed private benefits. Think of pure science which is needed to maintain fundamental research, art history or archaeology. Do not subsidise market-oriented, 'status' or 'signalling' studies like business economics or law as they are popular and graduates will earn a lot. Uniform subsidies induce excessive enrolment in fields with little social value and not enough in fields that have large private value. Universities that attract lots of smart students need less government subsidy.

4. Improve incentives for students and professors. Allow universities to select only the smartest and most motivated applicants irrespective of their social-economic background. Only give access to student loans and scholarships if students perform well. Introduce strong incentives for teachers and make sure that the best academics teach. Encourage universities to introduce tenure-track appointments where regular assessment of both teaching and research performance play a role in salary, tenure and promotion decisions. Base research budgets on academic performance and potential and allocate them by independent academics of a high reputation.

5. Foster competition among universities at home and abroad and accredit foreign institutions. Abolish historical funding and cross-subsidies that hinder fair competition. Both private and public institutions should compete on the same terms by allocating subsidies directly to students through vouchers. Intervene if scale and funding on basis of student numbers induces monopolistic behaviour, bureaucratic waste and grade inflation. Universities should publish students' dropout rates, enrolment durations, exam marks, student evaluations, scientific publications, evaluations of scientific visitation committees and so on.

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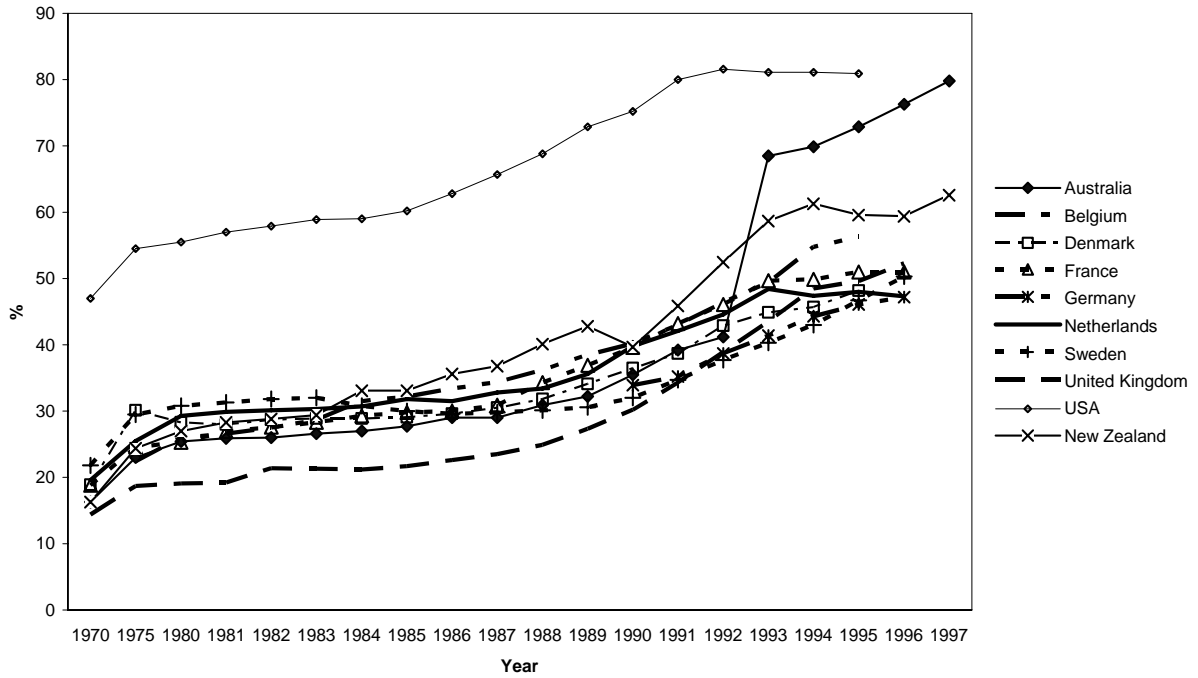
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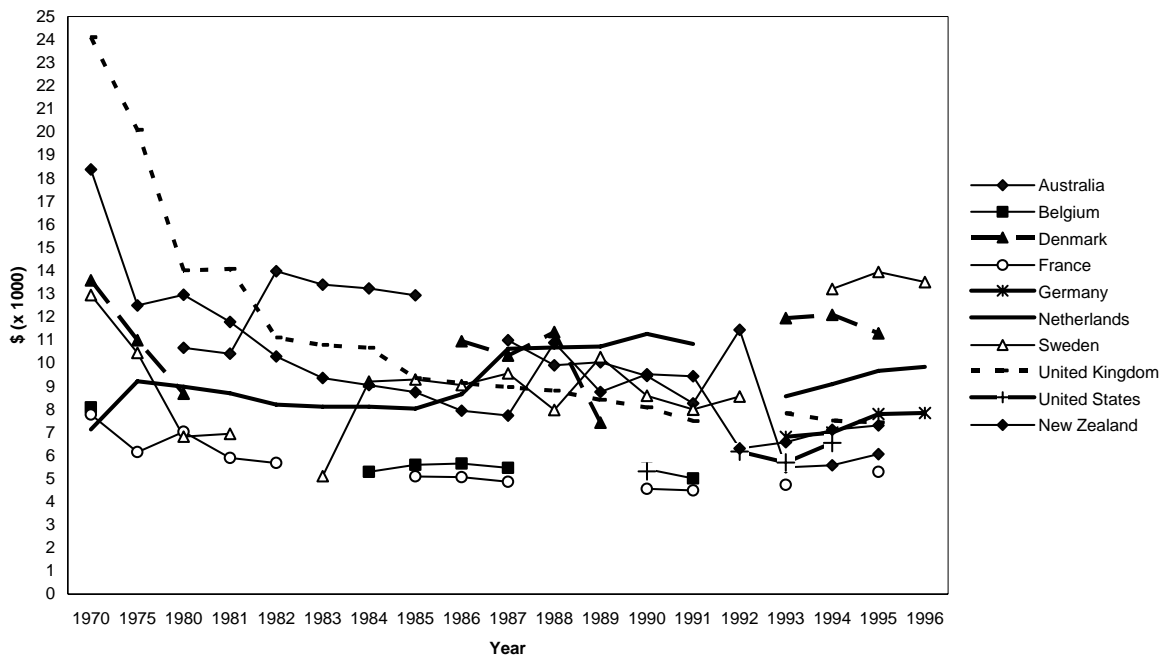
Annex 1: Figures

Figure 1: Enrolment rates in tertiary education as percentage of cohorts



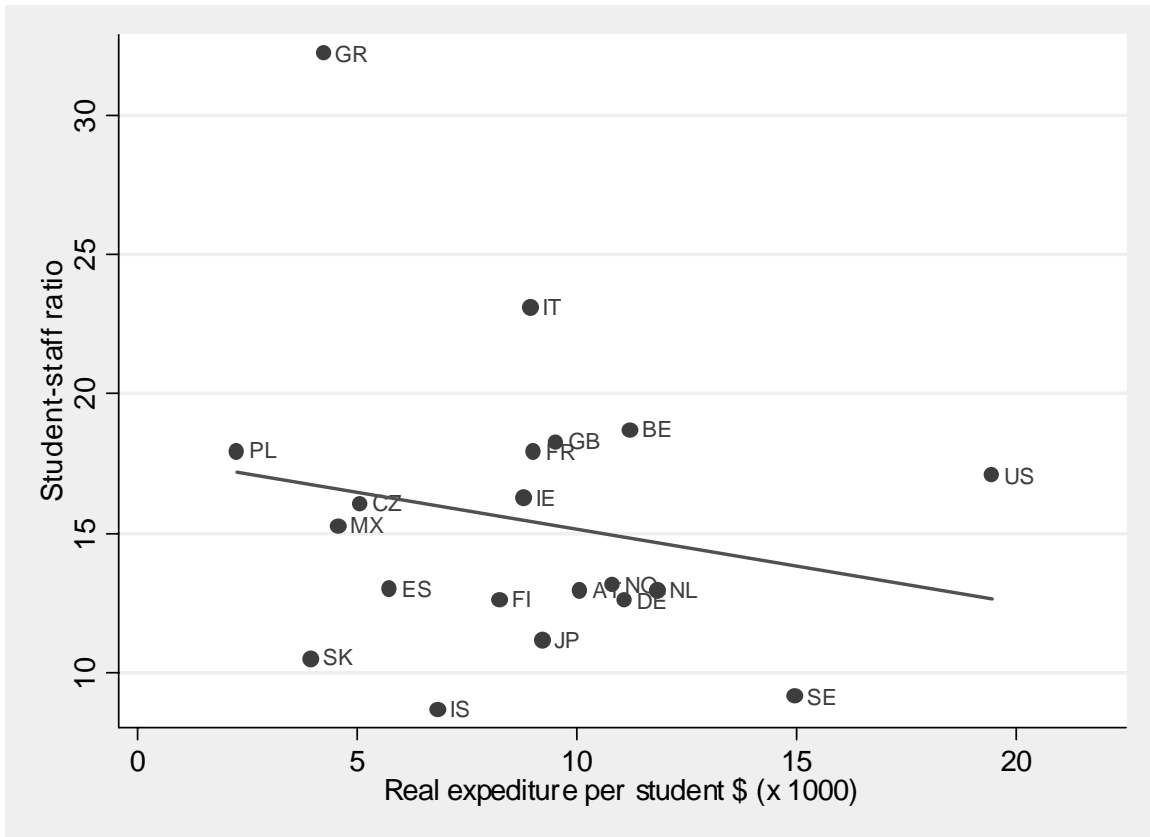
Source: UNESCO (2003)

Figure 2: Real resources per student in higher education



Source: UNESCO (2003), OECD (2003b) for CPI indices to deflate all series, OECD (2003c) provides PPP deflators relative to the US

Figure 3: Real expenditures per student and student/staff ratio



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