

**COSTING, FUNDING AND SUSTAINING
HIGHER EDUCATION:
A Case Study of Oxford University**

***Ox*CHEPS**
The Ulanov Partnership

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Contact: David Palfreyman, Director, OxCHEPS, 01865-279550, 07850-558572.

Executive Summary

The top tier of UK universities, like most of UK higher education, is in crisis.

In social terms, the leading universities' mandates – intellectual excellence and continuously broadening educational access – are in conflict. In academic terms, research and teaching quality are being gradually diminished by a competitive brain drain internationally, and domestically by insufficiently competitive resources and conditions. In economic terms, costs and revenues are increasingly mismatched.

In January 2004, the Government presented a bill before Parliament with maximum £3,000 undergraduate tuition fees (increased from the current £1,125 fee), additional funding for the strongest research departments, and increased access arrangements for students from disadvantaged backgrounds. However, the suggested change in students' financial contribution to their education comes nowhere near meeting the true cost of higher education.

At the University of Oxford, as at other top UK research universities, members of Colleges, Departments, and the central University realise to varying degrees that the new level of Government funding will not solve the funding crisis faced by these universities.. As the sense of urgency grows, there is a need for an analysis of the true costs of an Oxford education, including University teaching and research and College teaching and physical infrastructure. Government funding per undergraduate within higher education has halved in the past 20 years, and as currently planned the increased tuition fees – whilst providing Oxford an infusion of less than 10 percent additional teaching funding – will not reverse that trend. Additionally, there is an 'aspiration gap' – resources to address below-par academic salaries, student scholarships/bursaries, information technology, research facilities, and maintenance of ancient buildings – to sustain Oxford's rank among the world's very best universities.

The following is an independent, non-political, and unpublished report from a continuing study of Oxford and UK university finances conducted by the Oxford Centre for Higher Education Policy Studies (OxCHEPS) and The Ulanov Partnership. OxCHEPS is an independent think-tank, not part of Oxford University, dedicated to higher education; The Ulanov Partnership is an international strategy and management consultancy for the university and nonprofit sectors. This report, analysing the costs, funding, and sustainability of education at Oxford, the global context of top research universities, and scenarios for student fees, may not be quoted without acknowledgement.

Executive Summary (continued)

This study is based on the budgets and balance sheets of Oxford University and its Colleges to provide the first-ever comprehensive financial model and analysis of Oxford as a whole. It draws on public accounts of the University and Colleges, data provided by representative Colleges and Government data. It is not a product of the University or its Colleges. All figures are in 2002-03 Pounds unless otherwise noted.

1) Analysis yields certain conclusions in the case of Oxford:

- Total annual costs (including education, research and physical infrastructure across central University and Colleges) for Oxford's 16,100 undergraduates and postgraduates amount to £496 million (page 8)
- If sponsored research and residential accommodation charges are excluded then the total cost of education is reduced to £301 million (page 8)
- Carefully allocating relevant expenditures between undergraduates and postgraduates, the typical education of an Oxford undergraduate works out to an average cost of £18,600 p.a. (page 9)
- Of this amount only £1,100 p.a. is currently paid through a tuition fee for a Home/EU undergraduate, ie, 6 percent of the total (page 18). (This is increased for inflation to £1,125 for 2003-04.)
- Of the remaining 94 percent of the cost of an undergraduate year, the University contributes roughly half from private sources (principally endowment, earned income and donations), with Government contributing the other half (page 18)
- A major factor in funding Oxford Home/EU undergraduate education costs of £18,600 p.a., beyond contributions from philanthropy and endowment, has been development of a large source of earned income (conference trade, intellectual property, and other entrepreneurial activities) – contributing 22 percent of the sources of revenue (page 18).

Executive Summary (continued)

- 2) Comparing Oxford with leading top-tier public and private U.S. universities shows that quality is compromised to the point where the top-tier UK universities are now in fundamental danger as a result of:
 - Under investment in infrastructure and other academic support
 - Expenditure per undergraduate which is 50 percent higher than at Oxford in the state University of Michigan and three times higher in the private Harvard and Princeton Universities (page 11)
 - Academic salaries which are one-third to one-half less than at top U.S. universities.

- 3) The major difference between the funding of U.S. and UK undergraduate students is the assessment of more cost-based tuition fees coupled with very high levels of financial aid available to students in the U.S. based on financial need and/or academic merit. This has created a needs-blind admission and needs-based financial aid system founded on a progressive, redistributive scheme of individual charges and benefits.
 - This is made possible through a diversity of sources including grants and low interest loans from Government, needs-based bursaries funded by endowment and annual giving, and merit-based scholarships. (pages 13-14)
 - Most important, however, by increasing the nominal level of fees far beyond that applying in the UK, U.S. universities are also able to deploy the necessary financial resources to lower the cost for less advantaged students.
 - As a result, at a typical top-tier U.S. university the nominal tuition fee is very high but only the wealthiest 20 percent or so of undergraduates pay it in full. These tuition fees help to create a pool of funds to support a high level of fee remission and bursaries for the average and less-advantaged student, thus maintaining broad levels of access (see chart on page 14).

Executive Summary (continued)

- 4) In the global context of leading universities, Oxford faces a daunting and growing ‘Aspiration Gap’:
- Lower academic pay. Oxford academic staff at all levels are paid significantly less than their U.S. colleagues. If one is conservative in drawing parallels across rank, and allows for the arguably greater status of UK staff, eg, a British professor being of higher status than a rank-and-file American counterpart, then the pay gap is even more remarkable. To match the pay scale at the state university Berkeley would cost Oxford an additional £13.9 million p.a., or £10,600 per don; or to match the private Princeton would cost £20.6 million p.a., or £15,700 per don. (pages 20-21)
 - Higher teaching loads. At Oxford teaching loads are far more demanding than at private Princeton and Harvard Universities – whether based on hours supervising students or total students per don. Despite the apparent luxury of the tutorial teaching system, Oxford is not comparably staffed: there are twice as many undergraduates per don at Oxford compared to Princeton or Harvard. (page 22)
 - Lower compensation per teaching hour. Compared to Princeton, where undergraduates have approximately the same amount of time with their dons, Oxford dons are paid one-third as much per teaching hour. Academic compensation in the UK is negotiated nationally; this effective price cap precludes meritocratic salary scales. (page 23)
 - Lower academic support staff. At Oxford academic support staff is less than half as much per don and per student as at Harvard, and less per don than at Berkeley. (The scale of lecture-teaching at Berkeley results in less support per student than at the other universities.) Less support at Oxford reduces dons’ research productivity and ability to handle large teaching loads. (page 24)
 - New buildings, less maintenance. Oxford has managed to remain more competitive with leading U.S. universities in capital project expenditures than other cost areas on University and College levels. However, the level of new capital investment is not matched by either investment in the people (dons and students) using the facilities or upkeep of the facilities. The imputed 150 year replacement cycle of Oxford (University only) buildings is three times that at Princeton or Harvard. (pages 26-27)

Executive Summary (continued)

- 5) The Government's Higher Education Bill now before Parliament has faced strong opposition from many Labour backbenchers, students, and the opposition parties.
- The focus of the debate has been largely on the impact on students from the poorest homes. However, concessions made by the Government have substantially addressed these concerns. At institutions charging the full tuition fee of £3,000 p.a., full-time students from the poorest homes will be eligible for support of up to £2,700 p.a. plus a minimum bursary of £300 (with several universities announcing bursaries up to £4,000). (pages 31-32, 36)
 - Compared with the present system, most students will be at least £1,200 p.a. better off (because they will not be paying fees up front) whilst they are studying – but even as graduates take on more debt, the quality of their education at the UK's best universities will continue to erode. (pages 31-32)
- 6) The funding crisis faced by the UK's top-tier research universities has not been solved by the Government's Bill with its arbitrary cap of £3,000 p.a.:
- As costs continue to increase faster than revenues grow, the long term trend is toward increased deficit. By 2009 at Oxford, the current system will result in an additional annual loss on Oxford education of £19 million (in 2003 pounds). The Government Bill, with the one-time increase in student fee level, will reduce that deficit significantly in the first year – but deficits will continue to grow greater every year. (page 38)
 - The central issue is that university costs (such as salaries and technology) increase faster than the Retail Price Index (RPI). As a result, any funding, whether student fees, public funds, or earned income, which is benchmarked against RPI, will fall short of the actual need.
 - Therefore, top-tier UK universities will resort increasingly either to further cost cutting – with consequent impact on the quality of education – or to increasing the proportion of foreign students and/or postgraduate students – who produce less of a deficit per student than domestic undergraduates – thus leading to an accompanying reduction of Home/EU undergraduate numbers. In Oxford's case, this is estimated in an internal consultation planning document to cause a reduction by as many as 1,500 UK undergraduates from the current number (even in an expanded overall student body) by 2020.

Executive Summary (continued)

- 7) At the same time, under the provisions of the Government Bill no funding will be available to address the serious imbalance of the Aspiration Gap. A quarter century ago, for example, Oxford's operating resources roughly equalled those of the best private American universities. Today, Oxford spends one-third what Harvard and Princeton each spend educating an undergraduate (page 11) and pays dons at one-third the rate per teaching hour compared to Princeton (page 23). To close the Aspiration Gap fully at current levels would cost £99 million to £231 million p.a. (page 39)
- 8) Ultimately, the resource gap must lead to a reappraisal of Oxford's and other top-tier UK universities' ambitions.
- One option is to lower ambition – perhaps to being among the best public/state universities in the world, with the University of California at Berkeley as a peer rather than a Princeton or Harvard University.
 - As higher education becomes even more globalised, many of our best students will go to the U.S. – where bursaries assure a lower actual cost of university education than in the UK for those with few personal financial resources, and where bursaries are provided to foreign and domestic students alike.
 - Alternatively, the best research universities in the UK should pursue the goal of continuing to be among the best universities in the world but that will require access to substantially greater resources than is at present planned.
- 9) The debate must be realistically engaged if our top universities are to preserve their fast-diminishing position of pre-eminence. Several options are possible, as set out on page 29. The option which appears most viable is the Uncapped Access scheme as outlined on pages 34-37, which would provide a needs-blind admission / needs-based financial scheme that:
- Extends fee-free education beyond the Government's plans to students from families earning less than £30,000 p.a.
 - Charges lower fees than the Government's proposal for those from families earning up to £45,000
 - Charges progressive fees to those from families earning more, with the highest-fifth (earning more than £55,000) paying an average of £7,986 p.a., still well below the average cost of an Oxford undergraduate education of £18,600 p.a. (pages 9-10)
- Such a policy would yield significantly greater funds for Oxford than the Government proposal whilst promoting greater access.

Costs of Education: Background

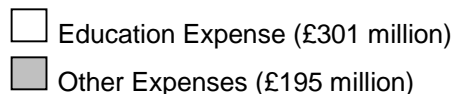
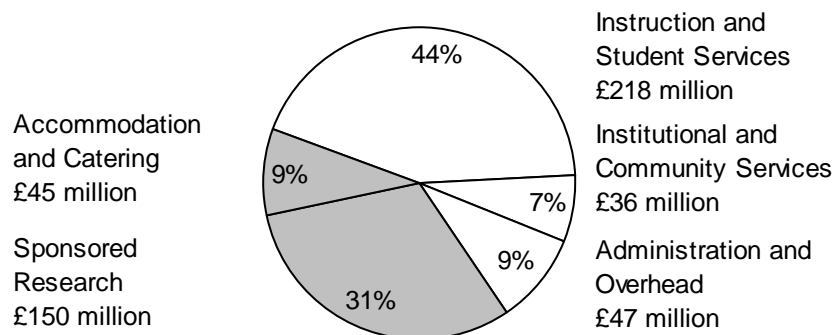
In this analysis, we have focused primarily on the students, rather than on institutions per se. As a result, we look at the costs, price, and income per student. This enables us to consider education from the perspective of the actual 'consumer', in accordance with the emphasis of Government and fee-payer alike. Thus our analyses address how to fund both the institutions and the students who work and learn in them. As a starting point, we note that external studies suggest that the general public greatly underestimate the true cost of university education.

In the face of mounting costs, the public have demanded greater accountability. The current analysis draws on, among other sources, the HEFCE-mandated Transparency Reviews and, in the U.S., the Cost of College Project of the National Association of College and University Business Officers (NACUBO). Additionally, these analyses draw on a variety of internal College and University sources at Oxford, including the Resource Allocation Model (RAM), management accounts of selected Colleges, divisional budgets, and various third-party costing studies.

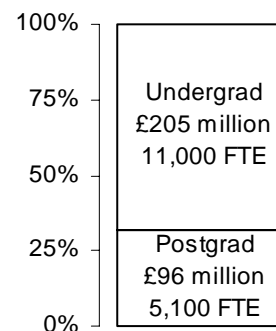
Education Expenses

The University of Oxford – incorporating the Colleges and the central University – includes more than 16,100 full-time equivalent students (11,000 undergraduates and 5,100 postgraduates) and about 350 visiting or part-time students on an overall budget of £496 million for 2002-2003. The central University is responsible for lectures, classes, research, and academic services; the Colleges are responsible for each student's academic progress and welfare, and above all the tutorial, the uniquely Oxbridge opportunity for undergraduates to enjoy extensive personal interaction with academics at the forefront of their field, and for student residential accommodation. Excluding sponsored research, associated administrative overhead, and residential accommodation, annual education expenses are about £301 million, of which more than two-thirds funds undergraduate education (right).

TOTAL ANNUAL EXPENSES - EDUCATION, RESEARCH, AND ACCOMMODATION
100% = £496 million



TOTAL ANNUAL EDUCATION EXPENSES
100% = £301 million

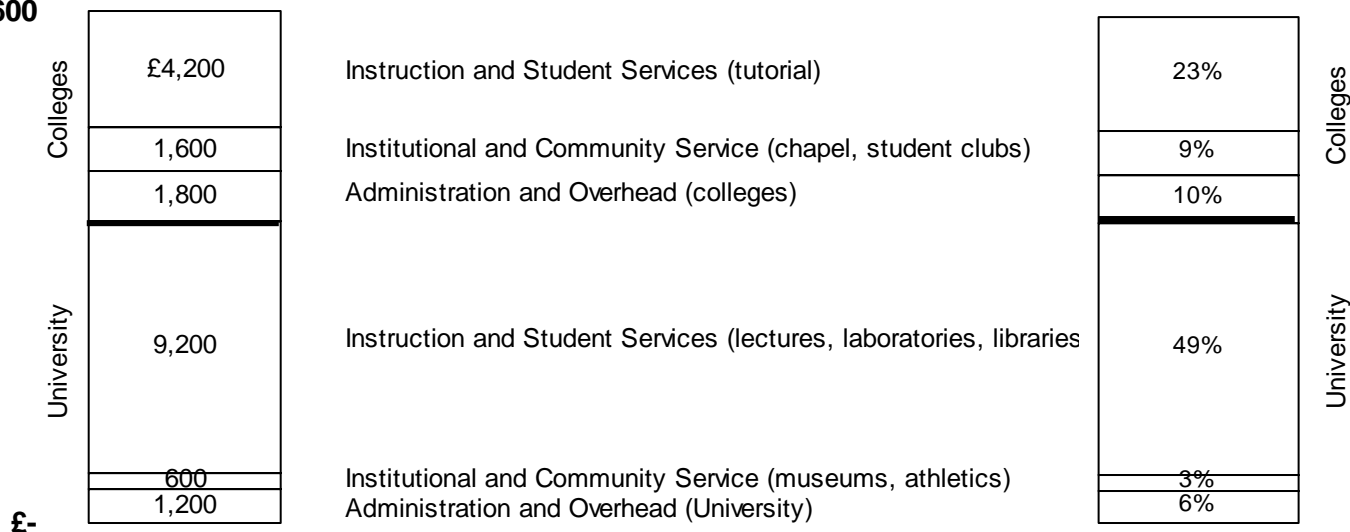


Average Cost of an Undergraduate Education

Focusing on the £205 million devoted to undergraduate education, we can determine the cost of educating a single student. Excluding, for the moment, sponsored research and residential accommodation and catering costs (but including other, core research costs), the typical education for Oxford's 11,000 undergraduates, using the methodology outlined in the Appendix, costs approximately £18,600 p.a. (Maintenance costs, for lodging, accommodation, books, etc, average about £6,000 p.a. and are not included in the following figures.)

AVERAGE ANNUAL COST OF AN OXFORD UNDERGRADUATE EDUCATION 2002-2003

£18,600



Differing Costs of Different Degrees

In practice, some degrees are more costly to provide than others. Even excluding sponsored research, science education requires dedicated laboratories, whereas arts degrees require more extensive libraries. Postgraduates generally use libraries and laboratories more intensively than undergraduates. Thus on an indicative basis (allowing for variations based on extensive financial modelling and consultation) we can differentiate degree costs p.a. as follows:

2002-03	Undergraduate			Postgraduate		
	Arts - 6,350 FTE	Science - 4,650 FTE	All - 11,000 FTE	Arts - 3,020 FTE	Science - 2,080 FTE	All - 5,100 FTE
Teaching and Instruction	£ 11,900	£ 15,700	£ 13,400	£ 10,100	£ 18,800	£ 13,700
Student Services	2,200	2,200	2,200	2,200	2,200	2,200
Institutional and Community Service	3,000	3,000	3,000	2,800	2,800	2,800
Total Cost per Student	£ 17,100	£ 20,900	£ 18,600	£ 15,100	£ 23,800	£ 18,700

Excluding core departmental research and many academic service costs, we see:

2002-03	Undergraduate			Postgraduate		
	Arts	Science	All	Arts	Science	All
Teaching and Instruction	£ 8,600	£ 8,700	£ 8,600	£ 6,000	£ 10,100	£ 7,700
Student Services	2,200	2,200	2,200	2,200	2,200	2,200
Institutional and Community Service	3,000	3,000	3,000	2,800	2,800	2,800
Total Cost per Student	£ 13,800	£ 13,900	£ 13,800	£ 11,000	£ 15,100	£ 12,700

Note: FTE = full-time equivalent

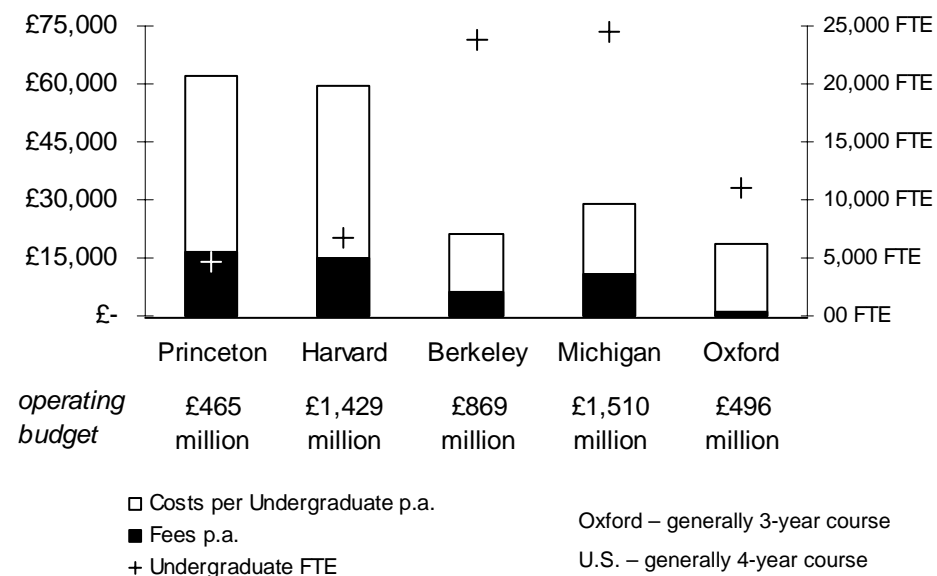
Source: Universities, Colleges, UP analysis

A Comparison with Institutions in the U.S.

During the past twenty years and more, many top-tier U.S. higher education institutions have allowed tuition, or upfront student fees, to 'float' according to the market. Although nominal fee increases have significantly exceeded RPI, age-participation rates and access among lesser-privileged population segments also have steadily increased. In other words, overall funding has grown to meet the increased demand for higher education.

At the urging of the American government, many U.S. institutions have studied their costs and developed standardised methodology, which informs the following chart showing costs comparable to Oxford's undergraduate £18,600 p.a. cost. As in the UK, fees at these U.S. universities cover only a relatively small minority of the annual cost of undergraduate education.

UNDERGRADUATE COSTS AND FEES P.A. AT SELECT UNIVERSITIES



Similarities and Dissimilarities to U.S. Institutions

Before delving further into issues of student fees, we should note some of the similarities and differences between U.S. institutions and those in the UK. First, higher education has long been regarded in the U.S. as the key to social mobility; thus U.S. higher education has historically been characterized by a higher age participation rate as well as a willingness to bear a greater proportion of those costs privately, including higher alumni giving.

Second, there is a broader recognition and acceptance of the different missions of higher education institutions: leading undergraduate education at the major research institutions, affordable mass education at the state universities, and an accessible entrance into higher education at the community Colleges. This is tempered by a significantly higher level of individuals 'transferring' between institutions than is common in the UK.

The most striking difference, on an economic level, is the greater total investment in the individual undergraduate education in the U.S., even at the largely government-funded state institutions such as Berkeley and Michigan. To fund that higher investment, there is a movement within the major state systems to 'privatise', that is, to rely increasingly on student fees set by universities (rather than government), whilst retaining present levels of government funding.

The most important U.S.-UK difference is that higher fees are, without exception, alleviated by higher financial aid.

Financial Aid

Perhaps the most important innovation in U.S. institutions is the wide reliance on financial aid. Most students receive financial aid based on financial need and/or academic merit. In fact, the U.S. system is geared to greater access, using a redistributive system of fees and bursaries – based on ability to pay – to generate both higher private contribution to costs and greater access than in the UK.

As examples, 70 percent of students at Harvard and 80 percent at Berkeley receive financial aid (usually at substantial levels), compared with an estimated 60 percent of UK students eligible for some remission of fees. This is a standard part of applying and enrolling into university in the U.S. These high levels of aid are made possible through a diversity of sources, including grants from the government, need-based bursaries (funded by endowment and annual giving), tuition discounts, merit-based scholarships, low-interest loans from the government and the universities, work-study programs, and summer jobs.

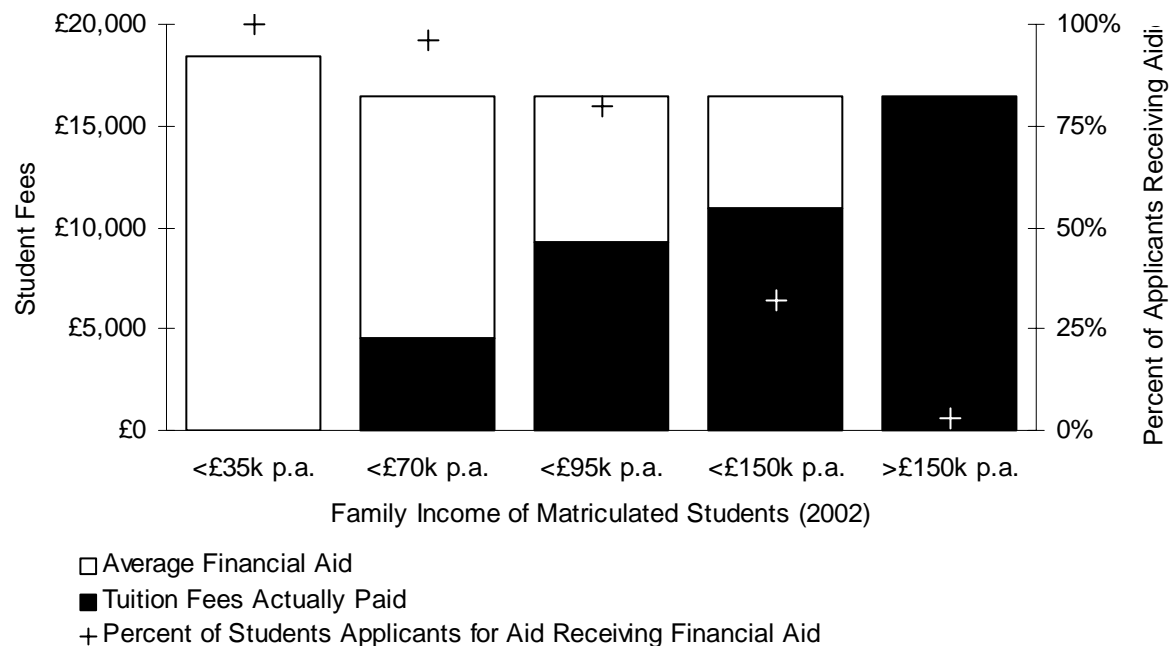
By increasing the nominal level of fees, these universities develop the resources needed to lower the price for lesser-advantaged students. By tapping into higher tuition fees as another source of funds, a higher level of access is made possible for those in need. In effect, higher fees enable both greater access and overall higher funding of higher education costs.

An Illustration of Financial Aid

At a typical top-tier U.S. private research university, the nominal tuition fee is high, but only the wealthiest 20 percent pay it in full. These tuition fees create a pool of funds to support high levels of fee remission and bursaries for the poorest students, thus maintaining broad levels of access.

The top-tier universities attract students with a 'needs-blind' admission process: offers are made on academic, not financial, criteria, and students are means tested with standardised government forms and procedures. As the chart below indicates (with dollars converted to Sterling), the neediest receive financial aid above the fee level, as in the previous and proposed UK maintenance grant.

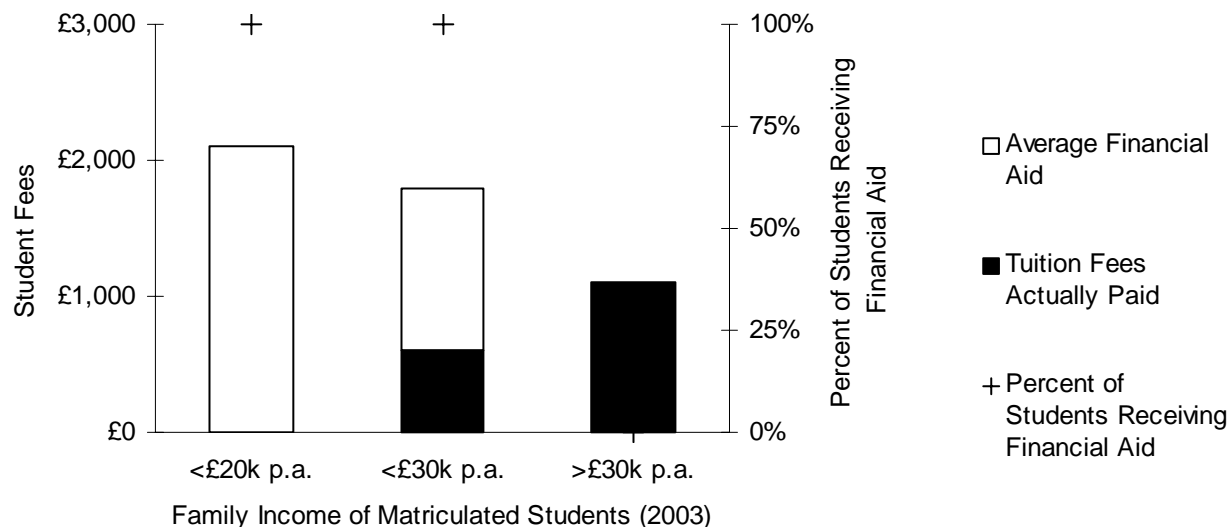
**FINANCIAL AID AT A PRIVATE
U.S. RESEARCH UNIVERSITY - PRINCETON**



Financial Aid at Oxford Currently

With currently low tuition fees, financial aid at Oxford is concentrated on fee remission and bursaries for only the poorest students. Home/EU undergraduates currently pay the Government-capped fee of up to £1,125 for the 2003-2004 school year. Those students from families earning £20,000-30,000 p.a. (approximately 15 percent of Oxford students) receive partial remission of fees. Those earning less than £20,000 p.a. (approximately 5 percent of Oxford students) pay no fees. (The University and Colleges award bursaries of up to £1,000 the first year, £500 thereafter, which students may use for books or living expenses.) Students are eligible for up to £4,000 p.a. loans for maintenance expenses from the Students Loans Company (not shown). Approximately 80 percent of Oxford students pay the same flat-rate fee of £1,125 in 2003-2004.

FINANCIAL AID AT OXFORD UNIVERSITY
2003-2004

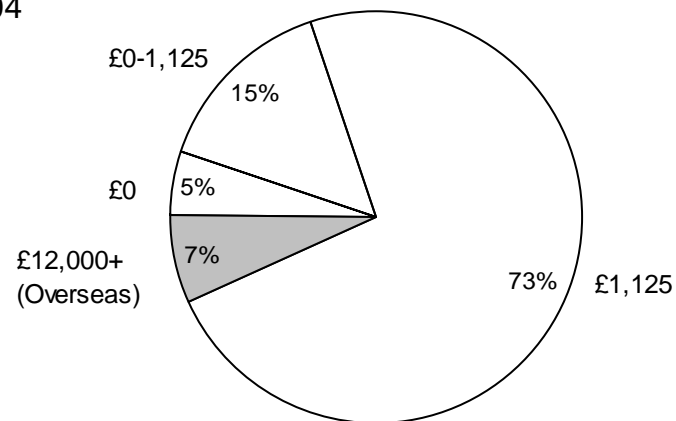


Different Tuition Fees for Different Students

Overseas undergraduates pay differential fees, depending on which course they pursue, in addition to College fees. Currently, total University and College fees are set at approximately £12,000 for arts students, £14,500 for sciences students, and £23,000 for medical students. There are no remissions of these fees. For a small number of Overseas students at Oxford, fees are covered by external scholarships, such as Rhodes and Marshall.

PROPORTION OF UNDERGRADUATES AT DIFFERENT FEE BANDS

2003-04

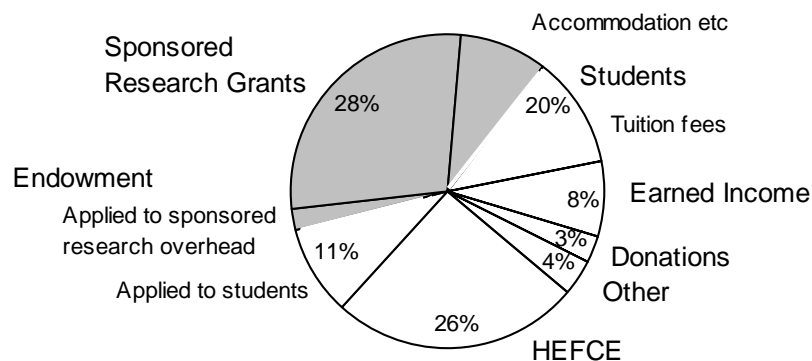


Source: Universities, Colleges, UP analysis

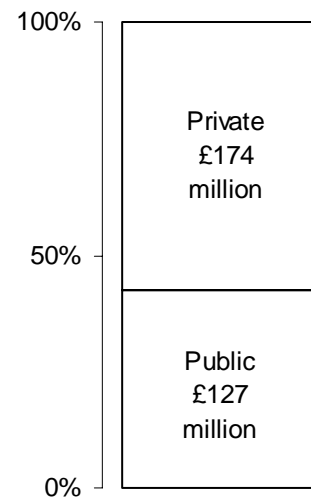
Funding the Oxford Education: A Public-Private Partnership

As increases in age participation have outpaced public funding, the private sector has increasingly borne the cost of Higher Education. Oxford's overall funding for 2002-03 (left, below) comes from both public and private entities (on separate analysis, not shown here, 46 percent public and 54 percent private). The education portion of Oxford activity (right – covering all degrees and students) is predominantly generated from private sources (57 percent).

SOURCES OF OPERATING FUNDS FOR EDUCATION, RESEARCH, AND ACCOMMODATION
100% = £496 million



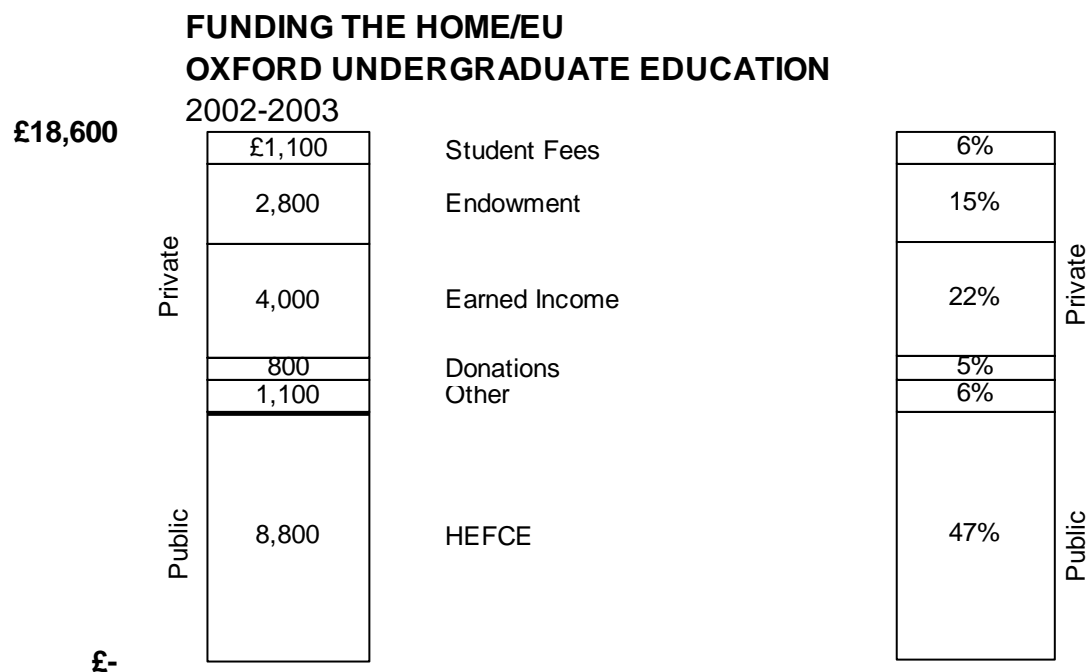
SOURCES OF FUNDING FOR EDUCATION
100% = £301 million



- Education Funding (£301 million)
- Other Funding (£195 million)

Funding Undergraduate Education : A Public-Private Partnership

As we saw (pages 9-10), the average undergraduate education at Oxford costs approximately £18,600 p.a. For a Home/EU undergraduate, as shown below, the 2002-2003 £1,100 tuition fee p.a. paid for only 6 percent of his or her education. Public funding meets 47 percent of that cost, whilst the remaining 47 percent comes from earned income, endowment, donations, and other funds. Therefore, even for the Home/EU undergraduate student – who receives more public funds than other students – private funds pay for about 53 percent of an Oxford education: a true public-private partnership.



Note: A portion of the £1,100 student fee for students on means-tested partial or whole remission is paid by Government

Source: Universities, Colleges, UP analysis

The Future of Education Funding: The Aspiration Gap

Oxford, among the premier UK institutions, ‘costs’ and spends annually per student less than one-half Princeton or Harvard University expenditures (as previously seen). That difference in education spending, of course, is made up of efficiencies as well as by paying academics considerably less – and by an ‘Aspiration Gap’, ie, having and producing less (in some mix of quality of education and knowledge generated).

Whilst the ‘brain drain’ of leading researchers is already widely recognised, the aspiration gap in resources (salary, support, equipment, facilities) has now become an acute challenge, with some top departments reportedly unable to recruit to fill vacant posts, putting additional burdens on existing staff with a consequent loss of morale. The gap is widening as the top U.S. universities operate without tuition fee caps and charge those most able to pay what they are able to pay, redistributing funds to permit wider access.

The Government’s ambition to ensure UK higher education can remain world class is thus aiming at a moving target, and this has significant implications for the future quality of UK higher education. For example, junior academic pay in Oxford and the UK is only slightly more than 50 percent of U.S. junior academic pay; addressing that disparity alone would increase the cost of an undergraduate education by 10 percent to 20 percent.

The difference in resources per student and per don – with consequences for the two ‘products’ of research universities (student education and new knowledge generation) – leads to an overall real, if unquantifiable, difference between what Oxford seeks to be and what it achieves ... the Aspiration Gap.

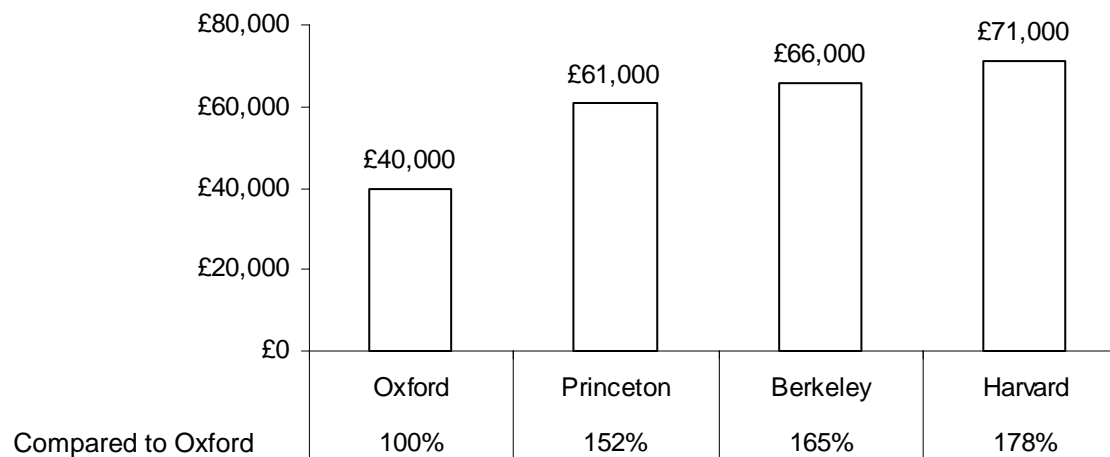
Academic Staff Resources

Academic staff resources, or 'dons', include at Oxford Professors (chairs), Senior Lecturers, Junior Lecturers, and non-faculty Stipendiary Lecturers. The University compares these respectively to U.S. ranks of Professor, Associate Professor, Assistant Professor, and Lecturer. However, the Professor rank at Oxford is more senior than at U.S. institutions, reserved only for those at the very top of their field.

Average academic pay at Oxford is £40,000 p.a., compared to £61,000 at Princeton (52 percent more), £66,000 at Berkeley (65 percent more), and £71,000 at Harvard (78 percent more).

To match the pay scale at Berkeley would cost an additional £13.9 million p.a., or £10,600 per don, £900 per student. To match Harvard would cost an additional £25.2 million p.a., or £19,200 per don, £1,600 per student.

AVERAGE ACADEMIC STAFF PAY 2002-2003



Note: Teaching assistants and medical school dons are excluded

Salary figures do not include institutional overhead, eg, pensions, NI, income tax

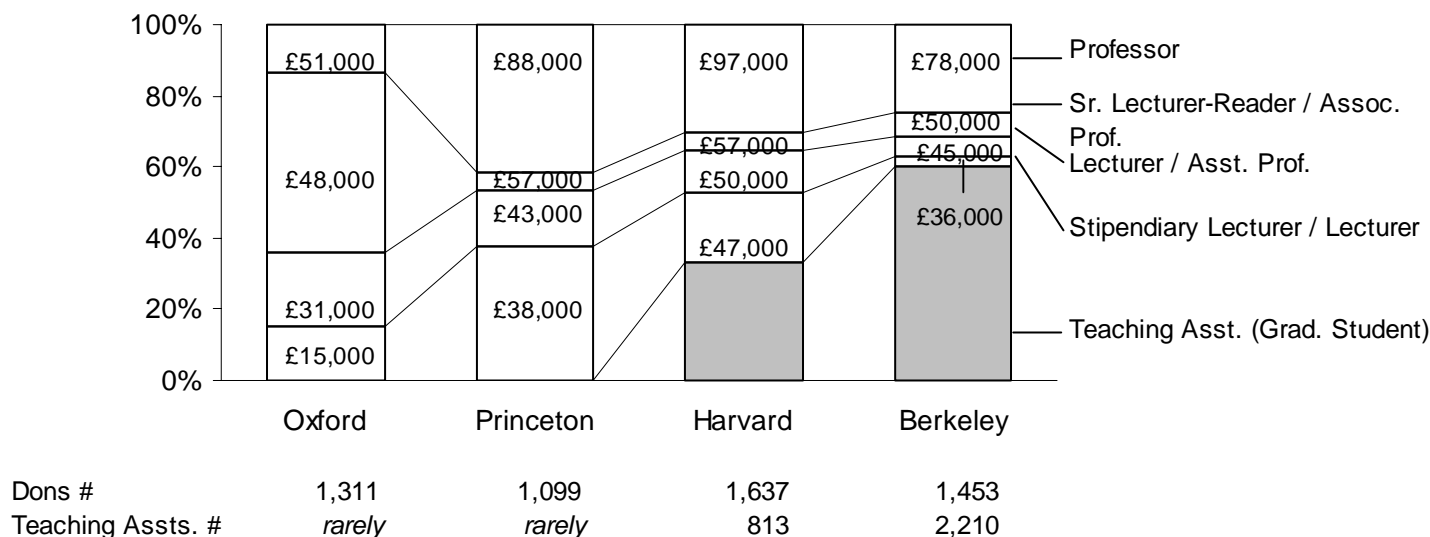
Source: Universities, Colleges, UP analysis

Academic Staff Resources (continued)

The lower average academic pay at Oxford is compounded by the greater seniority of those holding posts at Oxford: at Princeton and Harvard, the two junior academic ranks comprise at least half the academic staff resources, compared to one-third at Oxford. (One additional challenge for Oxford is that when these senior ranks retire their replacements will have to be recruited to these relatively low-paying posts.)

Furthermore, at U.S. universities, teaching dons are aided by non-faculty teaching assistants. Their pay is included in their graduate student stipends, commonly in the range of £10,000-15,000. At Berkeley, where this practice is pronounced, there are more teaching assistants than dons.

ACADEMIC POSTS AND PAY, 2002



Note: Medical school dons are excluded; ranking comparison follows University practice

Salary figures do not include institutional overhead, eg, pensions, national health.

Source: Universities, Colleges, UP analysis

Academic Staff Resources: Student-Don Ratios

Oxford has approximately twice as many undergraduates per don as Harvard or Princeton. (With teaching assistants, Berkeley's all student-all teaching ratio is significantly lower than Oxford's – one of the means employed to allow relatively low tuition fees at U.S. state universities.)

To match Princeton's or Harvard's undergraduate-don ratio, Oxford would need almost to double the number of dons, or reduce undergraduate enrollment. At current pay levels, assuming only junior lecturers would be hired, such an increase would cost approximately £29 million p.a., or £1,800 per student (not including additional administrative, clerical, and other support staff). At U.S. lecturer pay scales, it would cost approximately £44 million p.a., or £2,700 per student.

STUDENT-DON RATIOS AT SELECT UNIVERSITIES

2002

	<u>Oxford</u>	<u>Berkeley</u>	<u>Harvard</u>	<u>Princeton</u>
Undergraduates	11,020	23,835	6,649	4,613
Graduates	<u>4,496</u>	<u>9,310</u>	<u>8,859</u>	<u>1,924</u>
All Students	15,516	33,145	15,508	6,537
Dons	1,311	1,453	1,637	1,099
Teaching Assistants	<i>rarely</i>	2,210	813	<i>NA</i>
All Student-All Teaching Ratio	11.8	9.0	6.3	5.9
Undergraduate-Don Ratio	8.4	16.4	4.1	4.2

Note: Medical school students and faculty are excluded

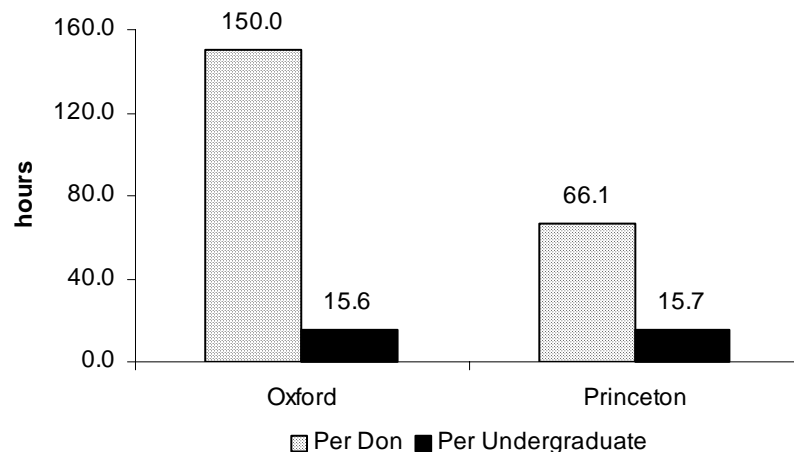
Source: Universities, UP analysis

Academic Staff Resources: Student-Don Ratios (continued)

Compared to Princeton (the closest U.S. analogue in teaching method) Oxford undergraduates have the same amount of total contact time with their dons. After stint reform at Oxford, (whilst recognising that there are considerable variations among subjects) on average students are meant to have one tutorial per week, shared with another student (30 minutes per individual student-don contact) and one-and-one-half hours of class, shared with approximately ten other students (9 minutes per individual student-don contact). At Princeton, undergraduates have four preceptorials, or small seminars, per week, shared with 11 other students (5 minutes per individual student per preceptorial) and eight mandatory lectures hours of some 35 students (about 14 minutes per individual student per week). Furthermore, at Princeton, there are four additional weeks of courses per year, not counting exams.

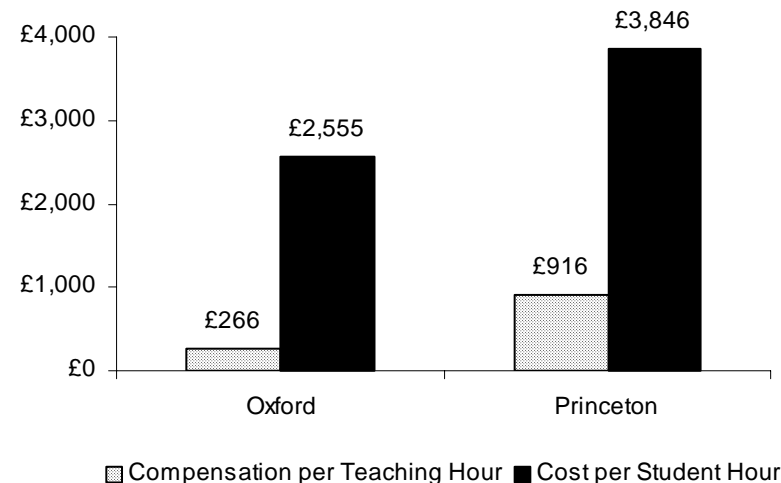
Whilst the quantity of student-don contact does not assess the quality of that time, the quantity of teaching loads is a straightforward comparison: the don teaching load at Princeton is less than half that at Oxford. Given the lower pay and higher teaching load, compensation per post-stint reform teaching hour is one third at Oxford compared to Princeton.

**NOMINAL UNDERGRADUATE-DON
CONTACT PER ANNUM**



Source: Universities, Colleges, UP analysis

NOMINAL DON TEACHING COSTS (PAY)



Academic Support Staff

Support provided to dons includes, for example, libraries, research technicians, and department administration. Excluding central university administration, Oxford provides approximately 2.3 FTE in support for each don. This is far less than comparable U.S. support – indeed support at Oxford is half that at Harvard

The higher level of support at Berkeley (3.1 FTE) reflects both higher teaching support (1.5 FTE teaching assistants per don) and lower central services. At Harvard, the higher level of support reflects teaching assistants, as well as vastly larger professional research support for laboratory sciences and greater technical (eg, information technology) support overall.

ACADEMIC AND SUPPORT STAFF AT SELECT UNIVERSITIES

2002-03

FTE

	<u>Oxford</u>	<u>Berkeley</u>	<u>Harvard</u>	<u>Princeton</u>
Dons	1,311	1,453	1,637	1,099
Professional Research Support	1,589	1,768	5,361	<i>not</i>
Teaching Assistants (grad students)	<i>rarely</i>	2,210	813	<i>available</i>
Department & Division Administration	104	113	381	
Clerical	400	96	798	
Central Academic Services	<u>880</u>	<u>272</u>	<u>688</u>	
Total Academic Support	2,973	4,459	8,041	
Academic Support per Don	2.3	3.1	4.9	

Note: Central administration and medical school dons and support staff are excluded

Central academic services include, for example, libraries

Source: Universities, Colleges, UP analysis

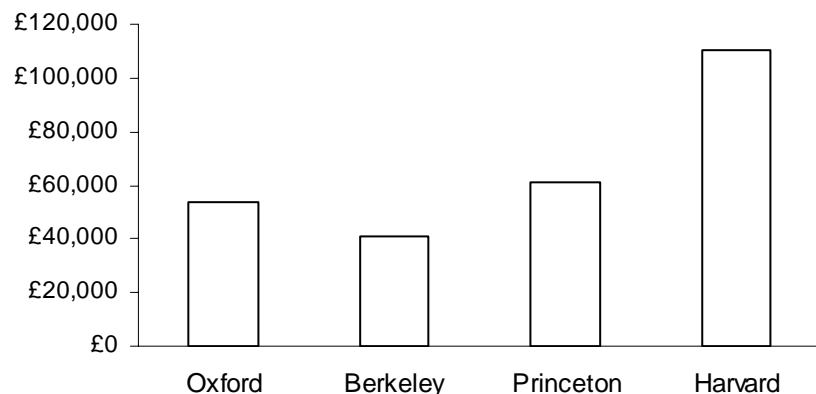
Capital Investment

In recent years, Oxford has been very successful in garnering public funds for new capital projects (physical plant and fitting out with equipment). For example, in 2001 and 2002, HEFCE awarded Oxford a total £52 million in Science Research Infrastructure Funds, which the University has in turn augmented almost 100 percent with capital reserves and external funds. Including all public and private funding for the University and the Colleges, Oxford has invested approximately £140 million in new capital projects during these two years.

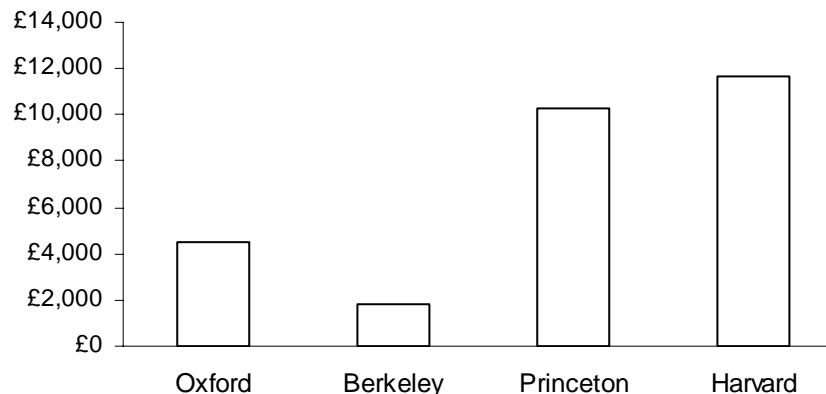
This level of investment compares favourably with Berkeley's new capital projects of approximately £120 million during that time; however, this reflects a reduction in Berkeley's capital budget by an estimated 20 percent due to the state budget crises in California (reflected in the following chart).

Though less uncompetitive than in other areas of academic expenditure, Oxford invests less in new capital projects per don or per student than Princeton or Harvard.

**NEW CAPITAL PROJECTS
PER DON, 2002-03**



**NEW CAPITAL PROJECTS
PER ALL-STUDENT, 2002-03**



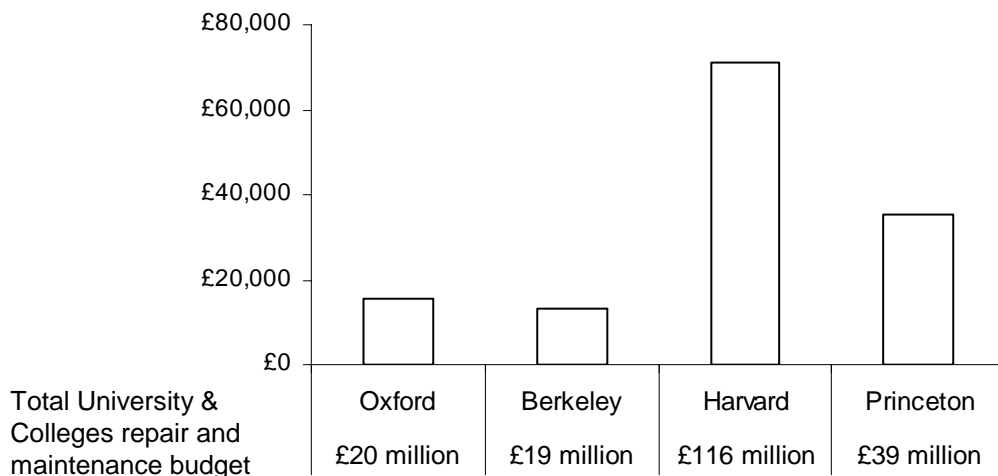
Capital Investment: Maintenance

Beginning in the early 1990s, U.S. universities addressed in earnest decades of deferred maintenance on their infrastructure and physical plants. At Berkeley, for example, the deferred maintenance was estimated to require almost £1 billion.

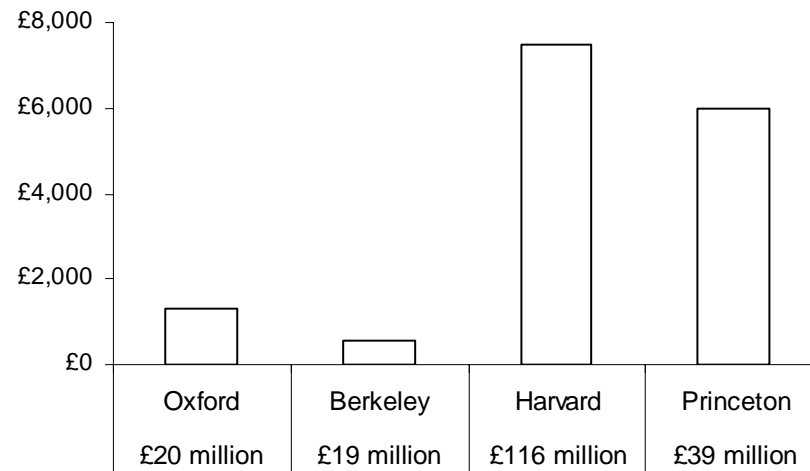
At Oxford, the University estimated in 2002 the immediate need to address deferred maintenance at £260 million for University buildings alone. Colleges generally have maintained their buildings well.

However, when renovation occurs, there is a distinction between maintaining excellence of the current plant and upgrading it, eg, with new technology. This is reflected in a comparison of Oxford and U.S. maintenance budgets.

**REPAIR AND MAINTENANCE BUDGETS
PER DON, 2002-03**



**REPAIR AND MAINTENANCE BUDGETS
PER ALL-STUDENT, 2002-03**



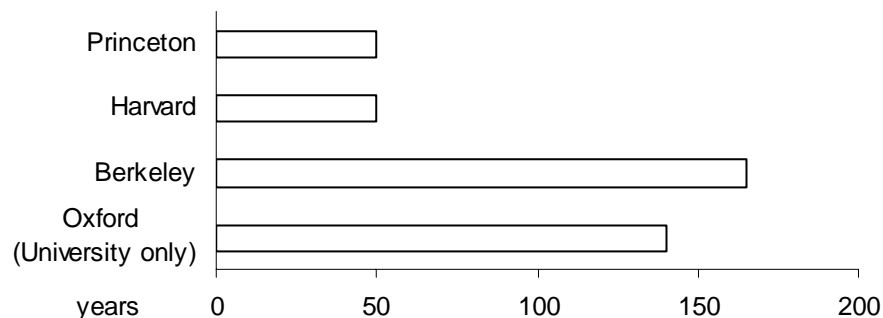
Capital Investment: Maintenance (continued)

The lower level of maintenance budget indicates a burgeoning long-term problem, as ongoing maintenance extends the useful life of buildings and precludes the need for major structural overhauls on the scale of new capital projects. Given the levels of annual maintenance, the imputed replacement cycle at Oxford is much longer than at private Harvard or Princeton, though comparable to Berkeley (which is currently beset by a state budget crisis), suggesting the need for greater new capital funding as the facilities age.

In a pattern similar to new capital projects, funding for maintenance at Oxford is expected to come primarily from the Government, with lesser or equal contributions from external sources and reserves, whilst U.S. institutions often finance these needs by issuing bonds (as with new capital projects above).

For example, at Princeton, the annual maintenance budget is being bond financed, whilst general funds are used to service and repay the debt. As with capital investment, the net present benefit of funding these projects through bonds at an annual cost of interest and principal of perhaps 7-8 percent, rather than using operating funds and reserves invested at a total return of 8-14 percent, on past performance will provide a cash benefit of 40-100 percent of the total maintenance cost over time.

IMPUTED REPLACEMENT CYCLE OF PHYSICAL PLANT



Note: Excludes facilities of Colleges
Source: Universities, UP analysis

Capital Investment: Bond Financing

Larger U.S. universities use debt to finance large construction projects for two reasons. Firstly, the primary source of funds is large contributions from individuals. Mega-gifts are not typically paid up the same year they are pledged; more often construction begins, and sometimes concludes, whilst a donor is still fulfilling his pledge. The university is thus faced with a cashflow issue – funds are required for the project before the cash is received from the donor. Bond funds provide the necessary flexibility in cashflow (rather than tapping existing reserves or revenues).

Secondly, U.S. universities take advantage of their bedrock stability compared to other debtors to leverage the value of the initial gift. Regarding large endowments and long operating histories, American banks believe that universities provide a very safe investment, which translates into lower interest rates. Also taking advantage of U.S. tax exemption rules, throughout the typically 35-year life of the bonds, universities invest the gift proceeds at rates preferable to those they owe to their bondholders, historically in the range of a positive 2-2.5 percent spread (in favour of the universities).

Whilst projects are typically financed 30-50 percent with bonds, the compounding of the positive earnings spread can lead to an additional 40-100 percent cash surplus (in present pounds or dollars) over the original gift. This additional value is available to enhance the endowment or invest in new projects – or simply pay for maintenance and operations of the capital facility in perpetuity.

Despite the lack of tax-exempt bond availability to universities in the UK, our studies have indicated that the U.S. experience could be applied in the UK, with reduced but still considerable benefit.

Addressing the Funding Crisis

There is a funding crisis confronting Oxford and UK Higher Education. The above analyses of the costs of higher education and the aspiration gap at Oxford illustrate how thinly resources are currently stretched. There are many possible approaches to changing the funding – and educational – structure of Oxford to address the funding crisis. As examples, we identify broadly eight options:

Government Capped Proposal. Amidst intense public debate, the Government proposes increased fee caps and a moderate (though larger following recent revisions) level of aid for the financially disadvantaged. (pages 31-32)

Overseas focus. Increase the proportion of foreign students, who pay uncapped fees (assuming sufficient numbers of those qualified with good English-speaking skills can be recruited).

Postgraduate focus. Increase the proportion of postgraduates, whose fees are also uncapped, concentrating on subjects and degrees which are most in demand.

EPSC. As a combination of the two above, the Education Policy and Standards Committee (EPSC) of Oxford University has projected that Oxford will increasingly focus its educational resources on those students not restricted by fee caps, namely postgraduates and overseas undergraduates. (page 33)

Change student size. Increase or decrease the student population (according to ‘profit’ or ‘loss’ per student). Oxford University’s strategy for the year 2020 now in discussion projects a 25 percent increase in student population, though on current trends Oxford as a whole would increase its deficit with every student.

Shrink. Reduce the size of University and/or College operations, perhaps in both student and don numbers, whilst maintaining revenue where possible (eg, conference trade, endowment earnings).

Lower ambition. Reduce the quality levels aimed for and provided in education and/or research (for instance shifting to large lecture-based instruction) in order to lower costs.

Uncapped Access Model. As an alternative to preserve the quality and character of Oxford, a progressive model of financial aid for the less economically privileged together with uncapped fees generates greater resources for the University and promotes greater access. (pages 34-37)

Current System

Following is an examination in moderate detail of three of these scenarios (Government Capped, EPSC, Uncapped Access), looking at 2009 once all changes will have taken effect.

First, consider the Current System as a baseline:

Even without changes to the academic programme, teaching costs will increase due to, among other factors, inflation (RPI estimated at 1.5 percent) and nationally negotiated increases in academic pay, currently contracted at 3.4 percent annual increase. Additionally, the recent spate of new construction will soon demand significantly increased levels of annual maintenance, though these costs have been excluded from the following analyses.

These increasing costs are met primarily by:

- HEFCE block grant (£133 million in 2002-03), with teaching funds increasing at 2.5 percent p.a. and research funds remaining flat, per current practice (although the historical College Fee is currently under contract to reduce by £600,000 each year through 2008, to 75 percent of its peak level);
- Student fees (£56 million in 2002-03), which increase at a 2.25 percent annual rate for Home/EU students (per Government mandate) and approximately 4.5 percent for Overseas students;
- Spending from the endowment (£46 million in 2002-03), which is estimated to increase by 3 percent annually; and
- Other sources of private funding (£65 million in 2002-03), including donations and earned income, which are projected to increase in line with inflation.

Government Capped Proposal

As set out last year in the Government White Paper 'The Future of Higher Education' and now in the Higher Education Bill before Parliament, the Government proposal includes two significant sources of increased annual funding: increased funding for research and increased student fees.

To promote excellence, research departments which have consistently scored highest in Research Assessment Exercises have already received additional '6*' funding. However, the relatively low level of funding and the high number of institutions eligible has diluted the effect of this new funding at any one university. Oxford, with more 6* departments than any other university, has received an additional £11 million in 2003.

Also part of the increased funding for research, a new funding council, the Arts and Humanities Research Council (AHRC) will award £78 million in competitive grants beginning in 2006. (This figure compares with more than £2 billion in funding for the sciences Research Councils, of which Oxford currently receives approximately £50 million, suggesting new funding of about £2 million from the AHRC.)

By 2009, when the higher tuition fees discussed on the following pages would apply to all Home/EU students, the new fees would increase funding to Oxford by approximately £20 million p.a. over the status quo (£18 million in 2003 pounds) depending on how much of the additional funds may be required for additional bursaries (page 36).

Government Capped Proposal (continued)

The most controversial aspect of the Bill is to increase in real terms (adjusted for inflation) the student tuition fees from £1,125 in 2003-04 to £3,000 in 2006. These fees will be paid, not upfront as currently, but only after the graduate is earning at least £15,000 p.a. (All figures on this page are in 2003 Pounds, probably to be adjusted upward for inflation by the Government before they take effect in 2006, based on prior practice.)

Students from families with incomes less than £15,000 would be eligible for Government grants of £2,700 upfront and university grants of at least £300, for a combined grant of the full £3,000 annual fee. (Oxford currently offers greater bursaries to these students: up to £1,000 the first year and £500 thereafter.) These grants would be applicable against annual maintenance costs of approximately £6,000 p.a. (compared to a national average of £6,900 p.a., reflecting the subsidies for College accommodation). Students from families with incomes up to £30,000 would also receive some upfront grant support.

Oxford students, however, could graduate in debt around £27,000: £9,000 for three years of fees and £18,000 for maintenance expenses. Student loans through the Student Loans Company, currently capped at about £4,000 p.a., would be increased to cover tuition fees and some portion of maintenance costs. Family contributions to living expenses would continue to alleviate these levels of debt.

Education Policy and Standards Committee Proposal

Oxford University recently approved a projection from its Education Policy and Standards Committee (EPSC) to change the admissions numbers profile for the next five years.

Without increasing the total number of undergraduates, EPSC projects increases in the percentage of Overseas students by one percentage point per annum, from 7 percent in 2003 to 12 percent in 2008. The number of places for Home/EU students would decrease by almost 600 as a result. whilst the uncapped fees charged to Overseas students would bring in significant revenue, this is partially offset by a loss of some per capita HEFCE funding for Home/EU students.

Secondly, EPSC proposes increasing taught postgraduates by 7 percent p.a. and research postgraduates by 4.5 percent p.a., thus increasing the number of postgraduates from approximately 5,400 to 7,000.

Whilst the proposal does not address costs or suggest provisions for housing for the additional students, for modelling purposes it is here projected that University administration and most College activities will absorb the increase in postgraduate students without increasing costs. Divisional teaching and research facilities/services costs, in contrast, are modelled to increase as the number of taught postgraduates increases (more students requiring more time from dons), but at a 50 percent 'volume discount'.

Uncapped Access Model

Rather than starting from arbitrary price caps, an alternative model suggests starting from standards of accessibility and financial aid and actual funding requirements of universities.

At Oxford, for example, the University and Colleges could extend fee-free education beyond the Government's benchmark of those from families earning less than £15,000 p.a. to all those from families earning less than £30,000 whilst continuing to offer University/College-funded bursaries up to £1,000, in effect paying some of the poorest students to attend Oxford with the promise of greater access.

Fees for families earning up to £45,000 would be less than under the Government proposal, and with University-provided loans these fees could be postponed until after graduation in a scheme like the Government's.

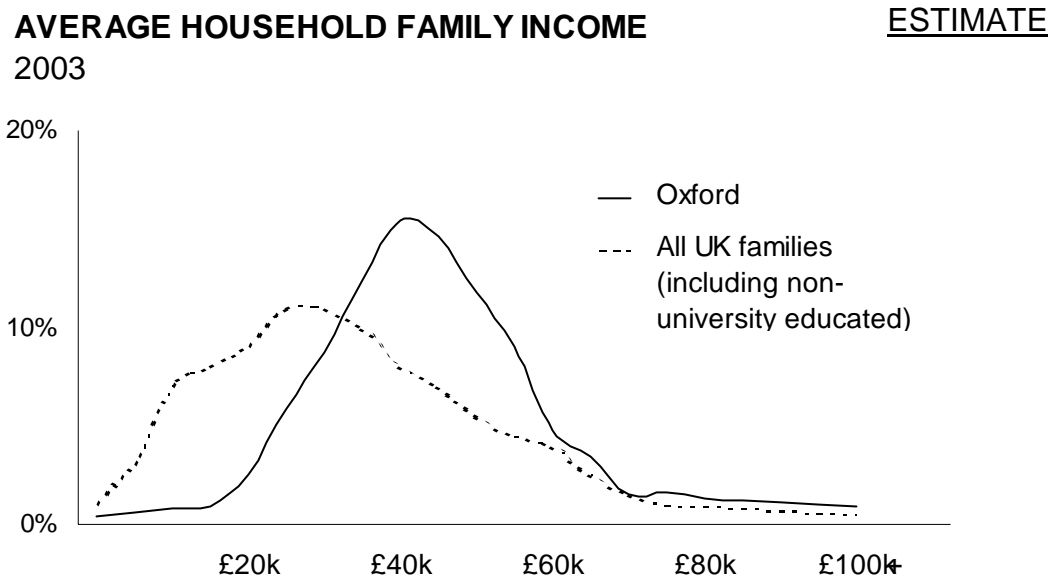
Progressively and in proportion to family income, greater fees could be assessed. Only at incomes above £45,000 would the Government's proposed fee of £3,000 p.a. be reached. The very wealthiest fifth of Oxford families, earning more than £55,000, would pay an average £7,986 p.a. (adjusted annually to meet education funding needs) – far less than paid by many who attend private secondary schools or the actual average cost of an Oxford undergraduate education (£18,600 p.a.).

Such a needs-blind admission policy coupled with uncapped but equitable tuition fees would yield significantly greater funds than the Government proposal, whilst promoting greater access. This model would generate funds from student fees double the Current System and 25 percent greater than the Government Capped Proposal.

Uncapped Access Model: Oxford Students' Family Income

Oxford students come primarily from educated, professional families. Based on analysis of postcodes representing about one-fifth of undergraduates, it is estimated that 20 percent are from families earning less than £30,000 p.a., which is the median UK family income. In the Uncapped Access Model, Oxford would charge no fees to students from this half of UK families (those below UK median income), thereby offering the prospect of increasing their representation at Oxford.

Approximately 50 percent of Oxford students come from families earning £40,000-£60,000, and an estimated 17 percent more than £60,000



Source: Colleges, CACI PayCheck, UP analysis

Uncapped Access Model: Increasing Maintenance Grants and Bursaries

In reaction to the public perception that increased fees will render a university education less accessible, a number of universities have begun proposing up to £4,000 annual grants for the poorest students (Cambridge, Exeter, and Imperial College London).

Were Oxford to extend similar offers to the estimated 500 Home/EU undergraduates from the poorest band of family income, it would cost the University and Colleges an additional £6 million p.a. above the current level of bursaries (estimated at £1 million) for these students.

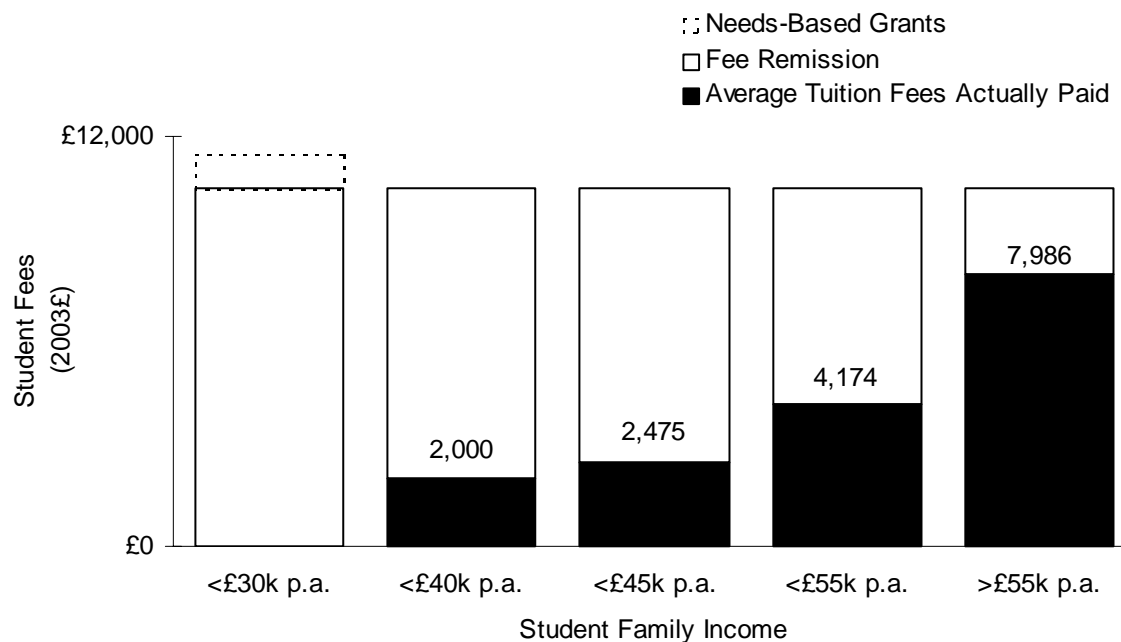
Were Oxford to offer decreasing levels of bursaries to slightly wealthier students (though below median UK family income) – which none of the other universities have explicitly embraced – that would increase the financial aid budget a further £9 million.

Combining these two proposals would increase the need-based bursary budget of Colleges and University from an estimated £2.5 million to £15 million.

Uncapped Access Model: Oxford Students' Family Income

The chart below divides the current student population into equal quintiles based on family household income. If the Uncapped Access Model were implemented, those from the least financially advantaged fifth of families (up to and beyond the average UK household income) would pay no fees and receive additional support bursaries of £1,000. Those from the next 40 percent of families would almost all pay less than the Government's proposed fee of £3,000, with progressive fee levels for the wealthiest 40 percent. The maximum tuition fee in this model (£10,450) would not be reached until family incomes equal or exceed £95,000 p.a.

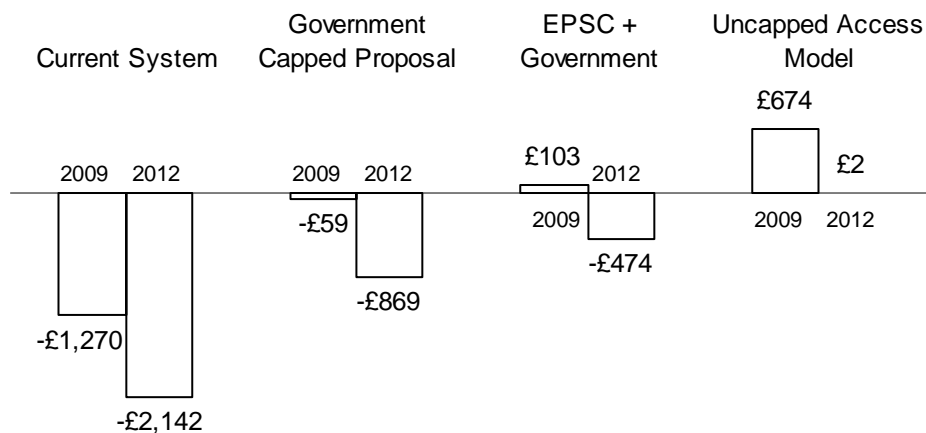
FINANCIAL AID - UNCAPPED ACCESS MODEL



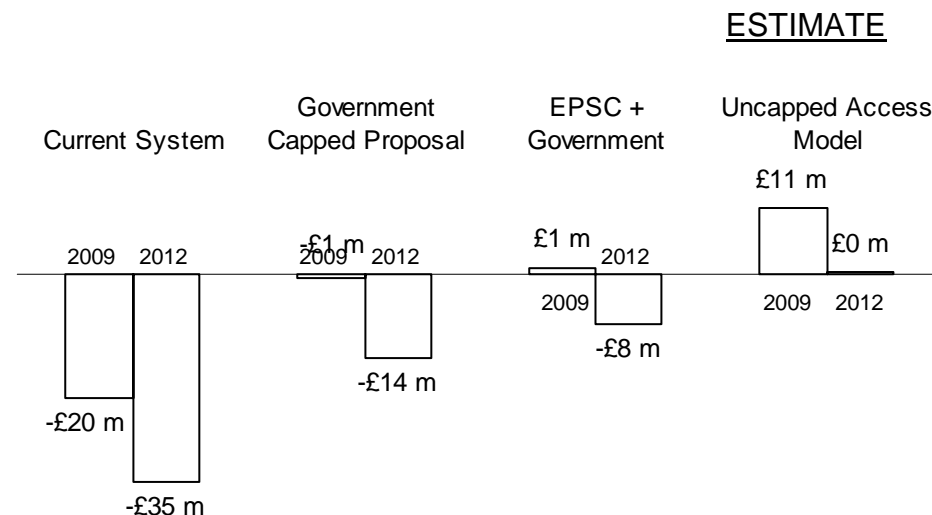
Impact of Scenarios: Comparing the Four Models

As costs continue to increase faster than revenues grow, the long-term trend is toward deficits. *By 2009, the Current System will result in an additional annual loss on Oxford education of £19 million (in 2003 Pounds).* The Government Capped Proposal, with the one-time increase in student fees, reduces that deficit to £1 million. If both the Government Capped and EPSC Proposals were implemented, the deficit would be eliminated in 2009, but reappear by 2012. However, under the Uncapped Access model, if student fees for those able to pay were allowed to increase according to need, there could be a surplus of more than £11 million in 2009, with a balanced budget continuing at least through 2012. (Note: All scenarios worsen over time, eg, from 2009-12, because many income sources – such as HEFCE funding and conference trade – do not increase at a rate equal to general university cost inflation, due to costs such as nationally mandated salary increases.)

NOMINAL LOSS/GAIN PER STUDENT £2003



NOMINAL LOSS/GAIN ON EDUCATION OVERALL £2003



Note: The above charts do not reflect any expanded bursaries, such as the £4,000 p.a. for the poorest students announced by Cambridge, Exeter, and Imperial College London; matching their levels would worsen all deficits by approximately £6 million p.a. Oxford education includes undergraduate and postgraduate teaching and core research, excludes sponsored research and residential accommodation.

The Remaining Aspiration Gap Challenge

Even with increased revenue from the Government's proposed funding or an alternative model such as Uncapped Access, Oxford's aspiration gap remains a daunting – and unfunded – challenge. To close that gap, at current funding levels, would cost somewhere between £100 million and more than £200 million p.a., against the current combined University and Colleges budget of about £500 million and increased funding from the Government's proposal of £18 million. Some may come from increased research funding (such as better overhead cost recovery) and other income, including fundraising. Some might come from an alternate tuition fee scheme.

OXFORD'S ASPIRATION GAP

2002-2003 £millions

	<u>Low</u>	<u>High</u>	
Academic Pay	14	25	low=Berkeley; high=Harvard
Undergraduate-Don Ratio	44	82	low=current ranks, pay; high=Harvard ranks, pay
Academic Support Staff	21	68	low=Berkeley; high=Harvard
Maintenance	<u>20</u>	<u>56</u>	low=basic maintenance; high=Harvard
TOTAL PER ANNUM	<u>£99 m</u>	<u>£231 m</u>	

Note: Information technology expenditures, eg, servers, equipment, broadband capacity, is contained in Maintenance above.

Source: Oxford University, Colleges, UP analysis

Conclusions

Since there is no way to measure the exact comparative value of an Oxford or U.S. higher education or the research produced at different universities, it is impossible to quantify the precise relative efficiency and aspiration gap of Oxford versus its leading U.S. counterparts. Differences among degree programmes, national wealth, post-graduation employment patterns, and other factors all make exact quantitative comparison too speculative. Even attempts to compare universities within a country, UK or U.S., are highly controversial.

The resource gap demonstrated in this report is nevertheless undeniable. It is also telling that in the U.S. universities are perceived to be of greater value (according to opinion polls, government sources, and what students and parents are willing to pay for a higher education), whilst in the UK many balk at the prospect of tuition fees far lower than in America.

The result, of course, is that U.S. universities have ever-higher resources per student and per don, whilst in the UK the reverse holds true. (Economists recognise such virtuous and vicious cycles as inevitable in an environment of long-term price caps and an approach which says 'one price fits all'.)

As higher education becomes ever more globalised, many of the best students will go to the U.S., where bursaries assure a lower cost to those with fewer resources than in the UK. Many of the best dons will go there as well, where salary and support across the board are far greater. Eventually the best dons will attract the best students and so on; those remaining in the UK will encounter a weakened higher education.

Conclusions (continued)

Whilst nominally seeking to maintain the excellence of English higher education, the Government's bill does not generate sufficient new funds to meet current cost levels. As a result, top-tier universities will increasingly resort to cost cutting with hidden impact on the quality of education, such as the current stint reform at Oxford. The dilution of resources, already acute, will rapidly challenge Oxford's eminence among global institutions of higher education.

The central issue is that higher education costs increase faster than the retail price index. As a result, any funding – whether student fees, public funds, or earned income – which is benchmarked against RPI will eventually fall short of the actual need.

Whilst increasing fundraising and endowment investments and returns, as well as accessing new sources of revenue, demand considerable strategic consideration, there is a relatively untapped source of private revenues – student fees. With fee caps, the costs of education increasingly draw on general tax revenues, thus regressively distributing the costs of higher education.

With a progressive fee model, bursaries and fee remissions can be created for those less financially well off, promoting access, whilst distributing the costs of higher education equitably according to family income.

Conclusions (continued)

Ultimately, the resource gap must lead to a reappraisal of Oxford's and other top-tier UK research universities' ambition. This is an issue not merely for the universities themselves, but for the UK broadly: higher education inspires succeeding generations and provides the knowledge and intellectual skills that drive the economy.

One alternative is to lower ambition – perhaps to being among the best state universities in the world, with Berkeley as a peer rather than Princeton or Harvard. With that comes less student contact with dons and less world-beating research, and with possible greater government direction corresponding to greater reliance on public funding. More uniform fees lead to a system unable to subsidise diversity of and access for students. With this option comes greater emphasis on productivity but also decreased reward, greater stress, and the loss of those able to do better beyond the UK. Thus even this lower aspiration would be an ongoing challenge.

The other option is for the best research universities in the UK to pursue the goal of continuing to be among the best universities in the world – a reasonable goal from their starting point at the beginning of the 21st century but becoming less credible year by year. This requires greater resources based on what the consumers – students and knowledge users (eg, industry) – believe they are worth free of price caps. With this option comes the opportunity for a more progressive student fee model, with means testing to provide fees varying not just among institutions but among students through bursaries, which results in greater access to the best in higher education.

Appendix: Cost of Education Methodology

A large variety of both confidential and public documents were made available to this analysis, including selected College management accounts, the public Accounts of the Colleges (Franks), the University Resource Allocation Model (RAM), and Division budgets.

Operating costs, exclusive (for now) of capital costs, have been allocated to the overall student categories based on: extrapolation from detailed budgets, weighting variable-rate costs, and direct allocation for flat-rate overhead expenses.

In modelling and analytic technique, we have leveraged best practices, with access to internal documents from comparable institutions. Additionally, we have taken advantage of the wealth of academic research into the economics of higher education.

Throughout the model, weighting of the different student types (according to degree and subject) is used to reflect the actual causes of incurring costs. For example, College residential accommodation is weighted 'Undergraduate = 3, Postgraduate = 1', which means that individually each undergraduate is three times more likely to live in College. This ratio reflects that the Colleges house nearly 100 percent undergraduates and approximately 33 percent postgraduates.

Appendix: Cost of Education Methodology (continued)

Benefiting from the increased availability of data concerning the costs of education, we have adopted the following methodology for analysing annual operating costs.

First, Instruction and Student Services Costs include salaries for academics, professional perquisites, and academic services, such as libraries, as well as the counselling and mentoring essential to Higher Education. For the current analysis, we have excluded accommodation costs, as roughly similar costs would be incurred by most school leavers if they did not attend university. Second, there are Institutional and Community Service Costs, such as athletics, chapel services, or the museums many universities provide for their students and the local and tourist communities. Third are Administration and Overhead Costs.

Given the growing importance of advanced degrees, we have differentiated the costs of undergraduate and postgraduate education using a mixture of account analysis and increasingly standardised HE metrics. In a similar way, one can differentiate arts from sciences degrees, with due regard for the costlier infrastructure required for laboratory and computational sciences.

The cost area which has been the most debated is research. On the one hand, knowledge creation is rightly seen as a separate 'product' from student tuition. On the other hand, the presence of research and the provision of tuition by those engaged in such research help define and distinguish the quality of education at top-tier universities. For the present, we have provided results both including and excluding such research costs.