

The prosperity of English universities

Income growth and the prospects for new investment

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Introduction

1. This report is in two parts. The first estimates the increase in the revenues and spending power of English universities in the period 2003-04 to 2010-11; the second aims to establish, in the light of those estimates and the various calls on their income, the extent to which improvements may be possible in the quality of the provision that universities make.

2. Its main conclusions are that:

- There will be a strong increase in the income of English universities and colleges between 2003-04 and 2010-11. That increase is estimated at £5.4 billion per year in real terms (equivalent to 39 per cent).
- The predicted increase equates to a cumulative increase of £22 billion when revenues are compared to what they would have been had revenues remained static in real terms between 2003-04 and 2010-11.
- Whilst all projections are speculative, the general conclusion (strongly increasing revenues) can be stated with confidence. Making a series of plausible but pessimistic assumptions it is possible to cut the increase from 39 per cent to 20 per cent.
- Most of the additional monies are either earmarked for specific purposes or likely to be absorbed by exceptional cost increases. Identifiable factors are sufficient to account for 60 per cent of the projected increase and other plausible contingencies could increase that figure to 80.5 per cent. This leaves between £2.16 billion and £1.05 billion – assuming the revenue projections are met. Increases at this level whilst substantial are low enough that adverse contingencies could eliminate them: it is not therefore *absolutely certain* – though it is highly likely – that English universities will have more money available for discretionary spending in 2010-11 than they did in 2003-04.
- The Government has indicated that it would like to see HE revenues increase in relation to GDP to a level closer to that of the USA (2.6 per cent). Increasing the UK rate of investment to three quarters of the US rate by 2010-11 would involve more than doubling revenues in real terms. This is not realistic but it shows that any significant progress towards US levels of investment will free up huge sums of money for improvements in English Higher Education.
- In the light of predicted increases in student numbers and per capita staff costs, reducing the student:staff ratio (SSR) from 18.2 to 16 by 2010-11 would mean increasing spending between £1.26 billion and £1.95 billion¹ more on academic staff costs in 2010-11 than was spent in 2003-04 (2003-04 prices). This estimate takes into account the pay increase recently reached between the academic staff unions and the employers. Additional estates costs would also be incurred - just over £1bn in capital costs and a much smaller sum (£36m) in annual revenue costs.
- If academic pay is to increase at rates which enable it to keep pace with other professions, there will need to be substantial increases in expenditure on pay

¹Figures include above inflation pay increases for existing as well as additional staff; also includes the cost of additional staff necessary to maintain SSR at its current level before improvements are made)

in the second decade of this century. Depending on the level of pay increases, achieving an SSR of 16 will involve spending between £1.62 billion and £3.31 billion more on academic staff costs in **2020-21** than was spent in 2003-04 (2003-04 prices).²

- Taking the above into account, it is clear that universities cannot be expected to make across the board improvements in staffing ratios on their own. Nevertheless, the Government's apparent determination to increase the proportion of GDP spend on higher education would appear to provide a real opportunity to improve staffing levels.

Part 1: Revenues

3. By any standards, the revenues of the English HE sector have grown rapidly in recent years. In 2003-04, the combined income of the English Higher Education sector was £13.9 billion. In 1994-95 it had been £8.2 billion (equal to £10.3 billion in 2003-04 prices) – meaning that there was a real increase of 35 per cent in the nine years to 2003-04.

4. The strategic decisions taken by university managements over the next few years will depend upon their assessment of the prospects for further expansion because it is upon that the wisdom of new investments will depend. This report will not provide all the answers but it is intended to inform some of those calculations. Its main section sets out HEPI's estimate of the prospects for the Higher Education sector to report increases its revenues in the last two years for which revenue figures are not yet available (2004-05 and 2005-06) and to register further increases for the four years after that. The remainder of the text is given over to three short sections: the first addressing the sensitivity of the results to alternative assumptions; the second discussing the future beyond 2010-11; and the third asking how the sectoral trends described in the report might affect the behaviour of individual institutions.

5. The report is based upon aggregated projections of revenue from:

- Public sources covered by the Government's science and innovation investment strategy
- Other public sources including HEFCE teaching funding
- Regulated fees payable by full-time home and EU students³
- Fees from students from outside the EU
- Other non-public sources including fees from home and EU part-time and postgraduate students, funding from EU government and voluntary sources and all other revenue streams

² Figures include above inflation pay increases for existing as well as additional staff. Also take account of fall in student numbers predicted for years 2010-11 to 2020-21.

³ In some of the analyses presented in this report, income from regulated full-time home student fees is counted as public income. This is factually correct (because most fees are paid to universities by the Government in the form of the student loans company). It also reflects the reality that fee income is ultimately dependent upon government support because an undergraduate degree remains a very heavily subsidized product which means that the ability to increase fee income depends upon the willingness of the Government to support additional students as well as the demand from the students themselves. However where it is interesting to do so, regulated fee income is shown separately.

6. In producing these estimates the following data have been used⁴:

- Trends in revenues up to 2003-04 as set out in HESA publications
- Early figures for student numbers in 2004-05 and 2005-06 from HESES
- Institutions' own estimates of additional revenue from regulated fees and associated expenditure on bursary payments after 2006-07 as provided to the Office of Fair Access
- Targets contained in the Government's science and innovation investment strategy
- Information on recent and near future public budgets taken from announcements by HM Treasury, the Department for Education and Skills and the Higher Education Funding Council for England
- Estimates of the real growth in public funding from 2007-08 as given by the Chancellor of the Exchequer in the 2005 pre-budget report

Section 1a: Changes in income levels to 2010-11

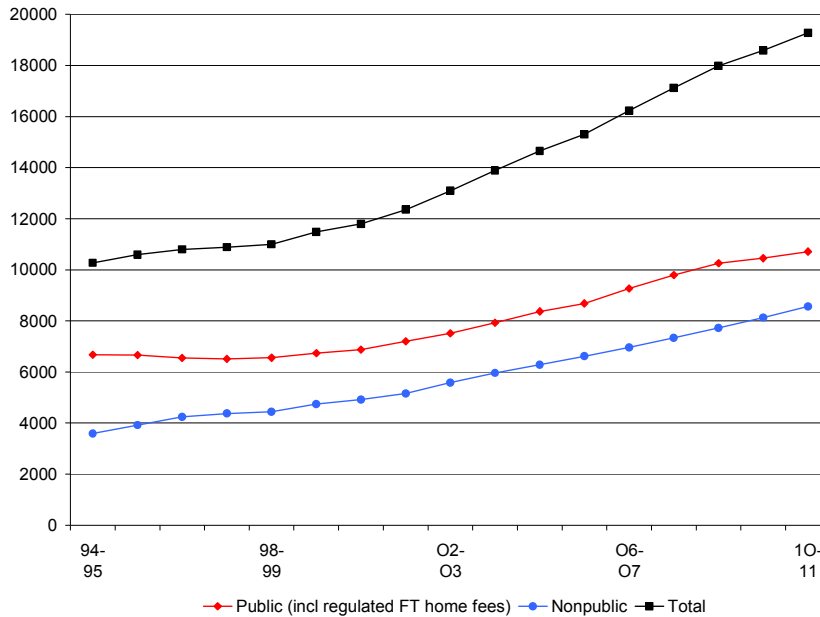
7. It is worth stating at the outset that projections are always speculative. The assumptions underpinning these projections are set out fully in annex A to enable readers to assess whether those assumptions are credible and an account of the sensitivity of these results to alternative assumptions is given in paragraphs 18-25 below. The model is reproduced as annex B (available at www.hepi.ac.uk), and can be manipulated to show the impact of different assumptions upon the outcome.

8. Data on university incomes for years up to and including 2003-04 are taken from those published by the Higher Education Statistics Agency. Income figures for subsequent years are based upon growth rates (except for regulated fees after 2006-07 which are based upon universities' own estimates of the impact of the new fee arrangements upon their revenues). For the years up to 2007-08 growth rates have been calculated using trend data for nonpublic funding sources and public budgets announced as part of the outcome of the Government's 2004 spending review. From 2008-09, estimates of public funding growth have been made with reference to the overall public spending estimates given in the Chancellor's 2005 pre-Budget report.

9. On this basis it appears that university incomes will continue to grow in real terms until the end of the decade.

⁴ Sources which have informed the commentary in this report but not the central statistical projections are referenced separately at the appropriate point in the text.

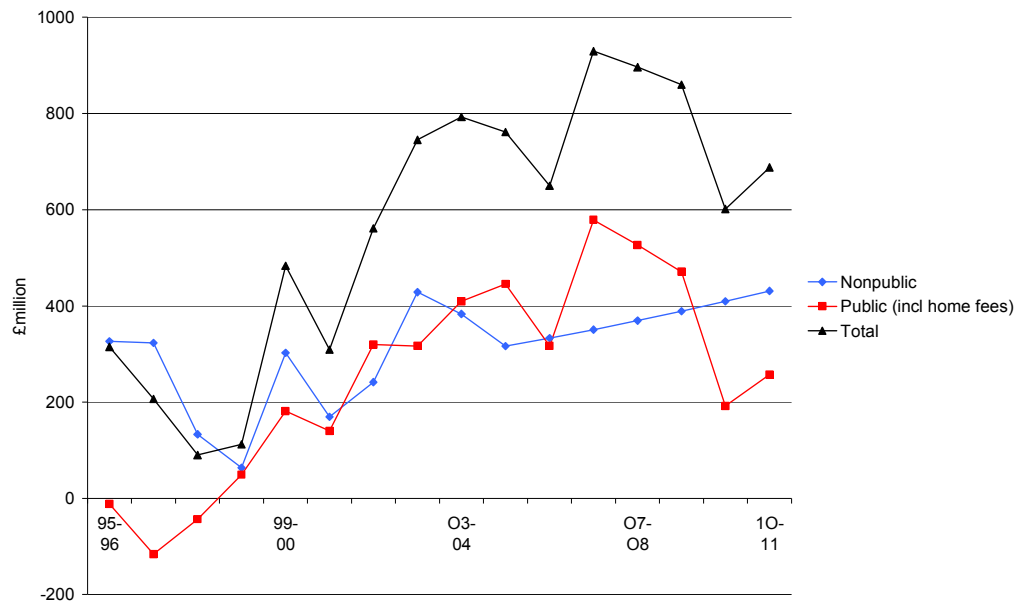
Figure 1: Income and projected income of the English HE sector 1998-99 to 2010-11 (in 2003-04 £ millions)



Source: HESA/Annex B

10. Figure 2 below shows annual revenue growth accelerating from under £100 million in 1997-98 to over £900 million in 2006-07. Growth figures for 2006-07, 2007-08 and 2008-09 are affected by the impact of higher fees, without which 2003-04 would be the peak year. The effect of higher fees is to offset a slowdown in other public funding growth, enabling the very strong growth evident between 2002-03 and 2005-06 to accelerate when it would otherwise be slowing down. Consequently, the sector is likely to experience the impact of fees as a three-year extension of the Higher Education boom of the early 21st century rather than as a step change in its finances.

Figure 2: Year on year revenue growth vs. previous year from public and nonpublic sources 1995-6 to 2010-11 (2003-04 £ millions. Figures for 2004-05 onwards are projections)

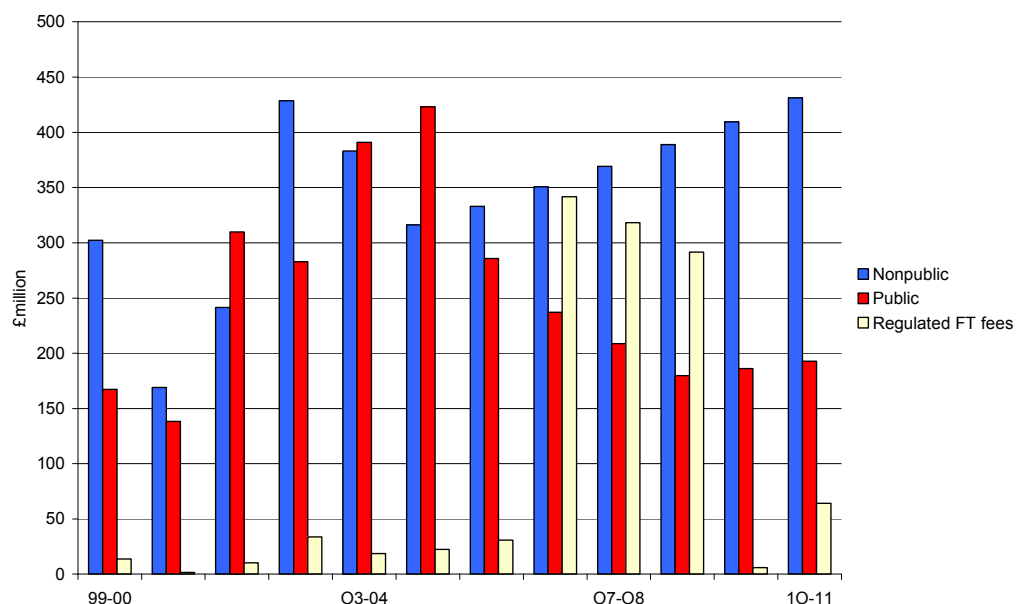


Source: HESA/Annex B

11. Figure 2 also shows that in recent years growth in public funding has been more uneven than growth in nonpublic funding. In 1995-96 public funding (including regulated home fees) fell by over £100 million; in 2006-07 it is predicted to increase by almost £600 million. This shows the impact of public policy decisions upon the HE sector. It also suggests that institutions heavily dependent upon public funding and regulated fees may face greater volatility than those which obtain a high proportion of their income from nonpublic sources.

12. Figure 3 separates the contribution of regulated fees to the English HE sector's overall revenue growth from that of other public funding. The role of higher fee income in replacing public funding as an element in funding growth in the three years from 2006-07 comes through very clearly.

Figure 3: The impact of higher fees: year on year revenue growth by funding source 1998-99 to 2010-11 (£ million)



Source: HESA/Annex B

13. As table 4 shows, these projections are a composite of separate projections for public funding connected to the Government's Science and Innovation Investment Strategy and other public funding (which consists principally of funding for teaching). They predict a 39 per cent real terms increase in revenue between 2003-04 and 2010-11. Very little of this is associated with the need to teach additional home and EU students in order to secure public funds. Of the total increase of £5.4 billion only £158 million or 3 per cent is dependent upon growth in public funding for purposes other than research and knowledge transfer after 2007-08 (i.e. in the period for which no announcements of budgets have been made). If lack of growth in student numbers caused the Government to refuse to increase its teaching funding, therefore, the effect upon the sector's revenue growth would be very minor.

14. Moreover, the projected growth in public funding for research is underpinned by the Full Economic Costs deal which envisages a very large increase in public funding for research without increases in volume. A similar deal is being agreed with major research charities as has been agreed with research councils, capping volume whilst offering an effective price increase.

Table 4: Total revenue growth by source 2003-04 to 2010-11 (£ million)

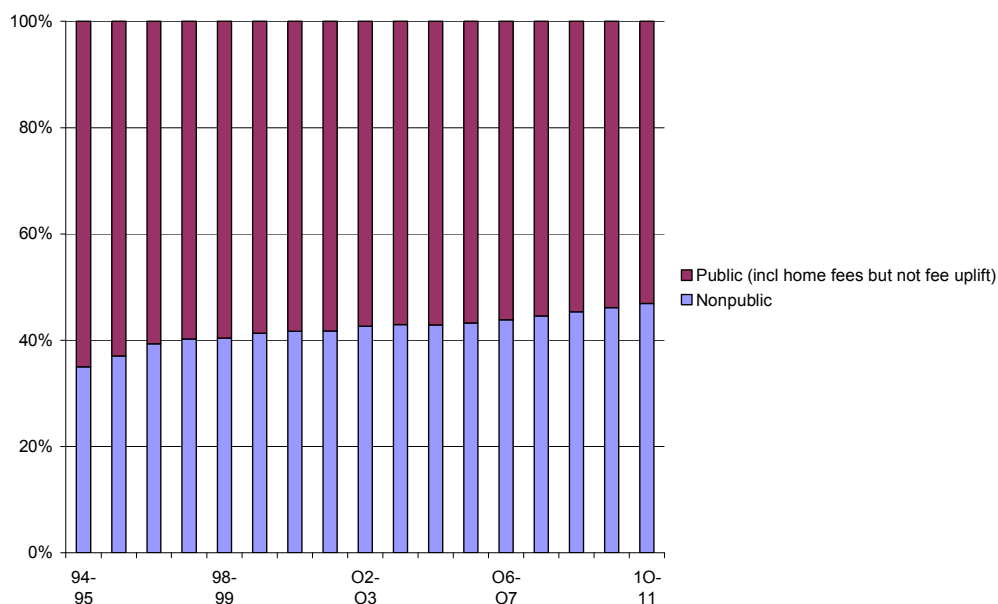
	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	Percentage growth 03-04 to 10-11
Public (science)	2,266	2,341	2,555	2,651	2,773	2,900	3,034	3,173	40
Public (nonscience excluding fees)	4,568	4,916	4,987	5,129	5,216	5,268	5,321	5,374	18
Total public (excl fees)	6,834	7,257	7,543	7,780	7,989	8,168	8,354	8,547	25
Regulated FT fees	1,090	1,112	1,143	1,485	1,803	2,094	2,100	2,164	99
Total public (incl reg fees)	7,924	8,369	8,686	9,265	9,791	10,263	10,454	10,711	35
Total nonpublic	5,967	6,283	6,616	6,967	7,336	7,725	8,134	8,565	44
Grand total	13,891	14,652	15,302	16,231	17,127	17,987	18,589	19,277	39

Source: HESA/Annex B

Underlying trends in the public/private funding split

15. There is a tendency for nonpublic sources of revenue to become increasingly important over time. In order to give a sense of the underlying trend Figure 5 shows revenues from 1994-95 to 2010-11, discounting the impact of higher fees. Discounting additional fee income, the share of income accounted for by nonpublic sources will increase from 35 per cent to 47 per cent - a gradual but steady increase.

Figure 5: Income and projected income of the English HE sector 1998-99 to 2003-04 excluding impact of higher fees (percentage shares)



Source: HESA/Annex B

16. The significance of this should not, however, be exaggerated. For one thing, of that 12 per cent increase 5 per cent took place in the first three years of the period (1994-95 to 1997-98) when public funding growth was very weak; and that must now be considered as the distant past. Additionally, it is far from clear that fee increases should be discounted as an exceptional event: it may well be that the future for regulated fees is one of periodic upward revisions followed by periods of inflation-only growth. If fees are not discounted the increase in the nonpublic share of total revenue in the sixteen years from 1994-95 is only 9.4 per cent of which 5.2 per cent took place between 1994-95 and 1997-98.

17. There is clearly a trend towards increasing dependence upon nonpublic as opposed to public sources of finance. Despite this, however, if the state continues to subsidise undergraduate teaching through funding council support for institutions and through student support of various kinds, whilst at the same investing heavily in university research, it will be a long time before universities and colleges can afford to regard the Government as simply one of a number of customers.

Section 1b: Could it all go wrong?

18. The projections presented in this report suggest that between 2003-04 and 2010-11 the combined revenues of English universities will increase from £13.9 billion to £19.3 billion in 2003-04 prices - an increase of £5.4 billion or 39 per cent. These figures and the general conclusion that they support (strong revenue growth), need to be assessed alongside a consideration of how the estimates would be affected if the assumptions underpinning the projections turned out to be wrong. Accordingly, the impact upon the projections of a number of contingencies is shown below.

19. If we assume no real terms increase in public funding not connected with the Government's science and innovation investment strategy, revenues still increase from £13.9 billion in 2003-04 to £19.1 billion in 2010-11 – an increase of £5.3 billion or 38 per cent.

20. The Government estimates that it will have to spend a figure equivalent to 42 per cent of gross income from regulated fees on the costs of allowing students to defer loan payments. In 2010 that would come to £909 million. Additionally, the costs of the new student grant arrangements are estimated at £280 million (once the saving from the abolition of the pre-existing Opportunity Bursaries are taken into account) and the costs of new student support arrangements for part-time and mature students are put at £49 million⁵. These costs were known to the Government at the time they introduced the new system so it must be assumed that these are costs that they expected to meet. However, if the Government attempted to recoup half that amount by funding institutions at a lower level than assumed here as the steady state of Government funding, then this would reduce the income of the HE sector by £619m in 2010, all other things being

⁵ The future of higher education and the Higher Education Act 2004: Regulatory Impact Assessment (DfES 2004)

equal⁶. Under this scenario, HE sector revenues would still grow by £4.8 billion or 34 per cent between 2003-04 and 2010-11⁷.

21. If we assume no real increase in revenues from non-EU students from 2003-04 onwards, revenues still increase to £18.8 billion by 2010-11 – an increase of £4.9 billion or 35 per cent.

22. If we assume that nonpublic income (excluding international fees) increases by only 2.5 per cent in real terms (reflecting the trend growth rate in the economy rather than its own recent growth rate), overall revenues still increase by £4.2 billion or 30 per cent.

23. If we assume that a combination of depressed demand and increased bursary support reduces additional income from full-time home and EU fees to 90 per cent of what institutions are currently expecting, overall revenues still rise by £5.2 billion or 37 per cent (of course, in the longer term, weak demand would affect public funding as governments cut back support but that effect would probably not be felt until 2010-11 at the earliest).

24. If we assume that all five of these things happen (very much a worst case scenario), revenues still increase by £2.8 billion in 2003-04 prices – or 20 per cent in real terms. This is slightly less than the cumulative effect of each individual adverse assumption because an adverse effect upon demand as a result of fees would reduce the costs to the sector of the Government clawing back some of its additional student support and deferred fee costs from budgets supporting institutions.

25. It is clear, therefore, that the middle and later years of the current decade will be a relatively prosperous period for English universities and colleges largely because of the impact of higher fees and the 2004 spending review settlement and the Science and Innovation Investment Strategy. Continued strong growth in income from nonpublic sources could improve things still further. However, both the 2004 settlement and the fee increase are best thought of as exceptional factors and the sector cannot expect to grow revenue from nonpublic sources at above 5 per cent in real terms forever. The next few years are best seen as an opportunity to prepare for riskier – and possibly tougher times ahead.

⁶ The figure is sensitive to student demand – the higher the demand the greater the Government's costs and the greater the impact if a proportion of those costs are clawed back from universities. Conversely, if demand were to be adversely affected by fees, the impact of such a move would be less because the Government's student support and loan liabilities would reduce.

⁷ These calculations make no assumptions about growth in student numbers. If numbers were to increase then there can be no assumption that the Government would increase its expenditure, by continuing to subsidise all students at the rate of 42 per cent. However, in such an event there would be some increase in institutional income, even if the Government decides not to increase public investment to match, though not enough to offset by the increased costs of providing for the additional students. Of course, if the Government were to decide that it did not wish to fund increases in student numbers it could institute a simple but effective reform: capping the number of places it will fund rather than allowing a fixed pot of money to be spread more thinly. This would get rid of the existing financial incentive for universities to over-recruit. The downside of such a policy is political rather than practical: it would make ministers directly responsible if supply failed to match demand.

Table 6: Impact of adverse assumption on revenue projections (all figures in £ million in 2003-04 prices except where stated)

	2003-04 sector income	2010-11 sector income	increase	percentage increase	Impact of assumption on projection	Impact (percentage points)
Projection	13,891	19,277	5,386	39	0	0
0 per cent real terms increase in non-science public funding after 2007-08	13,891	19,119	5,228	38	-158	-1
Government recoups half its additional costs from new student support costs and loans related to deferred fee payments from budgets supporting HE	13,891	18,658	4,767	34	-619	-4
0 per cent real increase in revenues from non-EU students after 2003-04	13,891	18,788	4,898	35	-488	-4
Nonpublic (excluding international fees) increases by only 2.5 per cent per annum	13,891	18,081	4,190	30	-1,196	-9
10 per cent drop in home fee income between 2006-07 and 2010-11	13,891	19,060	5,170	37	-216	-2
All of the above	13,891	16,644	2,754	20	-2,633	-19

Source: Annex B

Section 1c: Costs and prices

26. All figures in this report are in 2003-04 prices meaning that inflation has already been allowed for. In a sector where wages account for most expenditure, however, it would not be surprising if costs rose faster than inflation. Any such increases, however, are highly unlikely to wipe out the projected revenue growth. If the basic projection is borne out by events, HE sector costs would have to increase by 4.8 per cent per annum beyond inflation to wipe out projected revenue gains. Even given the five adverse assumptions described in this section annual increases in HE sector costs of 2.6 per cent beyond inflation would still be required to fully offset those gains. Table 7, below, shows the impact of increases in HE sector costs upon revenue growth assumptions

Table 7 Impact of increases in HE sector costs upon spending power

	Rate of growth in HE sector costs after inflation (per cent)			
	0	1	2	3
Basic projection	38.8	29.4	20.8	12.8
All adverse assumptions together	20.0	11.8	4.3	-2.6

Source: Various collated in model reproduced as Annex B

27. These are not cost projections: they are illustrations of the impact of specific potential cost increases upon predicted increases in the HE sector's spending power.

The fact, for example, that the impact of a 100 per cent increase in real utility prices is shown, does not mean that such an increase is expected.

How fast do HE producer prices increase?

28. The Higher Education Pay and Prices Index (HEPPI) is the most credible measure of costs faced by the HE sector (as opposed to expenditures or use of resources). Other sources specific to the HE sector measure how institutions choose to deploy their resources rather than what the things they need actually cost.

29. It is not necessary to rely on estimates for the first year of the period July 2004 to July 2011: HEPPI figures are already available. They tell us that the index increased from 126.4 to 130.6 between July 2004 and July 2005 - an increase of 3.3 per cent in cash terms.

30. In its current form HEPPI dates back to January 1996. In January 2005⁸ (nine years in), it stood at 130.2, equivalent to an annual rate of growth of 2.95 per cent. Non-pay costs grew at an annual rate of 2.31 per cent and pay costs by 3.31 per cent. As a point of comparison, between January 1996 and January 2005 Retail Price (RP04) inflation grew by 2.56 per cent annually⁹.

Table 8: Rebased RPI and HEPPI (January 1996=100)

	Jan 1996	Jan 2005	Annual growth rate (per cent)
HEPPI (all items)	100	130.2	2.95
HEPPI Pay expenditure	100	134.4	3.31
HEPPI non-pay expenditure	100	123.0	2.31
RPI (all items – RP04)	100	125.7	2.56

Source: Universities UK¹⁰/Office of National Statistics

31. We know that HEPPI grew by 3.3 per cent in 2004-05. If we assume that it reverts to the trend rate of 2.95 per cent per annum thereafter, sector costs would by July 2011 be 23 per cent higher than in July 2004 (in cash terms).

How does projected HEPPI growth compare with inflation?

32. What we really want to know is the extent to which the 2003-04 income relative to which the revenue growth estimates are expressed is losing value as a result of the tendency of sector costs to grow faster than inflation. To estimate this, we need to compare projected HEPPI growth with the rate of inflation implicit in the revenue

⁸ Data is available for July 2005 but has not been used in calculating trend growth. It is unwise to extrapolate part year increases across a whole year because, in a sector in which annual pay settlements are the norm, cost increases will not be evenly distributed across the year.

⁹ RP04 figures derived from annual percentage changes. The source data gives percentage increases to one decimal place so there is the possibility of minor rounding errors.

¹⁰ HEPPI data and information about the index is hosted on the website of Universities UK: www.universitiesuk.ac.uk

projection. This is not straightforward because the revenue projections are based upon estimates of *the rate of above inflation growth* rather than separate estimates of cash increases and inflation rates.

33. The revenue projections fall into two parts. For the years up to 2007-08, public funding growth is estimated based on existing budgets and nonpublic funding on the basis of trend growth after inflation. In calculating these trend rates in real incomes, Retail Price (RP04) inflation (for which the Bank of England target was 2.5 per cent) has been used rather than the current government measure CPI (for which it is 2 per cent). In converting budgeted increases in government spending to 2003-04 prices, the report uses a deflator of 2.5 per cent (except for those years where the inflation rate is already known). We can reasonably say therefore, that the projections assume an inflation rate of 2.5 per cent per annum for the years to 2007-08. If we were erring on the side of being prudent, however, we would revise this downwards to 2 per cent for the years 2008-09 to 2010-11 because the Bank of England's current inflation target is for 2 per cent CPI inflation and the Government at least is likely to estimate real terms increases in future spending against that figure.

Table 9: Estimated increase in HE sector costs and inflation as assumed by revenue projection

	Jul-05	Jul-06	Jul-07	Jul-08	Jul-09	Jul-10	Jul-11
Annualized HEPPI increase (per cent)	3.30	2.95	2.95	2.95	2.95	2.95	2.95
Annualized inflation implied by revenue projections (per cent)	2.80 ¹¹	2.50	2.50	2.50	2.00	2.00	2.00
Rebased HEPPI (July 04 = 100)	103.3	106.4	109.5	112.8	116.1	119.5	123.0
Rebased inflation (July 04 = 100)	102.8	105.4	108.0	110.7	112.9	115.2	117.5
Spending power of July 2004 GBP in HE sector (pence)	99.5	99.1	98.6	98.2	97.3	96.4	95.5

Source: Universities UK/Office of National Statistics

34. This implies that £1 of HE income at 2003-04 values would be worth 95.5p in 2010-11 once the difference between HE sector costs and inflation has been taken into account. This, in turn, implies that the £19.3 billion revenue in 2003-04 general prices predicted for 2010-11 will be the equivalent of £18.4 billion in 2003-04 HE sector prices. This still represents a 'real real terms' increase of £4.5 billion or 32 per cent in seven years.

35. Table 10, below, summarizes the information set out in the preceding sections.

¹¹ The revenue model uses RP04 inflation for the year to August 2005 to represent inflation in AY 2004-05. Figures in this note are for the year to July because that is the basis for reporting HEPPI.

Table 10: 'Real real' income (in £ billions) in 2010-11 after cost increases (whole sector)

	Total real income	Real increase (03-04 to 10-11)	Percentage increase (03-04 to 10-11)
Basic revenue projection	19,277	5,386	38.8
After impact of HEPPI effect	18,406	4,541	32.5

Source: Universities UK/Office of National Statistics

Cumulative gain

36. Table 11 below sets out the English HE sector's cumulative gain¹² for the period 2004-05 to 2010-11. It shows that, even under the most expensive scenario, the sector would accumulate an additional £19 billion at 2003-04 values between 2004-05 and 2010-11 after the impact of the historic tendency of HE costs to rise faster than inflation is taken into account.

Table 11¹³: Cumulative gains in spending power (£m 2003-04 values)

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Cumulative gain
Base projection	13,891	14,652	15,302	16,231	17,127	17,987	18,589	19,277	21,928
HEPPI effect		-74	-145	-224	-311	-490	-674	-871	
Projection after HEPPI effect	13,891	14,578	15,157	16,007	16,816	17,497	17,915	18,406	19,138

Source: Annex B/Section 1c (above)

Interpreting price increases

37. This analysis demonstrates that at trend rates, price growth will erode little (just over 15 per cent) of the predicted increase in revenues. There are however, three things to add. Firstly, the analysis takes no account of increasing workload whereas projections of increasing income (especially from non-public sources) do imply increases in output which in turn imply increases in the amount universities have to spend to stand still; secondly, even where additional revenues do not imply increases in output they will often (particularly in the case of public funding) be hypothecated for particular purposes and will not therefore be available for discretionary spending; thirdly there are good reasons to suppose that some costs, particularly pay, will increase faster than past trends suggest.

¹² The sum by which the effective spending power of the sector exceeds what it would have been had it remained at 2003-04 levels throughout the period.

¹³ The table is based on the assumption that a third of the extra spending associated with an uprating of academic pay is incurred in the first year of the deal (assumed to be 2006-07) two thirds in the second and the full amount from the third year onwards. It also assumes that the doubling in utility costs is spread evenly over the seven year period covered by the analysis.

38. Section 2a below contains an analysis of the extent to which these factors have the potential to erode the amount of additional revenue available for investment in improving student:staff ratios. It demonstrates that whilst there will almost certainly be some additional money available to university managements the margins are too fine to depend upon.

Section 1d: Institution-level effects

39. This section of this report looks at how individual institutions may be affected by the sectoral trends – and at how they might respond.

Differences between types of institutions

40. As Table 12 shows, there is little difference in the model's projections for revenue growth between different groups of institutions. This seems to be because institutions are dependent upon regulated fee income in inverse proportion to their dependence upon research funding. As these revenue sources are both growing strongly, there are good growth prospects for all types of institution.

Table 12: Revenue growth (basic model) by type of institution

	Projected increase – original model	
	Cash (£ million)	Per cent
Russell Group	2,121	39.2
Other Pre 92 Institution	1,200	40.5
Specialist	279	39.5
1992 university	1,360	37.2
New new university or HE college	312	40.4
OU and Birkbeck	113	30.3
Sector total	5,386	38.8

Source: Annex B

41. From this, it is clear that an institution which performs well relative to its comparator institutions ought to see its spending power grow over the next few years. However, care is needed in using this table as a basis for comparison. This only categorises institutions in one – arguably crude – way, and it is undoubtedly the case that within each category there are very different institutions, that perform very differently on this measure. Nevertheless, this table does indicate that those who increase their income in the next few years will not be limited to the research strong institutions.

Risk

42. Even as the total revenues of the sector increase, the earlier analysis has shown that individual institutions will be confronted with increasing dependence upon unpredictable income streams. A growing proportion of revenue for full-time home and EU students will come from fees rather than from a funding council allocation designed, in part, to protect institutions from the short-term consequences of under-recruitment; and revenue from private sources - which is subject to the uncertainties facing any

commercial enterprise operating in an open market – will, slowly but inexorably, account for a growing proportion of total revenue. Furthermore, private income and fees – and therefore an increasing part of HEIs' income – may be much more sensitive to the economic cycle, which implies that institutions should be looking to build up their reserves in relatively comfortable times. This in any case would be prudent - in order to cope with greater volatility institutions will need, in the normal course of events, to run significant surpluses in order to retain reserves at a level appropriate to the scale of the risks they face.

43. Institutions will be affected (and will respond) differently. The additional risks they will face will depend on the extent to which they:

- Routinely depend upon recruiting more students than they can be confident of attracting. Falling numbers of 18-20 year olds will put pressure on institutions; top-up fees will tempt institutions to expand by attracting students who would previously have attended less prestigious institutions, increasing pressure on the latter. Unlike HEFCE teaching funding, fee income follows the student with no safety net for institutions that under-recruit
- Depend heavily upon revenue from international students to meet normal operating costs, especially where their students come from a small number of countries and/or are concentrated in a small number of subjects
- Depend heavily on other sources of funding beyond the Funding Councils. Once such source might be the NHS, for the training of nurses and other health professionals. A previous HEPI report treated the question of NHS funding for universities, and concluded that – given the near monopoly position that universities have in the training of health professionals – the long term risks were not great. However, dependence on the NHS might introduce an element of volatility in funding, and some institutions are much more exposed in this respect than are others.
- Pool risks across the university. Institutions which are unable to support struggling departments and courses from the centre will increasingly find it difficult to cope with the uncertainties created by a more volatile market in university teaching. This will affect both small institutions and those in which individual departments and teams enjoy unusual levels of autonomy.

44. Institutions facing increased risks will argue that the Higher Education Funding Council for England should abandon attempts to use the Government's status as the major investor in Higher Education to influence the sector's development and concentrate instead on compensating institutions which fail to secure the revenues they have anticipated. If persuaded, however, it is likely that HEFCE will struggle to defend such a policy within government. The main reason for this is that any use of state funding to underwrite losses related to under-recruitment will, in effect, be compensating institutions for setting fees at a rate higher than the market will bear. It is safe to assume that public opinion would be unsympathetic to the use of public money to enable universities to charge higher prices than they otherwise would.

45. That is not to say that there is no case for recognising the increased risks facing HE institutions through higher rates of funding (because making provision for adverse circumstances is itself a cost); there may even be a case to direct support towards those institutions which, by virtue of their mission, face the greatest risks. What would be hard

to justify is the underwriting of those risks through a funding policy which directs support to those institutions which fail to meet their own recruitment targets. The logic of the 2004 Act is that there must be a penalty for institutions which price their courses too high.

EU and Non-EU students

46. There is evidence that some institutions are already realising quite low average fees from international students – itself a sign of a highly competitive environment (ref. annex D). In some cases, these fees are so low that students from the European Union may soon appear more attractive to these institutions than students from outside it (especially after 2006-07). For this reason, it would not be a surprise if English universities become increasingly aggressive in their recruitment activities in other EU countries. If this leads to an upsurge in recruitment from the EU24 it may upset the Government's attempts to reconcile control of the student support budget with access for suitably qualified English students to Higher Education.

Recruitment of Home and EU students

47. Even were the Government to take a pessimistic view of the prospects for increases in the level of HE participation and to deny the sector *any* real terms increase in non-research funding after 2007-08 overall sector revenue would still be able to grow by 38 per cent in real terms between 2003-04 and 2010-11. Given that these figures are based on allocations already profiled for 2006-07 and 2007-08 (and therefore unlikely to be changed), there is little pressure on the HE sector to deliver increased numbers in return for increased revenues and relatively little prospect that increases in recruitment will bring significant increases in government funding.

48. This is something not seen before: the link between growth in student numbers and growth in university revenues appears to have been broken – or at least greatly weakened.

49. The sector's collective interest is in using the next few years to consolidate, enjoying the benefit of growing revenues and avoiding a 'scramble for students' especially as such a scramble may result in the creation of capacity which will be hard to utilise after the demographic peak expected in 2010. It is likely, therefore, that institutions which are in a position to do so will look to prioritise other means of expansion over increasing student numbers.

50. There is, however, little prospect that universities will act together to protect the unit of public funding by restricting supply. As table 13 shows, the post-1992 universities will, as a group be heavily dependent upon income from regulated fees by 2008-09, whilst HE colleges and 'new, new' universities will be more dependent still. It is very hard to imagine that institutions in such a position will do anything other than to pursue regulated fee income (and therefore students) with great vigour.

Table 13: Fee revenue and total income by type of institution (2008-09)¹⁴.

	Total income ¹⁵	Gross additional income from regulated fees ¹⁶	Estimated Total fee revenue	Fee revenue as percentage of total income
'New, new' university ¹⁷ or HE college	785,531	113,908	189,846	24.2
Post-1992 university	4,463,604	494,629	824,381	18.5
Specialist institution	575,251	43,564	72,607	12.6
Pre 92 university (excl Russell Group)	3,599,464	251,308	418,847	11.6
Russell Group	7,178,024	295,381	492,302	6.9
English HEIs for whom data available	16,601,874	1,198,790	1,997,983	12.0

Source: HEFCE/OFFA

51. After 2008-09, the prospects for further growth in the sector's overall revenues from teaching full-time home and EU undergraduates are poor (a consequence of the fall in the number of young people and slow growth in the relevant public budgets). It would not be surprising, therefore, if the years after 2008-09 saw an increasing polarization between teaching-led institutions forced to compete vigorously in a static or shrinking market for home students and mixed institutions deriving income from a variety of sources including research, enjoying steady growth in revenue from non-teaching activities. Ironically, the latter group, which enjoy greater prestige, are likely to be less affected by any weakening of student demand than the former, which will tend to exacerbate the polarization.

Section 1e: Beyond 2010-11

52. There are some clouds on the horizon. The ten years from 2010-11 will see a steady fall in the numbers of 18-20 year olds in the UK population. The total fall in the number of 18-20 year olds between 2010 and 2020 is forecast to be in the region of 14 per cent. This is unlikely to translate into a 14 per cent decline in demand for Higher Education both because it will be offset by strong increases in the older age groups from which mature students are predominantly drawn and because the share of young people from 'higher' social classes will rise which, past experience tells us, is likely to result in an increase in the proportion of the total cohort accessing Higher Education. Nevertheless, it is likely that demand from home students for full-time study will peak around 2010-11 before falling back and that by 2020-21 it will be slightly lower than it is now. This will be a new experience for the HE sector which is accustomed to increases in overall demand (though of course not all institutions see demand increasing from one year to the next).

53. The impact of demographic changes upon demand for Higher Education over the next fifteen years is discussed more fully in the HEPI report Demand for Higher Education to 2020¹⁸.

¹⁴ Based on those institutions for which 2008-09 income data and estimates of additional investments as a result of fee changes are available. Institutions planning to charge fees below £3000 excluded.

¹⁵ From HEIs financial forecasts provided to HEFCE. Institution level data remains confidential.

¹⁶ As supplied to the Office of Fair Access. Estimated bursary payments not discounted.

¹⁷ Universities created after 1992.

¹⁸ Demand for Higher Education to 2015-16 (HEPI 2006). Available at www.hepi.ac.uk

54. More uncertain is the economic outlook for the UK and indeed the main source countries for international students. (Annex D discusses the extent to which highly exposed institutions depend upon revenue from non-EU students.) It must be probable that England will suffer a recession between now and 2020, and it is impossible to know what impact this will have upon demand for higher education. The projections in this report, based as they are upon patterns established during a long period of benign conditions, implicitly assume continued economic expansion – but it would be extremely rash to assume that any such expansion will last for 15 years. If it does not, there will be an impact on levels of public spending. The impact upon other sources of revenue is very hard to predict. Changes in the level of personal debt and the introduction of top-up fees may make the experience of previous recessions a poor guide to what might happen in future; and the very rapid expansion in revenue from private sources since the recession of the early 1990s makes it very hard to estimate how this might be affected.

55. A similar caution attaches to international student numbers. These projections implicitly assume that revenue from non-EU students will increase at the same rate as other non-public revenue. Although until 2004-05, they were in fact increasing at a much faster rate, this may still be slightly optimistic – there are early signs of a slowdown. While some believe that this slowdown may be the consequence of changes to the visa regime rather than of any weakening of underlying demand, that may not be the case. At some stage the market will mature as in-country provision strengthens and as the returns on a UK degree for students from the main markets become clearer; margins are also likely to be squeezed as international students demand more tailored provision. It is hard to predict when the peak will come but it is very probable that it will come before 2020.

56. There are other unknowns. One concerns research and research funding. The introduction of 'Full Economic Costing' (FEC) into university research relations with funders may increase the income universities receive from the sponsors of the research that they do (whether Research Councils, other public bodies or industry). But it could have the opposite effect as far as non-public funders are concerned, and make UK universities unattractive and uncompetitive as contractors, because FEC makes them more expensive. Another research-related risk (which applies also to the period before 2010-11) is that universities may not secure the share of investment in the increased research expenditure that has been assumed here on the basis of the Government's Science and innovation investment strategy. There is no reason why the university share of research investment should diminish – that would run counter to recent trends – but it is an unknowable, and therefore a risk.

Part 2: Prospects for increased investment

57. Part 1 of this report estimated the revenue growth of English HE institutions in the near future between 2003-04 and 2010-11 at 39 per cent in real terms (after RPI inflation). On that basis, aggregate real revenues between 2004-05 and 2010-11 will be nearly £22 billion more than they would have been if they remained at 2003-04 levels throughout the period.

58. This is a projection rather than a measurement but the general conclusion (that revenues are increasing much faster than inflation) is clear. The reason for this is simple: much of the increase is the result of factors – such as the outcome of the 2004 spending review and the advent of higher fees from 2006-07 – which are already set in stone. Consequently, in order to make a substantial impact upon the results it would be necessary to make some extremely pessimistic assumptions.

59. On its own, this is not particularly useful information. It does not tell us whether the revenue the English HE sector can expect to have in 2010-11 is adequate for all the commitments they may have or the things they may wish to do (which in turn depends upon the volume and level of provision expected from English HE institutions and the costs of providing teaching and research to that specification); nor does it tell us what volume and level of provision can reasonably be expected from English HEIs in the light of their anticipated revenues.

60. It is also worth noting – because it is a topical issue - that it does not tell us whether or not increasing staff pay represents the best use of available resources. It is often implied that the desirability of pay increases depends upon whether or not there is 'extra' money available to pay for them. This gives rise to a very peculiar notion of affordability which takes no account of the actual choices faced by institutions and their staff. In reality, it is self-evident that pay increases are affordable if they are given sufficient priority – the issue is what would have to be sacrificed in order to afford them and whether that sacrifice would be worthwhile. The findings of this report are relevant to any analysis of the opportunity costs associated with further pay increases but they are not a substitute for such analysis.

61. Part 2 of this report does not address all of these outstanding questions but it does attempt to establish two things: the extent to which additional revenues will be eroded by foreseeable additional costs and the feasibility of securing improvements in the teaching provision made by universities, in particular reductions of student:staff ratios.

Section 2a: Is there really any extra money?

62. This section investigates the extent to which the projected revenue increases will be eroded by unavoidable additional costs.

Salary and staffing increases associated with static student numbers

63. In 2003-04 the student:staff ratio in UK universities was 18.2. Assuming similar staffing patterns in England as in the UK as a whole and taking into account HEPI's estimates of future student demand an estimated 5310 staff would be required simply to maintain this ratio until 2010-11. On the basis of a relatively conservative estimate of salary increases¹⁹ this would involve an increase in the academic pay bill of £918 million absorbing 17.0 per cent of the predicted revenue increase. These estimates are set out in more detail in section 2b which addresses the question of student:staff ratios.

Earmarked research funding

64. According to the revenue projections outlined earlier in full in annex B a further 16.9 per cent (£908 million) of the projected revenue increase is accounted for by government funding for research and knowledge transfer.

65. Additionally, in 2003-04 a further 8.0 per cent of total revenue came from research grants and contracts from sources other than the UK government. The assumption underpinning the revenue projection is that these – and other sources of nonpublic revenue – will increase slightly faster than overall revenues. If the projections are borne out growth in non-publicly funding for research will represent £486 million or 9.0 per cent of total growth in HE sector revenues between 2003-04 and 2010-11.

Non-academic pay

66. Universities and colleges must budget for increases in the pay of non-academic as well as academic staff.

67. The non-academic unions have recently agreed a pay increase of 15.5 per cent over three years from 2006-07. If it is assumed that general inflation runs at 2.5 per cent up to 2007-08 falling to 2 per cent in 2008-09²⁰ and that non-academic pay increases by 1 per cent beyond inflation in years not covered by the pay deal²¹ the cost per member of staff will increase by 2 per cent between 2003-04 and 2005-06, 12 per cent between 2003-04 and 2010-11 and 24 per cent between 2003-04 and 2020-21 (in real terms).

68. Non-academic staff costs account for just under 30 per cent of total university costs. A rough estimate of the impact of real pay increase upon universities' spending power can therefore be obtained by multiplying increases in costs per FTE by 0.3, as shown in table 14.

¹⁹ Real increases of 0.8 per cent per annum to 2005-06, a total increase of 13.1 per cent before inflation for 2006-07 to 2008-09 and increases of 1.3 per cent in real terms in the years after that.

²⁰ This is in order to be consistent with the revenue estimates presented in part 1. That report uses an inflation assumption of 2.5 per cent for years up to 2007-08 for which we have good information about the Government's investment plans. For years after 2007-08 it is more prudent to use an assumption of 2 per cent because this is the Government's target level of CPI inflation and it is therefore likely that the Government at least will assume that any increases beyond 2 per cent represent a real increase.

²¹ The trend is for relatively low real increases - between 1996 and 2005 it increased by an average of less than 3 per cent although the Government's inflation target was at 2.5 per cent for most of the period.

Table 14: The increasing cost of non-academic staff

	Change in cost per FTE (per cent)	Impact on overall institution cost (per cent)
2005-06 vs. 2003-04	+2	+0.6
2010-11 vs. 2003-04	+12	+3.6
2020-21 vs. 2003-04	+24	+7.2

Utility costs

69. Utility costs, whilst a small part of overall university budgets are increasing particularly strongly at the moment. In 2005 they were given a weighting of 1.3 in the Higher Education Pay and Prices Index (HEPPI) meaning that they accounted for an estimated 1.3 per cent of total expenditures (which were roughly £14.5 billion in 2004-05). The 2005 figures already reflect very significant increases in the preceding years. A further *doubling* of real energy prices by 2010-11 – a very pessimistic, but not altogether impossible assumption - would consume £189 million. This is equivalent to 3.5 per cent of the projected increase.

Commercial activities

70. In 2003-04 (the base year for the revenue projection) £5.97 billion of HE incomes were accounted for by non publicly funded activities. The central projection assume that these sources of funding grow by 5.3 per cent beyond inflation until 2010-11, making them £2.6 billion higher in 2010-11 than they were in 2003-04.

71. In 2003-04 40 per cent of that non-public revenue was received for teaching (education grants and contracts) and 18 per cent for research. The costs of additional investment in teaching and research are dealt with elsewhere in this report. However, 42 per cent of non-public revenue is not readily identifiable as teaching or research income and it is reasonable to assume that in order to secure additional revenues from other commercial activities, universities will need to make additional investments.

72. Assuming that the rate of increase in different types of nonpublic revenue is the same, a total of £1.07 billion of the projected revenue *increase* between 2003-04 and 2010-11 is accounted for by increases in revenue from non-public sources not directly connected with teaching or research. If we assume that universities will have to increase investment in those activities by half that sum in order to obtain that revenue, this will cost £535 million in 2010-11: 10 per cent of the projected revenue increase.

Other non-pay costs

73. Between 1996 and 2005 the average increase in universities' and colleges' non-pay costs (including utility costs) was 2.3 per cent - below the Government's target for

RPI inflation for most of that period. For the purposes of this analysis it is assumed that overall non-pay costs other than utility costs rise at the same rate as general inflation.

Hypothetical costs

74. In addition to those cost drivers which are very likely to consume resources it is also possible to identify adverse contingencies which may lead to further pressures on available funds.

Capital

75. In 2001, JM Consulting identified a need for £8 billion of remedial investment in the estate of UK universities (equivalent to £10.4 billion in 2006) – a consequence of persistent underinvestment over many years. Partly in response to their findings the Government began to make very substantial investments in teaching and research capital. These investments were hypothecated for capital investment suggesting, perhaps, a belief on the part of the Government that, left to themselves, universities could not be trusted to give sufficient priority to the condition of their infrastructure. In 2005 English HEIs were allocated £550 million in funding earmarked for improvements in teaching capital and £903 million for improvements in research capital to be spent in 2006-07 and 2007-08. Taken together these allocations are equivalent to 4.4 per cent of projected revenues over those two years.

76. The best available evidence suggests that current levels of expenditure (which reflect the existence of earmarked capital funding) are adequate. JM Consulting estimate that from 2006, HEIs ought to be spending an average of 4.5 per cent of the insured value of their estate on maintenance, refurbishment and renewal. Between 2000-01 and 2004-05 English institutions spent £1.6 billion per annum or 6.1 per cent of the insured value of the estate. This suggests that 1.6 per cent (or approximately £450 million) would be available for remedial expenditure. That conclusion is supported by the fact that the UK backlog as measured by JM has fallen from 31 per cent of insured value in 2001 to 24 per cent in 2006²². On this evidence it would appear that – helped by the existence of earmarked funding – universities are making sufficient investments in their infrastructure both to prevent its deterioration and to make steady reductions in the backlog.

77. The revenue projections assume *either* that hypothecated capital funding will continue *or* that it will in effect be diverted to other forms of HE funding meaning that the overall trend in public funding for HE is unaffected. Were neither of these things to happen, the revenue projections would begin to look optimistic. Given the estimated growth rates for public funding for research and other activities, the loss of this source of funding would make the sector £800 million poorer in 2010-11 than the central revenue projection suggests. This would reduce the projected increase in revenue by 15 per cent.

²² JM Consulting *Future needs for capital grant funding in higher education* Forthcoming

It is important to remember that were increases in other forms of public funding for HE to balance any reduction in capital funding, no such issue would arise.

Pensions

78. Such increases in employers' contributions as would follow from staffing and salary increases are addressed in the analysis of academic and non-academic staff costs above. However, increases in pension contribution *rates* represent a further possible driver of increases in pension costs and these are addressed below.

79. It is unlikely that changes in pension contribution rates will have a dramatic impact upon the overall financial position of HEIs or the affordability of improvements in the quality of what they provide.

80. A simple calculation is sufficient to show why. Between 2003 and 2006 the employers' contribution rate to the Teachers' Pension Scheme was 13.5 per cent of salary. If we assume that staff costs equal salary plus pension, that *all* university employees are entitled to a pension with contributions at this level and that overall staff costs represent 60 per cent of university expenditures, the impact of a 1 per cent increase in employers' contribution rates would be to increase universities' total operating costs by 0.53 per cent - or, alternatively to erode only 1.4 per cent of the projected increase. (In reality it would be slightly lower because the existence of employers' NI contributions means that the proportion of staff costs accounted for by pensions is lower than it would be if salary and pension contributions were the only components of staff cost).

National Insurance

81. The conclusion reached with reference to pensions applies equally to any possible increase in National Insurance contributions. A 1 per cent increase in NI contributions would have the same impact upon costs as a 1 per cent increase in pension contribution rates.

Summary

82. Table 15 shows the potential of the items described above to restrict the ability of institutions to invest in the quality of their provision.

Table 15: What might limit the ability of institutions to invest in the improvement of their provision

	Percentage of projected increase
Additional salary and staffing cost	17.0
Earmarked public research funding	27.0
Non-public research funding	9.0
Non-academic pay	3.6
Commercial activities	9.9
Other non-pay costs	-
Doubling of utilities costs	3.5
Total of non-hypothetical items	60.0
Stopping of capital funding (hypothetical)	14.9 ²³
3 per cent increase in pension contribution rates (hypothetical)	4.2
1 per cent increase in employers' NI contributions (hypothetical)	1.4
Grand total	80.5

83. In the light of these data, it would be highly misleading to suggest that the strong increase in HE sector revenues up to 2010-11 will – or should – lead to the creation of a large surplus which can be used to improve provision. Something between £13 billion and £18 billion of the £22 billion increase is likely to be spoken for and an unknown proportion of the remainder will be already be committed to other projects. Given that projections are not to be depended upon absolutely, it would be reckless at this stage to assume that massive additional investments are possible across the board.

84. That is not the whole story, however. It is one thing to be careful about making extravagant claims about what can be done with additional revenues, quite another to suggest that no improvements should be expected. For all that it would be misleading to suggest that there are large amounts of 'free money' circulating in the English HE sector, it is also fair to note that, unless a large number of highly pessimistic assumptions are made, most universities will be better off in 2010-11 than they were in 2003-04. This

²³ It should be borne in mind that a large part of the capital funding provided by the Government in recent years has been through SRIF and remedial teaching capital funding, which were explicitly to address a backlog need. It would not be unreasonable – when that backlog has been eliminated – to expect that the special programme established to address the backlog might be ceased. It is also worth remembering, however, that if the targets set out in the Government's Science and Innovation Investment Framework are to be met, overall funding levels should be increasing steeply - whatever adjustments the Government may make to the balance between capital and recurrent funding. In this sense the cost of discontinuing capital schemes is *doubly* hypothetical – it is incurred only if the schemes are discontinued *and* if there is no corresponding shift of funds into other revenue streams benefiting HE institutions.

means is that there are real choices: the Government can decide whether or not to provide additional investment knowing that there is no danger of imminent collapse if they do not and university managers in a great many institutions are likely to have some scope to invest in those things to which they give priority.

Section 2b: Can universities afford to invest in improvements in the quality of what they provide?

Increases in UK GDP

85. The OECD gives the figure of 1.1 per cent²⁴ of GDP for UK spend on tertiary education. This is much lower than the figures given for the US (2.6 per cent) and Scandinavian countries (1.8 per cent). The Chancellor of the Exchequer has been reported as saying that he regards current spending as inadequate²⁵ and that there is a need for a debate as to how it can be increased.

86. A start is already being made. If the revenue projections are borne out UK HE revenues will increase relative to GDP. If it is assumed that from 2004, GDP increases at a rate of 2.5 per cent per annum (generally accepted as the upper figure for UK trend growth), GDP will be 19 per cent higher in 2011 than it was in 2004. The central projection for English HE revenues has them 39 per cent higher. Under this scenario English HE revenues would increase by 17 per cent relative to UK GDP – sufficient to increase the share of GDP from 1.1 per cent to 1.3 per cent or half the US figure. It is, nevertheless worth noting that closing *half* of the remaining gap between UK and US rates of investment in HE would involve an increase of 50 per cent in HE revenues over and above the projected increase. For this to happen by 2010-11, annual English HE revenues would need to be £28.9 billion at 2003-04 values: 50 per cent higher than the projected £19.3 billion – which itself represents a very healthy 39 per cent real increase on 2003-04 level of £13.9 billion. Achieving such massive increases in such a short timescale is not realistic but it does show that any significant progress towards the Government's ambition of US levels of HE investment will free large sums of money for improvements in English Higher Education.

Student:staff ratios

87. If university revenues indeed continue to increase faster than GDP, then this will provide sufficient resources to make qualitative as well as quantitative improvements. There appears, after all to be a belief in Government that HE revenues ought to be

²⁴ The figure for the UK is probably an underestimate. According the UK national accounts for the first quarter of 2006, (<http://www.statistics.gov.uk/pdfdir/gna0606.pdf>) UK Gross Domestic Product GDP was £1177 billion in 2004 (at current prices). In 2004-05 UK HEI revenues were £16.9 billion making HEI revenues equivalent to approximately 1.4 per cent of GDP. It is true that UK HE revenues increased strongly in the early years of the current decade but even if this calculation is repeated for earlier years it still gives a figure somewhat higher than the OECD figure. The discrepancy probably arises because the OECD has to produce figures which are comparable from one country to the next, which requires a degree of ingenuity as no two countries collect identical data. Therefore, whilst they may not provide the best description of Higher Education as *we understand it in the UK* the OECD figures probably remain the best basis for making international comparisons.

²⁵ 'Brown urges debate on fees income' The Guardian 5 June 2006

increasing faster than GDP, and political decisions – over regulated fees as well as public investment - will be very important in determining the HE sector's ability to expand.

88. Should this desirable state of affairs come about, many would argue that much of the additional investment ought to be channelled towards improving student:staff ratios (SSRs) in particular, which have risen substantially in recent years. Moreover, a survey conducted by HEPI of teaching provision, due to be published next month, reveals that when students were asked how they would like universities to use additional income, the single most common reply was that it should be used to provide smaller teaching groups. The remainder of this report discusses the costs of improving SSRs and considers the feasibility of establishing such improvements as a goal of public policy.

89. It would be culpable not to include a disclaimer at this point. The estimates which follow are much more speculative than those presented in part 1 of this report. It is hoped that they will help to establish whether substantial improvements in staffing levels are a realistic aspiration but it is not intended that they be used to put a price tag upon such improvements. They cannot be used for the latter purpose because they consider only two of the additional costs associated with those improvements: academic staff costs and estates costs. If policymakers were to decide to prioritise SSRs, it would be incumbent upon them to launch a more thoroughgoing costing exercise. As part of such an exercise, it would be necessary to produce more robust estimates of increases in pay rates and to investigate fully other additional costs associated with improving academic staff levels.

Current student:staff ratios: UK

90. In 2003-04 there were 123,288 FTE academic professionals in UK universities²⁶. Of these 106,900 were full-time, and the remainder part time, meaning that there were 16,388 FTE part time staff. We know from the same source that in terms of headcount there were 43,330 part time academic staff, so the average FTE for the part-time staff was 0.38.

91. Of the full-time academics, 75,865 were teachers (i.e. they were recorded either as teaching only staff or teacher researchers). Of the part-time academics 35,965 were teachers. If we assume that the mean FTE for part-time teachers was the same as for all part-time academic staff (0.38) this means that there were 13,606 FTE part-time academic teachers and a total of 89,471 FTE academic teachers in UK universities in 2003-04.

92. There were 1,626,060 FTE students in UK HE institutions in 2003-04 (excluding FE students) giving a student:staff ratio of 18.2 for the UK as a whole²⁷.

²⁶ HESA "blue book", table 4.

²⁷ Based on their own calculations, the Department for Education and Skills also give the figure for England in 2003-04 as 18.2 - a substantial increase on the ration of 16.5 recorded a decade earlier in 1993-94.
<http://www.dfes.gov.uk/trends/index.cfm?fuseaction=home.showChart&cid=4&iid=22&chid=86>

Staffing levels: England

93. For the purpose of this analysis it will be assumed that the English totals for all figures are 82.14 per cent²⁸ of those for the UK as a whole (this does of course mean that to the extent that the profile of English HE differs from UK HE such differences will not be reflected). On this basis there were 1,335,686 FTE students and 101,272 FTE academic professionals in English universities in 2003-04. Of those staff 73,493 had teaching roles.

94. As reported previously, HEPI anticipates growth in student numbers up to 2010-11 followed by a modest downturn as shown in table 16.

Table 16: FTE student numbers (England)

Year	Estimated FTE student numbers (England)	Change in FTE student numbers vs. 2003-04
2003-04	1,335,686	0
2005-06	1,372,686	+37,000
2010-11	1,432,186	+96,500
2020-21	1,410,186	+74,500

Source: HEPI Demand to 2015-16; Demand to 2020-21

95. Using these numbers, it is possible to calculate the number of extra academic teachers (over and above the 2003-04 total) necessary to achieve a given student:staff ratio in 2005-06, 2010-11 and 2020-21.

Table 17: Academic staff required to achieve given student:staff ratio

	2005-06	2010-11	2020-21
SSR=18.2	2,036	5,310	4,099
SSR=16	12,300	16,018	14,643
SSR=14	24,556	28,806	27,234
SSR=12	40,897	45,855	44,022
SSR=10	63,775	69,725	67,525

Source: HESA/table 16

96. To establish the true cost of increased staffing levels it is necessary to consider salary and accommodation costs. This will give a minimum cost (which assumes that the

²⁸ This is the proportion of total expenditure on staff costs on UK universities which is incurred by English institutions.

additional staffing enables smaller teaching groups or greater numbers of sessions and that other facilities are not enhanced except where it is necessary to adapt the estate to enable this).

Costs of improving student:staff ratios in England: middle projection

97. Estimates of staff cost, except where stated, are based on the following assumptions, and are subsequently referred to as the middle projection:

- There will be a one-off increase of 4 per cent in academic pay as a result of the new payscale. This increase will be felt between 2003-04 and 2005-06
- Real pay increases will run at a rate of 0.8 per cent per annum in 2004-05 to 2005-06 (consistent with increases of 3.3 per cent per annum – the current trend rate – and general inflation of 2.5 per cent)
- Real pay increases over the period covered by the recent pay deal will amount to 5.5 per cent (consistent with a 13.1 per cent increase in pay and general inflation of 2.5 per cent in the first two years and 2 per cent in the third year)
- Real pay increases in 2009-10 and 2010-11 will average 1.3 per cent per annum
- Real pay increases from 2011-12 to 2020-21 will average 2.5 per cent
- The impact on the pay bill of staff moving up their payscale will be balanced by the retirement of staff at the top of the scale and their replacement by staff commanding lower salaries

98. The middle projection is consistent with the hypothesis that once the recently negotiated pay deal has become implemented it will gradually become clear that academic pay needs to increase at a rate equal to or greater than average earnings if recruitment and retention are not to become serious problems.

99. On this basis the average staff cost in 2003-04 prices will increase from £44,417 in 2003-04 to £46,935 in 2005-06, £50,813 in 2010-11 and £63,253 in 2020-11.

100. Therefore, compared to 2003-04 the cost of employing the 'existing' 101,272 FTE academic staff (teachers and non-teachers) will be £255 million higher (in 2003-04 prices) in 2005-06, £648 million higher in 2010-11 and £1,908 million higher by 2020-11.

101. Furthermore if student:staff ratios are to be maintained or improved there will be additional costs associated with employing extra staff as shown in table 18 below.

Table 18: Estimated cost of employing extra staff under middle projection (£000)

	2005-06	2010-11	2020-21
SSR=18.2	95,553	269,800	259,287
SSR=16	577,283	813,930	926,231
SSR=14	1,152,527	1,463,689	1,722,645
SSR=12	1,919,520	2,330,034	2,784,531
SSR=10	2,993,310	3,542,917	4,271,171

Source: HESA/preceding text

102. The total increase in the pay bill is shown in table 19:

Table 19: total increase in pay bill under middle projection (£000)

	2005-06	2010-11	2020-21
SSR=18.2	350,628	917,530	2,166,878
SSR=16	832,357	1,461,660	2,833,822
SSR=14	1,407,602	2,111,419	3,630,236
SSR=12	2,174,595	2,977,764	4,692,122
SSR=10	3,248,385	4,190,647	6,178,762

Source: HESA/preceding text

Costs of improving student:staff ratios in England: variant projection

103. Two variant projections have been produced. The first is a high projection, which is similar to the middle projection but assumes that real pay increases will begin to increase sooner (in the middle projection the rate of increase only really picks up after 2010-11). The second is a low projection in which increases in academic pay resemble the modest increases characteristic of the period before the recent pay agreement.

High projection

- There will be a one-off increase of 6 per cent in academic pay as a result of the new payscale. This increase will be felt between 2003-04 and 2005-06
- Real pay increases will run at a rate of 0.8 per cent per annum in 2004-05 to 2005-06 (consistent with increases of 3.3 per cent per annum – the current trend rate – and general inflation of 2.5 per cent)
- Real pay increases over the period covered by the recent pay deal (2006-07 to 2008-09) will amount to 9.3 per cent (consistent with a 16 per cent increase in pay and general inflation of 2 per cent throughout the period)
- Real pay increases from 2009-10 until 2020-21 will average 2.5 per cent per annum

104. This scenario is consistent with the hypothesis that by the time the current pay deal is reopened in its third year (2008-09) there will be a consensus that academic pay need

to be made more competitive and that this consensus will hold until 2020-21. It also incorporates low estimates for general inflation and high estimates for the impact of the new pay framework.

105. The total additional costs of achieving a given SSR under the high cost projection are as given in table 20:

Table 20: Estimated cost of employing extra staff under high projection (£000)

	2005-06	2010-11	2020-21
SSR=18.2	443,873	1,356,784	2,601,143
SSR=16	934,867	1,945,048	3,311,543
SSR=14	1,521,174	2,647,507	4,159,848
SSR=12	2,302,917	3,584,120	5,290,922
SSR=10	3,397,357	4,895,378	6,874,425

Source: HESA/preceding text

Low projection

- There will be a one-off increase of 2 per cent in academic pay as a result of the new payscale. This increase will be felt between 2003-04 and 2005-06
- Real pay increases will run at a rate of 0.8 per cent per annum in 2004-05 to 2005-06 (consistent with increases of 3.3 per cent per annum – the current trend rate – and general inflation of 2.5 per cent)
- Real pay increases over the period covered by the recent pay deal will amount to 5.0 per cent (consistent with a 13.1 per cent increase in pay and general inflation of 2.5 per cent)
- After 2008-09, real pay increases will revert to the rate of 0.8 per cent per annum
- The impact on the pay bill of staff moving up their payscale will be balanced by the retirement of staff at the top of the scale and their replacement by staff commanding lower salaries

106. This scenario is consistent with the hypothesis that the current trend level of increases in academic pay is sustainable. It also incorporates a high estimate for inflation and a low estimate for the impact of the new pay framework.

107. The total additional costs of achieving a given SSR under the low cost projection are as given in table 21:

Table 21: Estimated cost of employing extra staff under low projection (£000)

	2005-06	2010-11	2020-21
SSR=18.2	257,382	736,153	1,064,892
SSR=16	729,847	1,262,059	1,621,565
SSR=14	1,294,030	1,890,057	2,286,301
SSR=12	2,046,273	2,727,387	3,172,616
SSR=10	3,099,413	3,899,650	4,413,457

Source: HESA/preceding text

Other costs associated with improved SSRs

Additional estates cost associated with staffing increases

108. If student:staff ratios are improved there will be additional calls on office space for academic staff and on teaching. The build cost of the additional space (including fees and VAT) is likely to be around £2000 per square metre. The annual cost of maintaining the new space is likely to be around £85 per square metre²⁹.

Office space

109. As regards *office space*, the design of new purpose-built offices and their suitability for optimal space management practice ought to mean that the amount of new office space required for each member of staff is less than the current ratio (16.34 square metres per teacher FTE). It is reasonable to assume that new space be sufficient to provide new staff with 80 per cent of the space of existing staff (or 13.07 square metres per FTE). If each square metre carries a one-off build cost of £2000 and a revenue cost of £85 (see previous paragraph) this means that the capital costs of additional office space can be estimated as £26,140 ($26,140=13.07*2,000$) per person and the revenue costs as £1,111 ($1,111=13.07*85$).

110. The impact of improving SSRs upon the requirement for *teaching space* depends upon whether it is assumed that extra staff will be used primarily to increase the amount of teaching or to reduce group sizes. If the former, the space required would increase almost in proportion to staffing levels (with an allowance made for design and space management improvements). If the latter, there will be more scope for existing space, suitably remodelled to accommodate a larger amount of smaller classes.

111. Forthcoming HEPI research³⁰ will show that students give higher priority to reducing the size of teaching groups than to increasing the number of timetabled teaching hours and that beyond a certain level, a high number of teaching hours begins to have a negative effect upon student satisfaction. On this basis it is not unreasonable to assume that most institutions would choose to use additional staff to reduce group sizes rather than to amount of teaching each student receives.

²⁹ Estate management statistics

³⁰ HEPI will publish the results of its research into teaching provision in English universities later in 2006. The publication is as yet untitled.

112. There are currently 45.13 metres squared of teaching space per teacher FTE. If reducing class sizes rather than increasing teaching hours is the main priority and allowing for space management and design improvements it is reasonable to assume that additional staff will require *additional* teaching space at 40 per cent of this rate or 18.05 metres squared per FTE (80 per cent for the additional staff necessary to maintain the existing SSR because there is no implication for class sizes until that has been achieved). This means that the capital costs of additional office space per FTE can be estimated as £36,103 (36,103=18.05*2,000) per person and the revenue costs as £1,534 (1,534=18.05*85) and double that for those additional staff who are necessary simply to maintain the existing SSR.

113. To summarise, estimated costs per additional teacher FTE are as given in table 22:

Table 22: Estimated estates costs per additional teacher FTE (additional FTE necessary to maintain SSR in brackets)

	Capital	Revenue
Office	26140	1111
Teaching	36103 (72206)	1534

114. From these costs, it is possible to derive estimates of the estates costs associated with achieving a given SSR by a given year using the estimates of additional staff required presented in table 17 (above). Table 23 (below) sets out these estimates.

Table 23: Estimated estates costs by SSR and year

Year	SSR	Additional staff required	Capital cost	Revenue cost
2005-06	18.2	2478	243,744,222	6,555,462
	16	14973	1,021,470,118	39,604,720
	14	29894	1,950,171,146	79,069,628
	12	49788	3,188,439,183	131,689,504
	10	77640	4,922,014,435	205,357,331
2010-11	18.2	6,464	635,711,282	17,097,354
	16	19,501	1,447,148,241	51,579,155
	14	35,068	2,416,104,453	92,754,696
	12	55,824	3,708,046,068	147,655,417
	10	84,883	5,516,764,329	224,516,426
2020-21	18.2	4990	490,782,285	13,199,511
	16	17827	1,289,754,650	47,151,633
	14	33155	2,243,826,591	87,694,670
	12	53592	3,515,922,514	141,752,054
	10	82205	5,296,856,805	217,432,391

115. These costs, whilst substantial, do not suggest that improvements in SSRs are unachievable. The capital cost of achieving an SSR of 16 by 2010-11 is £1.02 billion or 5 per cent of the cumulative gain estimated for the period 2004-05 to 2010-11. Even if the latter estimate is dramatically scaled back to reflect increases in non-discretionary costs (see table 15 above), this is unlikely to be unaffordable. The additional revenue cost, at £39.6 million is only 0.7 per cent of the projected revenue increase. Even if higher non-discretionary costs cancel out 80 per cent of that increase, this is almost certainly affordable. In short, whilst additional estates costs are large enough that they will have to be factored into any detailed estimates of the costs of improving staffing ratios they are not large enough to present an insuperable barrier to such improvements.

Increases in non-academic staff numbers

116. It is worth noting that the increases in the size of academic population, the HE estate and the student population postulated in the preceding sections will have implications for the numbers of some (but not all) classes of support staff.

117. No attempt is made in this report to cost this increase because the purpose of this report is to establish whether improvements in the provision made by universities are a reasonable aspiration rather than to place a precise cost upon them. Were institutions and the Government to take a decision to aim for a reduction in SSRs, more detailed work would be required on this subject to establish what level of reduction was realistic.

118. It is worth remembering, however, that there is no reason why institutions should seek to maintain the ratio of academic to non-academic staff. Indeed, it would be very disappointing if that ratio did not increase sharply if academic staff numbers were increased whilst student numbers and levels of funded research activity remained static. Whilst the need for some classes of support staff (e.g. departmental administrators) will be very sensitive to academic staff numbers, the need for other services will more closely reflect changes in the student population. For others the main driver will be the size of the estate and for a fourth group it will be largely independent of all these factors. No analysis of the additional need for non-academic staff will be credible unless it recognises this complexity.

Conclusion

119. Two things emerge very clearly from the analyses described above: firstly, the increase in revenues expected between 2003-04 and 2010-11 cannot be depended upon to provide sufficient funds to finance substantial improvements in staff ratios; but secondly, if the Government is serious about setting policy with the aim of increasing Higher Education's share of GDP, then such improvements would be an entirely achievable goal.

120. To take the first of these points. The revenue projection suggests that the sector's annual income (at 2003-04 values) will be £5.4 billion higher in 2010-11 than it was in 2003-04 – an increase of 39 per cent. It is also estimated that between 60 per cent and

80.5 per cent will be accounted for by foreseeable additional expenses (some of which imply improvements in other areas). This would leave between £1.05 billion and £2.16 billion available for discretionary expenditure. However if a number of adverse assumptions are made the increase could be not 39 per cent, but as low as 20 per cent. Under such adverse conditions – which are improbable but not impossible - there would be little or no effective increase in the sector’s ability to make discretionary expenditures. On balance, there appears to be a strong likelihood that there will be additional resources – which could be substantial - available in most institutions for discretionary expenditure which might include improvements in teaching capacity; but there is no certainty that this will be the case – and nor is it realistic to suppose that institutions will spontaneously decide that improving teaching capacity is their sole priority for any extra resources.

121. Under the mid projection, reducing SSR from 18.2 to 16 whilst substantially improving pay levels would involve spending £1.5bn more on estates and academic staff in 2010-11 than in 2003-04 (in real terms) in addition to an outlay on non-academic staff which is not quantified here but which is likely to be very substantially less than the outlay on academic staff and a one-off capital outlay of £932m. Potentially, a proportion of the increased annual income of £1.05 billion-£2.16 billion likely to be available on the basis of the estimates of income and commitments shown above could be used to meet part of the bill. Alternatively, were it to be solely funded by external investors (presumably government), and assuming GDP growth of 2.5 per cent per annum, it would imply an increase of 0.13 per cent in HE’s share of GDP (or 0.14 per cent if the capital costs are spread over seven years and included in the calculation)³¹ – far more modest than the kind of increase government has said that it desires. So long as government is prepared to play its part and so long as universities are prepared to give teaching the same priority they have given to research over recent decades, substantial investments in teaching quality are in no way an outlandish goal.

122. None of this implies that a target should be set to improve SSRs because SSRs are not a very good measure of the resources available for teaching, let alone of teaching quality. At present, they are calculated by dividing the number of students by the number of staff with teaching responsibilities. For the purposes of the calculation, staff who spend 100 per cent of their time on teaching are treated in the same way as staff who spend most of their time on research or other activities. If improvements in SSRs are to have a real impact upon teaching, however, it will be necessary to ensure that they support improvements in teaching rather than an increase in the time devoted by teacher-researchers to research. SSRs are used to give an indication of the costs of making measurable improvements in teaching inputs (and, one would hope, quality). Their use does not imply that investment in staffing should take priority over investment in other parts of the teaching process (equipment, estates etc.). That is very much a judgement which should be left to individual institutions and the professionals within them.

³¹ Assumes GDP of £1.2trn

123. On the basis that output measurements are always preferable to timesheet-based input measures, the simplest and most effective way to do this would be to use student surveys to verify that the quality and quantity of teaching was actually improving.