

Appendix D: Uses and limitations of HESA and ASHE statistics for Higher Education sector employees and their comparators

1. HESA (Higher Education Statistics Agency) statistics

Using the statistics

The Higher Education Statistics Agency (HESA) is the official agency for the collection, analysis and dissemination of quantitative information about higher education.

It was set up by agreement between the relevant government departments, the higher education funding councils and the universities and colleges in 1993, following the White Paper "Higher Education: a new framework", which called for more coherence in HE statistics, and the 1992 Higher and Further Education Acts, which established an integrated higher education system throughout the United Kingdom. The Agency aims to deliver, on a charitable basis, the information required by Higher Education Institutions for their planning and development; and, operates on behalf of the higher education sector.

The remuneration sub group had anticipated that HESA data would form the basis of any review of pay within the sector. To this end a substantial amount of data was ordered from HESA and this arrived in January 2008.

The data was ordered to run from the academic Years 1994/05 to 2006/07 and comprised one 'table' of information on staff numbers and one 'table' of information on salaries. This is shown as annex 1.

However, once analysis had commenced it became clear that the data were producing results that did not appear to be consistently reliable. Problems concerning time series statistics are discussed in Appendix E. Other issues that came to light included a lack of information on support staff groupings, inconsistent statistics for part-timers and difficulties in quantifying the effect of the framework agreement.

The Remuneration Sub Group therefore invited HESA to send a representative to discuss these issues and how they might be addressed and this invitation was accepted. The limitations discussed, and the approaches taken in the light of them, are discussed below.

Defining the HE workforce

One of the advantages of the HESA dataset is its flexibility. Thus for our analysis we were able to specify that clinical academics, who are covered by separate bargaining arrangements, should be excluded.

Clinical academics form a relatively small subset of staff (3,347 FTE as at July 31 2007 according to the Schools Medical Council) and have a unique role. Not only do they undertake academic (i.e. teaching and research) duties but they also undertake clinical duties providing the same range of clinical services for NHS trusts as doctors and dentists in the same clinical grade who are substantively employed by the NHS. There is a commitment to 'translate' NHS salaries for these staff to ensure parity between the NHS and HE sector and an accompanying funding commitment.

The table below shows the effect of removing clinical academics on overall mean academic salaries for the period. In 2001/02 the figure which included clinical academics was £1,130 higher; by 2006/07 this had been reduced slightly to £1,075. In percentage terms the difference between the mean values of the two datasets by the end of this period was 2.7%.

Table 1.1 Full Time Academic Mean Salaries 2001/02 – 2006/07 (£)

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	Change (%)
Including Clinical Academics	32,510	33,931	35,773	36,534	38,933	41,128	26.5%
Not Including Clinical Academics	31,380	32,942	34,754	35,623	37,887	40,053	27.8%

Source: HESA

Classifying the HE workforce

HESA statistics use a variant of the Standard Occupational Classification (SOC) to classify the HE workforce. SOC forms the basis of occupational classification in a variety of official surveys that collect statistical such as the Labour Force Survey and the Annual Survey of Hours and Earnings, so its use by HESA enables comparisons to be made with other sectors of the economy.

At the most aggregate level SOC distinguishes nine broad categories termed Major Groups. The titles associated with these Major Groups, which by necessity have to be general in their nature to encompass all occupations, do not provide an intuitive method of classifying the occupations within HE. The variant of the national standard that is used by HESA enables the classification of job titles found within the HE sector to 13 broad occupational categories:

1 = Managers

2a = Academic Professionals

2b = Non academic professionals.

3a = Laboratory, engineering, building, IT and medical technicians (including nurses).

3b = Student welfare workers, careers advisors, vocational training instructors, personnel and planning officers.

3c = Artistic, media, public relations, marketing and sports occupations.

4a = Library assistants, clerks and general administrative assistants.

4b = Secretaries, typists, receptionists and telephonists.

5 = Chefs, gardeners, electrical and construction trades, mechanical fitters and printers.

6 = Caretakers, residential wardens, sports and leisure attendants, nursery nurses and care occupations.

7 = Retail and customer service occupations.

8 = Drivers, maintenance supervisors and plant operatives.

9 = Cleaners, catering assistants, security officers, porters and maintenance workers.

Academic staff are defined as academic professionals who are responsible for planning, directing and undertaking academic teaching and research within HE institutions. They include vice-chancellors, medical practitioners, dentists, veterinarians and other health care professionals who undertake lecturing or research activities (though for the purposes of the analysis for this report clinical academics are excluded, as explained above). All academic staff fall into group 2a of the SOC classification, regardless of their discipline (e.g. science, engineering, social sciences, humanities, languages).

Non Academic staff are defined as members of staff who fall into one of the remaining 12 occupational categories such as managers, non-academic professionals, student welfare workers, secretaries, caretakers and cleaners.

SOC group 2a can be further disaggregated into smaller groupings which allows for more flexibility when conducting analysis. For the purposes of the JNCHES review the academic data were split into seven different grade groupings. This meant that data at different grades and remuneration levels could be interrogated without having to analyse each individual role. The academic grade groupings are structured as follows.

Junior researchers: Researchers 1a and 1b from the pre-1992 universities and Researchers A and B from the post-1992 universities and colleges; and Researchers (CSCFC scale) and any locally determined researchers.

Researchers: Researchers II, III and IV from the pre 1992 universities.

Lecturer 1: Lecturers A from the pre-1992 universities and Lecturers from the post -1992 universities and colleges; and Lecturers (CSCFC scale).

Lecturer 2: Lecturers B from the pre 1992 universities, Senior Lecturers from the post -1992 universities and colleges; any locally determined lecturers and Senior Lecturers (CSCFC scale).

Lecturer 3: Senior Lecturers from the pre-1992 universities and Principal Lecturers from the post-1992 universities and Colleges; and locally determined Senior and Principal Lecturers.

Professors/Heads of Department: Professors (pre-1992) and post-1992 Heads of Department, Professors and Heads of Department (CSCFC scale) and any locally determined professors.

'Other': including any others from PCEF, UAP and CSCFC scales.

Information on support staff has only been available within the HESA data set since 2003/04. As stated above information on support staff is collected using groupings which correspond to SOC codes. Unlike with academic staff these broad groupings cannot be broken down further into their constituent parts which somewhat limits the scope for any detailed analysis.

[Limitations and approaches](#)

Clearly the fact that statistics on support staff have only been collected by HESA since 2003/4 means that the source could not be used to address RSG's remit of examining change over the period since 2001, at least in relation to this part of the workforce.

The key pay statistic used in HESA remuneration data is basic salary, as there is no mechanism for recording the total payment to any individual. Non base elements such as honoraria, one-off bonuses or London weighting are not included unless such payments have been consolidated into basic salary. There was consultation within the sector about using information from P60s to capture the total payment figure but this was rejected. Thus HESA statistics can be used to meet RSG's remit concerning salary levels, but could not be used to meet the remit concerning broader earnings levels.

Any pay backdating is not included in HESA data, which is problematic when trying to quantify the effect of the framework agreement. For a number of institutions HESA figures did not show any effects which might be ascribed to the framework agreement. Possible reasons included delays in some HEIs adopting the framework agreement and

also the possibility that not all staff at an HEI might be moved across to the framework at the same time. There was no real solution discovered to this problem with existing data. However, from 2008/09 additional metadata will be collected looking at how individual institutions have mapped to the national pay spine and this measure is specifically intended to capture the effects of the framework agreement.

Part-time data were relatively unstable, particularly in year-on-year comparisons involving 2003/04 and 2004/05. As a result the analysis of HESA statistics in the report is confined to figures relating to full-timers.

There are two tables within HESA data - one relates to staff members and the other to contract. Salary data is mapped to the contract table rather than the staff member table. This may have the effect of recording an employee who works the equivalent of full-time hours for only one institution on several part-time contracts rather than one full-time contract. A hypothetical example would be a professor with separate contracts for teaching and research.

Outcome

The main review group agreed that in the light of the problems with HESA data the major source of remuneration information would be ASHE. HESA statistics would still be analysed, concentrating on salary levels for different groupings within the academic staff grouping, but would be viewed as supplementary information.

2. ASHE (Annual Survey of Hours and Earnings) statistics

Using the survey

The Annual Survey of Hours and Earnings (ASHE) is an employer-based sample survey of the whole economy carried out each April by the Office for National Statistics (ONS). It is widely accepted as the most reliable and complete survey of employee earnings across the UK. Nevertheless, because it is a survey and not a census, figures are estimates and not precise counts. The survey is based on a 1% sample of employees, though the sample was reduced in 2007 by around 25% as part of an efficiency programme.

A review of ASHE statistics enables us, in principle, to address three requirements of the Pay Data Review: the current level of earnings; comparison with other occupations; and change in earnings and earnings relativities over time.

The survey identifies the occupations and industries in which employees work, using standard classifications. We can identify the 'higher education industry' under the Standard Industrial Classification (SIC) and 'higher education teaching professionals' within the Standard Occupational Classification (SOC). However, SOC does not identify

any other group of HE sector employees separate from those in the same occupations elsewhere in the economy (registrars, researchers, librarians and support staff being cases in point).

Moreover, the published tables provide results for occupations and industries separately, and do not include analyses which cross-tabulate the two. We have been able to compensate for this limitation to some extent by ordering special tables which take certain occupations and identify those working within the HE sector and those working in other sectors. Thus we are able to compare, for example earnings of cleaners within HE with the earnings of cleaners outside HE.

Largely using these specially ordered tables we have been able to examine the earnings levels and trends of several occupational groups within the HE sector, as well as the sector as a whole. The groups considered (in Appendices H-M) are:

- HE teaching professionals
- All professionals (which will include registrars, researchers and librarians)
- Technical staff
- Administrative staff (those in clerical and secretarial jobs)
- Cleaners and catering assistants
- Managers, employees in skilled trades and those in personal occupations. As the numbers in these groups within HE are quite small the analysis is limited.

For each group we review the estimates for April 2008 and compare them with figures for comparator groups in 2008. We then consider change in the HE group's earnings since 2001 (the date chosen to allow the effects of the implementation of the Bett Review to be observed), and compare the change for HE groups with the change for comparators.

Comparisons

We have indicated above that we can use ASHE statistics to fulfil the review's remit to make comparisons with the experience of other groups.

Where we have ordered special tables we have been able to partition employees in particular occupations into those in the HE sector and those in the rest of the economy, and so the latter provide comparators. We are also able to use the specially ordered tables to compare earnings inside and outside the sector at the level of the 'major occupational group' (of which there are nine in the Standard Occupational Classification).

Comparators for 'HE teaching professionals' are not so easily identified. We could not partition those within the occupation into those inside and outside the sector, as we could with cleaners or clerical workers, because by definition they are HE sector employees (though see 'limitations' for further discussion). The approach taken here was to compare with other broad groupings and with similar occupations when examining trends over time. The rationale is explained at greater length in Annex 2. Essentially it is that the 'HE teaching professional' group is diverse in terms of specialisms (engineering, business, media studies, languages and so forth) so comparison over time should be with other diverse groups, or with those occupations which might reasonably be thought of as offering alternative employment or careers to a substantial proportion of the HE group. Thus we compare the HE teaching professional group with the whole economy, with the whole public sector and the whole private sector, and with FE teachers and secondary school teachers. We do not compare them with doctors, engineers or journalists, for example, since these occupations would offer alternative employment possibilities to only a small proportion of HE teaching professionals.

In examining trends for the HE sector as a whole, we again look at broad groups such as all employees and the whole public sector, as well as major public services groups in health, education and administration.

The Statistics

ASHE offers statistics for earnings calculated on an annual, weekly or hourly basis. It also offers various definitions of earnings – gross, basic, with or without overtime and with or without annually-paid bonuses.

Our analysis of the earnings of full-timers is based on weekly earnings statistics adjusted to an annual equivalent (described in the text as 'annual earnings'). There are two reasons for doing this rather than using the statistics published in ASHE on the annual basis. The first is that the published annual figures relate only to employees who have been in post with the employer for at least a year. This means that the statistics for, say, the HE teaching professionals group are not a random sample of that group at a point in time but are systematically biased by the exclusion of recent appointees, which in turn means that the latest market influences may be inadequately reflected. The second reason is that figures on basic earnings are published for the weekly basis, but not the annual basis. We need to consider basic as well as gross earnings to give us a deeper understanding of the comparative position of occupations within the HE sector. A disadvantage of our use of the weekly rather than annual published figures is that annually-paid incentives are only recorded in the published annual figures, and not in the weekly-based figures. To illuminate the effect of using weekly-based rather than annually-based figures Annex 3 shows figures on the two bases for median and mean gross earnings. The outcomes are discussed in the appendix. The effect is minimal for those HE groups identified.

We also report hourly earnings. Since ASHE is an employer-based survey, hours worked are derived from administrative records which reflect contractual hours, or time for which payment has explicitly been made. Thus hourly earnings tend not to reflect time spent in preparation, nor do they reflect the variations between term-time and vacation hours. For this reason, hourly earnings statistics need to be treated with caution where they concern teaching occupations and indeed a range of other occupations. However, they are considered here because, for part-time employees, they are more meaningful than weekly or annual earnings, which will vary from one individual or grouping to another largely as a result of the number of hours worked per week rather than the pay value attached to the job.

The survey identifies full- and part-time employees separately. The bulk of the analysis that follows concerns full-timers, partly because they are more numerous and partly because ASHE provides more information – and more relevant information – about them. However, for occupations with significant numbers who work part-time, such as cleaners and catering assistants, the emphasis is placed on part-time employees.

The report uses two measures of the average – mean and median. Each has its merits and drawbacks. The median is the figure at the midpoint of a distribution. It might therefore be thought of as reflecting typical experience. Its value is less influenced by the values of extreme cases than the mean is, and ONS gives greater weight to medians than means when reporting the results from ASHE. On the other hand, the mean can be treated arithmetically in ways that the median cannot. Where outcomes are similar on each measure we can treat them with greater confidence.

We use quartiles rather than deciles to illustrate the range of earnings since confidence intervals tend to be narrower around the former. Even so, where sample size is small quartiles may have broad confidence intervals. They are reported only where the estimates are considered by ONS to be reasonably accurate.

Limitations

Most of the limitations of ASHE have been mentioned in the previous sections. In this section we bring them together and indicate mitigating measures taken where these have been possible.

Occupational and industrial classification definitions: these are not necessarily the definitions that we would have chosen. For example, the nearest we have to HE academics excludes researchers (who are classified separately) and includes clinical academics (who are subject to separate pay arrangements). This is a problem that we cannot resolve, though we do indicate in the text the likely effect of including clinical academics in ASHE statistics by referring to data from HESA sources. Moreover, published tables do not show, for any occupation other than ‘HE teaching professionals’, who works within the HE sector and who works outside. We have, as explained, been able to order special tables which provide this separation.

Accuracy of industrial and occupational classifications: systems which allocate jobs to categories are liable to a degree of error. Although ONS statisticians have long experience in such work, they will not eliminate all misallocations. The special tables revealed, for example, that around 10% of 'HE teaching professionals' were not assigned to the HE sector. Further investigation indicated that they belonged to further education, secondary education and agency employment, and should not have been classified to the HE sector. We therefore excluded them from analysis. All figures in the report for HE teaching professionals come from the special tables and relate to those who are allocated to the HE 'industry'. Of course other sources that classify occupations, including HESA statistics, are also subject to such errors.

Sample size: this is the greatest limitation of the ASHE dataset. It takes a large sample of employees across the economy as a whole, but at sector level the samples were often not large enough for examination of occupations of interest, or to support analysis of differences by gender. The samples were too small to support analysis of librarians, registrars or electricians, for example. For most groups quartile estimates were not sufficiently precise. In Appendices H-M we report results for various occupational groups where we consider the figures sufficiently accurate. Where the accuracy is borderline we show this by following ONS' own conventions (the relevant cells in tables are shaded). In reporting relativities between different groups, or relative trends over time, we check findings by reference to a range of measures (mean/median, gross/basic earnings, annual/hourly earnings) to minimise the likelihood of basing our conclusions on a single indicator which may be at variance with other possible measures.

Reported hours: ASHE provides statistics on hourly earnings. These are hours worked as reported by employers. They are likely to reflect the working hours that are relevant to pay. In occupations where hours worked affect overtime or bonus rates they are more likely to reflect actual hours worked than in occupations where this is not the case. Teaching academics and researchers might consider that their actual hours worked exceed their contractual hours. However, that may also be the case for a number of the comparator groups considered here. At various points in the report we stress that figures relate to reported working hours.

Discontinuities: there are particular problems in ASHE arising from changes in methodology affecting the 2004 and 2006 figures, and changes to the occupational classification between 2001 and 2002. These are discussed at greater length in Appendix E.

Annex 1 – Data Ordered from HESA

Staff Numbers Data

	Groupings
<i>Fields from 'person' table</i>	
Institution	
Date of birth (age)	(25 and under, 26-30, 31-35, 36-40, 41-45, 46-50, 56-60, 61-65, 66+, Unknown)
Gender	
Ethnicity	Standard grouping
Disabled	
<i>Fields from 'contract' table</i>	
Terms of employment	
Mode of employment	FT/PT
Academic Employment Function	
FTE	(FPE table only)
Grade	
Senior management post holder	
Salary (source from basic salary field and salary point field)	In bands of £500 up to 2003/04. Full salary data from 2003/04 onwards.

<i>Salary point</i>	In single salary points from 2003/04 onwards. In bands of 3 salary points for previous years.
Activity code	
Cost centre	

Source: HESA

Salary data

Table 1	Salary	Institutions	Activity	Mode of Employment	Gender
	Mean and Median, Quartiles and Deciles	Individual English regions and country groupings and 'All'	Academics/ All non-academics	FT/PT/All	M/F/All
Table 1a	Salary	Institutions	Activity	Mode of Employment	Gender
	Mean and Median, Quartiles and Deciles	Institutions grouped by Russell Group, Guild HE, CMU, 94 Group, Non-aligned Group	Academics/ All non-academics	FT/PT/All	M/F/All
Table 2	Salary	Grade (academics only)	Mode of Employment	Gender	
	Mean and Median, Quartiles and Deciles	Individual grades and All	FT/PT/All	M/F/All	
Table 2a	Salary	Grade (academics only in groupings)	Mode of Employment	Gender	
	Mean and Median. Quartiles and	Junior researchers, researchers, lecturer 1, lecturer 2, lecturer 3, professors/heads	FT/PT/All	M/F/All	

	Deciles	of department, 'other'			
Table 3	Salary	Activity	Mode of Employment	Gender	
	Mean, Median, Quartiles and Deciles	Individual categories for Non-academics and All	FT/PT/All	M/F/All	

Table 4	Salary	Activity	Terms of Employment	Grade	Mode of employment
	Median, Quartiles and Deciles	Academics (only)	Permanent/ Fixed-term	Individual grades and 'All'	FT/PT/All
Table 4a	Salary	Activity	Terms of Employment	Academic Employment Function	Mode of employment
	Median, quartiles and deciles	Academics (only)	Permanent/ Fixed-term	All categories	FT/PT/ALL
Table 5	Salary	Activity	Gender	Cost centre (subject)	Mode of employment
	Median, Quartiles and Deciles	Academics (only)	M/F/All	Individual subjects and 'All'	FT/PT/ALL
Table 6	Salary	Ethnicity	Activity	Grade	
	Median, Quartiles and Deciles	(grouped)	Non-Academics/ Academics/ All	Individual grades and 'All' (for academics only)	
Table 7	Salary	Age	Activity	Grades	Mode of employment

	Median, Quartiles and Deciles	(grouped)	Academics/Non -academics/All	Individual grades and All (for academics only)	FT/PT/ALL
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Source: HESA

Annex 2: Comparators for the Pay Data Review

The broad rationale for selecting comparators

1. We undertake comparisons because differential movements in reward between the HE sector on the one hand and other occupations in which HE staff (or potential HE staff) could work may affect recruitment, retention and motivation of staff of appropriate quality.
2. However, we are concerned with a national bargaining system which operates across all academic disciplines and occupations. Since the national agreement does not specify separate rates of increase for different disciplines according to the state of particular markets, it follows that the review should be concerned with comparators at a broad level.

A rationale for selecting comparators for HE teaching professionals

3. In considering change over time we want a reasonably straightforward analysis. We need to judge whether HE teaching professional employees have fallen behind other professionals taken as a whole or behind all workers across the economy (we will also want to check change in earnings against the general price level). We should also check whether relative position has changed in comparison with other groups within the broad education sector, since such changes might have implications for recruitment and retention for significant numbers of HE teaching professionals.
4. In any case we are limited by the statistics and resources that are available for work on comparisons. We are constrained to the use of earnings as a proxy for broader reward. We do not have earnings statistics for academics in specific disciplines so we can't compare, for example, engineering lecturers with professional engineers, or media studies lecturers with journalists.

5. However, even if we could make comparisons with specific disciplines, it is not obvious how we might make use of such information in a national bargaining context. What would we make of a hypothetical analysis that showed the sector falling behind, say, solicitors and civil servants while moving ahead of accountants and IT professionals? How would that inform national bargaining?
6. Both principle and data availability therefore argue for a limited range of comparators to review change over time. We can recognise, though, that there is an interest in some clarity about the relative position of HE sector employees in the markets in which they operate. We might regard this as contextual rather than comparator information, providing guidance to both employers and employees within the sector so that they can respond appropriately. Even so, data and resource constraints limit us to national analyses, which smooth variations in the local or regional markets which affect institutions and individual workers.

The approach adopted for comparators for HE teaching professionals

7. The rationale above argues for comparators limited to broad groups and those occupations that might provide alternative employment to a broad range of academic staff.
8. It is preferable to use a single source of statistics for all comparators, thus avoiding the need to account for different methodologies between sources. The Annual Survey of Hours and Earnings (ASHE) provides statistics on HE teaching professionals and also on the following groups:
 - a. All employees
 - b. All public sector employees
 - c. All private sector employees
 - d. All professionals (SOC group 2)
 - e. All teaching and research professionals
 - f. All teaching professionals
 - g. FE teaching professionals
 - h. Secondary school teachers
 - i. Research professionals
9. The comparison over time is concerned with these groups.

Contextual information for HE teaching professionals

10. As indicated at paragraph 6, there is an interest in assessing earnings *levels* of HE teaching professionals (as opposed to earnings *change*) in the context of levels for various other occupations. Ideally this would be done through job-evaluated assessments which are specific to particular markets, but resource and data constraints point to a simpler approach.

11. This means that we have to use existing occupational classifications, with their inherent shortcomings – for example that the HE teaching professional group covers all lecturing grades to professor level (and indeed above) while some suggested comparators (such as senior civil servants and police at inspector or above) include only the more senior tiers. Rather than arguing the merits of different comparators, we provide as context each and every one of the managerial and professional jobs as described in the official occupational classification at the unit group level. This illuminates the levels of earnings in the range of wider labour markets in which the sector operates. The statistics for 2008 are provided at table 5.9 of the main report.

Comparators for other HE groups

12. A more straightforward approach can be adopted with other HE groups considered here. We have been able to obtain statistics for certain specific occupations which show earnings for those within the occupation working in the HE sector on the one hand, and those working outside the HE sector on the other. This provides a means of assessing experience against near comparators.
13. We also provide comparisons at the major group level, comparing, for example, the experience of those in SOC major group 4 (clerical occupations) within and outside the HE sector.

Annex 3: The effect of using weekly rather than annual ASHE statistics

	Annual		Weekly adjusted		Ratio annual: weekly	
	Median	Mean	Median	Mean	Median	Mean
All employees	24,002	29,999	23812	28667	100.8	104.6
Soc 2 (professional)	34,260	38,840	34736	38683	98.6	100.4
Soc 3 (technical)	27,286	30,550	26982	29574	101.1	103.3
Soc 4 (administrative)	18,157	19,535	18145	19735	100.1	99.0
Soc 6 (personal occs)	15,566	16,443	15762	16951	98.8	97.0
Soc 9 (elementary occs)	16,393	17,262	16028	17389	102.3	99.3
Public sector	25,600	28,304	25981	28964	98.5	97.7
Private sector	23,313	30,902	22884	28630	101.9	107.9
All teaching/research staff	33137	34166	33615	34981	98.6	97.7
HE teaching profs	39155	42620	39131	42588	100.1	100.1

Source: ASHE

The table above compares, for 2007 and for a range of employee groups, the published annual gross earnings statistics from ASHE with published weekly gross earnings

adjusted to provide an annual figure. For reasons explained in the text, we have used the adjusted weekly figures in this report. The table indicates the effect of doing so.

Generally the effects are small. This is particularly the case with the HE groups, but for eight of the ten groups the difference is no more than 1.5 percentage points at the median. There are some larger differences at the mean, but for only three groups (private sector, technical occupations and all employees) does the difference exceed three percentage points.

Nor is there a regular pattern of one measure exceeding the other. The annual figure produces a higher estimate at the mean for the private sector, all employees and technical occupations, but the adjusted weekly figure provides higher estimates for the public sector, teaching and research staff and personal care staff.

Given that clarity is provided by choosing one or other base for analyses rather than mixing the two, we can conclude that there is no evidence here that the choice makes a significant difference to the outcome, or that there are any compelling reasons to prefer the published annual statistics rather than the adjusted weekly statistics that we have used.

Annex 4: Effect of correction for discontinuities on Gross hourly earnings for full-timers 2001-7

	Mean change		Median change	
	Without correction	With correction	Without correction	With correction
All employees	23.2	25.8	22.9	25.2
All public sector	26.8	26.3	24.3	23.6
All private sector	21.5	25.3	20.4	23.7
All professionals	21.1	22.2	19.3	20.3
All teaching professionals	20.1	19.4	19.6	19.1
HE teaching profs	24.6	23.9	25.1	24.0
Secondary teaching profs	17.7	17.2	17.5	16.6

Source: ASHE

As explained in the text, the ASHE methodology has changed twice during the period under review, in 2004 and 2006. For each of these years two sets of figures have been produced, one consistent with earlier methodology and one consistent with methods used thenceforth. We have adjusted for these discontinuities so that our estimates are as far as possible on a consistent basis, and so that our estimates of change over time reflect real change in earnings rather than methodological change.

The table above gives an indication of the effects of this decision compared with using the published figures. The largest single HE sector group, HE teaching professionals, is compared in the table with six other groups, on the basis of change in gross hourly earnings for full-timers over the period 2001-7.

The effect of adjustment is modestly negative on the HE group, bringing the estimated increase down by 0.7 percentage points at the mean and 1.1 percentage points at the median. Other public sector groups – the whole sector, all teaching professionals and secondary teachers – also recorded small negative effects from adjustment.

In contrast, groups wholly or partially comprised of private sector employees recorded positive effects from adjustment – most notably the private sector as a whole, which gained 3.8 percentage points at the mean and 3.3 percentage points at the median.

The effect on HE teachers' relative position is marked. At the mean they move from having the second highest rate of growth on the unadjusted basis to the fourth highest. At the median they move from highest to second highest rate of growth.

For the reasons outlined in the first paragraph we consider it is right to adjust the statistics for discontinuities. But in interpreting the outcomes it is sensible to bear in mind the effect of the adjustment.