

Annual Survey of Hours and Earnings: An analysis of historical data 1998-2003

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Key points

- A new annual earnings survey, the Annual Survey of Hours and Earnings (ASHE) has been developed to replace the New Earnings Survey (NES).
- ASHE is the Office for National Statistics' (ONS) first major survey redesign as part of a statistical modernisation programme.
- The ASHE methodology includes imputation and weighting; the main impact of these changes when applied to existing NES data for 2003 to 1998 are:
 - ◆ To increase the estimates of the level of average weekly pay over estimates published from the NES.
 - ◆ For males the increase in estimates of earnings is more than the increase for females. In particular this affects hourly pay excluding overtime, which is used in the calculation of the ONS' preferred measure of the gender pay gap. The estimate of hourly pay for males is increased more than the estimate for females, which widens the estimate of the gap between male and female hourly pay.
 - ◆ Estimates of the level of earnings for people working in London are increased more than estimates for other regions. This widens the estimate of the difference in pay between London and other regions of the UK.

Introduction

The ONS is undergoing a significant modernisation programme of its statistical systems to make them world class in the 21st Century. The objectives of this Statistical Modernisation Programme are:

- to re-engineer key statistical systems;
- to move ONS surveys and other data onto a corporate database system;
- to introduce a set of standard processing tools;
- to standardise and systematise the processing and presentation of statistical outputs.

The development of a new annual earnings survey, ASHE, to replace the NES is ONS' first major survey redesign as part of this modernisation programme. The NES was designed to meet the policy needs of the 1970's and has changed little over the past thirty years. ASHE provides an opportunity to meet users' requirements in the 21st Century, to improve the methodology of the survey and to make use of the new statistical tools ONS will be using in its modernisation programme.

The re-engineering of NES and the subsequent ASHE methodology take forward recommendations made in the [National Statistics Quality Review of the Distribution of Earnings Statistics](#) for improving the collection of earnings statistics. The main differences between the ASHE and NES methodologies are the estimation of missing responses, weighting of the results and better coverage (a summary is given in Appendix C). A more comprehensive description is given in the article [Methodology for the Annual Survey of Hours and Earnings](#).

Results for the 2003 NES survey were published for the last time in October 2003. The improvements in methodology and the use of new corporate statistical tools will cause a discontinuity between the published estimates for NES and the 2004 ASHE results. This article shows the impact of applying the new methodology and statistical tools to the existing NES data for

1998 to 2003. An analysis of the impact of the ASHE methodology on low pay statistics can be found in the article: [New methodology for low pay estimates](#).

ASHE results for 2004 will be published for the first time on 28 October 2004 subject to quality assurance and these will include supplementary data collected to improve coverage. The 2004 results will also be published without this additional information so that results can be compared with those presented in this article. After that time datasets from 1997 back to 1992 incorporating the ASHE methodology will be released. Due to the lack of availability of the Labour Force Survey estimates needed to calculate the weights for ASHE, there are no plans to produce ASHE datasets earlier than 1992. Therefore NES will remain the best available source of earnings estimates for the period 1991 back to 1970.

To show the overall effect of the ASHE methodology, tables in the main body of this article compare results with no imputation or weighting against results with both imputation and weighting. This has been done for two key variables: average gross weekly earnings and average gross hourly earnings. Tables given in Appendix A contain more detail for other variables, including estimates of medians. A more comprehensive set of results can be found here: [Annual Survey of Hours and Earnings](#). For the ASHE the median is ONS's preferred estimate for earnings data as it is more robust against extreme values. However, as past NES results have in the main been presented as means, this article concentrates on comparisons between means. It should be noted that the results presented in this article for the no imputation or weighting dataset differ slightly from published NES results. While the two are based on the same dataset, some small changes have been made to the version used in this article in order to improve the consistency of key variables (such as age and hours worked) and to correct some erroneous data.

The 2004 ASHE survey represents the first stage in the modernisation of annual earnings statistics. The NES questionnaire was poorly designed and allowed too much latitude for contributors to interpret the response requirement in their own way, which increases the variability of the data. Work is therefore being carried out to redesign the survey questionnaire using the best practice in questionnaire design. The new questionnaire improves the layout, routing, wording and definitions used. These improvements will lead to more consistent responses improving the quality of the data collected. The questionnaire is also easier to understand and to navigate and so should reduce the time taken by users to complete. ONS aims to introduce the new questionnaire for the 2005 survey, subject to the outcome of field-testing.

Whilst the core data collected by the new questionnaire will be essentially the same, questions have been added to collect new information in key policy areas (for example pensions). However, changes to wording and definitions mean that some of the information requested from respondents will differ from that supplied in previous surveys. For some variables this could lead to an inconsistency between the results for 2004 and 2005. A pilot study of the new questionnaire was completed in 2004 and the results from this study will be used to provide information on the type and extent of any discontinuity.

Summary of the impact of imputation on the main results

One of the main improvements in the ASHE methodology is the introduction of estimation for individual missing items. For NES, only the estimation of missing questionnaires for people earning over £2,000 per week is done. The ASHE imputes for item non-response for the key variables of basic pay/hours, overtime pay/hours and annual pay. For a record that has missing information for one of these key variables, a record is selected that closely matches it from the rest of the ASHE dataset and missing values are inserted from this matched record. This is known as donor imputation and is the recommended approach for dealing with this type of item non-response. In

order to keep the estimation process simple, imputation for missing items is needed by the weighting methodology so that a single weight can be calculated covering all of the key analysis variables. Without this imputation different weights would be needed, complicating the estimation of earnings and hours. This will also benefit users who calculate their own statistics from the data.

For full-time jobs donor imputation has a small effect on the results for weekly and annual earnings and hours worked, mainly increasing the values by under 0.3 per cent. This is because the characteristics of the non-responding record used for matching are similar to those of the donor set and therefore it is easier to find a close match.

For part-time jobs the sample size and corresponding donor set is much smaller. For this reason the imputed estimates are more variable than those for full-time jobs. The most noticeable effect is on estimates of weekly earnings of part-time males, due to the imputation of missing hours. During data checking, respondents who could not supply answers to the hours question were telephoned and asked to classify respondents as full or part-time workers. The earnings of such respondents were on average higher than the overall average. The new imputation methodology assigns these people to full/part time categories based on other information supplied on the questionnaire, rather than the respondent's interpretation of whether a job is full or part-time. This results in more consistent estimates. The effect of the improved imputation is to move a significant number of higher earners from a part-time classification in NES to full-time in ASHE, which reduces the level of part-time earnings for ASHE. The effect is particularly noticeable in 1998 and the revised part-time data is more in line with other years.

Summary of the impact of weighting on the main results

Estimates produced from the NES are not weighted. ASHE results are weighted to provide representative estimates of the population. The weights are calculated by calibration to the number of jobs estimated by the Labour Force Survey (LFS). The calibration is undertaken for 108 domains of the population based on respondent's age, sex, occupation and region of work place. The coverage of LFS differs to that of ASHE; in particular the ASHE sample excludes people not registered for PAYE, which leads to a variation in the weights calculated for ASHE. In addition ASHE response rates differ across the 108 domains as well as from year to year. For example, ASHE has a lower response rate for people with higher earnings. This causes further differences between ASHE counts and LFS estimates and hence variation in the calculated ASHE weights. For these reasons the weights for ASHE differ within and between years.

It should be noted that the LFS counts are themselves statistical estimates compiled using weights calculated from mid-year estimates of counts of the population based on the 2001 Census. Hence, LFS counts are subject to statistical variation, which causes a variation in the weights calculated for ASHE.

For gross weekly earnings, weighting increases all estimates. The reason for this is that the domains with lower response rates tend to have higher earnings. This means that larger weights are applied to responses with larger earnings, increasing the overall estimate. Males working in London and the South East in Standard Occupational Classification 2000 (SOC2000) major groups 1 to 3 tend to be under represented in ASHE when compared with the LFS and so receive larger weights but they also tend to have higher earnings.

Hence, for males the increase in estimates of earnings is more than the increase for females. In particular, this affects hourly pay excluding overtime, which is used in the calculation of the ONS' preferred measure of the gender pay gap. The estimate of hourly pay for males is increased more

than the estimate for females, which widens the estimate of the gap between male and female hourly pay. This increase is fairly consistent over time.

Estimates of the level of earnings for people working in London are increased more than estimates for other regions. This widens the estimate of the difference in pay between London and other regions of the UK.

The impact of imputation and weighting is now looked at in more detail in the following sections.

The aggregate impact of ASHE methodology on estimates of earnings

	Table 1 Employees' average pay ^a by gender and full-time/part-time work; United Kingdom									
	Average gross weekly earnings (£)					Average gross hourly earnings (£)				
	All	Men		Women		All	Men		Women	
		Full-time	Part-time	Full-time	Part-time		Full-time	Part-time	Full-time	Part-time
2003										
No imputation or weighting	393.6	523.0	163.6	395.2	150.0	11.42	12.76	8.83	10.56	7.78
Imputation and weighting	403.9	539.8	162.9	401.0	149.3	11.72	13.20	9.12	10.70	7.80
<i>Difference (per cent)</i>	2.6	3.2	-0.4	1.5	-0.5	2.7	3.5	3.3	1.3	0.3
2002										
No imputation or weighting	384.7	511.2	164.4	381.9	143.6	11.10	12.45	8.69	10.18	7.39
Imputation and weighting	391.5	523.3	160.9	386.8	142.3	11.35	12.82	8.79	10.32	7.40
<i>Difference (per cent)</i>	1.8	2.4	-2.1	1.3	-0.9	2.2	3.0	1.1	1.3	0.0
2001										
No imputation or weighting	368.9	488.1	142.9	365.6	135.2	10.60	11.85	7.61	9.74	7.01
Imputation and weighting	373.8	498.6	137.3	366.9	134.3	10.78	12.16	7.72	9.79	7.03
<i>Difference (per cent)</i>	1.3	2.2	-3.9	0.4	-0.7	1.7	2.6	1.4	0.5	0.3
2000										
No imputation or weighting	349.8	462.2	136.6	342.7	129.6	10.02	11.19	7.44	9.13	6.75
Imputation and weighting	354.5	471.7	133.3	344.7	129.9	10.22	11.50	7.53	9.22	6.81
<i>Difference (per cent)</i>	1.3	2.1	-2.4	0.6	0.3	2.0	2.8	1.2	1.0	0.8
1999										
No imputation or weighting	336.6	442.5	141.5	327.1	123.6	9.58	10.68	7.39	8.71	6.44
Imputation and weighting	340.9	453.4	137.7	331.0	124.1	9.79	11.03	7.48	8.83	6.48
<i>Difference (per cent)</i>	1.3	2.5	-2.7	1.2	0.4	2.1	3.3	1.2	1.5	0.6
1998										
No imputation or weighting	323.9	427.2	150.7	309.5	120.1	9.14	10.21	7.14	8.23	6.08
Imputation and weighting	328.6	438.3	129.8	315.0	117.7	9.38	10.58	7.16	8.40	6.17
<i>Difference (per cent)</i>	1.4	2.6	-13.9	1.8	-1.9	2.6	3.6	0.2	2.0	1.5

Source: Annual Survey of Hours and Earnings

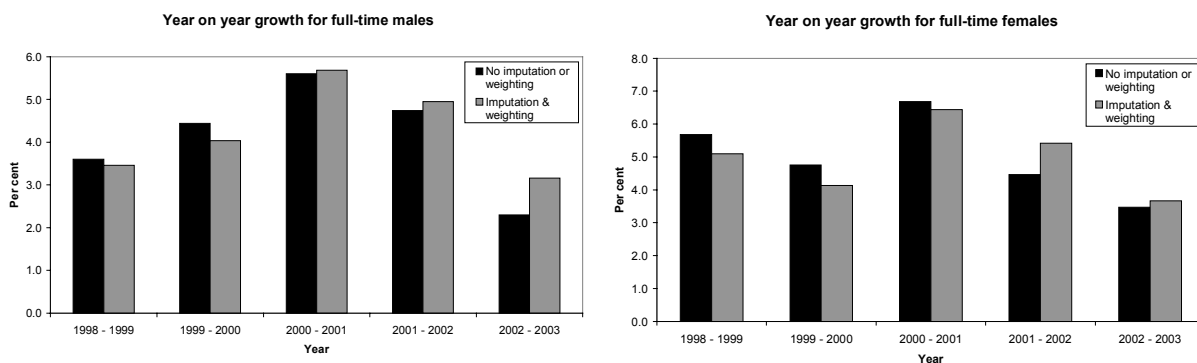
a Employees on adult rates, whose pay for the survey period was unaffected by absence

Imputation and weighting increase the estimates of gross weekly earnings for all employees for all years. While the impact is to increase estimates for full-time workers, it is greater for full-time males than for full-time females. The net effect of this is to widen the difference between estimates of earnings for males and females. ASHE has a higher non-response rate for higher earners, who tend to be males in the first three SOC2000 major groups: Managers, Professionals and Technicians. The Labour Force Survey has higher estimates of the number of jobs for the first three SOC2000 major groups than ASHE does. The weighting in ASHE compensates for this by assigning larger weights to responses in these occupation groups. However, because workers in these groups tend to earn more than other groups, weighting has a bigger effect on estimates of earnings. In addition, males tend to have higher earnings than females in these groups and so the larger weights also have a larger impact on estimates for males than for females.

Between 1998 and 2001 the impact of weighting on weekly earnings is fairly constant at around 1.3 per cent. However, the impact increases slightly in 2002 to 1.8 per cent and higher, at 2.6 per cent, in 2003. The reason, as noted above, is the different weights applied to different population domains. In 2002, the largest contribution to the increase caused by weighting comes from people in Occupation Group 1 and aged 22 to 49. For this group the LFS shows an increase, particularly for females, while ASHE changes little. The weight applied to this group therefore increases. The effect of this can be seen in Table 1 where the increase for full-time females changes from 0.4 per cent in 2001 to 1.3 per cent in 2002, while for males the figures are 2.2 and 2.4 respectively. In 2003 there is a similar effect, except that there is a larger increase in the estimate for the LFS. However this time it occurs more for males than for females while ASHE again changes little. This results in a much larger weight being applied to this group in 2003. As there are a large number of higher earners in this group, the impact of the weighting is to push up the estimates more than in previous years. The impact can be seen in Table 1 as the estimate for full-time males increases by 3.2 per cent in 2003 compared to 2.4 per cent in 2002, with a much smaller difference for full-time females; 1.5 and 1.3 for the same periods.

The impact of weighting, as noted above, changes the year on year growth rates for weekly earnings of full-time workers, as can be seen in Figure 1 and also in Table A2 in Appendix A. The increased impact in 2002 for females is shown in the growth rate for 2001-02 for females. Similarly the impact for males is seen in the growth rates for 2002-03 for males.

Figure 1 Year on year growth comparisons for males and females



The estimates of earnings for part-time jobs are lower after imputation and weighting, with the largest decrease occurring for part-time males. As noted earlier, this is partly due to imputation and particularly affects the estimates for 1998. In addition, as part-time jobs tend to be in lower paid occupations that also have higher response rates, and hence lower weights in ASHE, the impact of weighting decreases these estimates.

The impact of imputation and weighting is less on average total weekly hours worked estimates. Again the impact is larger for part-time rather than full-time workers for reasons noted earlier.

Earnings for men and women

Various methods can be used to measure the earnings of women relative to men. ONS prefers to use hourly earnings excluding overtime: including overtime can distort the picture as men work relatively more overtime than women. Although average hourly pay excluding overtime provides a useful comparison of men's and women's earnings, it does not reveal differences in rates of pay for comparable jobs. This is because such averages do not allow for the different employment

characteristics of men and women, such as the proportion in different occupations and their length of time in jobs. Past measures of the gender pay gap published by ONS have used average hourly earnings. The preferred measure for ASHE is the median and hence an alternative measure of the gender pay gap can be calculated using the median hourly earnings.

Table 2 Gender pay gap of employees^a: United Kingdom

	Average gross hourly earnings excluding overtime (£)				Ratio women/men		Year on year Change in the ratio	
	Men		Women		NES	ASHE	NES	ASHE
	NES	ASHE	NES	ASHE				
2003	12.88	13.29	10.56	10.70	82.0	80.5	1.0	0.6
2002	12.60	12.92	10.21	10.32	81.0	79.9	0.5	-0.1
2001	11.98	12.24	9.77	9.79	81.5	80.0	-0.4	0.2
2000	11.26	11.53	9.13	9.20	81.1	79.8	0.3	0.3
1999	10.78	11.10	8.71	8.83	80.8	79.5	0.8	0.7
1998	10.31	10.65	8.24	8.39	80.0	78.8		

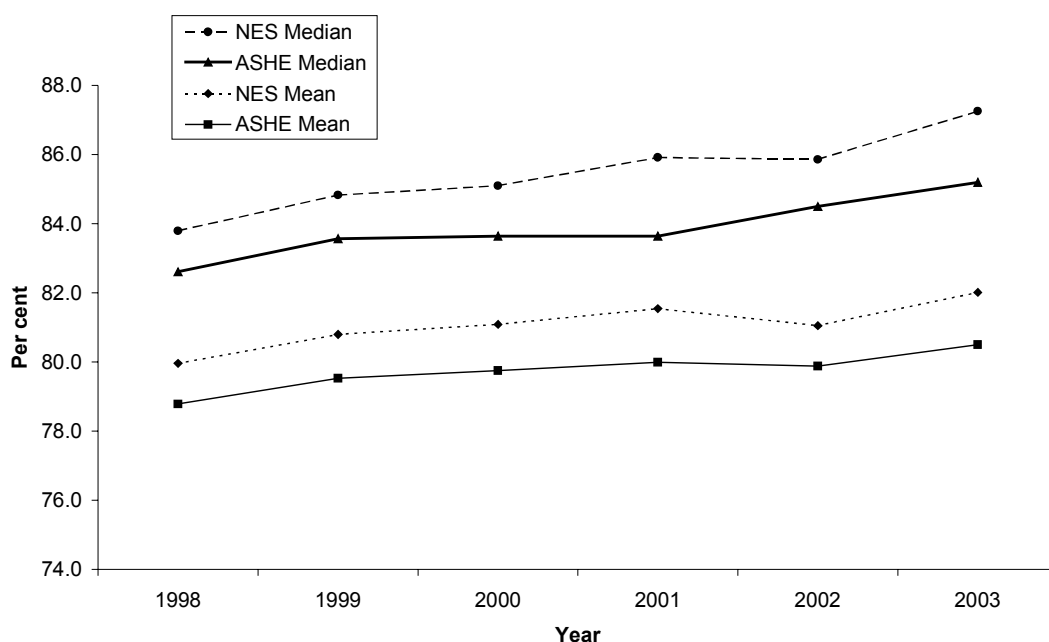
Sources: Annual Survey of Hours and Earnings
New Earnings Survey(NES)

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

As noted earlier, imputation and weighting affect the estimates of male and female pay differently, in particular increasing the earnings of full-time males more than for females. Table 2 shows that for 2003 the average hourly earnings excluding overtime for women from NES, at £10.56, were 82.0 per cent of those for men (£12.88) while for ASHE the figures are £10.70, £13.29 and 80.5 respectively. This is an increase in the estimate of the gender pay gap. Figure 2 below shows the variation in the gender pay difference since 1998.

Although the gender pay gap is larger under ASHE using average hourly earnings, it has narrowed over the last six years under both the old and new measures, by 2.0 per cent and 1.7 per cent respectively. As it was for NES, the gender pay gap is still at its narrowest for ASHE since the collection of earnings data began in 1970. The alternative measure using the median hourly earnings is shown for NES and ASHE in Figure 2.

Figure 2 Ratio of female to male hourly earnings, excluding overtime



Earnings by occupation

Table 3 below shows the impact by major occupation group. It should be noted that the occupational coding used for data coding changed in 2002. From 2002 to 2003 data are coded to the Standard Occupational Classification 2000 (SOC 2000) while data for 2001 and earlier were coded using the Standard Occupational Classification 1990 (SOC 1990). Hence, figures for 2001 and earlier should not be compared with figures for 2002 and 2003.

For 2002 and 2003 using SOC 2000 coding, weighting and imputation decrease estimates of weekly earnings for full-time employees for most occupations. The exceptions are the two groups Professional and Associate Professionals, where the impact increases weekly earnings. The impact for all occupations is much larger than for individual occupation groups. This is due to the larger weights given to the occupation groups Managers, Professionals and Technicians, which have higher weekly earnings.

Earnings by region

Table 4 below shows the impact by Government Office Region (GOR). For weekly earnings the impact of weighting increases earnings in a consistent way across regions. The exception is London, particularly for 2002 and 2003 and the South East in 2003. The reason for this was noted earlier: there is an increase in the weights for 2002 and 2003 for Occupation Group 1 caused by a higher estimate of jobs in the LFS compared to ASHE. London and the South East have higher concentrations of Occupation 1 jobs and also have higher earnings than other parts of the country. Hence, weighting has a larger impact on estimates for these areas.

Table 3 Employees' average gross weekly and hourly pay^a in April 1998 to 2003 by occupational group; United Kingdom

		Managers and senior officials	Professional	Associate professional and technical	Administrative and secretarial	Skilled trades	Personal service	Sales and customer service	Process, plant and machine operatives	Elementary	All occupations
SOC 2000											
2003											
Weekly	No imputation or weighting	745.3	649.2	527.1	337.6	411.0	282.0	288.0	371.7	306.5	474.2
	Imputation and weighting	738.1	653.1	530.6	335.7	410.1	280.8	282.5	370.8	300.4	487.6
	<i>Difference (per cent)</i>	-1.0	0.6	0.7	-0.6	-0.2	-0.4	-1.9	-0.3	-2.0	2.8
Hourly	No imputation or weighting	19.15	18.03	13.65	9.01	9.65	7.22	7.44	8.32	7.20	11.97
	Imputation and weighting	18.91	17.98	13.76	8.95	9.61	7.16	7.27	8.28	7.06	12.31
	<i>Difference (per cent)</i>	-1.3	-0.3	0.8	-0.6	-0.4	-0.9	-2.2	-0.4	-1.9	2.9
2002											
Weekly	No imputation or weighting	729.2	635.7	515.6	323.5	396.1	273.4	291.8	356.2	293.5	462.4
	Imputation and weighting	723.7	636.8	517.6	321.9	393.8	270.0	286.5	356.8	286.1	472.1
	<i>Difference (per cent)</i>	-0.8	0.2	0.4	-0.5	-0.6	-1.2	-1.8	0.2	-2.5	2.1
Hourly	No imputation or weighting	18.72	17.60	13.36	8.64	9.29	7.01	7.44	7.99	6.88	11.64
	Imputation and weighting	18.62	17.61	13.46	8.57	9.24	6.93	7.32	8.01	6.73	11.93
	<i>Difference (per cent)</i>	-0.5	0.1	0.7	-0.8	-0.5	-1.1	-1.6	0.3	-2.2	2.5
SOC 1990											
2001											
Weekly	No imputation or weighting	667.9	601.5	505.5	296.3	384.1	320.0	316.7	342.6	291.3	442.3
	Imputation and weighting	673.5	602.1	506.8	295.9	385.0	319.0	317.5	342.3	285.3	449.7
	<i>Difference (per cent)</i>	0.8	0.1	0.3	-0.1	0.2	-0.3	0.3	-0.1	-2.1	1.7
Hourly	No imputation or weighting	17.24	16.80	13.24	7.75	8.94	7.89	8.13	7.69	6.76	11.11
	Imputation and weighting	17.36	16.79	13.27	7.73	8.95	7.88	8.16	7.69	6.64	11.33
	<i>Difference (per cent)</i>	0.7	-0.1	0.3	-0.3	0.2	-0.1	0.3	0.0	-1.8	1.9
2000											
Weekly	No imputation or weighting	630.9	566.0	480.7	282.9	367.9	310.0	305.6	329.4	278.1	418.1
	Imputation and weighting	633.8	566.9	479.6	282.5	368.7	307.6	303.6	329.6	273.5	425.1
	<i>Difference (per cent)</i>	0.5	0.2	-0.2	-0.1	0.2	-0.8	-0.7	0.1	-1.7	1.7
Hourly	No imputation or weighting	16.24	15.88	12.57	7.41	8.53	7.71	7.85	7.39	6.37	10.48
	Imputation and weighting	16.32	15.84	12.62	7.40	8.55	7.68	7.81	7.40	6.30	10.71
	<i>Difference (per cent)</i>	0.5	-0.2	0.4	-0.2	0.2	-0.4	-0.5	0.2	-1.2	2.2
1999											
Weekly	No imputation or weighting	597.6	542.6	467.3	275.1	355.9	299.7	301.8	318.6	271.1	400.1
	Imputation and weighting	598.7	543.2	463.5	274.2	357.8	296.7	302.0	318.6	267.5	407.8
	<i>Difference (per cent)</i>	0.2	0.1	-0.8	-0.3	0.5	-1.0	0.1	0.0	-1.3	1.9
Hourly	No imputation or weighting	15.38	15.23	12.20	7.19	8.23	7.42	7.75	7.15	6.19	10.00
	Imputation and weighting	15.40	15.22	12.15	7.16	8.27	7.38	7.71	7.17	6.13	10.26
	<i>Difference (per cent)</i>	0.1	-0.1	-0.4	-0.4	0.4	-0.5	-0.5	0.2	-1.0	2.6
1998											
Weekly	No imputation or weighting	569.9	523.1	456.5	266.9	347.7	287.6	289.5	313.9	260.6	384.4
	Imputation and weighting	569.0	526.1	449.3	265.8	350.4	283.6	289.2	314.2	256.3	392.5
	<i>Difference (per cent)</i>	-0.2	0.6	-1.6	-0.4	0.8	-1.4	-0.1	0.1	-1.6	2.1
Hourly	No imputation or weighting	14.62	14.70	11.81	6.96	7.95	7.04	7.42	6.96	5.94	9.54
	Imputation and weighting	14.59	14.69	11.75	6.92	8.00	7.01	7.39	6.98	5.86	9.82
	<i>Difference (per cent)</i>	-0.2	0.0	-0.5	-0.5	0.6	-0.4	-0.4	0.3	-1.3	2.9

Source: Annual Survey of Hours and Earnings

^a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

Table 4 Employees' average gross weekly and hourly pay^a in April 1998 to 2003 by government office region and country; United Kingdom

		North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom
2003														
Weekly	No imputation or weighting	402.0	437.7	426.5	429.1	435.7	440.3	476.8	638.1	505.8	414.7	436.9	404.2	474.3
	Imputation and weighting	408.4	446.8	436.1	438.1	445.3	450.2	487.8	663.0	520.7	422.6	446.1	411.8	487.6
	<i>Difference (per cent)</i>	1.6	2.1	2.2	2.1	2.2	2.3	2.3	3.9	2.9	1.9	2.1	1.9	2.8
Hourly	No imputation or weighting	10.22	11.00	10.67	10.68	10.95	11.09	11.89	16.48	12.73	10.48	11.03	10.27	11.97
	Imputation and weighting	10.36	11.31	10.91	10.88	11.19	11.35	12.14	17.11	13.14	10.67	11.25	10.46	12.31
	<i>Difference (per cent)</i>	1.4	2.8	2.3	1.9	2.2	2.3	2.1	3.8	3.2	1.8	2.0	1.8	2.8
2002														
Weekly	No imputation or weighting	394.4	426.8	410.3	414.3	427.3	422.4	457.1	624.0	498.6	399.5	427.0	390.1	462.3
	Imputation and weighting	400.7	434.4	416.8	420.1	433.9	429.2	464.0	641.3	507.5	405.2	434.6	396.8	472.1
	<i>Difference (per cent)</i>	1.6	1.8	1.6	1.4	1.5	1.6	1.5	2.8	1.8	1.4	1.8	1.7	2.1
Hourly	No imputation or weighting	9.97	10.75	10.20	10.25	10.68	10.63	11.39	16.11	12.53	10.10	10.66	9.85	11.64
	Imputation and weighting	10.14	11.01	10.41	10.44	10.92	10.83	11.61	16.59	12.77	10.27	11.01	10.02	11.93
	<i>Difference (per cent)</i>	1.7	2.4	2.1	1.8	2.2	1.8	1.9	3.0	2.0	1.7	3.2	1.7	2.5
2001														
Weekly	No imputation or weighting	379.8	408.1	391.7	393.5	418.6	408.6	438.3	595.7	472.6	381.7	404.9	375.0	442.3
	Imputation and weighting	384.0	414.3	396.5	398.2	424.0	413.4	444.1	606.6	477.2	385.8	411.1	381.5	449.7
	<i>Difference (per cent)</i>	1.1	1.5	1.2	1.2	1.3	1.2	1.3	1.8	1.0	1.1	1.5	1.7	1.7
Hourly	No imputation or weighting	9.56	10.25	9.79	9.73	10.49	10.22	10.88	15.31	11.86	9.59	10.11	9.42	11.11
	Imputation and weighting	9.65	10.44	9.93	9.87	10.65	10.36	11.06	15.59	11.98	9.71	10.43	9.60	11.33
	<i>Difference (per cent)</i>	1.0	1.9	1.4	1.4	1.5	1.3	1.7	1.9	1.0	1.2	3.2	1.9	1.9
2000														
Weekly	No imputation or weighting	367.9	389.0	374.9	374.4	387.2	380.6	416.1	561.6	443.2	368.4	383.0	360.4	418.1
	Imputation and weighting	372.5	394.6	380.4	379.2	392.8	385.0	421.7	571.5	448.3	372.8	388.6	367.6	425.1
	<i>Difference (per cent)</i>	1.2	1.5	1.5	1.3	1.4	1.2	1.3	1.8	1.1	1.2	1.5	2.0	1.7
Hourly	No imputation or weighting	9.22	9.75	9.31	9.25	9.68	9.55	10.31	14.32	11.13	9.22	9.56	9.04	10.48
	Imputation and weighting	9.36	9.94	9.49	9.41	9.87	9.69	10.50	14.70	11.29	9.37	9.85	9.24	10.71
	<i>Difference (per cent)</i>	1.5	2.0	1.9	1.7	2.0	1.4	1.9	2.7	1.4	1.6	3.1	2.2	2.2
1999														
Weekly	No imputation or weighting	349.8	373.7	360.6	362.4	375.8	365.5	397.3	524.8	423.6	354.0	370.1	344.9	400.1
	Imputation and weighting	355.7	379.9	366.6	368.0	382.6	371.6	403.5	536.5	430.0	358.7	377.0	352.4	407.8
	<i>Difference (per cent)</i>	1.7	1.7	1.7	1.5	1.8	1.7	1.6	2.2	1.5	1.3	1.9	2.2	1.9
Hourly	No imputation or weighting	8.80	9.35	8.94	8.91	9.33	9.14	9.82	13.41	10.58	8.83	9.21	8.67	10.00
	Imputation and weighting	8.96	9.55	9.17	9.09	9.57	9.32	10.05	13.80	10.79	8.98	9.54	8.89	10.26
	<i>Difference (per cent)</i>	1.9	2.2	2.5	2.0	2.6	2.0	2.3	2.9	1.9	1.7	3.6	2.5	2.6
1998														
Weekly	No imputation or weighting	338.8	363.3	345.1	350.3	359.8	354.6	380.3	504.4	406.3	343.1	350.0	332.6	384.4
	Imputation and weighting	345.5	370.4	352.1	356.6	367.0	361.4	387.1	515.7	413.3	348.5	360.2	339.8	392.5
	<i>Difference (per cent)</i>	2.0	2.0	2.0	1.8	2.0	1.9	1.8	2.2	1.7	1.6	2.9	2.2	2.1
Hourly	No imputation or weighting	8.42	9.00	8.53	8.48	8.86	8.81	9.35	12.79	10.09	8.46	8.74	8.33	9.54
	Imputation and weighting	8.64	9.25	8.75	8.73	9.12	9.05	9.60	13.20	10.33	8.63	9.06	8.54	9.82
	<i>Difference (per cent)</i>	2.5	2.8	2.6	2.9	2.9	2.6	2.8	3.3	2.4	2.0	3.7	2.5	2.9

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

Earnings by age

Table 5 Employees' average pay^a in April 1998 to 2003 by age; United Kingdom

	Average gross weekly earnings (£)					Average gross hourly earnings (£)				
	18	22	30	40	50	18	22	30	40	50
	-21	-29	-39	-49	+	-21	-29	-39	-49	+
2003										
No imputation or weighting	250.4	386.5	503.2	523.1	481.6	6.35	9.84	12.67	13.20	12.11
Imputation and weighting	251.9	397.4	522.7	544.9	490.1	6.33	10.14	13.17	13.76	12.32
<i>Difference (%)</i>	0.6	2.8	3.9	4.2	1.8	-0.3	3.1	4.0	4.2	1.8
2002										
No imputation or weighting	245.4	381.3	492.3	507.9	470.0	6.21	9.67	12.35	12.84	11.76
Imputation and weighting	247.7	390.8	507.5	523.6	477.2	6.20	9.95	12.78	13.27	12.03
<i>Difference (%)</i>	0.9	2.5	3.1	3.1	1.5	-0.1	2.9	3.5	3.4	2.3
2001										
No imputation or weighting	238.1	365.9	471.8	486.3	449.7	5.99	9.25	11.81	12.26	11.24
Imputation and weighting	239.4	373.6	483.5	498.7	457.4	6.00	9.49	12.12	12.61	11.47
<i>Difference (%)</i>	0.5	2.1	2.5	2.6	1.7	0.1	2.5	2.6	2.9	2.1
2000										
No imputation or weighting	223.7	342.3	442.1	463.0	429.1	5.63	8.64	11.02	11.67	10.69
Imputation and weighting	225.7	349.8	453.9	475.9	435.8	5.67	8.87	11.36	12.07	10.95
<i>Difference (%)</i>	0.9	2.2	2.7	2.8	1.6	0.7	2.6	3.0	3.4	2.4
1999										
No imputation or weighting	220.2	328.3	424.7	442.6	412.8	5.50	8.26	10.57	11.15	10.24
Imputation and weighting	223.6	335.2	436.1	454.7	422.7	5.57	8.46	10.91	11.54	10.59
<i>Difference (%)</i>	1.5	2.1	2.7	2.7	2.4	1.3	2.4	3.2	3.5	3.4
1998										
No imputation or weighting	209.4	313.2	409.8	426.4	398.6	5.22	7.83	10.13	10.65	9.80
Imputation and weighting	211.8	320.2	422.2	440.5	408.0	5.26	8.04	10.50	11.11	10.17
<i>Difference (%)</i>	1.2	2.2	3.0	3.3	2.4	0.8	2.7	3.7	4.3	3.7

Source: Annual Survey of Hours and Earnings

^a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

The impact of weighting on weekly earnings of full-time employees increases with age, with the largest increase in the 40-49 age group. This is again due to the larger weights given to higher earners and earnings tend to increase with age.

Earnings by industry

In each year for 2001 to 2003 weighting increases the estimates of weekly earnings for all industries except Fishing, see Table 6 below. As expected, the largest impact occurs in the three industries that have the highest average weekly earnings: Financial intermediation, Mining and quarrying, Real estate, renting and business activities. There is also a larger impact on earnings in the Public administration and defence industries. The impact of weighting has a negative effect on the Hotels and restaurants and Fishing industries for certain years, due to the large number of lower earners in these industries.

Table 6 Employees' average gross weekly and hourly pay^a in April by industrial sector; United Kingdom

Industry sector (SIC ^b 2003)	Average gross weekly earnings (£)			Average gross hourly earnings (£)		
	No	Imputation	Difference	No	Imputation	Difference
	imputation or weighting	and weighting		imputation or weighting	and weighting	
		(per cent)			(per cent)	
2003						
Agriculture, hunting and forestry	333.6	340.1	1.9	7.37	7.57	2.7
Fishing	399.4	392.6	-1.7	9.21	9.04	-1.8
Mining and quarrying	634.3	656.8	3.5	13.85	14.47	4.5
Manufacturing	466.4	477.0	2.3	11.37	11.62	2.3
Electricity, gas and water supply	526.6	542.4	3.0	13.41	13.75	2.6
Construction	480.1	487.7	1.6	10.98	11.18	1.8
Wholesale and retail trade; repair of motor vehicles, motor cycles and personal and household goods	404.9	416.6	2.9	9.97	10.27	3.0
Hotels and restaurants	307.1	310.7	1.2	7.48	7.63	1.9
Transport, storage and communication	459.8	473.4	3.0	10.66	10.98	3.1
Financial intermediation	628.6	662.4	5.4	17.43	18.34	5.3
Real estate, renting and business activities	545.9	568.5	4.1	13.87	14.42	3.9
Public administration and defence; compulsory social security	450.8	468.5	3.9	11.72	12.16	3.8
Education	475.7	481.9	1.3	13.29	13.49	1.5
Health and social work	438.9	445.6	1.5	11.36	11.53	1.5
Other community, social and personal service activities	487.3	498.1	2.2	12.24	12.57	2.7
All industries and services	474.2	487.6	2.8	11.97	12.31	2.9
2002						
Agriculture, hunting and forestry	333.4	336.1	0.8	7.28	7.52	3.3
Fishing	356.3	350.7	-1.6	8.18	8.08	-1.2
Mining and quarrying	574.2	591.7	3.0	13.05	13.68	4.9
Manufacturing	448.8	455.6	1.5	10.91	11.12	1.9
Electricity, gas and water supply	530.7	543.0	2.3	13.33	13.61	2.1
Construction	460.3	466.4	1.3	10.55	10.75	1.9
Wholesale and retail trade; repair of motor vehicles, motor cycles and personal and household goods	396.2	403.6	1.9	9.72	9.95	2.4
Hotels and restaurants	296.9	295.9	-0.3	7.23	7.27	0.5
Transport, storage and communication	452.6	462.3	2.2	10.54	10.83	2.7
Financial intermediation	635.4	671.0	5.6	17.51	18.49	5.6
Real estate, renting and business activities	547.3	564.4	3.1	13.83	14.36	3.8
Public administration and defence; compulsory social security	439.1	456.7	4.0	11.57	11.87	2.6
Education	456.3	459.6	0.7	12.80	12.94	1.1
Health and social work	423.4	427.7	1.0	10.82	11.10	2.5
Other community, social and personal service activities	457.4	468.4	2.4	11.22	11.82	5.3
All industries and services	462.5	472.2	2.1	11.65	11.94	2.5
2001						
Agriculture, hunting and forestry	301.4	302.6	0.4	6.79	6.92	1.9
Fishing	395.4	397.7	0.6	8.68	8.76	1.0
Mining and quarrying	563.2	581.1	3.2	12.74	13.21	3.6
Manufacturing	434.1	439.9	1.3	10.50	10.66	1.5
Electricity, gas and water supply	519.6	532.1	2.4	13.04	13.33	2.3
Construction	439.8	445.6	1.3	9.95	10.10	1.6
Wholesale and retail trade; repair of motor vehicles, motor cycles and personal and household goods	380.7	386.8	1.6	9.39	9.55	1.7
Hotels and restaurants	287.3	283.1	-1.5	7.06	6.97	-1.2
Transport, storage and communication	437.0	443.0	1.4	10.10	10.30	2.0
Financial intermediation	601.5	628.8	4.5	16.52	17.27	4.5
Real estate, renting and business activities	519.3	533.1	2.7	13.17	13.53	2.7
Public administration and defence; compulsory social security	423.0	437.9	3.5	11.13	11.42	2.6
Education	436.2	438.8	0.6	12.28	12.43	1.2
Health and social work	405.9	407.7	0.4	10.37	10.56	1.8
Other community, social and personal service activities	417.8	424.0	1.5	10.37	10.61	2.3
All industries and services	442.3	449.8	1.7	11.12	11.33	1.9

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence.

b Industries are coded according to the Standard Industrial Classification 2003.

Earnings by public and private sectors

Table 7	Employees' average pay ^a in April 1998 to 2003 by public versus private sector; United Kingdom			
	Average gross weekly earnings (£)		Average gross hourly earnings (£)	
	Public sector	Private sector	Public sector	Private sector
2003				
No imputation or weighting	465.2	478.1	12.37	11.80
Imputation and weighting	477.1	493.1	12.70	12.17
<i>Difference (per cent)</i>	2.6	3.1	2.7	3.1
2002				
No imputation or weighting	448.9	466.9	12.02	11.51
Imputation and weighting	457.8	479.1	12.26	11.83
<i>Difference (per cent)</i>	2.0	2.6	2.0	2.8
2001				
No imputation or weighting	431.3	446.7	11.49	10.99
Imputation and weighting	438.1	455.1	11.70	11.21
<i>Difference (per cent)</i>	1.6	1.9	1.8	2.0
2000				
No imputation or weighting	409.3	420.1	10.91	10.32
Imputation and weighting	417.4	428.7	11.09	10.46
<i>Difference (per cent)</i>	2.0	2.0	1.7	1.4
1999				
No imputation or weighting	394.6	401.5	10.50	9.82
Imputation and weighting	402.9	410.2	10.77	10.07
<i>Difference (per cent)</i>	2.1	2.2	2.6	2.5
1998				
No imputation or weighting	379.1	385.8	10.06	9.36
Imputation and weighting	387.6	395.2	10.34	9.64
<i>Difference (per cent)</i>	2.2	2.4	2.8	2.9

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

The impact of weighting on estimates for the public and private sectors is fairly consistent over time. Weighting impacts on the private sector more than the public, increasing the estimate of weekly earnings in 2003 by 3.1 per cent compared to a 2.6 per cent increase for the public sector. This is consistent with results presented elsewhere in this article and is due to there being more high earners in the private sector.

The impact on estimates of low pay

Analyses showing the number of jobs paid below the national minimum wage, with breakdowns by sex, minimum wage age band, part-time/full-time work, industry, occupation and region have been produced until 2003 using the NES and the Labour Force Survey. From 2004, the creation of the new ASHE survey will affect the methodology for producing the low pay estimates.

An article summarising the new low pay methodology can be found here: [New methodology for low pay estimates](#). The article includes the historical series of the low pay estimates on the new basis back to 1998.

Comparisons with the Average Earnings Index

Table 8 AEI, ASHE^a and NES^a annual growth^b rates for average weekly pay^c; United Kingdom

	All			Public			Private		
	AEI	ASHE	NES	AEI	ASHE	NES	AEI	ASHE	NES
2002 - 2003	3.4	4.0	3.0	5.4	5.6	5.1	2.9	3.4	2.1
2001 - 2002	4.0	4.6	3.7	3.4	4.0	3.7	4.2	4.9	3.8
2000 - 2001	5.4	5.4	5.2	6.2	4.7	5.1	5.2	5.8	5.4

Sources: Annual Survey of Hours and Earnings (ASHE), New Earnings Survey (NES)
Average Earnings Index (AEI)

a All employees, including those not on adult rates and with loss of pay for the survey reference period.

b Growth is the April to April, year on year percentage increase.

c Average weekly pay excluding bonuses.

Figures before 2000 are not comparable between surveys due to definition changes for the AEI.

Each month ONS also collects information on earnings from the monthly survey used to construct the Average Earnings Index (AEI). This survey asks 8,300 employers to provide information about total pay and numbers of employees. The AEI itself is used to provide an estimate of the monthly growth in earnings per head, and is not used to produce estimates of levels of pay. The monthly survey does not ask detailed questions about, for example, the sex and occupations of their staff. It is therefore not possible to make detailed comparisons of growth in earnings between the AEI and the ASHE. Further, because the definition used to estimate the average gross weekly pay for the ASHE includes elements of bonus/incentive pay that relate to the ASHE survey period but which were paid outside of that period, it is not possible to compare growth in gross earnings between the two surveys.

The closest measure that can be derived from both surveys is for gross pay excluding bonus payments and the figures are given in Table 8 above. The ASHE results correspond well to the AEI growth rates, except for the public sector in 2000-01 where ASHE underestimates the growth compared to the AEI. A similar result occurs for NES.

2004 results

The ASHE results to be published subject to quality assurance on 28 October for April 2004 will be provided on the new basis and, to allow comparison with the results of previous years, will also be given without the additional samples being drawn this year. On 28 October, subject to quality assurance, ONS will also release final revised estimates for 2003, which will include late returned data and corrections to errors that are not yet available for inclusion in the 2003 results presented in this article. ONS will not revise the data for 2002 and earlier at that time.

Further information

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Appendix A: Tables of average earnings and hours worked

Table A1	Average gross annual earnings and growth in April 1999 to 2003 by gender and full-time/part-time work for all employees; United Kingdom
Table A2	Average gross weekly earnings and growth in April 1998 to 2003 by gender and full-time/part-time work for all employees; United Kingdom
Table A3	Average gross hourly earnings and growth in April 1998 to 2003 by gender and full-time/part-time work for all employees; United Kingdom
Table A4	Average total weekly hours and growth in April 1998 to 2003 by gender and full-time/part-time work for all employees; United Kingdom
Table A5	Average gross annual earnings and growth in April 1999 to 2003 by industry sector for full-time employees; United Kingdom
Table A6	Average gross weekly pay and growth in April 1998 to 2003 by industry sector for full-time employees; United Kingdom
Table A7	Average gross hourly pay and growth in April 1998 to 2003 by industry sector for full-time employees; United Kingdom
Table A8	Average total weekly hours and growth in April 1998 to 2003 by industry sector for full-time employees; United Kingdom
Table A9	Average gross annual earnings and growth in April 1999 to 2003 by occupational group for full-time employees; United Kingdom
Table A10	Average gross weekly pay and growth in April 1998 to 2003 by occupational group for full-time employees; United Kingdom
Table A11	Average gross hourly pay and growth in April 1998 to 2003 by occupational group for full-time employees; United Kingdom
Table A12	Average total weekly hours and growth in April 1998 to 2003 by occupational group for full-time employees; United Kingdom
Table A13	Average gross annual earnings and growth in April 1999 to 2003 by government office region and country for full-time employees; United Kingdom
Table A14	Average gross weekly pay and growth in April 1998 to 2003 by government office region and country for full-time employees; United Kingdom
Table A15	Average gross hourly pay and growth in April 1998 to 2003 by government office region and country for full-time employees; United Kingdom
Table A16	Average total weekly hours and growth in April 1998 to 2003 by government office region and country for full-time employees; United Kingdom
Table A17	Average gross annual earnings and growth in April 1999 to 2003 by age for full-time employees; United Kingdom
Table A18	Average gross weekly pay and growth in April 1998 to 2003 by age for full-time employees; United Kingdom
Table A19	Average gross hourly pay and growth in April 1998 to 2003 by age for full-time employees; United Kingdom
Table A20	Average total weekly hours and growth in April 1998 to 2003 by age for full-time employees; United Kingdom
Table A21	Average pay and growth, and hours in April 1998 to 2003 by public versus private sector for full-time employees; United Kingdom

Table A1 Average gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by gender and full-time/part-time work for all employees^c; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2003									
No imputation or weighting	27,925	20,239	25,056	9,244	7,641	7,915	26,346	14,827	20,717
Imputation only	27,945	20,291	25,094	9,382	7,679	7,973	26,341	14,824	20,708
<i>Difference (per cent)</i>	0.1	0.3	0.2	1.5	0.5	0.7	0.0	0.0	0.0
Imputation and weighting	28,893	20,609	25,859	9,524	7,697	8,016	27,243	15,027	21,351
<i>Total Difference (per cent)</i>	3.5	1.8	3.2	3.0	0.7	1.3	3.4	1.3	3.1
<i>Growth with no imputation or weighting (per cent)</i>	3.0	3.4	3.1	0.0	2.5	2.1	2.6	2.8	2.6
<i>Growth with imputation and weighting (per cent)</i>	3.8	3.5	3.8	1.3	3.6	3.5	3.3	3.5	3.6
2002									
No imputation or weighting	27,119	19,569	24,305	9,242	7,458	7,753	25,687	14,420	20,196
Imputation only	27,129	19,635	24,347	9,288	7,483	7,780	25,691	14,418	20,196
<i>Difference (per cent)</i>	0.0	0.3	0.2	0.5	0.3	0.4	0.0	0.0	0.0
Imputation and weighting	27,829	19,911	24,911	9,404	7,427	7,746	26,376	14,518	20,610
<i>Total Difference (per cent)</i>	2.6	1.7	2.5	1.7	-0.4	-0.1	2.7	0.7	2.0
<i>Growth with no imputation or weighting (per cent)</i>	3.7	4.5	3.8	11.4	7.2	8.1	3.5	4.9	3.7
<i>Growth with imputation and weighting (per cent)</i>	3.7	5.6	4.1	13.1	6.2	7.6	3.5	5.5	4.0
2001									
No imputation or weighting	26,158	18,733	23,426	8,293	6,960	7,171	24,830	13,747	19,476
Imputation only	26,162	18,752	23,444	8,303	7,011	7,214	24,835	13,749	19,480
<i>Difference (per cent)</i>	0.0	0.1	0.1	0.1	0.7	0.6	0.0	0.0	0.0
Imputation and weighting	26,841	18,847	23,925	8,311	6,991	7,197	25,474	13,757	19,822
<i>Total Difference (per cent)</i>	2.6	0.6	2.1	0.2	0.5	0.4	2.6	0.1	1.8
<i>Growth with no imputation or weighting (per cent)</i>	4.7	5.6	4.9	9.3	3.4	4.4	4.7	5.0	4.6
<i>Growth with imputation and weighting (per cent)</i>	4.9	5.3	4.9	8.8	2.8	3.8	5.0	4.6	4.7

Table A1 Average gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by gender and full-time/part-time work for all employees^c; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2000									
No imputation or weighting	24,983	17,733	22,337	7,588	6,729	6,866	23,705	13,092	18,617
Imputation only	24,978	17,730	22,339	7,743	6,792	6,943	23,708	13,092	18,619
<i>Difference (per cent)</i>	0.0	0.0	0.0	2.0	0.9	1.1	0.0	0.0	0.0
Imputation and weighting	25,594	17,890	22,801	7,638	6,800	6,933	24,261	13,151	18,939
<i>Total Difference (per cent)</i>	2.4	0.9	2.1	0.7	1.0	1.0	2.3	0.5	1.7
<i>Growth with no imputation or weighting (per cent)</i>	7.0	7.7	7.1	-2.6	9.2	6.8	6.7	7.6	6.7
<i>Growth with imputation and weighting (per cent)</i>	6.7	7.2	7.0	-0.8	9.7	7.7	6.5	7.4	7.0
1999									
No imputation or weighting	23,354	16,468	20,858	7,795	6,164	6,426	22,226	12,169	17,449
Imputation only	23,360	16,481	20,872	7,775	6,191	6,446	22,228	12,166	17,448
<i>Difference (per cent)</i>	0.0	0.1	0.1	-0.2	0.5	0.3	0.0	0.0	0.0
Imputation and weighting	23,997	16,692	21,314	7,702	6,200	6,437	22,790	12,246	17,702
<i>Total Difference (per cent)</i>	2.8	1.4	2.2	-1.2	0.6	0.2	2.5	0.6	1.4
<i>Growth with no imputation or weighting (per cent)</i>									
<i>Growth with imputation and weighting (per cent)</i>									

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

Table A2 Average gross weekly earnings^a and growth^b in April 1998 to 2003 by gender and full-time/part-time work for all employees^c; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2003									
No imputation or weighting	523.0	395.2	474.2	164.0	150.0	152.0	491.0	293.0	394.0
Imputation only	523.5	395.4	474.5	162.0	150.0	152.0	491.0	292.0	393.0
<i>Difference (per cent)</i>	0.1	0.1	0.1	-1.2	-0.3	-0.4	0.1	-0.2	-0.1
Imputation and weighting	540.0	401.0	488.0	163.0	149.0	152.0	507.0	295.0	404.0
<i>Total Difference (per cent)</i>	3.2	1.5	2.8	-0.4	-0.5	-0.4	3.2	0.9	2.6
<i>Growth with no imputation or weighting (per cent)</i>	2.3	3.5	2.5	-0.5	4.5	3.5	2.0	3.6	2.3
<i>Growth with imputation and weighting (per cent)</i>	3.2	3.7	3.3	1.3	4.9	4.3	2.7	4.0	3.2
2002									
No imputation or weighting	511.0	382.0	462.0	164.0	144.0	147.0	481.0	283.0	385.0
Imputation only	511.0	382.0	462.0	161.0	144.0	147.0	482.0	283.0	385.0
<i>Difference (per cent)</i>	-0.1	0.1	0.0	-1.9	0.3	-0.2	0.1	0.1	0.1
Imputation and weighting	523.0	387.0	472.0	161.0	142.0	145.0	493.0	284.0	391.0
<i>Total Difference (per cent)</i>	2.4	1.3	2.1	-2.1	-0.9	-1.2	2.5	0.5	1.8
<i>Growth with no imputation or weighting (per cent)</i>	4.7	4.5	4.6	15.0	6.2	7.8	4.6	4.4	4.3
<i>Growth with imputation and weighting (per cent)</i>	5.0	5.4	5.0	17.2	6.0	7.9	5.0	5.1	4.7
2001									
No imputation or weighting	488.0	366.0	442.0	143.0	135.0	137.0	460.0	271.0	369.0
Imputation only	488.0	366.0	442.0	139.0	135.0	136.0	461.0	271.0	369.0
<i>Difference (per cent)</i>	-0.1	0.0	0.0	-2.4	0.2	-0.3	0.1	0.1	0.1
Imputation and weighting	499.0	367.0	450.0	137.0	134.0	135.0	470.0	270.0	374.0
<i>Total Difference (per cent)</i>	2.2	0.4	1.7	-3.9	-0.7	-1.3	2.1	-0.2	1.3
<i>Growth with no imputation or weighting (per cent)</i>	5.6	6.7	5.8	4.6	4.4	4.4	5.3	6.4	5.5
<i>Growth with imputation and weighting (per cent)</i>	5.7	6.4	5.8	3.0	3.3	3.3	5.4	6.0	5.5

Table A2 Average gross weekly earnings^a and growth^b in April 1998 to 2003 by gender and full-time/part-time work for all employees^c; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2000									
No imputation or weighting	462.0	343.0	418.0	137.0	130.0	131.0	437.0	255.0	350.0
Imputation only	462.0	343.0	418.0	136.0	130.0	131.0	438.0	255.0	350.0
<i>Difference (per cent)</i>	-0.1	0.0	0.0	-0.5	0.6	0.4	0.1	0.1	0.1
Imputation and weighting	472.0	345.0	425.0	133.0	130.0	130.0	446.0	255.0	354.0
<i>Total Difference (per cent)</i>	2.1	0.6	1.7	-2.4	0.3	-0.2	2.0	0.2	1.3
<i>Growth with no imputation or weighting (per cent)</i>	4.4	4.8	4.5	-3.5	4.9	3.3	4.1	4.2	3.9
<i>Growth with imputation and weighting (per cent)</i>	4.0	4.1	4.2	-3.2	4.7	3.3	3.8	3.7	4.0
1999									
No imputation or weighting	443.0	327.0	400.0	141.0	124.0	127.0	420.0	245.0	337.0
Imputation only	443.0	327.0	400.0	139.0	124.0	127.0	421.0	245.0	337.0
<i>Difference (per cent)</i>	0.0	0.1	0.1	-1.6	0.4	0.0	0.1	0.2	0.2
Imputation and weighting	453.0	331.0	408.0	138.0	124.0	126.0	429.0	246.0	341.0
<i>Total Difference (per cent)</i>	2.5	1.2	1.9	-2.7	0.4	-0.2	2.2	0.6	1.3
<i>Growth with no imputation or weighting (per cent)</i>	3.6	5.7	4.1	-6.1	2.9	1.1	3.3	5.5	3.9
<i>Growth with imputation and weighting (per cent)</i>	3.5	5.1	3.9	6.1	5.4	5.6	3.4	4.9	3.7
1998									
No imputation or weighting	427.0	310.0	384.0	151.0	120.0	125.0	407.0	232.0	324.0
Imputation only	428.0	310.0	385.0	133.0	117.0	120.0	407.0	232.0	325.0
<i>Difference (per cent)</i>	0.1	0.3	0.1	-11.5	-2.5	-4.4	0.2	0.2	0.2
Imputation and weighting	438.0	315.0	393.0	130.0	118.0	120.0	415.0	235.0	329.0
<i>Total Difference (per cent)</i>	2.6	1.8	2.1	-13.9	-1.9	-4.4	2.2	1.2	1.4
<i>Growth with no imputation or weighting (per cent)</i>									
<i>Growth with imputation and weighting (per cent)</i>									

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

Table A3 Average gross hourly earnings^a and growth^b in April 1998 to 2003 by gender and full-time/part-time work for all employees; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2003									
No imputation or weighting	13.00	11.00	12.00	9.00	8.00	8.00	13.00	10.00	11.00
Imputation only	13.00	11.00	12.00	9.00	8.00	8.00	13.00	10.00	11.00
<i>Difference (per cent)</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.9</i>	<i>0.1</i>	<i>0.3</i>	<i>0.1</i>	<i>-0.1</i>	<i>0.0</i>
Imputation and weighting	13.00	11.00	12.00	9.00	8.00	8.00	13.00	10.00	12.00
<i>Total Difference (per cent)</i>	<i>3.5</i>	<i>1.3</i>	<i>2.9</i>	<i>3.3</i>	<i>0.3</i>	<i>0.9</i>	<i>3.5</i>	<i>1.0</i>	<i>2.7</i>
<i>Growth with no imputation or weighting (per cent)</i>	<i>2.5</i>	<i>3.8</i>	<i>2.8</i>	<i>1.6</i>	<i>5.2</i>	<i>4.6</i>	<i>2.4</i>	<i>4.1</i>	<i>2.9</i>
<i>Growth with imputation and weighting (per cent)</i>	<i>2.9</i>	<i>3.7</i>	<i>3.2</i>	<i>3.8</i>	<i>5.4</i>	<i>5.2</i>	<i>2.9</i>	<i>4.1</i>	<i>3.3</i>
2002									
No imputation or weighting	12.00	10.00	12.00	9.00	7.00	8.00	12.00	9.00	11.00
Imputation only	12.00	10.00	12.00	9.00	7.00	8.00	12.00	9.00	11.00
<i>Difference (per cent)</i>	<i>0.4</i>	<i>0.3</i>	<i>0.3</i>	<i>0.2</i>	<i>0.5</i>	<i>0.5</i>	<i>0.3</i>	<i>0.3</i>	<i>0.3</i>
Imputation and weighting	13.00	10.00	12.00	9.00	7.00	8.00	13.00	10.00	11.00
<i>Total Difference (per cent)</i>	<i>3.0</i>	<i>1.3</i>	<i>2.5</i>	<i>1.1</i>	<i>0.0</i>	<i>0.3</i>	<i>2.9</i>	<i>1.0</i>	<i>2.2</i>
<i>Growth with no imputation or weighting (per cent)</i>	<i>5.0</i>	<i>4.5</i>	<i>4.8</i>	<i>14.2</i>	<i>5.5</i>	<i>7.1</i>	<i>5.1</i>	<i>4.5</i>	<i>4.7</i>
<i>Growth with imputation and weighting (per cent)</i>	<i>5.5</i>	<i>5.4</i>	<i>5.4</i>	<i>13.8</i>	<i>5.2</i>	<i>6.7</i>	<i>5.6</i>	<i>5.1</i>	<i>5.3</i>
2001									
No imputation or weighting	12.00	10.00	11.00	8.00	7.00	7.00	12.00	9.00	11.00
Imputation only	12.00	10.00	11.00	8.00	7.00	7.00	12.00	9.00	11.00
<i>Difference (per cent)</i>	<i>0.1</i>	<i>0.2</i>	<i>0.1</i>	<i>1.4</i>	<i>0.6</i>	<i>0.8</i>	<i>0.0</i>	<i>0.3</i>	<i>0.1</i>
Imputation and weighting	12.00	10.00	11.00	8.00	7.00	7.00	12.00	9.00	11.00
<i>Total Difference (per cent)</i>	<i>2.6</i>	<i>0.5</i>	<i>1.9</i>	<i>1.4</i>	<i>0.3</i>	<i>0.6</i>	<i>2.5</i>	<i>0.4</i>	<i>1.7</i>
<i>Growth with no imputation or weighting (per cent)</i>	<i>5.9</i>	<i>6.7</i>	<i>6.1</i>	<i>2.3</i>	<i>3.8</i>	<i>3.6</i>	<i>5.8</i>	<i>6.1</i>	<i>5.8</i>
<i>Growth with imputation and weighting (per cent)</i>	<i>5.7</i>	<i>6.2</i>	<i>5.8</i>	<i>2.5</i>	<i>3.3</i>	<i>3.2</i>	<i>5.6</i>	<i>5.6</i>	<i>5.5</i>

Table A3 Average gross hourly earnings^a and growth^b in April 1998 to 2003 by gender and full-time/part-time work for all employees; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2000									
No imputation or weighting	11.00	9.00	10.00	7.00	7.00	7.00	11.00	9.00	10.00
Imputation only	11.00	9.00	11.00	8.00	7.00	7.00	11.00	9.00	10.00
<i>Difference (per cent)</i>	0.3	0.4	0.3	1.5	0.7	0.9	0.3	0.4	0.3
Imputation and weighting	12.00	9.00	11.00	8.00	7.00	7.00	11.00	9.00	10.00
<i>Total Difference (per cent)</i>	2.8	1.0	2.2	1.2	0.8	0.9	2.7	0.8	2.0
<i>Growth with no imputation or weighting (per cent)</i>	4.8	4.8	4.7	0.6	4.9	4.1	4.7	4.6	4.5
<i>Growth with imputation and weighting (per cent)</i>	4.3	4.4	4.4	0.6	5.2	4.3	4.2	4.4	4.4
1999									
No imputation or weighting	11.00	9.00	10.00	7.00	6.00	7.00	11.00	8.00	10.00
Imputation only	11.00	9.00	10.00	7.00	6.00	7.00	11.00	8.00	10.00
<i>Difference (per cent)</i>	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2
Imputation and weighting	11.00	9.00	10.00	7.00	6.00	7.00	11.00	8.00	10.00
<i>Total Difference (per cent)</i>	3.3	1.5	2.6	1.2	0.6	0.7	3.2	1.1	2.1
<i>Growth with no imputation or weighting (per cent)</i>	4.6	5.8	4.9	3.5	5.8	5.5	4.5	5.7	4.8
<i>Growth with imputation and weighting (per cent)</i>	4.3	5.2	4.5	4.5	4.9	4.9	4.2	5.0	4.4
1998									
No imputation or weighting	10.00	8.00	10.00	7.00	6.00	6.00	10.00	8.00	9.00
Imputation only	10.00	8.00	10.00	7.00	6.00	6.00	10.00	8.00	9.00
<i>Difference (per cent)</i>	0.5	0.4	0.4	0.5	0.5	0.6	0.4	0.3	0.3
Imputation and weighting	11.00	8.00	10.00	7.00	6.00	6.00	10.00	8.00	9.00
<i>Total Difference (per cent)</i>	3.6	2.0	2.9	0.2	1.5	1.4	3.4	1.7	2.6
<i>Growth with no imputation or weighting (per cent)</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Growth with imputation and weighting (per cent)</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

Table A4 Average total weekly hours^a and growth^b in April 1998 to 2003 by gender and full-time/part-time work for all employees^c; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2003									
No imputation or weighting	41.0	37.0	40.0	19.0	20.0	19.0	39.0	30.0	35.0
Imputation only	41.0	37.0	40.0	18.0	19.0	19.0	39.0	30.0	34.0
<i>Difference (per cent)</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>-3.2</i>	<i>-1.5</i>	<i>-1.8</i>	<i>-0.4</i>	<i>-0.8</i>	<i>-0.6</i>
Imputation and weighting	41.0	37.0	40.0	18.0	19.0	19.0	39.0	30.0	34.0
<i>Total Difference (per cent)</i>	<i>-0.1</i>	<i>0.2</i>	<i>0.0</i>	<i>-4.8</i>	<i>-1.8</i>	<i>-2.4</i>	<i>-0.6</i>	<i>-0.8</i>	<i>-0.6</i>
<i>Growth with no imputation or weighting (per cent)</i>	<i>0.1</i>	<i>-0.1</i>	<i>-0.1</i>	<i>-2.0</i>	<i>-0.7</i>	<i>-1.0</i>	<i>-0.3</i>	<i>-0.3</i>	<i>-0.5</i>
<i>Growth with imputation and weighting (per cent)</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>-2.4</i>	<i>-0.5</i>	<i>-0.8</i>	<i>-0.2</i>	<i>-0.1</i>	<i>-0.2</i>
2002									
No imputation or weighting	41.0	37.0	40.0	19.0	20.0	20.0	39.0	30.0	35.0
Imputation only	41.0	37.0	40.0	19.0	19.0	19.0	39.0	30.0	35.0
<i>Difference (per cent)</i>	<i>-0.1</i>	<i>0.0</i>	<i>-0.1</i>	<i>-3.3</i>	<i>-1.5</i>	<i>-1.8</i>	<i>-0.6</i>	<i>-0.7</i>	<i>-0.7</i>
Imputation and weighting	41.0	37.0	40.0	18.0	19.0	19.0	39.0	30.0	35.0
<i>Total Difference (per cent)</i>	<i>-0.3</i>	<i>0.1</i>	<i>-0.1</i>	<i>-4.4</i>	<i>-2.1</i>	<i>-2.5</i>	<i>-0.8</i>	<i>-1.0</i>	<i>-0.9</i>
<i>Growth with no imputation or weighting (per cent)</i>	<i>-0.5</i>	<i>0.0</i>	<i>-0.4</i>	<i>3.1</i>	<i>0.9</i>	<i>1.2</i>	<i>-0.7</i>	<i>-0.2</i>	<i>-0.6</i>
<i>Growth with imputation and weighting (per cent)</i>	<i>-0.5</i>	<i>0.0</i>	<i>-0.3</i>	<i>2.9</i>	<i>0.8</i>	<i>1.1</i>	<i>-0.6</i>	<i>-0.1</i>	<i>-0.5</i>
2001									
No imputation or weighting	41.0	37.0	40.0	19.0	19.0	19.0	40.0	30.0	35.0
Imputation only	41.0	37.0	40.0	18.0	19.0	19.0	39.0	30.0	35.0
<i>Difference (per cent)</i>	<i>-0.1</i>	<i>0.0</i>	<i>-0.1</i>	<i>-2.6</i>	<i>-1.4</i>	<i>-1.7</i>	<i>-0.5</i>	<i>-0.7</i>	<i>-0.7</i>
Imputation and weighting	41.0	37.0	40.0	18.0	19.0	19.0	39.0	30.0	35.0
<i>Total Difference (per cent)</i>	<i>-0.3</i>	<i>0.0</i>	<i>-0.2</i>	<i>-4.2</i>	<i>-2.0</i>	<i>-2.4</i>	<i>-0.9</i>	<i>-1.1</i>	<i>-1.0</i>
<i>Growth with no imputation or weighting (per cent)</i>	<i>-0.1</i>	<i>0.2</i>	<i>-0.1</i>	<i>0.8</i>	<i>0.7</i>	<i>0.7</i>	<i>-0.2</i>	<i>0.5</i>	<i>0.0</i>
<i>Growth with imputation and weighting (per cent)</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.5</i>	<i>0.1</i>	<i>0.1</i>	<i>-0.1</i>	<i>0.3</i>	<i>0.0</i>

Table A4 Average total weekly hours^a and growth^b in April 1998 to 2003 by gender and full-time/part-time work for all employees^c; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2000									
No imputation or weighting	41.0	37.0	40.0	18.0	19.0	19.0	40.0	30.0	35.0
Imputation only	41.0	37.0	40.0	18.0	19.0	19.0	39.0	30.0	35.0
<i>Difference (per cent)</i>	-0.1	-0.1	-0.1	-2.2	-0.9	-1.2	-0.4	-0.5	-0.5
Imputation and weighting	41.0	37.0	40.0	18.0	19.0	19.0	39.0	30.0	35.0
<i>Total Difference (per cent)</i>	-0.4	0.0	-0.3	-3.9	-1.3	-1.8	-0.9	-0.9	-1.0
<i>Growth with no imputation or weighting (per cent)</i>	-0.4	-0.2	-0.3	-3.8	-0.4	-0.9	-0.6	-0.9	-0.9
<i>Growth with imputation and weighting (per cent)</i>	-0.2	-0.2	-0.2	-3.8	-0.5	-1.0	-0.4	-0.7	-0.4
1999									
No imputation or weighting	41.0	37.0	40.0	19.0	19.0	19.0	40.0	30.0	35.0
Imputation only	41.0	37.0	40.0	19.0	19.0	19.0	40.0	30.0	35.0
<i>Difference (per cent)</i>	-0.1	0.0	-0.1	-2.0	-0.9	-1.1	-0.4	-0.7	-0.6
Imputation and weighting	41.0	37.0	40.0	18.0	19.0	19.0	39.0	30.0	35.0
<i>Total Difference (per cent)</i>	-0.6	-0.1	-0.5	-3.9	-1.3	-1.7	-1.2	-1.1	-1.4
<i>Growth with no imputation or weighting (per cent)</i>	-0.9	-0.2	-0.7	0.7	0.2	0.3	-1.0	-0.2	-0.8
<i>Growth with imputation and weighting (per cent)</i>	-0.8	-0.1	-0.6	1.5	0.5	0.7	-0.8	-0.1	-0.6
1998									
No imputation or weighting	42.0	38.0	40.0	19.0	19.0	19.0	40.0	30.0	36.0
Imputation only	42.0	38.0	40.0	19.0	19.0	19.0	40.0	30.0	35.0
<i>Difference (per cent)</i>	-0.1	0.0	-0.1	-2.3	-1.2	-1.4	-0.4	-0.8	-0.7
Imputation and weighting	41.0	38.0	40.0	18.0	19.0	19.0	40.0	30.0	35.0
<i>Total Difference (per cent)</i>	-0.7	-0.2	-0.6	-4.7	-1.6	-2.1	-1.4	-1.2	-1.6
<i>Growth with no imputation or weighting (per cent)</i>									
<i>Growth with imputation and weighting (per cent)</i>									

Source: Annual Survey of Hours and Earnings

a Employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

Table A5 Average gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by industry sector for full-time employees^e; United Kingdom

	SIC															All industries & services ^g
	A ^d	B ^d	C ^d	D ^d	E ^d	F ^d	G ^d	H ^d	I ^d	J ^d	K ^d	L ^d	M ^d	N ^d	O ^d	
2003																
No imputation or weighting	17,437	19,677	32,443	24,001	28,123	25,126	21,541	16,438	24,025	40,145	30,010	23,442	24,053	22,029	24,590	25,058
Imputation only	17,468	19,677	32,445	24,054	28,166	25,170	21,543	16,407	24,087	40,125	30,030	23,443	24,103	22,133	24,683	25,095
<i>Difference (per cent)</i>	0.2	0.0	0.0	0.2	0.2	0.2	0.0	-0.2	0.3	0.0	0.1	0.0	0.2	0.5	0.4	0.2
Imputation and weighting	17,691	19,216	33,788	24,519	29,051	25,573	22,180	16,754	24,847	43,196	31,340	24,302	24,431	22,465	25,299	25,861
<i>Total Difference (per cent)</i>	1.5	-2.3	4.1	2.2	3.3	1.8	3.0	1.9	3.4	7.6	4.4	3.7	1.6	2.0	2.9	3.2
<i>Growth with no imputation or weighting (per cent)</i>	1.7	6.6	10.1	3.8	-3.1	4.6	2.9	7.5	1.0	7.1	-0.4	3.7	4.2	3.4	6.7	3.2
<i>Growth with imputation and weighting (per cent)</i>	1.9	5.8	11.4	4.5	-2.4	4.9	3.5	9.0	1.8	8.3	0.4	3.3	4.7	4.0	7.1	3.9
2002																
No imputation or weighting	17,146	18,450	29,477	23,124	29,014	24,020	20,942	15,287	23,778	37,498	30,143	22,610	23,093	21,302	23,045	24,284
Imputation only	17,160	18,218	29,486	23,148	29,067	24,066	21,005	15,404	23,673	37,502	30,173	22,671	23,153	21,417	23,195	24,328
<i>Difference (per cent)</i>	0.1	-1.3	0.0	0.1	0.2	0.2	0.3	0.8	-0.4	0.0	0.1	0.3	0.3	0.5	0.6	0.2
Imputation and weighting	17,364	18,162	30,331	23,470	29,778	24,373	21,425	15,366	24,411	39,893	31,208	23,527	23,341	21,609	23,625	24,888
<i>Total Difference (per cent)</i>	1.3	-1.6	2.9	1.5	2.6	1.5	2.3	0.5	2.7	6.4	3.5	4.1	1.1	1.4	2.5	2.5
<i>Growth with no imputation or weighting (per cent)</i>	9.2	3.6	-0.7	2.6	2.9	4.7	3.2	-0.8	5.1	-3.2	7.1	2.5	4.9	4.4	1.5	3.6
<i>Growth with imputation and weighting (per cent)</i>	9.9	1.2	-0.9	2.7	3.3	4.8	3.6	-0.3	5.7	-2.9	7.6	2.8	5.1	5.0	2.1	4.0
2001																
No imputation or weighting	15,697	17,805	29,693	22,548	28,193	22,945	20,296	15,412	22,632	38,753	28,148	22,049	22,012	20,403	22,701	23,430
Imputation only	15,747	17,805	29,688	22,565	28,174	22,960	20,313	15,402	22,543	38,780	28,188	22,102	22,024	20,464	22,716	23,448
<i>Difference (per cent)</i>	0.3	0.0	0.0	0.1	-0.1	0.1	0.1	-0.1	-0.4	0.1	0.1	0.2	0.1	0.3	0.1	0.1
Imputation and weighting	15,799	17,955	30,595	22,861	28,836	23,262	20,681	15,404	23,091	41,100	29,014	22,875	22,211	20,574	23,135	23,929
<i>Total Difference (per cent)</i>	0.6	0.8	3.0	1.4	2.3	1.4	1.9	-0.1	2.0	6.1	3.1	3.7	0.9	0.8	1.9	2.1
<i>Growth with no imputation or weighting (per cent)</i>	4.2	1.5	8.3	6.0	4.6	6.7	2.0	1.2	1.3	13.3	6.6	0.9	2.7	5.3	8.1	4.9
<i>Growth with imputation and weighting (per cent)</i>	4.4	-1.4	8.2	5.7	4.6	6.9	2.6	0.8	0.9	13.6	6.9	1.1	2.8	5.6	8.8	4.9

Table A5 Average gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by industry sector for full-time employees^e; United Kingdom

	SIC															All industries & services ^e
	A ^d	B ^d	C ^d	D ^d	E ^d	F ^d	G ^d	H ^d	I ^d	J ^d	K ^d	L ^d	M ^d	N ^d	O ^d	
2000																
No imputation or weighting	15,068	17,550	27,430	21,274	26,948	21,496	19,895	15,225	22,350	34,205	26,400	21,862	21,427	19,371	20,994	22,340
Imputation only	15,064	17,550	27,474	21,279	26,966	21,495	19,889	15,230	22,367	34,185	26,414	21,856	21,386	19,395	20,994	22,343
<i>Difference (per cent)</i>	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.1	-0.1	0.1	0.0	-0.2	0.1	0.0	0.0
Imputation and weighting	15,140	18,214	28,288	21,626	27,557	21,762	20,167	15,277	22,896	36,192	27,153	22,621	21,605	19,483	21,259	22,805
<i>Total Difference (per cent)</i>	0.5	3.8	3.1	1.7	2.3	1.2	1.4	0.3	2.4	5.8	2.9	3.5	0.8	0.6	1.3	2.1
<i>Growth with no imputation or weighting (per cent)</i>	4.3	-8.5	7.3	5.6	8.0	8.8	9.4	9.5	7.4	7.5	8.1	4.0	4.2	7.8	4.8	7.1
<i>Growth with imputation and weighting (per cent)</i>	4.0	-6.1	7.3	5.0	7.9	8.5	8.9	9.8	7.3	8.5	7.8	4.3	3.7	8.0	4.5	7.0
1999																
No imputation or weighting	14,447	19,176	25,562	20,147	24,947	19,759	18,193	13,907	20,816	31,827	24,421	21,022	20,566	17,965	20,034	20,863
Imputation only	14,468	18,648	25,527	20,156	24,947	19,778	18,235	13,919	20,800	31,842	24,448	21,028	20,575	17,971	20,079	20,877
<i>Difference (per cent)</i>	0.1	-2.8	-0.1	0.0	0.0	0.1	0.2	0.1	-0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.1
Imputation and weighting	14,564	19,392	26,352	20,601	25,537	20,055	18,521	13,915	21,341	33,361	25,188	21,698	20,829	18,037	20,341	21,320
<i>Total Difference (per cent)</i>	0.8	1.1	3.1	2.3	2.4	1.5	1.8	0.1	2.5	4.8	3.1	3.2	1.3	0.4	1.5	2.2
<i>Growth with no imputation or weighting (per cent)</i>																
<i>Growth with imputation and weighting (per cent)</i>																

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

d Industries are coded according to the Standard Industrial Classification 2003.

e All industries & services figures may not be consistent with all full-time employees figures due to missing classification information

Table A6 Average gross weekly pay^a and growth^b in April 1998 to 2003 by industry sector for full-time employees^c; United Kingdom

	SIC															All industries & services ^d
	A ^c	B ^c	C ^c	D ^c	E ^c	F ^c	G ^c	H ^c	I ^c	J ^c	K ^c	L ^c	M ^c	N ^c	O ^c	
2003																
No imputation or weighting	333.6	399.4	634.3	466.4	526.6	480.1	404.9	307.1	459.8	628.6	545.9	450.8	475.7	438.9	487.3	474.2
Imputation only	336.5	399.4	634.3	468.1	526.2	480.2	405.7	307.2	460.7	624.3	546.1	450.8	475.8	439.2	487.4	474.5
<i>Difference (per cent)</i>	0.9	0.0	0.0	0.4	-0.1	0.0	0.2	0.0	0.2	-0.7	0.0	0.0	0.0	0.1	0.0	0.1
Imputation and weighting	340.1	392.6	656.8	477.0	542.4	487.7	416.6	310.7	473.4	662.4	568.5	468.5	481.9	445.6	498.1	487.6
<i>Total Difference (per cent)</i>	1.9	-1.7	3.5	2.3	3.0	1.6	2.9	1.2	3.0	5.4	4.1	3.9	1.3	1.5	2.2	2.8
<i>Growth with no imputation or weighting (per cent)</i>	0.1	12.1	10.5	3.9	-0.8	4.3	2.2	3.4	1.6	-1.1	-0.3	2.7	4.3	3.6	6.6	2.5
<i>Growth with imputation and weighting (per cent)</i>	1.2	12.0	11.0	4.7	-0.1	4.6	3.2	5.0	2.4	-1.3	0.7	2.6	4.9	4.2	6.3	3.3
2002																
No imputation or weighting	333.4	356.3	574.2	448.8	530.7	460.3	396.2	296.9	452.6	635.4	547.3	439.1	456.3	423.4	457.4	462.5
Imputation only	333.6	356.3	578.0	449.2	531.1	460.9	396.4	297.2	449.9	635.7	547.2	439.4	455.9	424.1	458.9	462.5
<i>Difference (per cent)</i>	0.1	0.0	0.7	0.1	0.1	0.1	0.0	0.1	-0.6	0.0	0.0	0.1	-0.1	0.2	0.3	0.0
Imputation and weighting	336.1	350.7	591.7	455.6	543.0	466.4	403.6	295.9	462.3	671.0	564.4	456.7	459.6	427.7	468.4	472.2
<i>Total Difference (per cent)</i>	0.8	-1.6	3.0	1.5	2.3	1.3	1.9	-0.3	2.2	5.6	3.1	4.0	0.7	1.0	2.4	2.1
<i>Growth with no imputation or weighting (per cent)</i>	10.6	-9.9	2.0	3.4	2.1	4.7	4.1	3.3	3.6	5.6	5.4	3.8	4.6	4.3	9.5	4.6
<i>Growth with imputation and weighting (per cent)</i>	11.1	-11.8	1.8	3.6	2.0	4.7	4.3	4.5	4.3	6.7	5.9	4.3	4.7	4.9	10.5	5.0
2001																
No imputation or weighting	301.4	395.4	563.2	434.1	519.6	439.8	380.7	287.3	437.0	601.5	519.3	423.0	436.2	405.9	417.8	442.3
Imputation only	302.0	395.4	565.2	434.6	519.7	440.4	380.9	286.2	434.0	602.0	519.4	423.5	435.3	406.2	418.0	442.2
<i>Difference (per cent)</i>	0.2	0.0	0.4	0.1	0.0	0.1	0.1	-0.4	-0.7	0.1	0.0	0.1	-0.2	0.1	0.0	0.0
Imputation and weighting	302.6	397.7	581.1	439.9	532.1	445.6	386.8	283.1	443.0	628.8	533.1	437.9	438.8	407.7	424.0	449.8
<i>Total Difference (per cent)</i>	0.4	0.6	3.2	1.3	2.4	1.3	1.6	-1.5	1.4	4.5	2.7	3.5	0.6	0.4	1.5	1.7
<i>Growth with no imputation or weighting (per cent)</i>	4.6	9.9	7.9	5.8	2.0	5.8	4.6	3.8	3.5	7.1	8.6	4.2	4.6	6.8	3.8	5.8
<i>Growth with imputation and weighting (per cent)</i>	4.6	6.3	8.0	5.4	2.2	5.9	5.1	3.6	3.1	7.0	8.9	4.5	4.5	7.0	4.0	5.8

Table A6 Average gross weekly pay^a and growth^b in April 1998 to 2003 by industry sector for full-time employees^c; United Kingdom

	SIC															All industries & services ^d
	A ^c	B ^c	C ^c	D ^c	E ^c	F ^c	G ^c	H ^c	I ^c	J ^c	K ^c	L ^c	M ^c	N ^c	O ^c	
2000																
No imputation or weighting	288.2	359.9	521.9	410.4	509.6	415.8	364.0	276.9	422.4	561.9	478.1	405.9	417.0	380.2	402.3	418.2
Imputation only	288.2	359.9	522.6	411.0	509.6	416.1	363.9	276.3	420.8	561.8	477.8	405.5	415.9	380.3	402.6	418.0
<i>Difference (per cent)</i>	0.0	0.0	0.1	0.2	0.0	0.1	0.0	-0.2	-0.4	0.0	-0.1	-0.1	-0.2	0.0	0.1	0.0
Imputation and weighting	289.2	374.2	538.2	417.2	520.8	420.8	368.1	273.2	429.8	587.5	489.6	419.0	419.7	381.0	407.5	425.2
<i>Total Difference (per cent)</i>	0.3	4.0	3.1	1.7	2.2	1.2	1.1	-1.3	1.8	4.6	2.4	3.2	0.6	0.2	1.3	1.7
<i>Growth with no imputation or weighting (per cent)</i>	1.0	-0.1	6.4	4.2	4.3	6.4	3.6	4.6	3.7	5.0	5.4	2.7	3.3	5.3	4.9	4.5
<i>Growth with imputation and weighting (per cent)</i>	0.1	2.7	6.8	3.6	4.2	6.1	3.2	3.9	3.3	5.2	5.1	2.8	3.0	5.5	5.0	4.2
1999																
No imputation or weighting	285.3	360.4	490.6	393.7	488.8	390.7	351.2	264.7	407.1	535.1	453.6	395.3	403.6	361.1	383.4	400.1
Imputation only	287.4	351.7	490.6	394.6	488.8	391.4	352.3	264.5	407.0	535.6	453.6	395.3	402.8	360.5	384.2	400.4
<i>Difference (per cent)</i>	0.7	-2.4	0.0	0.2	0.0	0.2	0.3	-0.1	0.0	0.1	0.0	0.0	-0.2	-0.2	0.2	0.1
Imputation and weighting	288.8	364.1	504.0	402.7	500.0	396.7	356.8	262.9	416.0	558.4	465.8	407.6	407.6	361.3	388.0	407.9
<i>Total Difference (per cent)</i>	1.2	1.0	2.7	2.3	2.3	1.5	1.6	-0.7	2.2	4.4	2.7	3.1	1.0	0.0	1.2	1.9
<i>Growth with no imputation or weighting (per cent)</i>	4.5	2.1	-1.5	2.9	5.8	5.2	3.9	4.3	4.5	4.2	4.0	3.9	4.3	7.1	5.4	4.1
<i>Growth with imputation and weighting (per cent)</i>	4.5	-2.0	-2.6	2.6	5.5	5.3	3.9	4.4	4.3	4.2	3.8	3.9	3.9	5.6	5.4	3.9
1998																
No imputation or weighting	273.0	353.0	498.2	382.7	462.0	371.3	338.2	253.8	389.5	513.4	435.9	380.4	387.1	337.2	363.6	384.5
Imputation only	273.8	360.6	498.8	383.4	462.8	372.0	338.9	253.4	389.8	513.8	436.3	380.2	386.9	341.9	365.1	385.1
<i>Difference (per cent)</i>	0.3	2.1	0.1	0.2	0.2	0.2	0.2	-0.1	0.1	0.1	0.1	0.0	0.0	1.4	0.4	0.1
Imputation and weighting	276.3	371.6	517.6	392.4	473.8	376.6	343.3	251.9	399.0	535.7	448.7	392.5	392.2	342.0	368.2	392.6
<i>Total Difference (per cent)</i>	1.2	5.3	3.9	2.5	2.6	1.4	1.5	-0.7	2.4	4.3	2.9	3.2	1.3	1.4	1.3	2.1
<i>Growth with no imputation or weighting (per cent)</i>																
<i>Growth with imputation and weighting (per cent)</i>																

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Industries are coded according to the Standard Industrial Classification 2003.

d All industries & services figures may not be consistent with all full-time employees figures due to missing classification information

Table A7 Average gross hourly pay^a and growth^b in April 1998 to 2003 by industry sector for full-time employees^c; United Kingdom

	SIC															All industries & services ^d
	A ^c	B ^c	C ^c	D ^c	E ^c	F ^c	G ^c	H ^c	I ^c	J ^c	K ^c	L ^c	M ^c	N ^c	O ^c	
2003																
No imputation or weighting	7.37	9.21	13.85	11.37	13.41	10.98	9.97	7.48	10.66	17.43	13.87	11.72	13.29	11.36	12.24	11.97
Imputation only	7.47	9.21	13.92	11.39	13.36	10.99	10.00	7.53	10.64	17.28	13.82	11.72	13.32	11.37	12.29	11.97
<i>Difference (per cent)</i>	1.40	0.00	0.50	0.20	-0.40	0.10	0.30	0.70	-0.10	-0.80	-0.40	0.00	0.20	0.10	0.50	0.00
Imputation and weighting	7.57	9.04	14.47	11.62	13.75	11.18	10.27	7.63	10.98	18.34	14.42	12.16	13.49	11.53	12.57	12.31
<i>Total Difference (per cent)</i>	2.70	-1.80	4.50	2.30	2.60	1.80	3.00	1.90	3.10	5.30	3.90	3.80	1.50	1.50	2.70	2.90
<i>Growth with no imputation or weighting (per cent)</i>	1.30	12.60	6.20	4.20	0.60	4.00	2.60	3.50	1.10	-0.50	0.40	1.30	3.80	4.90	9.00	2.70
<i>Growth with imputation and weighting (per cent)</i>	0.70	11.90	5.80	4.60	1.00	4.00	3.20	5.00	1.40	-0.80	0.40	2.50	4.20	3.90	6.40	3.10
2002																
No imputation or weighting	7.28	8.18	13.05	10.91	13.33	10.55	9.72	7.23	10.54	17.51	13.83	11.57	12.80	10.82	11.22	11.65
Imputation only	7.42	8.18	13.33	10.95	13.32	10.60	9.77	7.29	10.52	17.51	13.89	11.44	12.83	11.00	11.57	11.69
<i>Difference (per cent)</i>	1.90	0.00	2.10	0.40	-0.10	0.50	0.50	0.90	-0.20	0.00	0.50	-1.10	0.20	1.70	3.10	0.30
Imputation and weighting	7.52	8.08	13.68	11.12	13.61	10.75	9.95	7.27	10.83	18.49	14.36	11.87	12.94	11.10	11.82	11.94
<i>Total Difference (per cent)</i>	3.30	-1.20	4.90	1.90	2.10	1.90	2.40	0.50	2.70	5.60	3.80	2.60	1.10	2.50	5.30	2.50
<i>Growth with no imputation or weighting (per cent)</i>	7.10	-5.70	2.40	3.90	2.20	6.10	3.60	2.40	4.40	6.00	5.00	3.90	4.20	4.40	8.20	4.80
<i>Growth with imputation and weighting (per cent)</i>	8.70	-7.80	3.60	4.30	2.10	6.40	4.20	4.20	5.10	7.10	6.10	3.90	4.10	5.10	11.40	5.40
2001																
No imputation or weighting	6.79	8.68	12.74	10.50	13.04	9.95	9.39	7.06	10.10	16.52	13.17	11.13	12.28	10.37	10.37	11.12
Imputation only	6.87	8.68	12.78	10.52	13.03	9.98	9.40	7.04	10.06	16.53	13.15	11.06	12.31	10.52	10.45	11.12
<i>Difference (per cent)</i>	1.10	0.00	0.30	0.20	0.00	0.30	0.10	-0.30	-0.40	0.00	-0.10	-0.70	0.20	1.50	0.80	0.10
Imputation and weighting	6.92	8.76	13.21	10.66	13.33	10.10	9.55	6.97	10.30	17.27	13.53	11.42	12.43	10.56	10.61	11.33
<i>Total Difference (per cent)</i>	1.90	1.00	3.60	1.50	2.30	1.60	1.70	-1.20	2.00	4.50	2.70	2.60	1.20	1.80	2.30	1.90
<i>Growth with no imputation or weighting (per cent)</i>	5.00	6.20	8.60	6.00	0.60	6.20	4.50	4.00	6.20	6.70	9.00	4.60	3.50	5.90	2.80	6.10
<i>Growth with imputation and weighting (per cent)</i>	5.00	4.10	8.10	5.60	0.80	6.10	4.90	3.20	4.30	6.70	8.80	3.70	3.60	6.30	3.40	5.70

Table A7 Average gross hourly pay^a and growth^b in April 1998 to 2003 by industry sector for full-time employees^c; United Kingdom

	SIC															All industries & services ^d
	A ^c	B ^c	C ^c	D ^c	E ^c	F ^c	G ^c	H ^c	I ^c	J ^c	K ^c	L ^c	M ^c	N ^c	O ^c	
2000																
No imputation or weighting	6.47	8.17	11.73	9.91	12.96	9.37	8.98	6.79	9.51	15.48	12.09	10.65	11.86	9.79	10.09	10.48
Imputation only	6.54	8.17	11.76	9.93	12.96	9.40	8.99	6.81	9.63	15.48	12.11	10.67	11.86	9.92	10.13	10.51
<i>Difference (per cent)</i>	1.10	0.00	0.30	0.30	0.00	0.30	0.10	0.40	1.30	0.00	0.20	0.20	-0.10	1.30	0.40	0.30
Imputation and weighting	6.59	8.42	12.21	10.10	13.23	9.52	9.10	6.76	9.87	16.19	12.43	11.01	12.00	9.93	10.26	10.71
<i>Total Difference (per cent)</i>	1.80	3.10	4.10	1.90	2.10	1.60	1.30	-0.50	3.90	4.60	2.80	3.50	1.10	1.40	1.70	2.20
<i>Growth with no imputation or weighting (per cent)</i>	2.80	-1.30	8.70	4.10	5.90	6.10	3.30	4.30	4.40	5.40	5.90	2.90	3.20	6.20	6.00	4.70
<i>Growth with imputation and weighting (per cent)</i>	2.60	0.50	8.70	3.40	5.50	5.70	3.50	4.30	3.60	5.60	5.50	3.00	2.70	5.90	6.30	4.40
1999																
No imputation or weighting	6.29	8.28	10.79	9.51	12.23	8.83	8.69	6.51	9.11	14.69	11.41	10.34	11.49	9.22	9.52	10.00
Imputation only	6.35	8.11	10.79	9.54	12.24	8.86	8.66	6.51	9.26	14.70	11.44	10.37	11.50	9.36	9.54	10.03
<i>Difference (per cent)</i>	1.00	-2.10	0.00	0.30	0.10	0.30	-0.30	0.10	1.60	0.10	0.20	0.20	0.10	1.50	0.20	0.30
Imputation and weighting	6.42	8.38	11.24	9.76	12.54	9.01	8.79	6.48	9.53	15.33	11.79	10.69	11.68	9.38	9.66	10.26
<i>Total Difference (per cent)</i>	2.00	1.20	4.10	2.60	2.50	2.00	1.10	-0.40	4.60	4.40	3.30	3.30	1.70	1.80	1.40	2.60
<i>Growth with no imputation or weighting (per cent)</i>	4.70	0.50	-1.80	4.20	5.90	6.00	4.40	5.00	5.20	4.70	4.90	4.00	4.70	5.30	6.40	4.80
<i>Growth with imputation and weighting (per cent)</i>	4.20	-2.40	-2.80	3.70	6.20	5.90	4.20	4.50	5.00	4.70	4.40	3.80	4.20	5.50	5.50	4.50
1998																
No imputation or weighting	6.01	8.24	10.99	9.13	11.56	8.33	8.33	6.20	8.66	14.03	10.88	9.95	10.97	8.76	8.94	9.54
Imputation only	6.08	8.41	11.01	9.16	11.51	8.37	8.31	6.22	8.79	14.04	10.93	9.97	11.01	8.89	9.05	9.58
<i>Difference (per cent)</i>	1.20	2.10	0.20	0.40	-0.40	0.40	-0.20	0.30	1.60	0.00	0.40	0.30	0.30	1.50	1.20	0.40
Imputation and weighting	6.16	8.59	11.56	9.41	11.81	8.51	8.44	6.20	9.07	14.65	11.29	10.30	11.21	8.89	9.15	9.82
<i>Total Difference (per cent)</i>	2.50	4.20	5.20	3.20	2.20	2.10	1.30	0.00	4.80	4.40	3.70	3.50	2.20	1.50	2.30	2.90
<i>Growth with no imputation or weighting (per cent)</i>																
<i>Growth with imputation and weighting (per cent)</i>																

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Industries are coded according to the Standard Industrial Classification 2003.

d All industries & services figures may not be consistent with all full-time employees figures due to missing classification information

Table A8 Average total weekly hours^a and growth^b in April 1998 to 2003 by industry sector for full-time employees^c; United Kingdom

	SIC															All industries & services ^d
	A ^c	B ^c	C ^c	D ^c	E ^c	F ^c	G ^c	H ^c	I ^c	J ^c	K ^c	L ^c	M ^c	N ^c	O ^c	
2003																
No imputation or weighting	45.2	43.4	45.7	41.0	39.3	43.6	40.5	40.7	43.2	36.1	39.4	38.4	35.7	38.5	39.6	39.6
Imputation only	45.1	43.4	45.6	41.1	39.4	43.7	40.6	40.8	43.3	36.1	39.5	38.5	35.7	38.6	39.6	39.6
<i>Difference (per cent)</i>	-0.2	0.0	-0.2	0.2	0.3	0.1	0.2	0.1	0.2	0.1	0.2	0.0	0.0	0.2	0.0	0.1
Imputation and weighting	44.9	43.4	45.4	41.0	39.4	43.6	40.5	40.7	43.1	36.1	39.4	38.5	35.7	38.6	39.6	39.6
<i>Total Difference (per cent)</i>	-0.5	0.1	-0.6	0.1	0.4	0.0	0.2	0.0	-0.2	0.1	0.0	0.2	0.0	0.3	0.0	0.0
<i>Growth with no imputation or weighting (per cent)</i>	-0.1	-0.4	4.5	-0.1	-1.4	0.2	-0.3	-0.4	0.9	-0.6	0.1	0.0	0.4	-0.1	-0.2	-0.1
<i>Growth with imputation and weighting (per cent)</i>	0.5	0.1	4.9	0.1	-1.1	0.6	0.0	0.1	1.0	-0.5	0.3	0.1	0.6	0.3	0.0	0.1
2002																
No imputation or weighting	45.2	43.6	43.7	41.0	39.8	43.5	40.6	40.9	42.8	36.3	39.4	38.4	35.6	38.6	39.7	39.6
Imputation only	45.0	43.6	43.4	41.0	39.9	43.5	40.6	40.8	42.8	36.3	39.4	38.4	35.5	38.5	39.7	39.6
<i>Difference (per cent)</i>	-0.5	0.0	-0.7	0.0	0.1	-0.1	0.0	-0.4	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1
Imputation and weighting	44.7	43.4	43.2	41.0	39.9	43.4	40.5	40.7	42.7	36.3	39.3	38.5	35.5	38.5	39.6	39.6
<i>Total Difference (per cent)</i>	-1.1	-0.4	-1.0	-0.1	0.1	-0.3	-0.1	-0.5	-0.2	0.0	-0.2	0.1	-0.2	-0.1	-0.2	-0.2
<i>Growth with no imputation or weighting (per cent)</i>	2.6	-4.4	-1.3	-0.7	0.0	-1.4	0.1	0.4	-0.9	-0.3	-0.2	0.4	0.5	-0.2	-0.6	-0.4
<i>Growth with imputation and weighting (per cent)</i>	2.2	-4.4	-1.7	-0.7	0.0	-1.6	0.1	0.3	-0.7	-0.3	-0.3	0.4	0.6	-0.2	-0.8	-0.4
2001																
No imputation or weighting	44.1	45.6	44.3	41.3	39.9	44.1	40.5	40.7	43.2	36.4	39.5	38.3	35.4	38.6	39.9	39.8
Imputation only	44.0	45.6	44.2	41.3	39.9	44.1	40.5	40.7	43.2	36.4	39.5	38.3	35.3	38.6	40.0	39.7
<i>Difference (per cent)</i>	-0.2	0.0	-0.1	0.0	0.0	-0.1	0.0	-0.2	0.0	0.0	0.0	0.0	-0.1	0.0	0.1	-0.1
Imputation and weighting	43.7	45.4	44.0	41.3	39.9	44.1	40.5	40.6	43.0	36.4	39.4	38.3	35.3	38.6	40.0	39.7
<i>Total Difference (per cent)</i>	-0.7	-0.5	-0.6	-0.1	0.1	-0.1	-0.1	-0.4	-0.4	0.0	-0.2	0.1	-0.3	0.0	0.0	-0.2
<i>Growth with no imputation or weighting (per cent)</i>	-0.2	3.5	-0.4	-0.2	1.4	-0.4	0.1	0.4	-1.4	0.3	0.0	0.7	0.9	0.7	0.5	-0.1
<i>Growth with imputation and weighting (per cent)</i>	-0.4	2.1	-0.1	-0.1	1.4	-0.2	0.2	0.4	-1.2	0.3	0.1	0.8	0.9	0.7	0.6	0.0

Table A8 Average total weekly hours^a and growth^b in April 1998 to 2003 by industry sector for full-time employees^c; United Kingdom

	SIC															All industries & services ^d
	A ^c	B ^c	C ^c	D ^c	E ^c	F ^c	G ^c	H ^c	I ^c	J ^c	K ^c	L ^c	M ^c	N ^c	O ^c	
2000																
No imputation or weighting	44.2	44.0	44.5	41.4	39.3	44.3	40.5	40.6	43.8	36.3	39.5	38.1	35.1	38.4	39.7	39.8
Imputation only	44.1	44.0	44.4	41.4	39.3	44.3	40.5	40.6	43.7	36.3	39.5	38.0	35.1	38.3	39.7	39.8
<i>Difference (per cent)</i>	-0.2	0.0	-0.1	0.0	0.0	-0.1	0.0	-0.1	-0.1	0.0	0.0	-0.1	0.0	-0.1	0.0	-0.1
Imputation and weighting	43.9	44.4	44.1	41.3	39.4	44.2	40.4	40.4	43.5	36.3	39.4	38.0	35.0	38.4	39.7	39.7
<i>Total Difference (per cent)</i>	-0.6	0.9	-0.9	-0.2	0.1	-0.2	-0.1	-0.4	-0.5	0.0	-0.2	-0.1	-0.3	0.0	0.0	-0.3
<i>Growth with no imputation or weighting (per cent)</i>	-2.6	1.2	-2.3	0.1	-1.5	0.2	-0.4	-0.1	-0.6	-0.3	-0.5	-0.3	0.1	-0.4	-1.4	-0.3
<i>Growth with imputation and weighting (per cent)</i>	-2.4	2.3	-1.8	0.2	-1.3	0.4	-0.3	-0.3	-0.3	-0.4	-0.3	-0.2	0.3	-0.4	-1.2	-0.2
1999																
No imputation or weighting	45.3	43.5	45.5	41.4	39.9	44.2	40.6	40.6	44.0	36.4	39.7	38.2	35.0	38.5	40.3	39.9
Imputation only	45.3	43.4	45.5	41.4	39.9	44.2	40.7	40.6	44.0	36.4	39.6	38.1	35.0	38.5	40.3	39.9
<i>Difference (per cent)</i>	-0.1	-0.3	-0.1	0.0	0.0	-0.1	0.0	-0.1	-0.1	0.0	0.0	-0.1	-0.1	0.0	0.0	-0.1
Imputation and weighting	45.0	43.4	44.9	41.2	39.9	44.0	40.6	40.6	43.7	36.4	39.5	38.1	34.9	38.5	40.2	39.8
<i>Total Difference (per cent)</i>	-0.7	-0.2	-1.4	-0.3	-0.2	-0.4	-0.2	-0.2	-0.8	0.0	-0.3	-0.1	-0.4	0.0	-0.3	-0.5
<i>Growth with no imputation or weighting (per cent)</i>	0.6	1.5	0.3	-1.2	0.0	-0.7	-0.4	-0.4	-0.8	-0.4	-0.7	0.0	-0.4	0.1	-0.1	-0.7
<i>Growth with imputation and weighting (per cent)</i>	0.3	0.4	0.2	-1.0	-0.7	-0.5	-0.3	-0.2	-0.7	-0.4	-0.6	0.0	-0.3	0.1	-0.1	-0.6
1998																
No imputation or weighting	45.1	42.9	45.4	41.8	39.9	44.5	40.8	40.8	44.4	36.6	39.9	38.2	35.2	38.4	40.3	40.2
Imputation only	45.0	42.9	45.3	41.8	40.2	44.5	40.8	40.7	44.3	36.6	39.9	38.1	35.1	38.5	40.3	40.2
<i>Difference (per cent)</i>	-0.1	0.0	-0.1	0.0	0.7	-0.1	0.0	-0.1	-0.1	0.1	0.0	-0.1	-0.1	0.1	0.0	-0.1
Imputation and weighting	44.9	43.3	44.8	41.7	40.1	44.3	40.7	40.7	44.0	36.6	39.7	38.1	35.0	38.4	40.2	40.0
<i>Total Difference (per cent)</i>	-0.4	1.0	-1.3	-0.4	0.5	-0.5	-0.3	-0.3	-0.9	0.0	-0.5	-0.1	-0.6	0.0	-0.3	-0.5
<i>Growth with no imputation or weighting (per cent)</i>																
<i>Growth with imputation and weighting (per cent)</i>																

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Industries are coded according to the Standard Industrial Classification 2003.

d All industries & services figures may not be consistent with all full-time employees figures due to missing classification information

Table A9 Average gross annual earnings^{a,b} and growth^c in April 2002 to 2003 by occupational group^d for full-time employees^e; United Kingdom

	Managers and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Personal service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations	All occupations
2003										
No imputation or weighting	41,921	33,653	27,577	17,494	20,983	14,099	14,864	19,017	15,799	25,056
Imputation only	41,918	33,717	27,595	17,512	21,016	14,177	14,916	19,046	15,828	25,094
<i>Difference (per cent)</i>	0.0	0.2	0.1	0.1	0.2	0.6	0.4	0.2	0.2	0.2
Imputation and weighting	41,593	33,958	27,785	17,414	20,910	14,079	14,582	18,944	15,505	25,859
<i>Total Difference (per cent)</i>	-0.8	0.9	0.8	-0.5	-0.3	-0.1	-1.9	-0.4	-1.9	3.2
<i>Growth with no imputation or weighting (per cent)</i>	3.9	2.9	1.3	4.0	2.6	2.7	-0.1	5.2	4.3	3.1
<i>Growth with imputation and weighting (per cent)</i>	3.8	3.2	1.3	3.9	2.9	3.5	-0.1	4.8	4.6	3.8
2002										
No imputation or weighting	40,361	32,699	27,228	16,815	20,453	13,729	14,879	18,084	15,148	24,305
Imputation only	40,372	32,798	27,279	16,852	20,455	13,796	14,916	18,098	15,144	24,347
<i>Difference (per cent)</i>	0.0	0.3	0.2	0.2	0.0	0.5	0.2	0.1	0.0	0.2
Imputation and weighting	40,061	32,890	27,423	16,767	20,315	13,600	14,594	18,074	14,819	24,911
<i>Total Difference (per cent)</i>	-0.7	0.6	0.7	-0.3	-0.7	-0.9	-1.9	-0.1	-2.2	2.5
<i>Growth with no imputation or weighting (per cent)</i>										
<i>Growth with imputation and weighting (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

d Occupations are coded according to the Standard Occupational Classification 2000.

Table A9a Average gross annual earnings^{a,b} and growth^c in April 1999 to 2001 by occupational group^d for full-time employees^e; United Kingdom

	Managers and administrators	Professional occupations	Associate professional and technical occupations	Clerical and secretarial occupations	Craft and related occupations	Personal and protective service occupations	Sales occupations	Plant and machine operatives	Other occupations	All occupations
2001										
No imputation or weighting	37,445	30,725	27,689	15,348	19,754	16,916	16,451	17,662	14,987	23,426
Imputation only	37,454	30,768	27,796	15,368	19,771	16,903	16,460	17,667	14,949	23,444
<i>Difference (per cent)</i>	0.0	0.1	0.4	0.1	0.1	-0.1	0.1	0.0	-0.3	0.1
Imputation and weighting	37,813	30,888	27,903	15,365	19,760	16,963	16,506	17,654	14,762	23,925
<i>Total Difference (per cent)</i>	1.0	0.5	0.8	0.1	0.0	0.3	0.3	0.0	-1.5	2.1
<i>Growth with no imputation or weighting (per cent)</i>	5.2	4.2	5.6	4.5	4.5	-0.5	3.3	4.8	3.0	4.9
<i>Growth with imputation and weighting (per cent)</i>	5.6	4.4	6.2	4.7	4.5	-0.3	4.1	4.6	2.7	4.9
2000										
No imputation or weighting	35,610	29,474	26,231	14,680	18,904	17,007	15,932	16,850	14,544	22,337
Imputation only	35,589	29,501	26,255	14,686	18,903	17,008	15,918	16,861	14,530	22,339
<i>Difference (per cent)</i>	-0.1	0.1	0.1	0.0	0.0	0.0	-0.1	0.1	-0.1	0.0
Imputation and weighting	35,816	29,594	26,275	14,677	18,904	17,017	15,856	16,875	14,370	22,801
<i>Total Difference (per cent)</i>	0.6	0.4	0.2	0.0	0.0	0.1	-0.5	0.1	-1.2	2.1
<i>Growth with no imputation or weighting (per cent)</i>	9.0	6.5	5.4	3.3	5.9	6.4	5.8	4.1	5.8	7.1
<i>Growth with imputation and weighting (per cent)</i>	9.4	6.6	6.3	3.6	5.8	6.8	5.4	4.3	5.7	7.0
1999										
No imputation or weighting	32,666	27,664	24,886	14,215	17,850	15,980	15,066	16,180	13,752	20,858
Imputation only	32,661	27,687	24,901	14,221	17,859	15,995	15,099	16,179	13,764	20,872
<i>Difference (per cent)</i>	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.1	0.1
Imputation and weighting	32,741	27,753	24,725	14,166	17,874	15,928	15,037	16,185	13,590	21,314
<i>Total Difference (per cent)</i>	0.2	0.3	-0.6	-0.3	0.1	-0.3	-0.2	0.0	-1.2	2.2
<i>Growth with no imputation or weighting (per cent)</i>										
<i>Growth with imputation and weighting (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

d Occupations are coded according to the Standard Occupational Classification 1990.

Table A10 Average gross weekly pay^a and growth^b in April 2002 to 2003 by occupational group^c for full-time employees^c; United Kingdom

	Managers and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Personal service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations	All occupations
2003										
No imputation or weighting	745.3	649.2	527.1	337.6	411.0	282.0	288.0	371.7	306.5	474.2
Imputation only	743.9	649.4	527.4	337.7	412.1	282.7	288.5	372.8	307.0	474.5
<i>Difference (per cent)</i>	-0.2	0.0	0.1	0.0	0.3	0.2	0.2	0.3	0.1	0.1
Imputation and weighting	738.1	653.1	530.6	335.7	410.1	280.8	282.5	370.8	300.4	487.6
<i>Total Difference (per cent)</i>	-1.0	0.6	0.7	-0.6	-0.2	-0.4	-1.9	-0.3	-2.0	2.8
<i>Growth with no imputation or weighting (per cent)</i>	2.2	2.1	2.2	4.4	3.8	3.2	-1.3	4.4	4.4	2.5
<i>Growth with imputation and weighting (per cent)</i>	2.0	2.6	2.5	4.3	4.1	4.0	-1.4	3.9	5.0	3.3
2002										
No imputation or weighting	729.2	635.7	515.6	323.5	396.1	273.4	291.8	356.2	293.5	462.4
Imputation only	728.6	635.7	515.8	323.8	396.3	273.7	292.4	356.9	292.8	462.4
<i>Difference (per cent)</i>	-0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	-0.2	0.0
Imputation and weighting	723.7	636.8	517.6	321.9	393.8	270.0	286.5	356.8	286.1	472.1
<i>Total Difference (per cent)</i>	-0.8	0.2	0.4	-0.5	-0.6	-1.2	-1.8	0.2	-2.5	2.1
<i>Growth with no imputation or weighting (per cent)</i>										
<i>Growth with imputation and weighting (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 2000.

Table A10a Average gross weekly pay^a and growth^b in April 1998 to 2001 by occupational group^c for full-time employees^d; United Kingdom

	Managers and administrators	Professional occupations	Associate professional and technical occupations	Clerical and secretarial occupations	Craft and related occupations	Personal and protective service occupations	Sales occupations	Plant and machine operatives	Other occupations	All occupations
2001										
No imputation or weighting	667.9	601.5	505.5	296.3	384.1	320.0	316.7	342.6	291.3	442.3
Imputation only	667.8	600.5	506.5	296.4	385.2	319.3	317.0	342.8	290.0	442.2
<i>Difference (per cent)</i>	0.0	-0.2	0.2	0.0	0.3	-0.2	0.1	0.1	-0.4	0.0
Imputation and weighting	673.5	602.1	506.8	295.9	385.0	319.0	317.5	342.3	285.3	449.7
<i>Total Difference (per cent)</i>	0.8	0.1	0.3	-0.1	0.2	-0.3	0.3	-0.1	-2.1	1.7
<i>Growth with no imputation or weighting (per cent)</i>	5.9	6.3	5.1	4.7	4.4	3.2	3.6	4.0	4.8	5.8
<i>Growth with imputation and weighting (per cent)</i>	6.3	6.2	5.7	4.8	4.4	3.7	4.6	3.9	4.3	5.8
2000										
No imputation or weighting	630.9	566.0	480.7	282.9	367.9	310.0	305.6	329.4	278.1	418.1
Imputation only	630.2	565.9	480.9	282.9	369.1	309.3	305.8	329.6	277.2	417.9
<i>Difference (per cent)</i>	-0.1	0.0	0.0	0.0	0.3	-0.2	0.1	0.1	-0.3	0.0
Imputation and weighting	633.8	566.9	479.6	282.5	368.7	307.6	303.6	329.6	273.5	425.1
<i>Total Difference (per cent)</i>	0.5	0.2	-0.2	-0.1	0.2	-0.8	-0.7	0.1	-1.7	1.7
<i>Growth with no imputation or weighting (per cent)</i>	5.6	4.3	2.9	2.8	3.4	3.5	1.3	3.4	2.6	4.5
<i>Growth with imputation and weighting (per cent)</i>	5.9	4.4	3.5	3.0	3.1	3.7	0.5	3.5	2.2	4.2
1999										
No imputation or weighting	597.6	542.6	467.3	275.1	355.9	299.7	301.8	318.6	271.1	400.1
Imputation only	597.7	542.2	467.3	275.1	357.5	299.1	303.1	318.8	271.4	400.4
<i>Difference (per cent)</i>	0.0	-0.1	0.0	0.0	0.4	-0.2	0.4	0.1	0.1	0.1
Imputation and weighting	598.7	543.2	463.5	274.2	357.8	296.7	302.0	318.6	267.5	407.8
<i>Total Difference (per cent)</i>	0.2	0.1	-0.8	-0.3	0.5	-1.0	0.1	0.0	-1.3	1.9
<i>Growth with no imputation or weighting (per cent)</i>	4.9	3.7	2.4	3.1	2.4	4.2	4.2	1.5	4.0	4.1
<i>Growth with imputation and weighting (per cent)</i>	5.2	3.3	3.2	3.2	2.1	4.6	4.4	1.4	4.4	3.9
1998										
No imputation or weighting	569.9	523.1	456.5	266.9	347.7	287.6	289.5	313.9	260.6	384.4
Imputation only	569.9	525.4	454.7	266.9	349.8	286.8	290.8	314.2	260.7	385.0
<i>Difference (per cent)</i>	0.0	0.4	-0.4	0.0	0.6	-0.3	0.4	0.1	0.0	0.1
Imputation and weighting	569.0	526.1	449.3	265.8	350.4	283.6	289.2	314.2	256.3	392.5
<i>Total Difference (per cent)</i>	-0.2	0.6	-1.6	-0.4	0.8	-1.4	-0.1	0.1	-1.6	2.1
<i>Growth with no imputation or weighting (per cent)</i>										
<i>Growth with imputation and weighting (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 1990.

Table A11 Average gross hourly pay^a and growth^b in April 2000 to 2003 by occupational group^c for full-time employees^c; United Kingdom

	Managers and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Personal service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations	All occupations
2003										
No imputation or weighting	19.15	18.03	13.65	9.01	9.65	7.22	7.44	8.32	7.20	11.97
Imputation only	19.05	17.93	13.68	8.99	9.66	7.20	7.41	8.32	7.18	11.97
<i>Difference (per cent)</i>	-0.5	-0.6	0.2	-0.2	0.0	-0.3	-0.3	0.0	-0.3	0.0
Imputation and weighting	18.91	17.98	13.76	8.95	9.61	7.16	7.27	8.28	7.06	12.31
<i>Total Difference (per cent)</i>	-1.3	-0.3	0.8	-0.6	-0.4	-0.9	-2.2	-0.4	-1.9	2.9
<i>Growth with no imputation or weighting (per cent)</i>	2.3	2.4	2.2	4.2	4.0	3.1	0.0	4.1	4.6	2.8
<i>Growth with imputation and weighting (per cent)</i>	1.6	2.1	2.2	4.5	4.0	3.4	-0.6	3.3	4.9	3.2
2002										
No imputation or weighting	18.72	17.60	13.36	8.64	9.29	7.01	7.44	7.99	6.88	11.64
Imputation only	18.74	17.61	13.42	8.61	9.30	7.01	7.46	8.01	6.85	11.68
<i>Difference (per cent)</i>	0.1	0.0	0.4	-0.4	0.1	0.0	0.2	0.3	-0.4	0.3
Imputation and weighting	18.62	17.61	13.46	8.57	9.24	6.93	7.32	8.01	6.73	11.93
<i>Total Difference (per cent)</i>	-0.5	0.1	0.7	-0.8	-0.5	-1.1	-1.6	0.3	-2.2	2.5
<i>Growth with no imputation or weighting (per cent)</i>										
<i>Growth with imputation and weighting (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 2000.

Table A11a Average gross hourly pay^a and growth^b in April 1998 to 2001 by occupational group^c for full-time employees^c; United Kingdom

	Managers and administrators	Professional occupations	Associate professional and technical occupations	Clerical and secretarial occupations	Craft and related occupations	Personal and protective service occupations	Sales occupations	Plant and machine operatives	Other occupations	All occupations
2001										
No imputation or weighting	17.24	16.80	13.24	7.75	8.94	7.89	8.13	7.69	6.76	11.11
Imputation only	17.22	16.77	13.27	7.74	8.96	7.84	8.14	7.70	6.72	11.12
<i>Difference (per cent)</i>	-0.1	-0.2	0.2	-0.2	0.2	-0.6	0.1	0.1	-0.7	0.1
Imputation and weighting	17.36	16.79	13.27	7.73	8.95	7.88	8.16	7.69	6.64	11.33
<i>Total Difference (per cent)</i>	0.7	-0.1	0.3	-0.3	0.2	-0.1	0.3	0.0	-1.8	1.9
<i>Growth with no imputation or weighting (per cent)</i>	6.2	5.8	5.3	4.6	4.8	2.3	3.6	4.1	6.1	6.1
<i>Growth with imputation and weighting (per cent)</i>	6.3	5.9	5.2	4.5	4.7	2.6	4.4	3.9	5.5	5.8
2000										
No imputation or weighting	16.24	15.88	12.57	7.41	8.53	7.71	7.85	7.39	6.37	10.48
Imputation only	16.24	15.83	12.66	7.41	8.56	7.68	7.86	7.40	6.36	10.51
<i>Difference (per cent)</i>	0.0	-0.3	0.7	0.0	0.4	-0.5	0.2	0.1	-0.2	0.3
Imputation and weighting	16.32	15.84	12.62	7.40	8.55	7.68	7.81	7.40	6.30	10.71
<i>Total Difference (per cent)</i>	0.5	-0.2	0.4	-0.2	0.2	-0.4	-0.5	0.2	-1.2	2.2
<i>Growth with no imputation or weighting (per cent)</i>	5.6	4.3	3.1	3.1	3.6	4.0	1.3	3.3	3.0	4.7
<i>Growth with imputation and weighting (per cent)</i>	6.0	4.1	3.9	3.3	3.5	4.1	1.2	3.3	2.7	4.4
1999										
No imputation or weighting	15.38	15.23	12.20	7.19	8.23	7.42	7.75	7.15	6.19	10.00
Imputation only	15.39	15.21	12.25	7.18	8.26	7.39	7.74	7.16	6.19	10.03
<i>Difference (per cent)</i>	0.0	-0.1	0.4	-0.1	0.3	-0.5	-0.1	0.2	0.1	0.3
Imputation and weighting	15.40	15.22	12.15	7.16	8.27	7.38	7.71	7.17	6.13	10.26
<i>Total Difference (per cent)</i>	0.1	-0.1	-0.4	-0.4	0.4	-0.5	-0.5	0.2	-1.0	2.6
<i>Growth with no imputation or weighting (per cent)</i>	5.2	3.6	3.3	3.3	3.5	5.4	4.5	2.8	4.2	4.9
<i>Growth with imputation and weighting (per cent)</i>	5.6	3.6	3.4	3.4	3.4	5.3	4.3	2.7	4.5	4.5
1998										
No imputation or weighting	14.62	14.70	11.81	6.96	7.95	7.04	7.42	6.96	5.94	9.54
Imputation only	14.61	14.69	11.89	6.95	7.99	7.01	7.43	6.98	5.94	9.58
<i>Difference (per cent)</i>	0.0	-0.1	0.7	-0.1	0.5	-0.3	0.1	0.2	0.1	0.4
Imputation and weighting	14.59	14.69	11.75	6.92	8.00	7.01	7.39	6.98	5.86	9.82
<i>Total Difference (per cent)</i>	-0.2	0.0	-0.5	-0.5	0.6	-0.4	-0.4	0.3	-1.3	2.9
<i>Growth with no imputation or weighting (per cent)</i>										
<i>Growth with imputation and weighting (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 1990.

Table A12 Average total weekly hours^a and growth^b in April 2000 to 2003 by occupational group^c for full-time employees[;] United Kingdom

	Managers and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Personal service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations	All occupations
2003										
No imputation or weighting	39.0	36.2	38.5	37.5	42.6	39.2	38.8	44.7	42.7	39.6
Imputation only	39.0	36.2	38.5	37.6	42.7	39.3	38.9	44.8	42.8	39.6
<i>Difference (per cent)</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>0.2</i>	<i>0.2</i>	<i>0.3</i>	<i>0.3</i>	<i>0.2</i>	<i>0.1</i>
Imputation and weighting	39.0	36.3	38.6	37.5	42.7	39.2	38.8	44.8	42.6	39.6
<i>Total Difference (per cent)</i>	<i>0.2</i>	<i>0.3</i>	<i>0.2</i>	<i>-0.1</i>	<i>0.2</i>	<i>0.1</i>	<i>0.1</i>	<i>0.2</i>	<i>-0.3</i>	<i>0.0</i>
<i>Growth with no imputation or weighting (per cent)</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>-0.2</i>	<i>-0.2</i>	<i>0.3</i>	<i>-1.0</i>	<i>0.2</i>	<i>-0.2</i>	<i>-0.1</i>
<i>Growth with imputation and weighting (per cent)</i>	<i>0.4</i>	<i>0.5</i>	<i>0.3</i>	<i>-0.1</i>	<i>0.1</i>	<i>0.6</i>	<i>-0.8</i>	<i>0.6</i>	<i>0.1</i>	<i>0.1</i>
2002										
No imputation or weighting	38.9	36.1	38.4	37.6	42.6	39.1	39.2	44.6	42.8	39.6
Imputation only	38.9	36.1	38.4	37.6	42.6	39.1	39.2	44.5	42.7	39.6
<i>Difference (per cent)</i>	<i>0.0</i>	<i>-0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>-0.1</i>	<i>-0.1</i>	<i>-0.1</i>
Imputation and weighting	38.9	36.2	38.5	37.6	42.6	39.0	39.2	44.5	42.5	39.6
<i>Total Difference (per cent)</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>-0.1</i>	<i>-0.1</i>	<i>-0.3</i>	<i>-0.2</i>	<i>-0.1</i>	<i>-0.6</i>	<i>-0.1</i>
<i>Growth with no imputation or weighting (per cent)</i>										
<i>Growth with imputation and weighting (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 2000.

Table A12a Average total weekly hours^a and growth^b in April 1998 to 2001 by occupational group^c for full-time employees[†]; United Kingdom

	Managers and administrators	Professional occupations	Associate professional and technical occupations	Clerical and secretarial occupations	Craft and related occupations	Personal and protective service occupations	Sales occupations	Plant and machine operatives	Other occupations	All occupations
2001										
No imputation or weighting	38.8	35.8	38.2	38.3	43.0	40.7	39.0	44.5	43.2	39.8
Imputation only	38.8	35.8	38.2	38.3	43.0	40.7	39.0	44.5	43.2	39.8
<i>Difference (per cent)</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1
Imputation and weighting	38.8	35.9	38.2	38.3	43.0	40.5	38.9	44.5	43.0	39.7
<i>Total Difference (per cent)</i>	0.1	0.1	0.0	-0.1	0.0	-0.7	-0.1	-0.1	-0.6	-0.2
<i>Growth with no imputation or weighting (per cent)</i>	-0.1	0.3	0.4	0.3	-0.3	1.0	0.2	0.0	-0.9	-0.1
<i>Growth with imputation and weighting (per cent)</i>	-0.1	0.3	0.5	0.2	-0.3	1.1	0.1	0.0	-1.1	0.0
2000										
No imputation or weighting	38.8	35.7	38.0	38.2	43.1	40.3	38.9	44.6	43.7	39.8
Imputation only	38.8	35.7	38.0	38.2	43.1	40.3	38.9	44.5	43.6	39.8
<i>Difference (per cent)</i>	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.1
Imputation and weighting	38.8	35.8	38.0	38.2	43.1	40.0	38.9	44.5	43.4	39.7
<i>Total Difference (per cent)</i>	0.1	0.2	0.0	0.0	0.0	-0.7	-0.1	-0.1	-0.5	-0.3
<i>Growth with no imputation or weighting (per cent)</i>	-0.1	0.2	-0.4	-0.3	-0.3	-0.4	-0.5	0.1	-0.5	-0.3
<i>Growth with imputation and weighting (per cent)</i>	-0.1	0.3	-0.4	-0.3	-0.4	-0.4	-0.7	0.1	-0.5	-0.2
1999										
No imputation or weighting	38.9	35.7	38.2	38.3	43.3	40.5	39.1	44.5	43.9	39.9
Imputation only	38.9	35.6	38.2	38.3	43.3	40.5	39.2	44.5	43.8	39.9
<i>Difference (per cent)</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	-0.1	-0.1
Imputation and weighting	38.9	35.7	38.2	38.3	43.3	40.2	39.2	44.5	43.7	39.8
<i>Total Difference (per cent)</i>	0.0	0.1	0.0	0.0	0.0	-0.8	0.1	-0.1	-0.5	-0.5
<i>Growth with no imputation or weighting (per cent)</i>	-0.4	-0.4	-0.2	-0.2	-1.1	-1.0	0.0	-1.2	-0.1	-0.7
<i>Growth with imputation and weighting (per cent)</i>	-0.4	-0.3	-0.2	-0.2	-1.2	-0.7	0.1	-1.2	-0.1	-0.6
1998										
No imputation or weighting	39.0	35.8	38.2	38.4	43.8	40.9	39.1	45.0	43.9	40.2
Imputation only	39.0	35.8	38.2	38.4	43.8	40.9	39.1	45.0	43.9	40.2
<i>Difference (per cent)</i>	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	-0.1	-0.1
Imputation and weighting	39.0	35.8	38.2	38.4	43.8	40.5	39.1	45.0	43.7	40.0
<i>Total Difference (per cent)</i>	0.0	0.1	0.0	0.0	0.1	-1.1	0.1	0.0	-0.4	-0.6
<i>Growth with no imputation or weighting (per cent)</i>										
<i>Growth with imputation and weighting (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 1990.

Table A13 Average gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by government office region and country for full-time employees^d; United Kingdom

	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom ^d
2003													
No imputation or weighting	20,925	22,744	22,132	22,356	22,754	23,081	24,880	36,047	26,672	21,387	22,639	21,242	25,060
Imputation only	20,945	22,782	22,190	22,377	22,803	23,142	24,936	36,064	26,729	21,385	22,657	21,242	25,097
<i>Difference (per cent)</i>	0.1	0.2	0.3	0.1	0.2	0.3	0.2	0.0	0.2	0.0	0.1	0.0	0.1
Imputation and weighting	21,317	23,315	22,691	22,829	23,297	23,676	25,532	37,672	27,537	21,825	23,169	21,645	25,866
<i>Total Difference (per cent)</i>	1.9	2.5	2.5	2.1	2.4	2.6	2.6	4.5	3.2	2.0	2.3	1.9	3.2
<i>Growth with no imputation or weighting (per cent)</i>	2.4	2.1	3.5	3.1	2.5	3.6	3.9	4.3	2.0	3.7	3.6	1.7	3.1
<i>Growth with imputation and weighting (per cent)</i>	2.5	2.5	4.1	3.5	3.2	4.3	4.5	5.4	3.2	4.2	3.8	2.0	3.8
2002													
No imputation or weighting	20,426	22,283	21,380	21,688	22,192	22,275	23,939	34,576	26,148	20,623	21,850	20,896	24,295
Imputation only	20,496	22,297	21,433	21,723	22,225	22,299	23,999	34,582	26,198	20,631	21,926	20,892	24,337
<i>Difference (per cent)</i>	0.3	0.1	0.2	0.2	0.1	0.1	0.2	0.0	0.2	0.0	0.3	0.0	0.2
Imputation and weighting	20,798	22,738	21,805	22,065	22,571	22,706	24,434	35,739	26,691	20,951	22,317	21,225	24,911
<i>Total Difference (per cent)</i>	1.8	2.0	2.0	1.7	1.7	1.9	2.1	3.4	2.1	1.6	2.1	1.6	2.5
<i>Growth with no imputation or weighting (per cent)</i>	3.0	5.1	4.0	4.9	2.3	5.2	3.3	0.7	4.9	3.7	3.5	5.6	3.7
<i>Growth with imputation and weighting (per cent)</i>	3.5	5.3	4.5	5.4	2.5	5.5	3.5	1.7	5.7	3.9	3.7	5.4	4.1
2001													
No imputation or weighting	19,824	21,195	20,557	20,671	21,697	21,179	23,172	34,335	24,933	19,889	21,103	19,782	23,427
Imputation only	19,826	21,225	20,550	20,676	21,720	21,180	23,211	34,332	24,945	19,899	21,150	19,748	23,444
<i>Difference (per cent)</i>	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.2	-0.2	0.1
Imputation and weighting	20,103	21,594	20,875	20,932	22,024	21,524	23,615	35,140	25,259	20,161	21,523	20,131	23,925
<i>Total Difference (per cent)</i>	1.4	1.9	1.5	1.3	1.5	1.6	1.9	2.3	1.3	1.4	2.0	1.8	2.1
<i>Growth with no imputation or weighting (per cent)</i>	2.8	4.2	4.4	4.1	6.9	5.0	5.1	6.5	6.1	3.4	4.1	5.8	4.9
<i>Growth with imputation and weighting (per cent)</i>	2.8	4.5	4.3	3.9	6.8	5.1	5.3	6.5	5.8	3.4	4.1	5.3	4.9

Table A13 Average gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by government office region and country for full-time employees^d; United Kingdom

	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom ^d
2000													
No imputation or weighting	19,282	20,337	19,696	19,851	20,290	20,166	22,044	32,238	23,502	19,233	20,268	18,705	22,336
Imputation only	19,269	20,322	19,693	19,867	20,298	20,157	22,041	32,217	23,511	19,223	20,321	18,737	22,338
<i>Difference (per cent)</i>	-0.1	-0.1	0.0	0.1	0.0	0.0	0.0	-0.1	0.0	-0.1	0.3	0.2	0.0
Imputation and weighting	19,560	20,670	20,018	20,144	20,631	20,482	22,424	33,000	23,867	19,507	20,678	19,112	22,801
<i>Total Difference (per cent)</i>	1.4	1.6	1.6	1.5	1.7	1.6	1.7	2.4	1.6	1.4	2.0	2.2	2.1
<i>Growth with no imputation or weighting (per cent)</i>	7.2	5.7	5.8	7.0	5.1	6.9	7.6	11.7	7.0	5.8	4.6	-0.1	7.1
<i>Growth with imputation and weighting (per cent)</i>	6.6	5.4	5.5	6.8	4.8	6.7	7.5	11.3	6.7	5.5	5.1	0.1	7.0
1999													
No imputation or weighting	17,983	19,249	18,622	18,549	19,297	18,867	20,490	28,849	21,959	18,179	19,375	18,719	20,858
Imputation only	18,025	19,266	18,627	18,567	19,308	18,867	20,504	28,873	21,986	18,207	19,386	18,643	20,872
<i>Difference (per cent)</i>	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	-0.4	0.1
Imputation and weighting	18,351	19,609	18,977	18,864	19,686	19,203	20,866	29,640	22,361	18,486	19,667	19,093	21,314
<i>Total Difference (per cent)</i>	2.0	1.9	1.9	1.7	2.0	1.8	1.8	2.7	1.8	1.7	1.5	2.0	2.2
<i>Growth with no imputation or weighting (per cent)</i>													
<i>Growth with imputation and weighting (per cent)</i>													

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

d United Kingdom figures may not be consistent with all full-time employees figures due to missing regional classification information

Table A14 Average gross weekly pay^a and growth^b in April 1998 to 2003 by government office region and country for full-time employees^c; United Kingdom

	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom ^c
2003													
No imputation or weighting	402.0	437.7	426.5	429.1	435.7	440.3	476.8	638.1	505.8	414.7	436.9	404.2	474.3
Imputation only	401.4	437.4	427.1	429.8	436.6	440.9	477.9	638.0	506.4	414.7	437.0	404.6	474.6
<i>Difference (per cent)</i>	-0.1	-0.1	0.1	0.2	0.2	0.1	0.2	0.0	0.1	0.0	0.0	0.1	0.1
Imputation and weighting	408.4	446.8	436.1	438.1	445.3	450.2	487.8	663.0	520.7	422.6	446.1	411.8	487.6
<i>Total Difference (per cent)</i>	1.6	2.1	2.2	2.1	2.2	2.3	2.3	3.9	2.9	1.9	2.1	1.9	2.8
<i>Growth with no imputation or weighting (per cent)</i>	1.9	2.6	3.9	3.6	1.9	4.2	4.3	2.3	1.4	3.8	2.3	3.6	2.6
<i>Growth with imputation and weighting (per cent)</i>	1.9	2.9	4.6	4.3	2.6	4.9	5.1	3.4	2.6	4.3	2.7	3.8	3.3
2002													
No imputation or weighting	394.4	426.8	410.3	414.3	427.3	422.4	457.1	624.0	498.6	399.5	427.0	390.1	462.3
Imputation only	394.8	426.6	410.1	414.4	427.2	422.4	456.9	623.2	498.6	399.2	427.5	391.6	462.2
<i>Difference (per cent)</i>	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	0.1	0.4	0.0
Imputation and weighting	400.7	434.4	416.8	420.1	433.9	429.2	464.0	641.3	507.5	405.2	434.6	396.8	472.1
<i>Total Difference (per cent)</i>	1.6	1.8	1.6	1.4	1.5	1.6	1.5	2.8	1.8	1.4	1.8	1.7	2.1
<i>Growth with no imputation or weighting (per cent)</i>	3.8	4.6	4.8	5.3	2.1	3.4	4.3	4.7	5.5	4.7	5.5	4.0	4.5
<i>Growth with imputation and weighting (per cent)</i>	4.3	4.8	5.1	5.5	2.3	3.8	4.5	5.7	6.3	5.0	5.7	4.0	5.0
2001													
No imputation or weighting	379.8	408.1	391.7	393.5	418.6	408.6	438.3	595.7	472.6	381.7	404.9	375.0	442.3
Imputation only	379.5	408.4	391.2	393.9	418.6	407.9	438.1	595.5	472.1	381.6	405.2	375.6	442.1
<i>Difference (per cent)</i>	-0.1	0.1	-0.1	0.1	0.0	-0.2	-0.1	0.0	-0.1	0.0	0.1	0.1	0.0
Imputation and weighting	384.0	414.3	396.5	398.2	424.0	413.4	444.1	606.6	477.2	385.8	411.1	381.5	449.7
<i>Total Difference (per cent)</i>	1.1	1.5	1.2	1.2	1.3	1.2	1.3	1.8	1.0	1.1	1.5	1.7	1.7
<i>Growth with no imputation or weighting (per cent)</i>	3.2	4.9	4.5	5.1	8.1	7.4	5.3	6.1	6.6	3.6	5.7	4.0	5.8
<i>Growth with imputation and weighting (per cent)</i>	3.1	5.0	4.2	5.0	7.9	7.4	5.3	6.1	6.5	3.5	5.8	3.8	5.8

Table A14 Average gross weekly pay^a and growth^b in April 1998 to 2003 by government office region and country for full-time employees^c; United Kingdom

	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom ^c
2000													
No imputation or weighting	367.9	389.0	374.9	374.4	387.2	380.6	416.1	561.6	443.2	368.4	383.0	360.4	418.1
Imputation only	367.7	388.9	374.9	374.9	387.5	380.2	415.5	560.7	442.9	368.3	382.9	361.3	417.9
<i>Difference (per cent)</i>	-0.1	0.0	0.0	0.1	0.1	-0.1	-0.1	-0.2	-0.1	0.0	0.0	0.2	0.0
Imputation and weighting	372.5	394.6	380.4	379.2	392.8	385.0	421.7	571.5	448.3	372.8	388.6	367.6	425.1
<i>Total Difference (per cent)</i>	1.2	1.5	1.5	1.3	1.4	1.2	1.3	1.8	1.1	1.2	1.5	2.0	1.7
<i>Growth with no imputation or weighting (per cent)</i>	5.2	4.1	4.0	3.3	3.0	4.1	4.7	7.0	4.6	4.1	3.5	4.5	4.5
<i>Growth with imputation and weighting (per cent)</i>	4.7	3.9	3.8	3.1	2.7	3.6	4.5	6.5	4.3	3.9	3.1	4.3	4.2
1999													
No imputation or weighting	349.8	373.7	360.6	362.4	375.8	365.5	397.3	524.8	423.6	354.0	370.1	344.9	400.1
Imputation only	350.1	373.9	360.9	363.2	375.9	365.9	397.3	524.8	423.9	354.2	370.3	346.4	400.4
<i>Difference (per cent)</i>	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.4	0.1
Imputation and weighting	355.7	379.9	366.6	368.0	382.6	371.6	403.5	536.5	430.0	358.7	377.0	352.4	407.8
<i>Total Difference (per cent)</i>	1.7	1.7	1.7	1.5	1.8	1.7	1.6	2.2	1.5	1.3	1.9	2.2	1.9
<i>Growth with no imputation or weighting (per cent)</i>	3.2	2.9	4.5	3.5	4.4	3.1	4.5	4.0	4.3	3.2	5.7	3.7	4.1
<i>Growth with imputation and weighting (per cent)</i>	2.9	2.6	4.1	3.2	4.2	2.8	4.2	4.0	4.0	2.9	4.7	3.7	3.9
1998													
No imputation or weighting	338.8	363.3	345.1	350.3	359.8	354.6	380.3	504.4	406.3	343.1	350.0	332.6	384.4
Imputation only	339.4	363.5	346.2	350.9	360.2	354.9	380.5	504.5	406.7	343.7	353.8	333.0	385.0
<i>Difference (per cent)</i>	0.2	0.1	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.2	1.1	0.1	0.1
Imputation and weighting	345.5	370.4	352.1	356.6	367.0	361.4	387.1	515.7	413.3	348.5	360.2	339.8	392.5
<i>Total Difference (per cent)</i>	2.0	2.0	2.0	1.8	2.0	1.9	1.8	2.2	1.7	1.6	2.9	2.2	2.1
<i>Growth with no imputation or weighting (per cent)</i>													
<i>Growth with imputation and weighting (per cent)</i>													

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c United Kingdom figures may not be consistent with all full-time employees figures due to missing regional classification information

Table A15 Average gross hourly pay^a and growth^b in April 1998 to 2003 by government office region and country for full-time employees^c; United Kingdom

	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom ^c
2003													
No imputation or weighting	10.22	11.00	10.67	10.68	10.95	11.09	11.89	16.48	12.73	10.48	11.03	10.27	11.97
Imputation only	10.20	11.07	10.69	10.67	10.97	11.12	11.89	16.42	12.74	10.48	11.02	10.28	11.97
Difference (per cent)	-0.2	0.7	0.2	-0.1	0.2	0.2	0.0	-0.4	0.1	0.0	-0.1	0.1	0.0
Imputation and weighting	10.36	11.31	10.91	10.88	11.19	11.35	12.14	17.11	13.14	10.67	11.25	10.46	12.31
Total Difference (per cent)	1.4	2.8	2.3	1.9	2.2	2.3	2.1	3.8	3.2	1.8	2.0	1.8	2.8
Growth with no imputation or weighting (per cent)	2.5	2.4	4.6	4.2	2.5	4.3	4.4	2.3	1.6	3.7	3.4	4.3	2.8
Growth with imputation and weighting (per cent)	2.2	2.8	4.8	4.3	2.5	4.8	4.6	3.1	2.8	3.9	2.1	4.4	3.2
2002													
No imputation or weighting	9.97	10.75	10.20	10.25	10.68	10.63	11.39	16.11	12.53	10.10	10.66	9.85	11.64
Imputation only	9.99	10.81	10.25	10.29	10.75	10.66	11.42	16.11	12.54	10.12	10.83	9.89	11.68
Difference (per cent)	0.2	0.5	0.5	0.4	0.6	0.2	0.3	0.0	0.1	0.1	1.5	0.4	0.3
Imputation and weighting	10.14	11.01	10.41	10.44	10.92	10.83	11.61	16.59	12.77	10.27	11.01	10.02	11.93
Total Difference (per cent)	1.7	2.4	2.1	1.8	2.2	1.8	1.9	3.0	2.0	1.7	3.2	1.7	2.5
Growth with no imputation or weighting (per cent)	4.3	4.8	4.2	5.4	1.8	4.0	4.7	5.3	5.6	5.3	5.5	4.5	4.7
Growth with imputation and weighting (per cent)	5.1	5.4	4.9	5.8	2.5	4.6	5.0	6.4	6.6	5.9	5.6	4.4	5.4
2001													
No imputation or weighting	9.56	10.25	9.79	9.73	10.49	10.22	10.88	15.31	11.86	9.59	10.11	9.42	11.11
Imputation only	9.53	10.28	9.78	9.74	10.50	10.20	10.89	15.29	11.86	9.59	10.27	9.44	11.12
Difference (per cent)	-0.3	0.3	-0.1	0.1	0.1	-0.2	0.2	-0.1	0.0	0.0	1.5	0.2	0.1
Imputation and weighting	9.65	10.44	9.93	9.87	10.65	10.36	11.06	15.59	11.98	9.71	10.43	9.60	11.33
Total Difference (per cent)	1.0	1.9	1.4	1.4	1.5	1.3	1.7	1.9	1.0	1.2	3.2	1.9	1.9
Growth with no imputation or weighting (per cent)	3.6	5.1	5.1	5.1	8.4	7.0	5.5	6.9	6.6	4.0	5.7	4.2	6.1
Growth with imputation and weighting (per cent)	3.1	5.0	4.6	4.9	8.0	6.8	5.3	6.0	6.2	3.6	5.8	3.9	5.8

Table A15 Average gross hourly pay^a and growth^b in April 1998 to 2003 by government office region and country for full-time employees^c; United Kingdom

	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom ^c
2000													
No imputation or weighting	9.22	9.75	9.31	9.25	9.68	9.55	10.31	14.32	11.13	9.22	9.56	9.04	10.48
Imputation only	9.22	9.78	9.33	9.27	9.71	9.55	10.33	14.40	11.14	9.24	9.69	9.07	10.51
Difference (per cent)	0.0	0.3	0.2	0.2	0.3	0.0	0.1	0.6	0.1	0.1	1.3	0.3	0.3
Imputation and weighting	9.36	9.94	9.49	9.41	9.87	9.69	10.50	14.70	11.29	9.37	9.85	9.24	10.71
Total Difference (per cent)	1.5	2.0	1.9	1.7	2.0	1.4	1.9	2.7	1.4	1.6	3.1	2.2	2.2
Growth with no imputation or weighting (per cent)	4.8	4.3	4.1	3.8	3.7	4.5	5.0	6.8	5.2	4.5	3.8	4.3	4.7
Growth with imputation and weighting (per cent)	4.4	4.1	3.5	3.5	3.1	3.9	4.5	6.6	4.7	4.3	3.2	4.0	4.4
1999													
No imputation or weighting	8.80	9.35	8.94	8.91	9.33	9.14	9.82	13.41	10.58	8.83	9.21	8.67	10.00
Imputation only	8.79	9.37	8.98	8.93	9.37	9.14	9.85	13.46	10.60	8.83	9.34	8.71	10.03
Difference (per cent)	0.0	0.2	0.4	0.2	0.4	0.0	0.2	0.4	0.2	0.0	1.4	0.4	0.3
Imputation and weighting	8.96	9.55	9.17	9.09	9.57	9.32	10.05	13.80	10.79	8.98	9.54	8.89	10.26
Total Difference (per cent)	1.9	2.2	2.5	2.0	2.6	2.0	2.3	2.9	1.9	1.7	3.6	2.5	2.6
Growth with no imputation or weighting (per cent)	4.4	3.9	4.9	5.1	5.4	3.7	5.1	4.9	4.8	4.3	5.4	4.1	4.9
Growth with imputation and weighting (per cent)	3.8	3.3	4.7	4.2	5.0	3.1	4.6	4.5	4.4	4.1	5.3	4.1	4.5
1998													
No imputation or weighting	8.42	9.00	8.53	8.48	8.86	8.81	9.35	12.79	10.09	8.46	8.74	8.33	9.54
Imputation only	8.44	9.03	8.55	8.53	8.90	8.84	9.38	12.86	10.12	8.47	8.85	8.34	9.58
Difference (per cent)	0.2	0.4	0.3	0.6	0.4	0.3	0.3	0.6	0.3	0.1	1.3	0.2	0.4
Imputation and weighting	8.64	9.25	8.75	8.73	9.12	9.05	9.60	13.20	10.33	8.63	9.06	8.54	9.82
Total Difference (per cent)	2.5	2.8	2.6	2.9	2.9	2.6	2.8	3.3	2.4	2.0	3.7	2.5	2.9
Growth with no imputation or weighting (per cent)													
Growth with imputation and weighting (per cent)													

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c United Kingdom figures may not be consistent with all full-time employees figures due to missing regional classification information

Table A16 Average total weekly hours^a and growth^b in April 1998 to 2003 by government office region and country for full-time employees^c; United Kingdom

	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom ^c
2003													
No imputation or weighting	39.3	39.5	39.9	40.2	39.7	39.6	40.2	38.8	39.7	39.5	39.6	39.4	39.6
Imputation only	39.4	39.5	40.0	40.3	39.8	39.7	40.2	38.9	39.7	39.6	39.7	39.4	39.6
<i>Difference (per cent)</i>	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.2	0.1	0.2	0.1	0.0	0.1
Imputation and weighting	39.4	39.5	40.0	40.3	39.8	39.7	40.2	38.7	39.6	39.6	39.7	39.4	39.6
<i>Total Difference (per cent)</i>	0.2	0.1	0.1	0.2	0.2	0.1	0.0	-0.1	-0.2	0.2	0.1	0.0	0.0
<i>Growth with no imputation or weighting (per cent)</i>	-0.5	-0.1	-0.3	-0.3	-0.1	-0.1	0.3	0.2	-0.2	0.0	0.1	-0.7	-0.1
<i>Growth with imputation and weighting (per cent)</i>	-0.3	0.1	-0.1	0.0	0.2	0.1	0.5	0.2	-0.2	0.4	0.5	-0.6	0.1
2002													
No imputation or weighting	39.5	39.5	40.1	40.3	39.8	39.7	40.1	38.7	39.8	39.5	39.6	39.6	39.6
Imputation only	39.5	39.5	40.0	40.3	39.8	39.6	40.0	38.7	39.7	39.5	39.5	39.6	39.6
<i>Difference (per cent)</i>	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	0.0	-0.1	-0.1	-0.2	0.0	-0.1
Imputation and weighting	39.5	39.5	40.0	40.3	39.7	39.6	40.0	38.7	39.7	39.4	39.5	39.6	39.6
<i>Total Difference (per cent)</i>	0.0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.3	-0.1	-0.2	-0.1	-0.3	0.0	-0.1
<i>Growth with no imputation or weighting (per cent)</i>	-0.7	-0.6	0.1	-0.4	-0.2	-0.8	-0.5	-0.6	-0.2	-0.8	0.1	-0.5	-0.4
<i>Growth with imputation and weighting (per cent)</i>	-0.7	-0.5	0.2	-0.3	-0.1	-0.7	-0.5	-0.6	-0.2	-0.8	0.1	-0.3	-0.3
2001													
No imputation or weighting	39.8	39.7	40.0	40.5	39.9	40.0	40.3	38.9	39.9	39.8	39.5	39.8	39.8
Imputation only	39.8	39.7	40.0	40.4	39.8	40.0	40.2	38.9	39.8	39.8	39.5	39.8	39.8
<i>Difference (per cent)</i>	0.0	0.0	-0.1	0.0	0.0	0.0	-0.2	0.0	-0.2	0.0	-0.2	0.0	-0.1
Imputation and weighting	39.8	39.7	39.9	40.4	39.8	39.9	40.2	38.9	39.8	39.7	39.4	39.7	39.7
<i>Total Difference (per cent)</i>	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.4	-0.1	-0.1	-0.2	-0.3	-0.2	-0.2
<i>Growth with no imputation or weighting (per cent)</i>	-0.2	-0.1	-0.5	0.0	-0.1	0.4	0.0	0.0	0.2	-0.2	-0.3	-0.1	-0.1
<i>Growth with imputation and weighting (per cent)</i>	0.0	0.0	-0.4	0.1	0.0	0.5	0.1	0.1	0.3	-0.1	-0.1	-0.1	0.0

Table A16 Average total weekly hours^a and growth^b in April 1998 to 2003 by government office region and country for full-time employees^c; United Kingdom

	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom ^c
2000													
No imputation or weighting	39.9	39.8	40.2	40.4	39.9	39.8	40.3	38.9	39.8	39.9	39.6	39.8	39.8
Imputation only	39.9	39.8	40.2	40.4	39.9	39.8	40.2	38.9	39.8	39.9	39.5	39.8	39.8
<i>Difference (per cent)</i>	0.0	-0.1	-0.1	0.0	0.0	0.0	-0.2	0.0	-0.1	0.0	-0.3	0.0	-0.1
Imputation and weighting	39.8	39.7	40.1	40.3	39.8	39.7	40.1	38.9	39.7	39.8	39.4	39.8	39.7
<i>Total Difference (per cent)</i>	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.4	-0.2	-0.2	-0.2	-0.5	-0.2	-0.3
<i>Growth with no imputation or weighting (per cent)</i>	0.2	-0.4	0.0	-0.6	-0.6	-0.5	-0.3	-0.2	-0.6	-0.6	-0.2	0.2	-0.3
<i>Growth with imputation and weighting (per cent)</i>	0.3	-0.2	0.2	-0.4	-0.4	-0.3	0.0	0.0	-0.4	-0.4	-0.2	0.3	-0.2
1999													
No imputation or weighting	39.8	40.0	40.2	40.7	40.1	40.0	40.4	39.0	40.0	40.1	39.7	39.8	39.9
Imputation only	39.8	39.9	40.2	40.7	40.1	40.0	40.3	39.0	40.0	40.1	39.7	39.8	39.9
<i>Difference (per cent)</i>	0.0	-0.1	-0.1	0.0	0.0	-0.1	-0.2	0.0	-0.1	0.0	-0.2	0.0	-0.1
Imputation and weighting	39.7	39.8	40.0	40.5	40.0	39.9	40.2	38.9	39.9	39.9	39.5	39.6	39.8
<i>Total Difference (per cent)</i>	-0.3	-0.4	-0.6	-0.5	-0.4	-0.5	-0.7	-0.3	-0.4	-0.5	-0.6	-0.3	-0.5
<i>Growth with no imputation or weighting (per cent)</i>	-1.0	-0.8	-0.7	-1.1	-0.9	-0.4	-0.6	-0.6	-0.5	-1.2	-0.8	-0.4	-0.7
<i>Growth with imputation and weighting (per cent)</i>	-0.8	-0.7	-0.6	-0.9	-0.7	-0.3	-0.4	-0.5	-0.3	-1.1	-0.6	-0.3	-0.6
1998													
No imputation or weighting	40.2	40.3	40.5	41.1	40.5	40.2	40.7	39.3	40.2	40.6	40.0	39.9	40.2
Imputation only	40.2	40.2	40.5	41.1	40.5	40.2	40.6	39.2	40.2	40.6	40.0	39.9	40.2
<i>Difference (per cent)</i>	0.0	-0.1	-0.1	0.0	0.0	0.0	-0.2	0.0	-0.1	0.0	-0.2	-0.1	-0.1
Imputation and weighting	40.0	40.0	40.2	40.9	40.3	40.0	40.3	39.1	40.0	40.4	39.7	39.8	40.0
<i>Total Difference (per cent)</i>	-0.5	-0.6	-0.7	-0.7	-0.6	-0.5	-0.9	-0.5	-0.6	-0.5	-0.8	-0.4	-0.6
<i>Growth with no imputation or weighting (per cent)</i>													
<i>Growth with imputation and weighting (per cent)</i>													

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c United Kingdom figures may not be consistent with all full-time employees figures due to missing regional classification information

Table A17 Average gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by age for full-time employees^c; United Kingdom

	Age				
	18 to 21	22 to 29	30 to 39	40 to 49	50 +
2003					
No imputation or weighting	12,080	19,573	26,383	27,634	25,087
Imputation only	12,124	19,572	26,424	27,676	25,156
<i>Difference (per cent)</i>	0.4	0.0	0.2	0.2	0.3
Imputation and weighting	12,140	20,112	27,489	28,902	25,554
<i>Total Difference (per cent)</i>	0.5	2.8	4.2	4.6	1.9
<i>Growth with no imputation or weighting (per cent)</i>	2.5	2.1	2.9	4.0	2.4
<i>Growth with imputation and weighting (per cent)</i>	2.1	2.3	3.7	5.2	2.5
2002					
No imputation or weighting	11,781	19,176	25,634	26,580	24,492
Imputation only	11,811	19,190	25,686	26,626	24,546
<i>Difference (per cent)</i>	0.3	0.1	0.2	0.2	0.2
Imputation and weighting	11,886	19,660	26,507	27,474	24,931
<i>Total Difference (per cent)</i>	0.9	2.5	3.4	3.4	1.8
<i>Growth with no imputation or weighting (per cent)</i>	3.2	4.2	3.6	3.7	3.9
<i>Growth with imputation and weighting (per cent)</i>	4.3	4.5	4.4	4.2	3.8
2001					
No imputation or weighting	11,417	18,396	24,731	25,639	23,569
Imputation only	11,407	18,400	24,747	25,668	23,594
<i>Difference (per cent)</i>	-0.1	0.0	0.1	0.1	0.1
Imputation and weighting	11,397	18,808	25,398	26,357	24,028
<i>Total Difference (per cent)</i>	-0.2	2.2	2.7	2.8	1.9
<i>Growth with no imputation or weighting (per cent)</i>	2.8	5.9	5.8	4.6	2.7
<i>Growth with imputation and weighting (per cent)</i>	2.1	6.0	5.5	4.4	3.0
2000					
No imputation or weighting	11,109	17,373	23,377	24,521	22,942
Imputation only	11,109	17,369	23,380	24,521	22,955
<i>Difference (per cent)</i>	0.0	0.0	0.0	0.0	0.1
Imputation and weighting	11,168	17,745	24,071	25,236	23,334
<i>Total Difference (per cent)</i>	0.5	2.1	3.0	2.9	1.7
<i>Growth with no imputation or weighting (per cent)</i>	7.3	6.6	6.4	6.4	7.3
<i>Growth with imputation and weighting (per cent)</i>	6.8	7.2	6.5	6.4	6.5
1999					
No imputation or weighting	10,355	16,300	21,968	23,052	21,381
Imputation only	10,352	16,301	21,981	23,068	21,408
<i>Difference (per cent)</i>	0.0	0.0	0.1	0.1	0.1
Imputation and weighting	10,458	16,560	22,593	23,723	21,905
<i>Total Difference (per cent)</i>	1.0	1.6	2.8	2.9	2.5
<i>Growth with no imputation or weighting (per cent)</i>					
<i>Growth with imputation and weighting (per cent)</i>					

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

Table A18 Average gross weekly pay^a and growth^b in April 1998 to 2003 by age for full-time employees^c; United Kingdom

	Age				
	18 to 21	22 to 29	30 to 39	40 to 49	50 +
2003					
No imputation or weighting	250.4	386.5	503.2	523.1	481.6
Imputation only	250.5	386.5	503.9	523.3	482.6
<i>Difference (per cent)</i>	0.0	0.0	0.1	0.0	0.2
Imputation and weighting	251.9	397.4	522.7	544.9	490.1
<i>Total Difference (per cent)</i>	0.6	2.8	3.9	4.2	1.8
<i>Growth with no imputation or weighting (per cent)</i>	2.0	1.4	2.2	3.0	2.5
<i>Growth with imputation and weighting (per cent)</i>	1.7	1.7	3.0	4.1	2.7
2002					
No imputation or weighting	245.4	381.3	492.3	507.9	470.0
Imputation only	245.4	381.3	492.5	508.0	470.0
<i>Difference (per cent)</i>	0.0	0.0	0.0	0.0	0.0
Imputation and weighting	247.7	390.8	507.5	523.6	477.2
<i>Total Difference (per cent)</i>	0.9	2.5	3.1	3.1	1.5
<i>Growth with no imputation or weighting (per cent)</i>	3.1	4.2	4.3	4.4	4.5
<i>Growth with imputation and weighting (per cent)</i>	3.4	4.6	5.0	5.0	4.3
2001					
No imputation or weighting	238.1	365.9	471.8	486.3	449.7
Imputation only	237.9	365.6	471.8	486.3	449.7
<i>Difference (per cent)</i>	-0.1	-0.1	0.0	0.0	0.0
Imputation and weighting	239.4	373.6	483.5	498.7	457.4
<i>Total Difference (per cent)</i>	0.5	2.1	2.5	2.6	1.7
<i>Growth with no imputation or weighting (per cent)</i>	6.4	6.9	6.7	5.0	4.8
<i>Growth with imputation and weighting (per cent)</i>	6.1	6.8	6.5	4.8	4.9
2000					
No imputation or weighting	223.7	342.3	442.1	463.0	429.1
Imputation only	223.5	342.2	442.1	462.8	428.9
<i>Difference (per cent)</i>	-0.1	0.0	0.0	0.0	0.0
Imputation and weighting	225.7	349.8	453.9	475.9	435.8
<i>Total Difference (per cent)</i>	0.9	2.2	2.7	2.8	1.6
<i>Growth with no imputation or weighting (per cent)</i>	1.6	4.3	4.1	4.6	4.0
<i>Growth with imputation and weighting (per cent)</i>	0.9	4.4	4.1	4.7	3.1
1999					
No imputation or weighting	220.2	328.3	424.7	442.6	412.8
Imputation only	220.2	328.7	425.0	442.8	413.4
<i>Difference (per cent)</i>	0.0	0.1	0.1	0.0	0.1
Imputation and weighting	223.6	335.2	436.1	454.7	422.7
<i>Total Difference (per cent)</i>	1.5	2.1	2.7	2.7	2.4
<i>Growth with no imputation or weighting (per cent)</i>	5.2	4.8	3.6	3.8	3.6
<i>Growth with imputation and weighting (per cent)</i>	5.6	4.7	3.3	3.2	3.6
1998					
No imputation or weighting	209.4	313.2	409.8	426.4	398.6
Imputation only	209.7	313.6	410.4	427.1	399.2
<i>Difference (per cent)</i>	0.2	0.1	0.1	0.2	0.1
Imputation and weighting	211.8	320.2	422.2	440.5	408.0
<i>Total Difference (per cent)</i>	1.2	2.2	3.0	3.3	2.4
<i>Growth with no imputation or weighting (per cent)</i>					
<i>Growth with imputation and weighting (per cent)</i>					

Source: Annual Survey of Hours and Earnings

^a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

^b Growth is year on year increase

Table A19 Average gross hourly pay^a and growth^b in April 1998 to 2003 by age for full-time employees^c; United Kingdom

	Age				
	18 to 21	22 to 29	30 to 39	40 to 49	50 +
2003					
No imputation or weighting	6.35	9.84	12.67	13.20	12.11
Imputation only	6.35	9.86	12.67	13.19	12.13
<i>Difference (per cent)</i>	-0.1	0.2	0.0	-0.1	0.2
Imputation and weighting	6.33	10.14	13.17	13.76	12.32
<i>Total Difference (per cent)</i>	-0.3	3.1	4.0	4.2	1.8
<i>Growth with no imputation or weighting (per cent)</i>	2.4	1.8	2.5	2.8	2.9
<i>Growth with imputation and weighting (per cent)</i>	2.1	2.0	3.0	3.7	2.4
2002					
No imputation or weighting	6.21	9.67	12.35	12.84	11.76
Imputation only	6.19	9.70	12.39	12.87	11.83
<i>Difference (per cent)</i>	-0.2	0.3	0.3	0.2	0.6
Imputation and weighting	6.20	9.95	12.78	13.27	12.03
<i>Total Difference (per cent)</i>	-0.1	2.9	3.5	3.4	2.3
<i>Growth with no imputation or weighting (per cent)</i>	3.6	4.5	4.6	4.7	4.7
<i>Growth with imputation and weighting (per cent)</i>	3.4	4.8	5.5	5.2	4.9
2001					
No imputation or weighting	5.99	9.25	11.81	12.26	11.24
Imputation only	5.99	9.28	11.80	12.28	11.26
<i>Difference (per cent)</i>	0.0	0.3	-0.1	0.2	0.2
Imputation and weighting	6.00	9.49	12.12	12.61	11.47
<i>Total Difference (per cent)</i>	0.1	2.5	2.6	2.9	2.1
<i>Growth with no imputation or weighting (per cent)</i>	6.4	7.1	7.1	5.1	5.1
<i>Growth with imputation and weighting (per cent)</i>	5.8	7.0	6.7	4.5	4.8
2000					
No imputation or weighting	5.63	8.64	11.02	11.67	10.69
Imputation only	5.64	8.66	11.04	11.71	10.74
<i>Difference (per cent)</i>	0.1	0.3	0.1	0.3	0.5
Imputation and weighting	5.67	8.87	11.36	12.07	10.95
<i>Total Difference (per cent)</i>	0.7	2.6	3.0	3.4	2.4
<i>Growth with no imputation or weighting (per cent)</i>	2.4	4.5	4.3	4.7	4.4
<i>Growth with imputation and weighting (per cent)</i>	1.8	4.8	4.1	4.6	3.3
1999					
No imputation or weighting	5.50	8.26	10.57	11.15	10.24
Imputation only	5.50	8.27	10.59	11.18	10.31
<i>Difference (per cent)</i>	0.0	0.1	0.2	0.3	0.6
Imputation and weighting	5.57	8.46	10.91	11.54	10.59
<i>Total Difference (per cent)</i>	1.3	2.4	3.2	3.5	3.4
<i>Growth with no imputation or weighting (per cent)</i>	5.4	5.6	4.3	4.7	4.5
<i>Growth with imputation and weighting (per cent)</i>	5.9	5.2	3.9	3.9	4.2
1998					
No imputation or weighting	5.22	7.83	10.13	10.65	9.80
Imputation only	5.23	7.85	10.15	10.70	9.88
<i>Difference (per cent)</i>	0.1	0.3	0.2	0.5	0.8
Imputation and weighting	5.26	8.04	10.50	11.11	10.17
<i>Total Difference (per cent)</i>	0.8	2.7	3.7	4.3	3.7
<i>Growth with no imputation or weighting (per cent)</i>					
<i>Growth with imputation and weighting (per cent)</i>					

Source: Annual Survey of Hours and Earnings

^a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

^b Growth is year on year increase

Table A20 Average total weekly hours^a and growth^b in April 1998 to 2003 by age for full-time employees^c; United Kingdom

	Age				
	18 to 21	22 to 29	30 to 39	40 to 49	50 +
2003					
No imputation or weighting	39.4	39.2	39.7	39.6	39.7
Imputation only	39.5	39.2	39.8	39.7	39.8
<i>Difference (per cent)</i>	0.0	0.1	0.1	0.1	0.1
Imputation and weighting	39.8	39.2	39.7	39.6	39.8
<i>Total Difference (per cent)</i>	0.9	0.0	-0.1	0.0	0.1
<i>Growth with no imputation or weighting (per cent)</i>	-0.5	-0.4	-0.1	0.3	-0.1
<i>Growth with imputation and weighting (per cent)</i>	-0.4	-0.3	0.0	0.4	0.3
2002					
No imputation or weighting	39.6	39.3	39.8	39.5	39.8
Imputation only	39.6	39.3	39.8	39.5	39.7
<i>Difference (per cent)</i>	-0.1	-0.1	-0.1	-0.1	-0.1
Imputation and weighting	39.9	39.3	39.7	39.4	39.7
<i>Total Difference (per cent)</i>	0.8	-0.1	-0.2	-0.2	-0.3
<i>Growth with no imputation or weighting (per cent)</i>	-0.3	-0.2	-0.5	-0.3	-0.5
<i>Growth with imputation and weighting (per cent)</i>	0.1	-0.2	-0.5	-0.2	-0.5
2001					
No imputation or weighting	39.7	39.4	40.0	39.6	40.0
Imputation only	39.7	39.4	40.0	39.6	39.9
<i>Difference (per cent)</i>	-0.1	-0.1	-0.1	-0.1	-0.1
Imputation and weighting	39.9	39.4	39.9	39.5	39.9
<i>Total Difference (per cent)</i>	0.4	-0.1	-0.2	-0.3	-0.3
<i>Growth with no imputation or weighting (per cent)</i>	0.2	-0.3	-0.2	0.2	0.1
<i>Growth with imputation and weighting (per cent)</i>	0.3	-0.2	-0.1	0.3	0.2
2000					
No imputation or weighting	39.7	39.5	40.1	39.6	39.9
Imputation only	39.6	39.5	40.1	39.5	39.9
<i>Difference (per cent)</i>	0.0	-0.1	-0.1	-0.1	-0.1
Imputation and weighting	39.8	39.5	40.0	39.4	39.8
<i>Total Difference (per cent)</i>	0.4	-0.2	-0.3	-0.4	-0.4
<i>Growth with no imputation or weighting (per cent)</i>	-0.9	-0.5	-0.2	-0.1	-0.5
<i>Growth with imputation and weighting (per cent)</i>	-0.8	-0.4	0.0	0.1	-0.2
1999					
No imputation or weighting	40.0	39.7	40.2	39.6	40.1
Imputation only	40.0	39.7	40.1	39.6	40.1
<i>Difference (per cent)</i>	0.0	-0.1	-0.1	-0.1	-0.1
Imputation and weighting	40.1	39.6	40.0	39.4	39.9
<i>Total Difference (per cent)</i>	0.3	-0.3	-0.5	-0.6	-0.6
<i>Growth with no imputation or weighting (per cent)</i>	-0.4	-0.6	-0.7	-0.8	-0.8
<i>Growth with imputation and weighting (per cent)</i>	-0.3	-0.5	-0.6	-0.6	-0.6
1998					
No imputation or weighting	40.2	40.0	40.5	39.9	40.5
Imputation only	40.1	40.0	40.4	39.9	40.4
<i>Difference (per cent)</i>	0.0	-0.1	-0.1	-0.1	-0.1
Imputation and weighting	40.3	39.8	40.2	39.7	40.1
<i>Total Difference (per cent)</i>	0.3	-0.4	-0.6	-0.7	-0.8
<i>Growth with no imputation or weighting (per cent)</i>					
<i>Growth with imputation and weighting (per cent)</i>					

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

Table A21 Average pay^{ac} and growth^b, and hours in April 1998 to 2003 by public versus private sector for full-time employeesⁱ; United Kingdom

	Average gross annual earnings ^c		Average gross weekly earnings		Average gross hourly earnings		Average total weekly hours	
	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector
2003								
No imputation or weighting	23,729	25,688	465.2	478.1	12.37	11.80	37.6	40.5
Imputation only	23,774	25,723	466.0	478.9	12.39	11.81	37.6	40.6
<i>Difference (per cent)</i>	0.2	0.1 #	0.2	0.2	0.2	0.0 #	0.0	0.1
Imputation and weighting	24,336	26,576	477.1	493.1	12.70	12.17	37.6	40.5
<i>Total Difference (per cent)</i>	2.6	3.5	2.6	3.1	2.7	3.1	-0.2	0.0
<i>Growth with no imputation or weighting (per cent)</i>	4.0	2.9	3.6	2.4	2.9	2.5	0.7	-0.1
<i>Growth with imputation and weighting (per cent)</i>	4.3	3.8	4.2	2.9	3.6	2.9	0.6	0.1
2002								
No imputation or weighting	22,807	24,968	448.9	466.9	12.02	11.51	37.3	40.6
Imputation only	22,850	25,007	448.2	469.0	12.00	11.57	37.4	40.5
<i>Difference (per cent)</i>	0.2	0.2 #	-0.2	0.4	-0.2	0.5 #	0.0	0.0
Imputation and weighting	23,329	25,612	457.8	479.1	12.26	11.83	37.3	40.5
<i>Total Difference (per cent)</i>	2.3	2.6	2.0	2.6	2.0	2.8	0.0	-0.2
<i>Growth with no imputation or weighting (per cent)</i>	4.1	3.7	4.1	4.5	4.6	4.8	-0.5	-0.3
<i>Growth with imputation and weighting (per cent)</i>	4.5	4.0	4.5	5.3	4.8	5.6	-0.3	-0.3
2001								
No imputation or weighting	21,906	24,088	431.3	446.7	11.49	10.99	37.5	40.7
Imputation only	21,907	24,111	430.4	447.3	11.47	11.00	37.5	40.7
<i>Difference (per cent)</i>	0.0	0.1 #	-0.2	0.1	-0.2	0.2 #	0.0	0.0
Imputation and weighting	22,319	24,635	438.1	455.1	11.70	11.21	37.4	40.6
<i>Total Difference (per cent)</i>	1.9	2.3	1.6	1.9	1.8	2.0	-0.2	-0.1
<i>Growth with no imputation or weighting (per cent)</i>	2.5	5.8	5.4	6.3	5.4	6.5	0.0	-0.1
<i>Growth with imputation and weighting (per cent)</i>	2.9	6.4	5.5	7.0	5.5	7.1	0.1	-0.1

Table A21 Average pay^{ac} and growth^b, and hours in April 1998 to 2003 by public versus private sector for full-time employees^c; United Kingdom

	Average gross annual earnings ^c		Average gross weekly earnings		Average gross hourly earnings		Average total weekly hours	
	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector
2000								
No imputation or weighting	21,364	22,763	409.3	420.1	10.91	10.32	37.5	40.7
Imputation only	21,368	22,767	409.5	421.5	10.92	10.35	37.5	40.7
<i>Difference (per cent)</i>	0.0	0.0 #	0.0	0.3	0.1	0.4 #	0.0	0.0
Imputation and weighting	21,688	23,161	415.2	425.5	11.09	10.46	37.4	40.7
<i>Total Difference (per cent)</i>	1.5	1.7	1.4	1.3	1.7	1.4	-0.4	-0.1
<i>Growth with no imputation or weighting (per cent)</i>	4.6	8.1	3.7	4.6	3.8	5.0	-0.1	-0.4
<i>Growth with imputation and weighting (per cent)</i>	4.2	7.4	3.1	3.7	2.9	3.9	0.0	-0.2
1999								
No imputation or weighting	20,424	21,059	394.6	401.5	10.50	9.82	37.6	40.9
Imputation only	20,426	21,077	395.5	402.5	10.53	9.85	37.6	40.9
<i>Difference (per cent)</i>	0.0	0.1 #	0.2	0.2	0.3	0.3 #	-0.1	0.0
Imputation and weighting	20,820	21,556	402.9	410.2	10.77	10.07	37.4	40.7
<i>Total Difference (per cent)</i>	1.9	2.4	2.1	2.2	2.6	2.5	-0.5	-0.4
<i>Growth with no imputation or weighting (per cent)</i>	0.0	0.0	4.1	4.1	4.4	4.9	-0.3	-0.8
<i>Growth with imputation and weighting (per cent)</i>	0.0	0.0	4.6	4.7	5.1	5.6	-0.5	-0.9
1998								
No imputation or weighting			379.1	385.8	10.06	9.36	37.7	41.2
Imputation only			380.0	387.4	10.09	9.40	37.7	41.2
<i>Difference (per cent)</i>		#	0.2	0.4	0.3	0.4 #	0.0	0.0
Imputation and weighting			385.1	391.8	10.25	9.54	37.6	41.1
<i>Total Difference (per cent)</i>			1.6	1.6	1.9	1.9	-0.3	-0.3
<i>Growth with no imputation or weighting (per cent)</i>								
<i>Growth with imputation and weighting (per cent)</i>								

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

Appendix B: Tables of average earnings and hours worked

Table B1	Median gross annual earnings and growth in April 1999 to 2003 by gender and full-time/part-time work for all employees; United Kingdom
Table B2	Median gross weekly earnings and growth in April 1998 to 2003 by gender and full-time/part-time work for all employees; United Kingdom
Table B3	Median gross hourly earnings and growth in April 1998 to 2003 by gender and full-time/part-time work for all employees; United Kingdom
Table B4	Median total weekly hours and growth in April 1998 to 2003 by gender and full-time/part-time work for all employees; United Kingdom
Table B5	Median gross annual earnings and growth in April 1999 to 2003 by industry sector for full-time employees; United Kingdom
Table B6	Median gross weekly pay and growth in April 1998 to 2003 by industry sector for full-time employees; United Kingdom
Table B7	Median gross hourly pay and growth in April 1998 to 2003 by industry sector for full-time employees; United Kingdom
Table B8	Median total weekly hours and growth in April 1998 to 2003 by industry sector for full-time employees; United Kingdom
Table B9	Median gross annual earnings and growth in April 1999 to 2003 by occupational group for full-time employees; United Kingdom
Table B10	Median gross weekly pay and growth in April 1998 to 2003 by occupational group for full-time employees; United Kingdom
Table B11	Median gross hourly pay and growth in April 1998 to 2003 by occupational group for full-time employees; United Kingdom
Table B12	Median total weekly hours and growth in April 1998 to 2003 by occupational group for full-time employees; United Kingdom
Table B13	Median gross annual earnings and growth in April 1999 to 2003 by government office region and country for full-time employees; United Kingdom
Table B14	Median gross weekly pay and growth in April 1998 to 2003 by government office region and country for full-time employees; United Kingdom
Table B15	Median gross hourly pay and growth in April 1998 to 2003 by government office region and country for full-time employees; United Kingdom
Table B16	Median total weekly hours and growth in April 1998 to 2003 by government office region and country for full-time employees; United Kingdom
Table B17	Median gross annual earnings and growth in April 1999 to 2003 by age for full-time employees; United Kingdom
Table B18	Median gross weekly pay and growth in April 1998 to 2003 by age for full-time employees; United Kingdom
Table B19	Median gross hourly pay and growth in April 1998 to 2003 by age for full-time employees; United Kingdom
Table B20	Median total weekly hours and growth in April 1998 to 2003 by age for full-time employees; United Kingdom
Table B21	Median pay and growth, and hours in April 1998 to 2003 by public versus private sector for full-time employees; United Kingdom

Table B1 Median gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by gender and full-time/part-time work for all employees; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2003	23,269	17,539	21,116	6,113	6,398	6,358	22,178	12,475	17,494
<i>Growth (per cent)</i>	3.7	3.3	3.6	1.9	3.5	3.2	3.2	3.8	3.1
2002	22,435	16,973	20,376	6,000	6,180	6,159	21,489	12,018	16,964
<i>Growth (per cent)</i>	3.1	5.1	3.3	6.9	4.2	4.7	2.8	4.2	3.2
2001	21,762	16,151	19,722	5,615	5,929	5,884	20,906	11,529	16,438
<i>Growth (per cent)</i>	4.4	4.5	4.6	8.0	4.2	4.6	4.4	3.4	4.0
2000	20,836	15,461	18,848	5,200	5,689	5,625	20,022	11,152	15,800
<i>Growth (per cent)</i>	5.2	5.9	5.9	7.1	8.9	8.4	5.2	7.0	6.1
1999	19,800	14,598	17,803	4,854	5,222	5,187	19,024	10,421	14,888

Source: Annual Survey of Hours and Earnings

a Employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

Table B2 Median gross weekly earnings^a and growth^b in April 1998 to 2003 by gender and full-time/part-time work for all employees^c; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2003	444.7	342.9	404.1	111.0	124.1	121.7	422.2	247.5	334.4
<i>Growth (per cent)</i>	3.4	3.7	3.4	0.9	5.4	4.8	3.2	4.2	2.9
2002	430.1	330.7	390.9	110.0	117.7	116.2	409.1	237.5	324.8
<i>Growth (per cent)</i>	3.5	5.2	4.0	11.5	4.7	5.5	3.2	4.0	4.0
2001	415.7	314.3	375.9	98.6	112.4	110.2	396.2	228.4	312.5
<i>Growth (per cent)</i>	4.5	5.4	4.7	3.3	4.1	3.9	4.2	5.3	4.3
2000	397.7	298.1	359.0	95.5	108.0	106.0	380.2	216.9	299.6
<i>Growth (per cent)</i>	3.6	3.3	3.9	-0.4	3.4	2.7	3.5	2.9	3.3
1999	383.9	288.5	345.5	95.9	104.5	103.2	367.3	210.8	290.0
<i>Growth (per cent)</i>	3.0	4.3	3.2	11.8	5.5	6.1	2.8	4.5	3.5
1998	372.7	276.5	334.9	85.8	99.0	97.3	357.4	201.7	280.2

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

Table B3 Median gross hourly earnings^a and growth^b in April 1998 to 2003 by gender and full-time/part-time work for all employees^c; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2003	10.75	9.05	10.05	6.00	6.09	6.07	10.34	7.66	8.92
<i>Growth (per cent)</i>	3.3	4.1	3.2	4.3	6.0	5.7	2.9	5.1	3.5
2002	10.40	8.70	9.74	5.75	5.74	5.74	10.05	7.29	8.62
<i>Growth (per cent)</i>	4.2	5.0	4.4	6.9	3.6	4.1	4.4	3.9	4.1
2001	9.99	8.28	9.32	5.38	5.54	5.52	9.63	7.02	8.28
<i>Growth (per cent)</i>	4.5	5.1	4.7	4.3	4.2	4.1	4.0	4.9	4.4
2000	9.56	7.89	8.91	5.16	5.32	5.30	9.25	6.69	7.93
<i>Growth (per cent)</i>	3.7	3.4	3.6	2.6	3.3	3.2	3.5	3.3	3.5
1999	9.21	7.63	8.60	5.03	5.15	5.14	8.95	6.47	7.66
<i>Growth (per cent)</i>	3.6	5.1	4.1	5.1	4.0	4.2	3.6	4.5	4.0
1998	8.90	7.26	8.26	4.78	4.95	4.93	8.64	6.19	7.36

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

Table B4 Median total weekly hours^a and growth^b in April 1998 to 2003 by gender and full-time/part-time work for all employee's; United Kingdom

	Full-time			Part-time			All employees		
	Men	Women	All	Men	Women	All	Men	Women	All
2003	39.0	37.0	37.5	18.0	20.0	20.0	38.0	35.0	37.0
<i>Growth (per cent)</i>	0.0	0.0	0.0	-1.6	0.0	0.0	-0.9	0.0	0.0
2002	39.0	37.0	37.5	18.3	20.0	20.0	38.3	35.0	37.0
<i>Growth (per cent)</i>	0.0	0.0	0.0	4.6	0.0	0.0	-1.1	0.0	0.0
2001	39.0	37.0	37.5	17.5	20.0	20.0	38.8	35.0	37.0
<i>Growth (per cent)</i>	0.0	0.0	0.0	0.0	0.0	1.3	-0.3	0.0	0.0
2000	39.0	37.0	37.5	17.5	20.0	19.8	38.9	35.0	37.0
<i>Growth (per cent)</i>	0.0	0.0	-0.9	-2.8	0.0	-1.3	-0.3	0.0	0.0
1999	39.0	37.0	37.8	18.0	20.0	20.0	39.0	35.0	37.0
<i>Growth (per cent)</i>	0.0	-0.2	-0.2	0.7	0.0	1.3	0.0	0.0	0.0
1998	39.0	37.1	37.9	17.9	20.0	19.8	39.0	35.0	37.0

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

Table B5 Median gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by industry sector for full-time employees^e; United Kingdom

	SIC															All industries & services ^e
	A ^d	B ^d	C ^d	D ^d	E ^d	F ^d	G ^d	H ^d	I ^d	J ^d	K ^d	L ^d	M ^d	N ^d	O ^d	
2003	15,790	15,370	25,274	21,038	26,440	22,509	17,078	13,138	21,259	27,442	24,051	22,581	23,121	19,216	18,828	21,117
<i>Growth (per cent)</i>	1.2	-5.8	7.2	4.1	0.1	3.7	2.6	6.2	4.5	3.7	1.5	4.5	4.0	1.7	3.4	3.6
2002	15,600	16,323	23,582	20,219	26,422	21,714	16,640	12,370	20,352	26,465	23,699	21,616	22,239	18,893	18,207	20,376
<i>Growth (per cent)</i>	6.7	5.3	2.0	2.3	4.1	4.9	3.4	2.7	2.2	5.6	7.0	-0.1	3.2	4.9	6.3	3.3
2001	14,625	15,506	23,125	19,756	25,380	20,699	16,089	12,047	19,922	25,050	22,151	21,648	21,542	18,010	17,125	19,729
<i>Growth (per cent)</i>	4.3	-2.4	2.5	5.7	5.4	7.3	4.7	0.5	2.1	7.8	6.2	2.2	2.3	5.2	3.0	4.7
2000	14,019	15,896	22,565	18,697	24,078	19,282	15,371	11,988	19,512	23,233	20,863	21,191	21,056	17,127	16,624	18,851
<i>Growth (per cent)</i>	5.2	-1.2	7.2	4.2	7.1	7.0	7.0	6.9	7.1	6.0	7.3	4.9	3.5	7.3	4.1	5.8
1999	13,327	16,096	21,049	17,946	22,487	18,020	14,370	11,213	18,212	21,912	19,451	20,198	20,334	15,969	15,969	17,810

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

d Industries are coded according to the Standard Industrial Classification 2003.

e All industries & services figures may not be consistent with all full-time employees figures due to missing classification information

Table B6 Median gross weekly pay^a and growth^b in April 1998 to 2003 by industry sector for full-time employees^c; United Kingdom

	SIC															All industries & services ^d
	A ^c	B ^c	C ^c	D ^c	E ^c	F ^c	G ^c	H ^c	I ^c	J ^c	K ^c	L ^c	M ^c	N ^c	O ^c	
2003	305.7	321.2	505.1	408.1	484.0	427.5	325.3	254.3	408.1	480.3	450.0	431.2	447.8	380.5	358.0	404.1
<i>Growth (per cent)</i>	1.4	12.8	9.5	4.6	0.5	3.7	1.5	5.8	4.4	-0.4	1.9	0.8	3.6	2.2	1.6	3.3
2002	301.4	284.8	461.4	390.0	481.7	412.1	320.5	240.4	390.8	482.0	441.5	427.6	432.3	372.5	352.4	391.0
<i>Growth (per cent)</i>	9.5	-13.8	-1.3	2.8	4.2	3.5	4.4	5.2	1.8	3.1	5.2	3.6	3.8	5.5	8.0	4.0
2001	275.3	330.4	467.4	379.3	462.5	398.3	307.1	228.5	383.8	467.3	419.5	412.7	416.3	353.1	326.3	376.0
<i>Growth (per cent)</i>	6.0	8.6	9.6	4.5	2.4	7.6	4.6	4.4	3.6	7.3	9.3	3.9	2.7	5.4	3.8	4.7
2000	259.8	304.3	426.4	362.9	451.7	370.0	293.5	218.8	370.4	435.4	383.9	397.1	405.2	335.0	314.5	359.0
<i>Growth (per cent)</i>	0.7	-9.1	1.6	3.9	4.9	4.2	2.3	3.4	3.7	3.1	3.8	2.4	2.6	5.9	1.5	3.9
1999	258.1	334.8	419.8	349.5	430.7	355.1	286.8	211.6	357.1	422.3	369.8	388.0	394.8	316.2	309.8	345.6
<i>Growth (per cent)</i>	5.1	2.2	-3.1	2.0	2.1	6.0	4.9	4.4	3.8	3.4	3.7	4.3	1.7	4.7	5.4	3.2
1998	245.5	327.5	433.2	342.7	421.6	335.0	273.2	202.7	344.0	408.6	356.6	371.8	388.1	302.0	294.0	335.0

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Industries are coded according to the Standard Industrial Classification 2003.

d All industries & services figures may not be consistent with all full-time employees figures due to missing classification information

Table B7 Median gross hourly pay^a and growth^b in April 1998 to 2003 by industry sector for full-time employees^c; United Kingdom

	SIC															All industries & services ^d
	A ^c	B ^c	C ^c	D ^c	E ^c	F ^c	G ^c	H ^c	I ^c	J ^c	K ^c	L ^c	M ^c	N ^c	O ^c	
2003	6.74	6.95	11.04	9.79	12.15	9.85	7.89	6.05	9.17	13.40	11.41	11.21	12.63	9.89	9.04	10.05
<i>Growth (per cent)</i>	2.7	13.9	7.4	4.1	4.4	5.1	1.7	5.1	1.8	1.8	1.7	1.2	4.7	2.4	2.4	3.2
2002	6.56	6.10	10.28	9.41	11.64	9.38	7.76	5.76	9.01	13.16	11.22	11.08	12.07	9.66	8.83	9.75
<i>Growth (per cent)</i>	6.2	-21.5	0.6	3.3	1.6	5.5	4.3	4.7	4.3	3.2	5.6	4.0	3.2	5.3	8.0	4.5
2001	6.18	7.78	10.21	9.11	11.45	8.89	7.44	5.50	8.64	12.75	10.62	10.65	11.70	9.17	8.18	9.32
<i>Growth (per cent)</i>	6.1	2.9	7.5	4.6	-0.1	7.3	4.3	4.1	4.8	6.5	8.4	2.7	1.2	4.8	3.6	4.6
2000	5.83	7.56	9.50	8.71	11.46	8.28	7.13	5.29	8.24	11.98	9.80	10.37	11.56	8.75	7.89	8.91
<i>Growth (per cent)</i>	3.2	3.9	4.6	3.3	7.7	4.5	3.8	3.3	2.6	3.2	4.5	2.6	1.6	6.3	3.0	3.6
1999	5.65	7.28	9.08	8.43	10.64	7.93	6.87	5.12	8.04	11.60	9.37	10.10	11.37	8.23	7.66	8.60
<i>Growth (per cent)</i>	3.9	-6.4	-4.3	3.4	3.1	5.7	4.0	2.4	4.7	4.5	4.0	4.1	2.9	4.1	5.2	4.1
1998	5.44	7.77	9.48	8.15	10.33	7.50	6.61	5.00	7.68	11.11	9.01	9.71	11.05	7.90	7.28	8.27

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Industries are coded according to the Standard Industrial Classification 2003.

d All industries & services figures may not be consistent with all full-time employees figures due to missing classification information

Table B8 Median total weekly hours^a and growth^b in April 1998 to 2003 by industry sector for full-time employees^c; United Kingdom

	SIC															All industries & services ^d
	A ^c	B ^c	C ^c	D ^c	E ^c	F ^c	G ^c	H ^c	I ^c	J ^c	K ^c	L ^c	M ^c	N ^c	O ^c	
2003	40.3	42.4	40.0	39.0	37.0	40.0	39.3	40.0	40.0	35.0	37.5	37.0	36.4	37.5	38.0	37.5
<i>Growth (per cent)</i>	0.6	5.9	2.6	0.0	0.0	0.0	-1.2	0.0	0.0	0.0	0.0	0.0	0.4	0.0	-0.9	0.0
2002	40.0	40.0	39.0	39.0	37.0	40.0	39.7	40.0	40.0	35.0	37.5	37.0	36.3	37.5	38.4	37.5
<i>Growth (per cent)</i>	0.0	-3.7	-2.5	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.7	0.0
2001	40.0	41.5	40.0	39.0	37.0	40.0	39.4	40.0	40.0	35.0	37.5	37.0	36.3	37.5	39.0	37.5
<i>Growth (per cent)</i>	0.0	0.1	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0
2000	40.0	41.5	40.0	39.0	37.0	40.0	39.0	40.0	40.0	35.0	37.5	37.0	36.0	37.5	39.0	37.5
<i>Growth (per cent)</i>	0.0	3.6	0.0	0.0	0.0	0.0	-1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.9
1999	40.0	40.1	40.0	39.0	37.0	40.0	39.5	40.0	40.0	35.0	37.5	37.0	36.0	37.5	39.0	37.8
<i>Growth (per cent)</i>	-2.4	0.2	0.0	0.0	0.0	0.0	0.0	0.6	-0.2	0.0	0.0	0.0	0.5	0.0	0.0	-0.2
1998	41.0	40.0	40.0	39.0	37.0	40.0	39.5	39.8	40.1	35.0	37.5	37.0	35.8	37.5	39.0	37.9

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Industries are coded according to the Standard Industrial Classification 2003.

d All industries & services figures may not be consistent with all full-time employees figures due to missing classification information

Table B9 Median gross annual earnings^{a,b} and growth^c in April 2002 to 2003 by occupational group^d for full-time employees^e; United Kingdom

	Managers and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Personal service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations	All occupations
2003	30,932	30,276	25,001	16,081	19,898	13,405	12,904	17,973	14,792	21,116
<i>Growth (per cent)</i>	3.0	3.0	2.3	3.4	2.8	3.6	2.5	4.2	4.4	3.6
2002	30,034	29,382	24,447	15,559	19,362	12,938	12,592	17,241	14,172	20,376
<i>Growth (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

d Occupations are coded according to the Standard Occupational Classification 2000.

Table B9 Median gross annual earnings^{a,b} and growth^c in April 1999 to 2001 by occupational group^d for full-time employees^e; United Kingdom

	Managers and administrators	Professional occupations	Associate professional and technical occupations	Clerical and secretarial occupations	Craft and related occupations	Personal and protective service occupations	Sales occupations	Plant and machine operatives	Other occupations	All occupations
2001	28,517	27,287	23,170	14,509	18,847	14,306	13,585	16,801	14,301	19,722
<i>Growth (per cent)</i>	4.8	4.5	5.3	4.5	4.4	2.0	3.7	4.8	3.1	4.6
2000	27,219	26,120	22,000	13,886	18,058	14,030	13,099	16,037	13,876	18,848
<i>Growth (per cent)</i>	5.6	4.8	6.0	4.7	5.9	7.0	5.9	4.3	5.7	5.9
1999	25,766	24,923	20,762	13,261	17,046	13,107	12,364	15,370	13,125	17,803

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

d Occupations are coded according to the Standard Occupational Classification 1990.

Table B10 Median gross weekly pay^a and growth^b in April 2002 to 2003 by occupational group^c for full-time employees^c; United Kingdom

	Managers and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Personal service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations	All occupations
2003	589.2	588.0	475.4	307.6	379.5	263.1	249.7	345.8	278.7	404.1
<i>Growth (per cent)</i>	2.3	3.4	1.8	3.7	3.5	5.0	1.0	4.3	4.6	3.4
2002	575.8	568.9	467.2	296.6	366.8	250.5	247.2	331.6	266.6	390.9
<i>Growth (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 2000.

Table B10 Median gross weekly pay^a and growth^b in April 1998 to 2001 by occupational group^c for full-time employees^c; United Kingdom

	Managers and administrators	Professional occupations	Associate professional and technical occupations	Clerical and secretarial occupations	Craft and related occupations	Personal and protective service occupations	Sales occupations	Plant and machine operatives	Other occupations	All occupations
2001	539.5	537.6	444.2	278.3	359.0	269.0	262.9	319.7	265.3	375.9
<i>Growth (per cent)</i>	4.9	3.9	5.2	4.5	3.8	3.7	4.1	4.0	4.7	4.7
2000	514.4	517.4	422.3	266.4	345.7	259.5	252.6	307.5	253.4	359.0
<i>Growth (per cent)</i>	4.1	3.7	4.6	3.0	4.2	3.9	-0.1	3.1	1.8	3.9
1999	494.2	499.0	403.6	258.7	331.7	249.7	252.9	298.2	249.0	345.5
<i>Growth (per cent)</i>	4.1	4.9	3.4	3.8	2.2	4.6	6.7	1.8	5.0	3.2
1998	474.6	475.6	390.2	249.3	324.6	238.7	237.1	292.8	237.1	334.9

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 1990.

Table B11 Median gross hourly pay^a and growth^b in April 2002 to 2003 by occupational group^c for full-time employees^d; United Kingdom

	Managers and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Personal service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations	All occupations
2003	15.36	16.61	12.41	8.24	9.03	6.78	6.40	7.65	6.65	10.05
<i>Growth (per cent)</i>	3.4	2.5	1.3	3.7	3.4	3.2	1.9	3.8	5.5	3.2
2002	14.85	16.21	12.26	7.95	8.73	6.56	6.28	7.37	6.30	9.74
<i>Growth (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 2000.

Table B11 Median gross hourly pay^a and growth^b in April 1998 to 2001 by occupational group^c for full-time employees^d; United Kingdom

	Managers and administrators	Professional occupations	Associate professional and technical occupations	Clerical and secretarial occupations	Craft and related occupations	Personal and protective service occupations	Sales occupations	Plant and machine operatives	Other occupations	All occupations
2001	13.99	15.58	11.68	7.31	8.46	6.76	6.64	7.10	6.26	9.32
<i>Growth (per cent)</i>	4.7	4.3	4.4	4.2	4.5	2.5	3.9	3.5	4.3	4.7
2000	13.37	14.94	11.19	7.01	8.10	6.59	6.39	6.86	6.00	8.91
<i>Growth (per cent)</i>	4.5	3.4	5.1	3.3	3.6	4.4	1.0	2.9	2.9	3.6
1999	12.80	14.45	10.65	6.79	7.82	6.31	6.33	6.67	5.83	8.60
<i>Growth (per cent)</i>	4.6	4.5	3.8	3.6	3.6	4.9	5.4	3.1	4.4	4.1
1998	12.24	13.84	10.26	6.55	7.55	6.02	6.00	6.47	5.59	8.26

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 1990.

Table B12 Median total weekly hours^a and growth^b in April 2002 to 2003 by occupational group^c for full-time employees[†]; United Kingdom

	Managers and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Personal service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations	All occupations
2003	37.5	37.0	37.5	37.0	40.0	37.5	37.8	41.6	40.0	37.5
<i>Growth (per cent)</i>	0.0	0.0	0.0	0.0	0.0	0.0	-1.7	0.5	0.0	0.0
2002	37.5	37.0	37.5	37.0	40.0	37.5	38.5	41.4	40.0	37.5
<i>Growth (per cent)</i>										

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 2000.

Table B12 Median total weekly hours^a and growth^b in April 1998 to 2001 by occupational group^c for full-time employees¹; United Kingdom

	Managers and administrators	Professional occupations	Associate professional and technical occupations	Clerical and secretarial occupations	Craft and related occupations	Personal and protective service occupations	Sales occupations	Plant and machine operatives	Other occupations	All occupations
2001	37.5	37.0	37.5	37.1	40.0	39.0	38.3	41.3	40.0	37.5
<i>Growth (per cent)</i>	0.0	0.0	0.0	0.2	0.0	0.0	0.7	0.6	0.0	0.0
2000	37.5	37.0	37.5	37.0	40.0	39.0	38.0	41.0	40.0	37.5
<i>Growth (per cent)</i>	0.0	0.5	0.0	0.0	0.0	0.0	-1.4	0.0	0.0	-0.9
1999	37.5	36.8	37.5	37.0	40.0	39.0	38.5	41.0	40.0	37.8
<i>Growth (per cent)</i>	0.0	0.0	0.0	0.0	-1.2	0.0	-0.1	-2.4	0.0	-0.2
1998	37.5	36.8	37.5	37.0	40.5	39.0	38.6	42.0	40.0	37.9

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Occupations are coded according to the Standard Occupational Classification 1990.

Table B13 Median gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by government office region and country for full-time employees^d; United Kingdom

	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom ^d
2003	18,205	19,882	19,647	19,807	19,863	19,983	21,514	27,500	22,835	19,063	19,821	18,518	21,116
<i>Growth (per cent)</i>	0.7	3.4	4.2	3.6	3.3	3.9	5.0	3.9	4.1	4.8	3.4	1.1	3.6
2002	18,076	19,234	18,863	19,125	19,225	19,233	20,495	26,467	21,940	18,189	19,167	18,325	20,376
<i>Growth (per cent)</i>	1.3	3.6	3.2	4.6	2.5	4.2	2.6	5.0	4.9	0.9	3.0	4.5	3.3
2001	17,844	18,567	18,270	18,291	18,756	18,465	19,978	25,215	20,907	18,018	18,610	17,529	19,722
<i>Growth (per cent)</i>	2.4	3.9	4.4	5.4	5.3	3.5	5.0	4.2	4.6	5.0	3.2	5.6	4.6
2000	17,430	17,863	17,503	17,352	17,812	17,847	19,020	24,204	19,992	17,157	18,029	16,599	18,848
<i>Growth (per cent)</i>	7.1	5.2	5.9	5.9	4.8	6.7	5.7	7.6	6.7	4.3	6.6	5.1	5.9
1999	16,282	16,977	16,527	16,392	17,000	16,727	18,000	22,487	18,737	16,457	16,914	15,798	17,803

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

d United Kingdom figures may not be consistent with all full-time employees figures due to missing regional classification information

Table B14 Median gross weekly pay^a and growth^b in April 1998 to 2003 by government office region and country for full-time employees^c; United Kingdom

	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	United Kingdom ^c
2003	348.7	379.5	375.9	379.7	379.3	382.3	407.5	523.0	433.4	363.8	382.0	352.3	404.1
<i>Growth (per cent)</i>	1.2	3.0	4.4	4.8	3.5	4.8	3.8	4.4	3.2	4.1	2.8	3.0	3.4
2002	344.8	368.5	360.0	362.3	366.6	365.0	392.6	501.1	419.9	349.4	371.7	342.0	390.9
<i>Growth (per cent)</i>	3.3	4.0	4.2	4.5	2.4	3.6	3.6	4.4	5.4	2.4	4.7	3.5	4.0
2001	333.7	354.2	345.5	346.6	357.9	352.3	379.1	479.9	398.3	341.3	355.1	330.5	375.9
<i>Growth (per cent)</i>	1.3	3.9	3.1	4.8	5.0	4.9	5.9	4.3	5.6	4.2	4.9	3.2	4.7
2000	329.3	340.9	335.0	330.8	340.9	336.0	358.1	460.0	377.3	327.5	338.4	320.2	359.0
<i>Growth (per cent)</i>	4.9	4.0	4.4	2.1	3.3	3.7	2.8	6.2	4.6	3.4	2.9	3.1	3.9
1999	314.0	327.9	320.8	323.8	329.9	324.0	348.3	433.0	360.8	316.8	329.0	310.5	345.5
<i>Growth (per cent)</i>	3.8	3.2	2.3	3.8	3.0	2.9	3.3	3.4	3.0	2.5	4.9	4.2	3.2
1998	302.4	317.9	313.7	312.0	320.4	314.8	337.0	419.0	350.3	308.9	313.8	298.1	334.9

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c United Kingdom figures may not be consistent with all full-time employees figures due to missing regional classification information

Table B15 Median gross hourly pay^a and growth^b in April 1998 to 2003 by government office region and country for full-time employees^c; United Kingdom

	Yorkshire												United Kingdom ^c
	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	
2003	8.74	9.46	9.27	9.19	9.35	9.41	10.00	13.69	10.80	9.06	9.50	8.76	10.05
<i>Growth (per cent)</i>	1.5	2.7	5.7	4.8	2.6	4.5	3.6	4.3	3.3	4.7	2.3	2.8	3.2
2002	8.61	9.21	8.78	8.76	9.12	9.00	9.65	13.13	10.45	8.65	9.28	8.52	9.74
<i>Growth (per cent)</i>	3.0	5.1	3.9	4.7	2.9	4.1	4.5	5.4	6.1	2.6	5.6	4.6	4.4
2001	8.36	8.77	8.45	8.37	8.86	8.65	9.24	12.46	9.85	8.43	8.79	8.14	9.32
<i>Growth (per cent)</i>	1.8	4.3	3.8	3.8	5.7	5.0	5.2	5.2	4.9	3.4	5.1	3.3	4.7
2000	8.22	8.41	8.13	8.06	8.38	8.24	8.78	11.84	9.38	8.15	8.37	7.88	8.91
<i>Growth (per cent)</i>	5.7	3.5	3.7	2.6	2.4	4.0	2.5	5.4	4.5	3.7	2.2	2.6	3.6
1999	7.78	8.13	7.84	7.86	8.19	7.92	8.56	11.23	8.98	7.86	8.19	7.68	8.60
<i>Growth (per cent)</i>	4.1	4.2	3.2	4.7	3.9	2.8	4.0	4.1	3.8	4.0	5.5	3.5	4.1
1998	7.47	7.80	7.60	7.50	7.88	7.70	8.23	10.78	8.65	7.56	7.76	7.42	8.26

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c United Kingdom figures may not be consistent with all full-time employees figures due to missing regional classification information

Table B16 Median total weekly hours^a and growth^b in April 1998 to 2003 by government office region and country for full-time employees^c; United Kingdom

	Yorkshire												United Kingdom ^c
	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	South West	East	London	South East	Wales	Scotland	Northern Ireland	
2003	37.5	37.5	37.5	38.0	37.8	37.5	37.8	37.5	37.5	37.5	37.8	37.5	37.5
<i>Growth (per cent)</i>	-0.9	0.0	-1.3	-0.9	-0.2	0.0	0.0	0.0	0.0	0.0	0.9	-0.9	0.0
2002	37.8	37.5	38.0	38.3	37.8	37.5	37.8	37.5	37.5	37.5	37.5	37.8	37.5
<i>Growth (per cent)</i>	-0.4	0.0	0.7	-1.6	0.9	-1.1	0.0	0.0	0.0	-0.5	-0.2	-0.4	0.0
2001	38.0	37.5	37.8	39.0	37.5	37.9	37.8	37.5	37.5	37.7	37.6	38.0	37.5
<i>Growth (per cent)</i>	0.0	0.0	-0.4	0.3	-1.0	0.4	-0.2	0.0	0.0	-0.4	0.2	0.0	0.0
2000	38.0	37.5	37.9	38.8	37.9	37.8	37.9	37.5	37.5	37.9	37.5	38.0	37.5
<i>Growth (per cent)</i>	0.0	-0.9	-0.2	-0.4	-0.4	-0.6	-0.2	0.0	-0.7	-0.6	-0.9	0.0	-0.9
1999	38.0	37.8	38.0	39.0	38.0	38.0	38.0	37.5	37.8	38.1	37.8	38.0	37.8
<i>Growth (per cent)</i>	-1.3	-0.4	-0.2	0.0	-0.4	0.0	0.0	0.0	0.4	-1.7	-0.4	-0.2	-0.2
1998	38.5	38.0	38.1	39.0	38.2	38.0	38.0	37.5	37.6	38.8	38.0	38.1	37.9

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c United Kingdom figures may not be consistent with all full-time employees figures due to missing regional classification information

Table B17 Median gross annual earnings^{a,b} and growth^c in April 1999 to 2003 by age for full-time employees^c; United Kingdom

	Age				
	18 to 21	22 to 29	30 to 39	40 to 49	50 +
2003	11,480	18,000	22,836	23,629	20,635
<i>Growth (per cent)</i>	4.2	2.9	4.5	3.7	3.3
2002	11,013	17,501	21,850	22,786	19,985
<i>Growth (per cent)</i>	2.9	5.3	3.6	3.4	3.2
2001	10,702	16,627	21,097	22,042	19,367
<i>Growth (per cent)</i>	4.5	4.3	3.9	3.2	3.9
2000	10,238	15,937	20,301	21,362	18,641
<i>Growth (per cent)</i>	7.2	7.2	5.7	5.1	4.7
1999	9,547	14,870	19,200	20,334	17,799

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates

b Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

c Growth is year on year increase

Table B18 Median gross weekly pay^a and growth^b in April 1998 to 2003 by age for full-time employees^c; United Kingdom

	Age				
	18 to 21	22 to 29	30 to 39	40 to 49	50 +
2003	231.8	351.0	442.4	455.1	401.1
<i>Growth (per cent)</i>	3.0	1.7	3.9	3.1	3.3
2002	225.0	345.1	425.8	441.6	388.4
<i>Growth (per cent)</i>	3.8	5.1	3.3	3.9	3.6
2001	216.7	328.3	412.1	425.0	374.9
<i>Growth (per cent)</i>	6.8	5.4	4.5	3.6	5.0
2000	203.0	311.5	394.2	410.2	357.0
<i>Growth (per cent)</i>	0.8	3.5	3.7	3.0	2.8
1999	201.3	300.8	380.3	398.3	347.3
<i>Growth (per cent)</i>	6.0	4.5	2.7	2.7	3.4
1998	189.8	287.9	370.1	388.0	335.9

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

Table B19 Median gross hourly pay^a and growth^b in April 1998 to 2003 by age for full-time employees^c; United Kingdom

	Age				
	18 to 21	22 to 29	30 to 39	40 to 49	50 +
2003	5.90	8.89	11.06	11.29	9.84
<i>Growth (per cent)</i>	4.5	2.1	3.9	2.9	3.1
2002	5.65	8.72	10.64	10.97	9.54
<i>Growth (per cent)</i>	3.6	5.0	4.1	4.0	4.7
2001	5.45	8.30	10.22	10.55	9.11
<i>Growth (per cent)</i>	5.6	5.4	4.5	3.4	4.2
2000	5.16	7.88	9.78	10.20	8.75
<i>Growth (per cent)</i>	2.5	4.1	3.5	3.2	2.9
1999	5.03	7.57	9.45	9.88	8.50
<i>Growth (per cent)</i>	5.3	4.9	3.2	3.0	3.8
1998	4.78	7.22	9.16	9.59	8.19

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

Table B20 Median total weekly hours^a and growth^b in April 1998 to 2003 by age for full-time employees^c; United Kingdom

	Age				
	18 to 21	22 to 29	30 to 39	40 to 49	50 +
2003	38.8	37.5	37.5	37.5	37.5
<i>Growth (per cent)</i>	-0.6	0.0	0.0	0.0	0.0
2002	39.0	37.5	37.5	37.5	37.5
<i>Growth (per cent)</i>	0.0	0.0	0.0	0.0	0.0
2001	39.0	37.5	37.5	37.5	37.5
<i>Growth (per cent)</i>	0.0	0.0	-0.3	0.0	0.0
2000	39.0	37.5	37.6	37.5	37.5
<i>Growth (per cent)</i>	0.0	-1.0	-0.6	0.0	-0.9
1999	39.0	37.9	37.8	37.5	37.8
<i>Growth (per cent)</i>	0.0	-0.4	-0.4	0.0	-0.4
1998	39.0	38.0	38.0	37.5	38.0

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

Table B21 Median pay^{ac} and growth^b, and hours in April 1998 to 2003 by public versus private sector for full-time employeesⁱ; United Kingdom

	Average gross annual earnings ^c		Average gross weekly earnings		Average gross hourly earnings		Average total weekly hours	
	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector
2003	22,254	20,691	430.9	393.2	11.36	9.53	37.0	39.0
<i>Growth (per cent)</i>	3.8	3.5	2.8	3.1	2.2	3.3	0.0	0.0
2002	21,434	20,000	418.9	381.3	11.11	9.23	37.0	39.0
<i>Growth (per cent)</i>	3.0	3.6	4.0	4.4	5.1	4.1	0.0	0.0
2001	20,800	19,298	402.6	365.4	10.58	8.86	37.0	39.0
<i>Growth (per cent)</i>	2.5	5.3	3.7	4.9	4.3	5.8	0.0	0.0
2000	20,285	18,319	388.3	348.2	10.14	8.37	37.0	39.0
<i>Growth (per cent)</i>	5.2	6.2	3.5	3.7	2.5	2.6	0.0	0.0
1999	19,290	17,249	375.1	335.8	9.89	8.16	37.0	39.0
<i>Growth (per cent)</i>			3.4	3.3	3.5	4.4	0.0	0.0
1998			362.9	325.0	9.55	7.81	37.0	39.0

Source: Annual Survey of Hours and Earnings

a Full-time employees on adult rates, whose pay for the survey period was unaffected by absence

b Growth is year on year increase

c Annual earnings estimates relate to employees who have been in the same job for at least 12 months, regardless of whether or not their pay was affected by absence.

Appendix C

Summary of methodology changes between NES and ASHE.

ASHE 1998 to 2003	NES
Missing item response for basic pay and hours, overtime pay and hours and annual pay imputed using donor imputation.	No imputation for item non-response.
Estimates are weighted by calibration to estimates of jobs taken from the Labour Force Survey.	Estimates are unweighted
Age calculated as age at the survey reference period.	Age calculated as age at the first of January of the survey year.
ASHE 2004 onwards (in addition to the above)	NES
Extended coverage to include VAT only businesses.	Coverage limited to Inland Revenue PAYE list.
Update of the sample to cover people entering the job market between the sample selection date and the survey reference period.	No sample update.
Follow up of people changing jobs between the sample selection date and the survey reference period.	No follow up.

Technical report

Methodology for the 2004 Annual Survey of Hours and Earnings

By **Derek Bird**, Employment Earnings and Productivity Division, Office for National Statistics

Key points

- The Annual Survey of Hours and Earnings (ASHE) replaced the New Earnings Survey (NES) from 28 October 2004.
- The ASHE samples from the PAYE system, but weights responses to the number of jobs from the Labour Force Survey.
- The ASHE sample has been increased to include employees in businesses outside of the PAYE system and employees who changed or started new jobs after sample identification.
- Imputation for item non-response has been introduced.
- The survey questionnaire has been redesigned and tested ready for introduction in 2005.
- The main publication now covers the UK, includes quality measures and has an improved layout and content.
- Results using ASHE methodology applied to NES data for 1998 to 2003 are available.

Introduction

ONS is undergoing a significant modernisation programme of its statistical systems to make them world class in the 21st century. The objectives of this Statistical Modernisation Programme (SMP) are to standardise and systematise the processing and presentation of statistical outputs.

The development of a new annual earnings survey, the ASHE, to replace the New Earnings Survey (NES) is ONS's first major survey redesign as part of this modernisation programme. The NES was designed to meet the policy needs of the 1970s and has changed little over the past 30 years. The ASHE provides an opportunity to meet users' requirements, to improve the methodology of the survey and to make use of new statistical tools.

The methodology that underpinned the annual NES has been changed in line with recommendations made in the National Statistics Quality Review of the Distribution of Earnings

Statistics (DOER). The changes address the weaknesses in the NES's design, which led to the production of biased estimates of earnings. The biases arose because the survey responses to the NES were not weighted to the population of employees. Additionally, the sample yielded incomplete coverage of employees, primarily because the main source for the NES sample was the Inland Revenue's PAYE system. Other biases occurred because of differential non-response for employees of different types. Finally, the survey missed significant numbers of employees that change job between sample selection and the survey reference date, but who remain within scope of the survey since they remain in employment.

As well as addressing the weaknesses in the survey methodology, the questionnaire has also been reviewed. The NES questionnaire was poorly designed and allowed too much latitude for contributors to interpret the response requirement in their own way, which increases variation in the

► data. This has led to the design of a new questionnaire, which was tested on a sample of 5,000 employees alongside the 2004 ASHE survey. The parallel test allows a comparison to be made between the old and new questionnaires, to compare response rates and to test the processing system. Subject to the outcome of this field test, the new questionnaire is likely to be introduced for the 2005 ASHE.

The introduction of the new survey methodology will introduce discontinuities to statistics of earnings, but historical results using a consistent approach have been constructed to allow users to assess the impact of these changes over a reasonably long time frame. Historical results will be published on the National Statistics website for the period 1992 through 2003, though initially resource constraints mean that estimates for 1998 through 2003 were released in the first half of October to allow users to understand the impact of the improvements. These estimates were compiled by applying the ASHE methodology to the NES datasets for 1992 to 2003. An analysis of the impact of these changes was published in a separate article on the website that will be reproduced in the next issue of *Labour Market Trends*.

To generate these historical estimates ONS has created an occupational code consistent with Standard Occupational Classification (SOC) 2000 for the years 2001 back to 1992. This was done by using the NES 2002 dataset that was dual-coded to both SOC90 and SOC2000. Where employees had not changed jobs in a year the SOC2000 code was taken back. For employees that had changed jobs, a SOC2000 code was estimated using their SOC 1990 code, adjusted by

using information from the dual-coding from the 2002 NES. As part of this process, the LFS calibration totals were also adjusted so that they were on an equivalent SOC2000 basis, for 2000 back to 1992.

This article takes the following form: the first section deals with issues around the weighting methodology used for the survey in 2004. This methodology produces weighted estimates of earnings, the weights are calculated by calibrating the survey responses to totals from the Labour Force Survey (LFS) by occupation, gender, region and age. The second section looks at the pilot surveys that have been conducted to assess the degree to which the inclusion of different types of employees that are currently outside the NES sample frame is likely to improve the survey results. The third section considers the redesign of the survey questionnaire and then goes on to look at the new criteria underpinning results publication and an intention to focus the survey outputs on the median in preference to the mean.

Methodology overview

The main sample file underpinning the ASHE will remain the same as for the NES. This comprises all jobs in which an employee's National Insurance number (NINo) ends with a specified pair of digits. It is obtained from Inland Revenue (IR), and is a 1 in 100 random sample of all jobs registered in a PAYE scheme. Because the main sample file includes only those jobs registered in a PAYE scheme there is an issue of undercoverage of the labour market, especially of the lower earners. This is because many of those not registered in a PAYE scheme can be expected to earn below the tax threshold. To address this issue

supplementary surveys are conducted to augment the data inputs to the ASHE. As with the NES, the ASHE questionnaires collect information about employees; they are sent to employers who supply the requested employee information.

The new survey delivers weighted estimates of pay, whereas the NES delivered only unweighted ones. In order to calculate weights, responses are divided into calibration groups defined by a cross-classification of occupation, sex, age and workplace region where:

- occupation is the Standard Occupational Classification (SOC) 2000 one-digit (or major group) code, of which there are 9;
- age is split into three age bands (16-21, 22-49 and 50 and over); and
- workplace region is based upon government office region (GOR), but aggregated into two areas comprising (i) London and the South East and (ii) elsewhere in the United Kingdom.

The total number of employee first and second jobs in the LFS is used to provide calibration totals for the 108 groups (or strata). Estimates of pay and associated standard errors for different subsets of the population have been made using weighted estimation.

Forming strata

Initial work on forming strata focused on determining which variables were best associated with pay. Finding these meant that strata could be defined that would form the basis of the weighting structure. The NES 2000 response file was used for this analysis, and both hourly and weekly pay were examined. Statistical techniques were used to identify the variables for inclusion in the model.

At the outset a wide range of possible prediction variables were tested for inclusion including gender, age, occupation, place of work, industrial classification, full-time/part-time markers and so on. Several of these variables can be grouped in different ways, and these were investigated too.

Many different combinations of variables were tried, but the final decision on how the strata should be formed was not determined by the statistical analysis alone, as other issues also had an influence. The outcome needed to avoid the generation of a very large number of strata, as LFS estimated totals in smaller strata would be more subject to statistical error themselves. It was also desirable to include a number of different variables in the stratification, especially those groups that are most prominent in the publication of the survey – sex, for example.

The analyses showed that occupation is by far the best single predictor of pay. Combinations of other variables with occupation were tried, and although some others explained earnings relatively well on their own, they were found to be superfluous when combined with occupation. In the end, the decision to use SOC major group, gender, three age bands and two regions provided the best trade-off between the prediction of earnings and an excessive number of small strata.

Age was grouped into bands to make stratification easier. The age bands were formed so as to keep the closest homogeneity of average pay within groups but the groups different from each other. A secondary but important consideration was to retain a degree of correspondence with national minimum wage legislation. A check of average pay levels by age in years showed clearly how the bands

should be defined. The workplace regions (defined by GOR) were aggregated into two groups: London and the South East, and elsewhere, formed on the same basis as the age bands. It is worth stating here that these strata have been defined only for weighting purposes. Domain estimation will allow estimates to be derived for any subset of the population, even if these sit within, or even span parts of, different calibration groups.

Calibration and weighting

The ASHE has 108 calibration groups or poststrata, and uses LFS estimates of employee totals (including second jobs) as calibration totals for these poststrata.

Since LFS totals are themselves estimates, ONS has analysed the sensitivity of estimates of pay when different LFS totals are used for calibration. The 2002 NES response file was calibrated to each of the LFS quarterly datasets from 2001, from 2002, and the 2001/2 annual LFS dataset, together with datasets derived as a combination (weighted means, medians, etc.) of some of the quarterly datasets. Naturally, using different LFS datasets as calibration totals results in different NES estimates of pay; the investigations were intended to allow ONS to gauge the size of these differences. The following conclusions were reached.

- The total of employee first and second jobs from the LFS will be used, as this most closely matches the ASHE, which measures jobs. The number of employees on the ASHE files with three or more jobs is small.
- The estimates of pay for large subgroups of the population, for example all employees, are relatively robust to the use of different calibration totals. The

range in estimates of gross weekly pay (caused by using different LFS datasets for calibration) was about 1 per cent of the estimate itself. This is small, and the ASHE methodology uses, as calibration totals, the LFS estimates directly. The standard error of the LFS estimates themselves is small, and has not been included in the calculation of the estimates of the standard error estimates of estimators of pay.

- Ideally the annual LFS dataset would be used for calibration, as its sample size is larger than that of the quarterly datasets, contains boost samples, etc. This means that the estimates from the annual LFS dataset have a smaller standard error. However, the annual datasets are not available in time to feed into the ASHE estimation procedure. Consequently, the dataset for the spring quarter, which corresponds to the ASHE survey data, is used since it is available about six weeks after the end of the quarter.

Weights

For the main part of the sample obtained from National Insurance number (NINo) records the weight is the product of a design weight based upon the stratification at the time of selection and a calibration weight based upon the poststratification resulting from the survey responses.

Note that sample selection from the PAYE system is not stratified and each individual has an equal chance of being selected. Hence the design weight for all individuals is the same, and is given by 100 times the number of observations on the sample file (about 240,000) divided ►

- ▶ by the number of responses (about 160,000), that is, about 150.

For data coming from sources other than NINO the design weight will be determined by the probability of selecting the chosen business. Since the LFS totals cover all employees (including non-PAYE), the calibration factors are determined in the same way as for the main sample.

Comments on the weighted results

For estimates of pay for previous years released in an article on the National Statistics website on 15 October, the effect of weighting is that:

- different results can be obtained from using different LFS totals for calibration; however, these would be relatively small; and
- weighted estimates are higher than unweighted ones.

The higher estimates generated by weighting may seem counter-intuitive, since the main exclusion from the NES was those individuals outside the PAYE system. However, poorer response rates for employees in high paying occupations more than offset the bias from the PAYE exclusion. In other words, higher-earning employees had been underrepresented in the unweighted sample, and weighting corrects for this. A full investigation was undertaken to determine the contribution each individual made to the difference in estimates when weighting was applied to confirm the nature of the impact that weighting brings.

Standard errors for weighted quantiles

ONS has developed methodology to produce unweighted and weighted estimates of the standard errors of levels of quantiles and the differences in them. In the case of the former,

this is by using formulae, and for the latter, the bootstrap method. The development of standard errors for estimates is an important factor in allowing ONS to revisit the criteria against which estimates are judged fit for publication on grounds of quality; this issue is considered further below.

Estimates of the weighted median, upper and lower deciles and upper and lower quartiles, and their standard errors, have been calculated. The weighted estimates and their standard errors are greater than the unweighted ones – behaviour that has been seen already in the estimates of the mean.

The results of analyses of standard errors also reflect the skewness of the distribution of weekly pay. The standard error of quantiles increases with the quantile (for example, the standard error of the tenth percentile is smaller than that of the 25th percentile, etc.). The large and outlying pay records, and the relative sparsity of them, make reliable estimation of the upper quantiles more difficult (that is, the standard errors will be larger) than the lower ones, where there is a greater density of similar values.

The standard errors of a number of the quantile estimates are lower than one might expect, but there is a reason for this: it occurs when a weekly wage is roughly equivalent to an annual salary that is a 'round number', for example £28,000. There tends to be a propensity for employees to be paid in such round number salaries and this causes a bunching in the distribution of pay. The standard error of a quantile estimator taking the value of such a salary, or its weekly equivalent or nearby, will therefore be smaller than if the quantile estimate had happened to be a non-round number

annual salary equivalent. The same effect can be seen for weekly pay that equates to a round hourly rate, and in other similar ways.

Sample undercoverage, supplementary surveys and imputation

As noted in the previous section, the target population for the ASHE is all employees. However, employees in businesses that are not included on the interdepartmental business register (IDBR), which is based on information from both PAYE and VAT registrations, cannot be identified and so are excluded from the survey. Businesses of this type are typically organisations where the turnover of the business is below the VAT threshold and/or where the employees earn less than the PAYE threshold. This means that the ASHE-based data on earnings are always likely to overestimate average levels of pay, and potentially could miss an important group of employees at the bottom of the pay distribution. However, the extent of this specific bias is thought to be small since the total number of businesses in this area of the economy is estimated at 1.8 million enterprises encompassing an employment (proprietors and employee) total of 0.9 million. The employee component is thought to be very small, although estimates are not available.

Even within the framework of the IDBR, the sampling frame based on the PAYE system is still inadequate to allow ONS to describe the total population of employees, since it excludes the majority of those employees who do not appear in the PAYE system. Thus, ONS looked at how it might be extended to include businesses with employees but

without PAYE systems, and businesses with employees outside of their PAYE systems. The former are termed 'VAT-only' businesses in the context of the ASHE. These supplementary samples are added to data obtained in the main ASHE and weighted to the LFS population of employees. This reduces the impact of the non-sample bias.

VAT-only businesses

An employee in a VAT-only business will, by definition, earn too little to appear in the PAYE system. That is not to say they are poorly paid, for example an employee paid £10 per hour but working very few hours might not earn enough to merit paying income tax and so not be included in PAYE. The VAT-only sample has different properties to the IR PAYE sample in that all employees identified within an enterprise are included in the scope of the supplementary survey (as opposed to just 1 per cent of the IR file). To obtain data for these employees a selected business is first sent a questionnaire that asks if they have any employees paid outside of the PAYE system. If that is the case then an appropriate number of questionnaires are sent to the business so that they might provide the survey data needed. The 2004 ASHE includes data from a random sample of 5,100 businesses.

Off-PAYE employees

The second area where the current sample underenumerates individuals is in businesses with a PAYE registered payroll system that employ staff that are paid from outside of this payroll. Employees of this type might be loosely or casually attached to the enterprise and should earn below the PAYE threshold. To assess the feasibility of collecting data from

this subset of the population a small survey of local units in the hotels and restaurants sector was undertaken. The survey showed that it is very difficult to obtain data for employees of this type. Primarily, this is because the identification of the employees within the relevant businesses is time-consuming and the willingness of businesses to discuss the pay arrangements for employees of this type is low. Consequently, ONS concluded that conducting a supplementary survey of these units in 2004 would not be practical. It is, however, important to note that while the employees will be excluded from the sample set they will be included in the population weights obtained from the LFS.

Non-response

The final source of bias that is addressed in the new design is attributable to non-response. This takes two forms, unit non-response and 'exemption'. The latter is due to employees changing their job between sample selection and the survey reference date, or because the PAYE system fails to reflect job changes at the time that the sample is selected. This is a significant issue in respect of the NES, with around 12 per cent of the NES 2003 sample responses suggesting that the employees selected from the PAYE system had left the employment indicated by the IR's system. To address this issue the 2004 ASHE has included a second despatch of questionnaires where an employee was said to have moved jobs. For these cases the employees' details were matched to a subsequent extract from the PAYE system and the new employer identified. The new employer was then sent a questionnaire and data for the employees sought. This supplement

to the survey identified around 1,384 employees and elicited a 73 per cent response. Of the 1,006 questionnaires returned, 52 per cent provided data for the employee, showing that conducting this supplement to the main survey can produce an important gain in sample size.

The issue of non-response has also been assessed as part of the design of the ASHE. In this case the ONS identified a sample of approximately 4,500 employees from within the ASHE sample for whom no response had been received eight weeks after the required response date. This sample was then subject to an intensive response-chasing exercise primarily to identify whether the non-response was in some way non-random. If this were the case it would be possible to use the data to adjust for non-response in a better way than through simple weighting. However, because the follow-up survey is undertaken at the end of the survey processing cycle the results will not be available for use until the 2005 results are processed.

Imputation

While the foregoing sets out how ONS will handle unit non-response in the ASHE, a different approach has been developed to deal with 'item non-response'. This is another area that affected the NES in the past, and while the issue was not a significant problem for processing when the survey results were published in an unweighted form, it is more problematic with the weighting methodology underpinning the ASHE. This is because item non-response, where a questionnaire is returned by a respondent but in an incomplete form, would require the derivation of different weights for different

► variables in the survey. While this is technically feasible, it is time-consuming. To address this issue the survey will adopt imputation for those responses where the form is incomplete.

The stochastic imputation method uses a ‘donor’ approach, where responses from individuals with similar characteristics to the employees with the missing information are used to donate an estimate of the missing variable, forming ‘imputation classes’. The variables that will be imputed for when missing are:

- overtime hours;
- overtime pay;
- annual pay;
- normal basic hours; and
- residual weekly pay.

The choice of imputation classes is based partly on the results of the analyses completed to determine optimal stratification supplemented with variables that are relevant to pay. The resulting imputation classes are determined by the following variables:

- two-digit standard occupation class;
- region, where region one was classified as London and the South East and region two as the rest of the country;
- sex;
- adult rate marker; and
- age group, where it takes three values depending on whether the respondent is aged less than 18; between 18 and 21; and greater than or equal to 22.

In developing the imputation method, ONS compared imputed estimates with true values to assess how well the imputation process preserves true values. The analysis showed that true values are well preserved, with no significant difference between the distributions

obtained using the true values and imputed values.

Questionnaire redesign, release criteria and the output dataset

A further phase in the development of the survey concerns the redesign of the survey questionnaire. The questionnaire for the 2004 survey was printed on two sides of A4 paper and despatched with a single set of guidance notes to contributors. Thus, all businesses received just one set of guidance notes even if they were required to complete separate questionnaires for a large number of employees. The methodology review of the survey concluded that this version of the questionnaire was substandard and in need of change to allow ONS to capture data accurately, especially in respect of the pay and hours data used to derive an hourly rate of pay for employees. To address these issues ONS’s Data Collection Methodology (DCM) Unit undertook a programme of work to review the user requirement, assess emerging user needs in the context of the survey (for example, pensions issues) and design a new format for the questionnaire. This new format was then taken through a programme of cognitive testing with businesses of all sizes and in all sectors of the economy. The new design, which conforms to theoretical best practice, is nearing its final form.

The final design will be informed by the outcome of an analysis of a field test conducted in parallel with the 2004 ASHE. This field test involved ONS selecting a random sample of 5,000 employees that was extracted from the main ASHE sample. The aim of the field test is to allow ONS to assess whether the

reworded questions included in the new questionnaire can be answered readily by businesses. A second objective for the test is to indicate whether the inclusion of guidance notes as part of the questionnaire, rather than as a separate set of instructions, reduces item non-response and incorrect responses, and improves accuracy in respect of the target variable. The field test should also show whether a switch to a longer questionnaire affects response rates adversely: the version tested was printed on six sides of paper rather than the two that users are familiar with. This approach encapsulates the greater methodological rigour that ONS is bringing to the design of its survey instruments and allows ONS to report with greater confidence the results of its surveys.

The redesign of the questionnaire and the cognitive testing exercise allowed ONS to assess the quality of data that were obtained within the NES on bonuses. This is a problematic area, and one that impedes the capacity to make like-for-like comparisons with the Average Earnings Index (AEI). Following the review of the questionnaire, ONS is likely to stop asking employers to provide data on bonuses that are paid outside of the reference period but which relate to work undertaken in the reference period. Data of this type are only available in a real sense from businesses paying bonuses in May or June and, to a limited extent, in July. This reality reflects the response deadlines for the ASHE, where the survey data are provided in respect of April and the survey take-on and validation ends in August. Thus the majority of annual bonuses, which the survey used to compile the AEI shows are paid in December, January

and March, are missed by the current questionnaire design. Instead, ONS will capture data on total bonuses paid in April, and so allow the generation of a figure on a comparable basis to the AEI for that month. Additionally, employers will be asked to indicate the part of these bonuses that relates to work undertaken in April. Supplementing these questions will be information on bonuses paid in the tax year, as a component of total annual pay. Dividing this annual total by 12 to get an average monthly level of bonuses will give some indication of the impact of irregular bonuses on a month by allowing a comparison with the bonus data that relates to work undertaken in April.

These changes should improve the quality of the estimates from the 2005 survey compared with those obtained using the existing survey questionnaire.

The output dataset

This final discussion looks at the outcome of work to revise the release criteria for estimates produced in the ASHE, which ONS will apply to the weighted results from the new survey in 2004. As a result of this work, ONS will reduce the number of standard tables that are produced each year, and replace them with a shorter summary set of outputs that better meet the immediate needs of users for important indicators on earnings statistics.

NES release criteria

Historically, NES data were assessed for their quality according to the following criteria.

- For NES published tables: if the sample size was 30 or more and the relative standard error of the mean estimate of pay/hours was less than 5 per cent, then the

estimate would be published.

- For ad hoc queries and on NOMIS*: if the sample size was 5 or more an estimate would be given. If the sample size was less than 30 or the relative standard error of the mean estimate of pay/hours was more than 5 per cent, then it would be indicated that the estimate was of poor quality and that such estimates should not be used in publications.

These criteria were applied to all statistics (not just means) including proportions and quantiles (for example, in assessing the quality of the median, the standard error of the mean was examined). The second set of criteria allows for very detailed estimates to be produced, many of which will be of poor quality. Anecdotal evidence suggests that the release of estimates under these criteria has led to misuse or at least stretched use of the data. These arrangements have been in force for many years and their provenance is uncertain. It is likely, though, that the basis of the second of the criteria was motivated by demand for very detailed NES estimates.

ASHE publication

ONS will significantly change the way the annual earnings data are presented. The NES data were issued in a National Statistics First Release, accompanied by a more detailed set of tables available on-line at the National Statistics website. The on-line tables are an electronic version of the paper publication that has historically been produced for the survey. Following the release of the summary volume, the NES results set was then issued, again on-line, in a further seven volumes of data tables presenting results by region, industry, occupation, collective

agreements, etc. The content of the volumes has not been revised to any great extent since the survey's inception, and as a result the information presented often confounds rather than informs. The new publication for ASHE will amend the presentation of the results, such that headline statistics for various subgroups of the population will be available in a single volume, with all other requirements being met on request. The focus of the results will switch from estimates of mean pay to those of median earnings.

The disclosure rules for ASHE have also been changed to bring them in line with wider ONS practice. Estimates for a table cell with less than three responses are considered as potentially disclosive, and so are suppressed. In addition, cells are suppressed if they fail the ONS rules for dominance. The dominance rule determines whether a cell of a table is disclosive owing to a small number of respondents contributing to a large proportion of the total. This allows for the publication of more estimates under ASHE than was allowed under NES.

In addition, quality measures in the form of coefficients of variation (CV) will be published for all ASHE variables. The coefficient of variation is the standard error of an estimate divided by the estimate. To help the user in interpreting the quality of estimates presented in tables a new quality key has been introduced (see p464).

Estimates are marked in different colours according to their CV value in relation to quality thresholds. For example estimates with a CV of greater than 10 per cent but less than or equal to 20 per cent are marked as 'acceptable'; such estimates should be used with caution. Estimates

Key

Precise
CV ≤ 5 per cent

Reasonably precise
CV ≥ 5 per cent and ≤ 10 per cent

Acceptable
CV ≥ 10 per cent and ≤ 20 per cent

x = unreliable
CV ≥ 20 per cent or unavailable

.. = disclosive
n/a = not applicable

where the CV is more than 20 per cent are suppressed as they are considered to be unreliable.

A further improvement over NES is that the new ASHE publications include responses for Northern Ireland with the first results, rather than these being added later as with NES.

Conclusion

The methodology underpinning ASHE 2004 will:

- introduce the weighting of results to the population of jobs measured by the LFS, imputation for item non-response and sample error estimation;

- extend the coverage to include employees in VAT-only units held on the IDBR, and people who change or start a job between sample selection and the survey reference period;
- redesign the survey questionnaire, planned to be introduced for the 2005 survey;
- amend the results release criteria; and
- change the nature of the survey results publication.

Publication of results

Results and back series for 1998 to 2003 using the same imputation and weighting methods as defined in the ASHE methodology but applied to the NES data sets were published on 15 October 2004. The results were published on the National Statistics website using the new publication layout and quality criteria. At the same time, two articles were published. The first describes the impact of applying the new methodology to the 1998 to 2003 NES data. The second describes changes to the methodology used to compile estimates of low pay and the impact

these changes make to the estimates for 1998 to 2003. These articles will both appear in forthcoming issues of *Labour Market Trends*.

Results for the April 2004 ASHE survey and revised results for the 2003 survey were released on 28 October 2004. These use the new ASHE methodology, and for the 2004 survey results were published both including and excluding responses from the supplementary surveys so that comparisons can be made with earlier results. The results were published on the National Statistics website using the new publication layout and quality criteria. Results and back series for 1992 to 1997 will be released as soon as they have been quality assured.

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New methodology for low pay estimates

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Key points

- A new methodology has been created for low pay estimates that uses data from the new Annual Survey of Hours and Earnings (ASHE), which replaces the New Earnings Survey (NES) as the first major survey to benefit from ONS' wide-ranging modernisation programme.
- In 2004, supplementary surveys are included in the ASHE to improve coverage at the low end of the pay distribution, so that ASHE can appropriately be used as the sole basis for low pay estimates.
- The ASHE methodology includes imputation and a weighting methodology that provides more accurate weights than those previously used for low pay estimates derived from the NES.
- Except for a fall in the estimate for the number of low paid jobs in 1998, there is little impact of the changes to methodology on the annual estimates for 1998-2003.

Introduction

The Office for National Statistics (ONS) is undergoing a significant modernisation programme of its statistical systems in the UK to make them world class in the 21st century. The objectives of this Statistical Modernisation Programme (SMP) are:

- to re-engineer key statistical systems;
- to move ONS surveys and other data onto a corporate database system;
- to introduce a set of standard tools;
- to standardise and systematise the processing and presentation of statistical outputs.

The development of a new annual earnings survey, the Annual Survey of Hours and Earnings (ASHE), to replace the New Earnings Survey (NES) is ONS' first major survey redesign as part of this modernisation programme. The NES was designed to meet the policy needs of the 1970s and has changed little over the past thirty years. ASHE provides an opportunity to meet users' requirements in the 21st century, to improve the methodology of the survey and to make use of the new statistical tools that ONS will be using in its modernisation programme.

The ASHE provides more accurate earnings information than the NES, including better estimates of the number of jobs affected by low pay. Accurate estimates of earnings at the low end of the pay distribution have been required, in particular since the introduction of the national minimum wage in 1999. This need was met initially by using the average of estimates taken from the New Earnings Survey (NES) and the Labour Force Survey (LFS), which were the best available sources at the time. However, the need to improve the methodology has always been recognised, and the ASHE has been developed in response to the [National Statistics Quality Review of the Distribution of Earnings Statistics](#), in part to improve upon the coverage of the low end of the pay distribution previously offered by the NES.

The redesign has led to significant improvements in the methodology for the low pay estimates. This improvement causes a discontinuity in the series of low pay estimates, and this paper examines the impact of the changes. This report summarises the pre-2004 methodology (described in more detail in the paper [Summary of the methodology for measuring low pay](#)), describes the changes to the methodology introduced this year, and provides tables comparing results on the old basis with those on the new. Detailed comparisons between estimates of earnings and hours across the full pay distribution produced using the NES and ASHE methodologies are

provided and discussed in [Annual Survey of Hours and Earnings: An analysis of historical data 1998-2003](#).

Pre-2004 low pay methodology

Previous low pay methodology drew on the results of two surveys in order to compensate for the deficiencies of each at the low end of the pay distribution. The NES was an annual survey conducted in April of 1 per cent of employees in the Pay-As-You-Earn tax system, which asked employers for earnings information about its employees. The information was likely to be reliable because employers referred to documentation. However, many people on low pay are likely to fall below the income tax threshold and hence to be missed by a PAYE sample. The LFS, in contrast, is a random sample of households and so the sample that it draws should be unbiased in its coverage of the low end of the pay distribution. However, differential non-response among respondents may mean that in practice, coverage is biased. The survey is quarterly and for the low pay estimates, the spring quarter was used because it includes the NES survey period. About 30 per cent of responses in the LFS are given by proxy by another adult in the household if a respondent is unavailable, and responses are commonly given without referring to payslips. The earnings information given is therefore likely to be less accurate than that in the NES.

The NES was unweighted, and data for missing items within questionnaires were not imputed. For the low pay estimates, NES data were assigned weights based on age band, gender, industry sector and the number of employees in the jobholder's firm. The weights summed to the total number of jobs in the population. The purpose of weighting was to attempt to correct for differential non-response among different subgroups in the population. Cases with loss of pay due to absence were excluded, to avoid distortions in their calculated hourly pay. The resulting estimates were then scaled back up to the number of jobs in the population to compensate for the removal of these cases.

The LFS data were weighted to represent the number of jobs in the job market. For main jobs, respondents provide an hourly rate of pay if they are paid by the hour. For the low pay estimates, those without an hourly rate of pay were assigned a rate that was imputed from their earnings and other information. The LFS also asks about earnings in second jobs, though until 2003 it did not ask for an hourly rate of pay, only for information that allowed an hourly rate to be calculated from weekly earnings and hours. The low pay LFS estimates were produced using the stated (or imputed) main job hourly rate, and the second job calculated hourly rate. The LFS and NES estimates were then averaged to produce the main low pay estimates (the central estimate).

New methodology

Because of the limitations described above of the LFS and NES at the low end of the pay distribution, the ONS has taken the approach of redesigning the NES as the ASHE, with a number of improvements to its methodology to give it the advantages both of accurate earnings estimates and fuller coverage of the earnings distribution. From 2004, the ASHE is expected to be the sole source for the low pay estimates with the LFS only needed for weighting. The changes to the ASHE methodology are described in detail in [Methodology for the 2004 Annual Survey of Hours and Earnings](#) but are summarised here in relation to low pay statistics.

A key improvement to the ASHE has been to extend the sampling frame, from 2004 onwards, beyond the NES PAYE sample to improve coverage of low paid employees. The ASHE adds three survey groups to the PAYE sample. First, ONS has extended the coverage of its annual earnings survey to include businesses with employees but without PAYE systems. Supplementary samples have been selected from the Inter-Departmental Business Register to cover such units. The other two groups arise from the fact that the survey is conducted in April each year but the sample is identified in February. Some employees move jobs after being identified for the sample or start jobs during this period, and were missed by the NES. However, these two groups are included in the ASHE. A higher proportion of employees in smaller businesses, and in the two latter groups of mobile employees, would be expected to be on low pay than others. Survey data for these additional samples are not available for years previous to 2004.

Another major improvement to the ASHE is the imputation of missing earnings information within questionnaires, except for those cases with loss of pay due to absence for which there are too few comparable donor cases. Weighting has also been introduced, so that the weights sum to the number of jobs in the labour market. Weighting is carried out based on 108 domains split according to age band, gender, occupation and region. This is another improvement on the previous methodology because occupation is a key variable in predicting pay and was not included in the previous weighting methodology. Both imputation and weighting tend to correct for differential non-response among certain population groups and thus increase the accuracy of the estimates. In order to calculate the low pay estimates, cases with loss of pay due to absence must be excluded because their hourly pay cannot be derived accurately from the survey information in this situation. Excluding these cases means that the weights of the remaining cases no longer sum to the total number of jobs in the economy and that estimates of the number of jobs paid below the minimum wage using these weights would be smaller than it should be. In order to correct for this, weights are calculated especially for the low pay analyses by first removing cases with loss of pay due to absence, and then calculating weights that sum to the number of jobs in the labour market. The weights used for the low pay analyses are thus slightly different from those used for the ASHE itself.

As with the NES, the ASHE asks for earnings information for the pay period that includes a particular date in April — the survey reference date — which varies from year to year in order to avoid Easter. In previous years, low pay estimates have been calculated for different age groups using the employee's age at 1 April rather than at the survey reference date. This could introduce some slight inaccuracy into the estimates of the number of jobs paid below the minimum wage, because the minimum wage depends on the employee's age. Until 2004, the minimum wage legislation applied only to those over 18 years old, with a lower Youth Development Rate for those aged 18-21 and a higher, adult rate for those aged 22 and over. If an employee's 18th or 22nd birthday fell between 1 April and the survey reference date, they would be eligible for a higher rate of pay than at 1 April, and the low pay estimates should reflect this. The ASHE has introduced calculation of age on the survey reference date in April, and this age is therefore also used in the low pay estimates.

Comparison of estimates using old and new methodologies

The tables below compare low pay estimates using the old and new methodologies, for the years 1998 to 2003. All of the estimates have been produced using the revised population estimates that were announced in February 2003 and incorporated in the latest LFS microdatasets released on 17 March 2004; the effect of the population revisions on previously published low pay estimates is negligible.

The NES and ASHE estimates use the annually revised UK data incorporating late returns.

It should be noted that the national minimum wage is raised periodically and that, as discussed above, different rates apply to those aged 18-21 and those aged 22 and over; the rates for spring from 1999 (when the national minimum wage was introduced) to 2003 are summarised in Table 1. As in previous publications, estimates are shown back to 1998, the year before the minimum wage was introduced, because of the interest in the impact of the minimum wage on pay. For 1998, the 1999 levels for the minimum wage are used as nominal values, as usual. It should further be noted that estimates of the number of jobs paid below the minimum wage do not necessarily indicate non-compliance with the legislation, because it is not possible in the surveys to identify which employees are eligible for the minimum wage. Apprentices and those undergoing training, for example, are not entitled to the full rate but cannot be identified in the NES or ASHE.

Under the old low pay methodology, estimates of fewer than 30,000 jobs were suppressed because the estimates were partly based on LFS data and this is the standard LFS policy for suppression of earnings estimates. Thus many of the central estimates were suppressed, particularly in disaggregated tables, which limits their usefulness at regional level in particular. However, the new ASHE methodology allows publication of smaller estimates, to a level as low as 10,000 jobs, as long as the coefficient of variation (the standard deviation of the estimate divided by the estimate itself) is 20 per cent or less. It is notable that in the tables that follow it is now possible with the new ASHE methodology to publish many more estimates at a disaggregated level than previously. As a further improvement, the ONS has introduced an indication of the quality of estimates based on their coefficient of variation, summarised in the key that appears with the tables below.

Table 2a shows the estimates of the number of jobs paid below the minimum wage held by those aged 18 and over according to the new methodology and the pre-2004 low pay methodology. The central estimate using the pre-2004 methodology is broken down into its LFS and NES components. Sampling variabilities for the estimates in Table 2a are given in Table 2b. Tables 3 and 4 show estimates of the number of jobs paid below the minimum wage by age group. The estimates using the new ASHE methodology show much lower sampling variability than those using the NES with the old low pay methodology.

The estimate of the number of jobs below the minimum wage in 1998 is 1.2 million using the new ASHE methodology, which is lower than the estimate of 1.4 million using the old central estimate methodology. Examination of the data shows that this is mainly due to improvements in the weighting methodology, which yielded smaller and much less volatile weights for the hotel and restaurant industry sector (Sector H) and the sector for other community, social and personal industries (Sector O) in 1998 for ASHE compared to NES and reduced the estimate of low paid jobs in these sectors by a total of 170,000 jobs. Being based partly on occupation (known to be a major factor in determining pay), the ASHE weights are more accurate and reliable. Improvements to the weights also caused a moderate rise from 80,000 to 120,000 in the estimates of the number of jobs paid below the minimum wage in 1998 in the education sector (Sector M). For subsequent years the estimates of the number of jobs paid below the minimum wage given by the ASHE and old central estimate methodology are within sampling variability.

Tables 5 to 8 show further breakdowns by gender, full-time and part-time work, industry, occupation and government office region, comparing the new ASHE-based

low pay estimates with central estimates calculated using the old methodology of averaging the NES and LFS estimates. Apart from the 1998 industry sector differences already discussed, no differences of importance between NES and ASHE estimates arise in the other disaggregations by gender, full-time/part-time work, occupation or region. Therefore, the differences between the ASHE and central estimates in Tables 5 to 8, apart from 1998, are essentially due to differences between the LFS component of the central estimate and the ASHE estimates.

The effect of moving to the ASHE as the sole basis of the estimate is relatively small at the aggregate level, apart from in 1998 as we have seen. At a disaggregated level, we can see (Table 3) that for those aged 18-21, the ASHE estimates are slightly higher than the central estimates whereas for those aged 22 and over (Table 4) the ASHE estimates are lower. The falls in the estimates, when they occur, apply roughly equally to men and women but affect part-timers rather than full-timers, and part-time men to a disproportionate degree; some of these falls in part-timers' estimates are offset by a rise in the estimates for full-timers, particularly full-time women.

Estimates disaggregated by major industry sector (Table 6) are similar for the ASHE and old central estimate methodology, except for differences in 1998 already discussed. Estimates broken down by Government Office Region (Table 7) are similar for the central and ASHE estimates. Estimates are also similar for occupation groups (Table 8) except for an increase in 2003 from a central estimate of 50,000 jobs to an ASHE estimate of 90,000 jobs below the minimum wage in Occupation Group 9 (elementary and other occupations).

Tables 9 to 12 provide NES and ASHE estimates to allow comparison between them. NES-based estimates using the old low pay methodology, unlike the ASHE estimates, are not designed to stand alone to measure the low pay distribution, and are given for information only. The ASHE and NES estimates are very close (within 95 per cent confidence intervals) for all years except for 1998.

October 2004 publication

On 28 October, ONS will publish low pay estimates for 2004 using the new methodology, including the additional samples to improve coverage, particularly of low paid jobs. The estimates for 2004 will also be provided without the new, additional samples to enable easier comparison with previous years. The estimates for all years will also be provided on the basis of the old methodology, again to facilitate comparison.

The 2004 estimates are being produced with an improved editing methodology which cannot be applied to back series for comparison, but will yield estimates based on data of better quality. Any further methodological issues which prove significant in the assessment of 2004 results will be discussed in the 28 October publication.

Further information

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Table 1		National minimum wage hourly rates, April 1999 to October 2003	
Survey Date	National minimum wage hourly rate		
	Age 18-21	Age 22 and over	
Spring 1998 ^a	£3.00	£3.60	
Spring 1999	£3.00	£3.60	
Spring 2000	£3.00	£3.60	
Spring 2001	£3.20	£3.70	
Spring 2002	£3.50	£4.10	
Spring 2003	£3.60	£4.20	

^aThe national minimum wage had not been introduced in 1998 and so the Spring 1999 values are used

Table 2a		Jobs¹ paid below the national minimum wage held by those aged 18 and over							
Year	LFS ²		NES ³		Central estimate ⁴		ASHE ⁵		
	'000s	%	'000s	%	'000s	%	'000s	%	
1998	1380	6.0	1400	6.1	1390	6.0	1210	5.2	
1999	520	2.2	500	2.1	510	2.2	470	2.0	
2000	240	1.0	230	0.9	230	1.0	230	0.9	
2001	270	1.1	220	0.9	240	1.0	230	0.9	
2002	360	1.5	300	1.2	330	1.4	320	1.3	
2003	250	1.0	260	1.1	250	1.1	250	1.0	

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

² Using revised weights consistent with the population estimates published in Spring 2003

³ Using revised weights consistent with the population estimates published in Spring 2003 and including annual revisions to the NES data

⁴ Average of the LFS and NES estimates

⁵ Using the new ASHE methodology with weights for low pay data

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Table 2b Sampling variability for jobs paid below the national minimum wage held by those aged 18 and over

Year	LFS ^{1,5}		NES ^{2,5}		Central estimate ^{3,5}		ASHE ⁴	
	Standard error ⁶ of count '000s	Standard error ⁶ of percentage %	Standard error ⁶ of count '000s	Standard error ⁶ of percentage %	Standard error ⁶ of count '000s	Standard error ⁶ of percentage %	Standard error ⁶ of count '000s	Standard error ⁶ of percentage %
1998	*	*	30	0.13	*	*	10	0.06
1999	*	*	20	0.08	*	*	10	0.04
2000	60	0.23	10	0.05	30	0.12	10	0.03
2001	60	0.26	10	0.05	30	0.13	10	0.03
2002	70	0.30	10	0.06	40	0.15	10	0.03
2003	60	0.26	10	0.05	30	0.13	10	0.03

¹ Using revised weights consistent with the population estimates published in Spring 2003

² Using revised weights consistent with the population estimates published in Spring 2003 and including annual revisions to the NES data

³ Average of the LFS and NES estimates

⁴ Using the new ASHE methodology with weights for low pay data

⁵ For the central estimates using the pre-2004 methodology, a method developed in 2001 for producing sampling variabilities has been used that takes into account the fact that many hourly rates of pay on the LFS have been donated rather than directly observed. The method is experimental and the sampling variabilities do not have National Statistic status. In 1998 and 1999, LFS respondents were not asked for their hourly rate of pay and so this method does not apply. No sampling variabilities are therefore given for these years for the LFS and central estimates. The sampling variability is estimated by a combination of the standard error from the LFS and NES.

⁶ The above counts and percentages (statistics) are estimated from a specific sample. These estimates are subject to sample-to-sample variation. The standard error is a measure of this variation for a given statistic, and is estimated from the selected sample.

Table 3 Jobs¹ paid below the national minimum wage held by those aged 18-21

Year	LFS ²		NES ³		Central estimate ⁴		ASHE ⁵	
	'000s	%	'000s	%	'000s	%	'000s	%
1998	110	7.0	130	8.1	120	7.6	130	7.3
1999	30	1.8	50	3.1	40	2.5	50	2.8
2000	30	2.0	40	2.5	40	2.2	40	2.3
2001	40	2.2	30	1.9	40	2.1	40	2.0
2002	50	2.7	40	2.4	40	2.6	50	2.6
2003	30	1.7	50	2.8	40	2.2	50	2.9

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

² Using revised weights consistent with the population estimates published in Spring 2003

³ Using revised weights consistent with the population estimates published in Spring 2003 and including annual revisions to the NES data

⁴ Average of the LFS and NES estimates

⁵ Using the new ASHE methodology with weights for low pay data

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Table 4 Jobs¹ paid below the national minimum wage held by those aged 22 and over

Year	LFS ²		NES ³		Central estimate ⁴		ASHE ⁵	
	'000s	%	'000s	%	'000s	%	'000s	%
1998	1270	5.9	1280	5.9	1270	5.9	1080	5.0
1999	490	2.3	450	2.1	470	2.2	420	1.9
2000	210	0.9	190	0.8	200	0.9	180	0.8
2001	230	1.0	190	0.8	210	0.9	190	0.8
2002	310	1.4	260	1.2	280	1.3	270	1.2
2003	220	1.0	210	0.9	220	1.0	200	0.9

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

² Using revised weights consistent with the population estimates published in Spring 2003

³ Using revised weights consistent with the population estimates published in Spring 2003 and including annual revisions to the NES data

⁴ Average of the LFS and NES estimates

⁵ Using the new ASHE methodology with weights for low pay data

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Category	Table 5 Jobs ¹ paid below the national minimum wage held by ageband, gender, and full-time vs part-time work; Central Estimate (LFS/NES) vs ASHE comparison*																							
	1998		1999		2000		2001		2002		2003													
	Central Estimate (LFS/NES)		ASHE		Central Estimate (LFS/NES)		ASHE		Central Estimate (LFS/NES)		ASHE		Central Estimate (LFS/NES)		ASHE									
	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%								
All 18-21	120	7.6	130	7.3	40	2.5	50	2.8	40	2.2	40	2.3	40	2.1	40	2.0	40	2.6	50	2.6	40	2.2	50	2.9
All 22+	1270	5.9	1080	5.0	470	2.2	420	1.9	200	0.9	180	0.8	210	0.9	190	0.8	280	1.3	270	1.2	220	1.0	200	0.9
All men	390	3.3	340	2.9	180	1.5	160	1.3	80	0.7	80	0.6	90	0.7	70	0.6	100	0.8	100	0.8	90	0.7	90	0.7
All women	1010	9.0	860	7.6	330	2.9	320	2.7	150	1.3	150	1.3	160	1.3	150	1.3	230	1.9	220	1.8	170	1.4	160	1.3
Full-time men	220	2.1	230	2.1	100	0.9	110	1.0	40	0.3	50	0.5	30	0.3	50	0.4	50	0.5	60	0.6	40	0.4	60	0.6
Part-time men	160	15.7	110	12.8	80	7.2	40	4.8	40	3.9	30	2.8	50	4.4	30	2.8	50	4.1	30	3.4	50	3.8	30	2.4
Full-time women	240	3.9	280	4.1	80	1.2	100	1.5	*	*	50	0.7	*	*	40	0.6	50	0.7	60	0.9	30	0.5	50	0.8
Part-time women	770	15.0	580	12.5	250	4.9	210	4.4	120	2.3	100	2.0	130	2.4	110	2.2	180	3.4	160	3.1	130	2.5	110	2.1
All full-time	460	2.7	510	2.9	170	1.0	220	1.2	70	0.4	100	0.6	60	0.4	90	0.5	100	0.6	120	0.7	70	0.4	120	0.6
All part-time	930	15.1	700	12.6	340	5.3	250	4.4	170	2.6	130	2.1	180	2.8	140	2.3	230	3.5	200	3.2	180	2.7	130	2.2
All (18+)	1390	6.0	1210	5.2	510	2.2	470	2.0	230	1.0	230	0.9	240	1.0	230	0.9	330	1.4	320	1.3	250	1.1	250	1.0

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

*For the central estimate using the previous low pay methodology, data are suppressed if the estimated number falls below 30,000

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Industry Sector	Jobs ¹ paid below the national minimum wage by industry sector; Central Estimate (LFS/NES) vs ASHE comparison*																							
	1998		1999		2000		2001		2002		2003													
	Central Estimate (LFS/NES)	ASHE	Central Estimate (LFS/NES)	ASHE	Central Estimate (LFS/NES)	ASHE	Central Estimate (LFS/NES)	ASHE	Central Estimate (LFS/NES)	ASHE	Central Estimate (LFS/NES)	ASHE												
	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%												
A: Agriculture, hunting & forestry	*	*	10	8.8	*	*	10	3.7	*	*	x	x	*	*	x	x	*	*	x	x				
B: Fishing	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x				
C: Mining, quarrying	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x				
D: Manufacturing	110	2.6	110	2.5	40	0.9	30	0.7	*	*	20	0.4	*	*	10	0.3	*	*	20	0.6	*	*	10	0.4
E: Electricity, gas & water supply	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x
F: Construction	*	*	20	3.2	*	*	10	1.5	*	*	10	1.1	*	*	10	1.0	*	*	10	1.0	*	*	10	1.2
G: Wholesale, retail & motor trade	330	8.9	260	7.2	100	2.7	110	2.9	40	1.0	40	1.2	50	1.2	50	1.3	70	1.9	60	1.6	60	1.7	50	1.5
H: Hotels & restaurants	300	23.7	180	21.2	100	7.7	50	6.1	50	3.5	20	2.8	50	3.5	20	2.6	70	5.4	50	5.3	30	3.2	30	3.3
I: Transport, storage & communication	40	2.8	30	2.1	*	*	10	0.9	*	*	10	0.5	*	*	10	0.5	*	*	10	0.7	*	*	10	0.5
J: Financial intermediation	*	*	10	0.9	*	*	-	-	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x
K: Real estate, renting & business activity	180	5.8	170	6.8	70	2.1	70	2.7	*	*	30	0.9	*	*	20	0.7	*	*	30	1.0	*	*	40	1.1
L: Public administration & defence	30	1.5	20	1.4	*	*	10	0.6	*	*	x	x	*	*	x	x	*	*	10	0.6	*	*	x	x
M: Education	80	3.8	120	4.0	50	1.9	60	2.0	40	1.2	40	1.1	*	*	40	1.1	30	1.1	60	1.7	*	*	30	0.9
N: Health & social work	160	6.9	170	6.1	50	2.4	70	2.4	*	*	40	1.4	30	1.3	40	1.4	*	*	40	1.4	50	1.5	40	1.3
O: Other community, social & personal	120	13.0	100	12.6	40	4.4	30	3.7	*	*	20	2.4	*	*	20	2.1	*	*	20	2.3	*	*	20	1.9
All (18+)	1,390	6.0	1210	5.2	510	2.2	470	2.0	230	1.0	230	0.9	240	1.0	230	0.9	330	1.4	320	1.3	250	1.1	250	1.0

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

*For the central estimate using the previous low pay methodology, data are suppressed if the estimated number falls below 30,000

-Negligible, less than half the final digit shown

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Reasonably precise CV > 5% and <= 10%
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Table 7	Jobs ¹ paid below the national minimum wage by government office region; Central Estimate (LFS/NES) vs ASHE comparison*																							
	1998				1999				2000				2001				2002				2003			
	Central Estimate (LFS/NES)		ASHE		Central Estimate (LFS/NES)		ASHE		Central Estimate (LFS/NES)		ASHE		Central Estimate (LFS/NES)		ASHE		Central Estimate (LFS/NES)		ASHE		Central Estimate (LFS/NES)		ASHE	
	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%
Government Office Region																								
North East	90	9.3	70	7.6	*	*	30	2.7	*	*	10	1.4	*	*	20	1.5	*	*	20	1.7	*	*	10	1.4
North West (including Merseyside)	160	6.4	150	5.8	50	2.0	50	2.1	*	*	20	1.0	*	*	20	0.9	40	1.6	30	1.3	30	1.1	30	1.1
Yorks & Humber	140	7.4	130	6.2	50	2.7	40	1.9	*	*	10	1.1	*	*	20	1.0	30	1.5	30	1.5	*	*	20	1.1
East Midlands	120	7.3	110	6.6	40	2.3	40	2.5	*	*	20	1.4	*	*	20	1.1	*	*	20	1.5	*	*	20	1.2
West Midlands	140	6.5	130	5.8	60	2.7	50	2.2	*	*	20	1.1	*	*	20	0.9	*	*	30	1.4	*	*	30	1.2
Eastern	120	5.2	100	4.9	50	2.0	50	2.4	*	*	20	1.1	*	*	20	1.1	*	*	30	1.6	40	1.5	20	1.1
London	70	2.5	80	2.3	40	1.3	40	1.1	*	*	20	0.4	*	*	10	0.4	*	*	30	0.7	*	*	20	0.5
South East	150	4.5	120	4.0	70	1.9	50	1.7	*	*	10	0.7	*	*	30	0.8	40	1.2	40	1.3	*	*	30	0.9
South West	140	7.1	110	5.7	40	2.0	40	2.2	*	*	20	1.1	*	*	20	1.1	*	*	30	1.4	40	1.8	30	1.3
Wales	80	8.2	70	7.0	30	2.9	20	2.3	*	*	20	1.1	*	*	10	1.1	*	*	10	1.2	*	*	10	0.9
Scotland	140	6.7	110	5.1	40	2.2	40	2.0	*	*	10	0.8	*	*	20	0.8	*	*	30	1.3	*	*	20	1.0
Northern Ireland	40	7.4	40	7.1	*	*	20	2.8	*	*	20	1.4	*	*	10	1.2	*	*	10	0.9	*	*	10	0.8
All (18+)	1,390	6.0	1,210	5.2	510	2.2	470	2.0	230	1.0	230	0.9	240	1.0	230	0.9	330	1.4	320	1.3	250	1.1	250	1.0

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

*For the central estimate using the previous low pay methodology, data are suppressed if the estimated number falls below 30,000

Key
Precise CV <= 5%
Reasonably precise CV > 5% and <= 10%
Acceptable CV > 10% and <= 20%
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Occupation	Jobs ¹ paid below the national minimum wage by occupation; Central Estimate (LFS/NES) vs ASHE comparison*																							
	1998		1999		2000		2001		2002		2003													
	Central Estimate (LFS/NES)	ASHE	Central Estimate (LFS/NES)	ASHE	Central Estimate (LFS/NES)	ASHE	Central Estimate (LFS/NES)	ASHE	Central Estimate (LFS/NES)	ASHE	Central Estimate (LFS/NES)	ASHE												
	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%												
Managers & administrators	40	1.3	50	1.5	*	*	30	1.0	*	*	10	0.2	*	*	10	0.4	*	*	x	x				
Professional	*	*	30	1.1	*	*	20	0.7	*	*	10	0.2	*	*	10	0.4	*	*	x	x				
Associated professionals & technical	30	1.4	40	1.4	*	*	20	0.9	*	*	10	0.4	*	*	20	0.5	30	0.9	10	0.2				
Clerical & secretarial	110	2.8	100	2.5	40	1.0	40	1.1	*	*	20	0.6	*	*	20	0.6	*	*	20	0.5				
Craft & related	70	3.0	70	3.3	30	1.4	30	1.5	*	*	20	1.0	*	*	20	0.9	*	*	20	1.1				
Personal & protective services	430	15.2	370	12.7	160	5.4	120	4.2	80	2.6	80	2.5	40	1.9	50	2.6	40	2.3	50	2.9	60	3.0	50	2.5
Sales	240	13.5	200	9.8	70	3.4	80	3.7	30	1.6	30	1.2	30	1.6	30	1.6	60	2.9	40	2.2	50	2.6	40	2.1
Plant & machine operatives	100	4.7	80	3.6	40	1.6	20	0.9	*	*	10	0.4	*	*	10	0.6	*	*	20	0.8	*	*	10	0.7
Other	340	18.6	290	15.6	100	5.8	100	5.6	40	2.4	50	2.5	80	2.6	70	2.2	130	4.0	120	3.6	50	1.8	90	3.0
All (18+)	1390	6.0	1210	5.2	510	2.2	470	2.0	230	1.0	230	0.9	240	1.0	230	0.9	330	1.4	320	1.3	250	1.1	250	1.0

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

*For the central estimate using the previous low pay methodology, data are suppressed if the estimated number falls below 30,000

Note that up to and including 2000, occupation is based on the SOC 1990 classification.

From 2001 onwards, occupation is based on the SCC 2000 classification.

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Category	Jobs ¹ paid below the national minimum wage held by ageband, gender, and full-time vs part-time work; NES vs ASHE comparison*																							
	1998		1999		2000		2001		2002		2003													
	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE												
	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%												
All 18-21	130	8.1	130	7.3	50	3.1	50	2.8	40	2.5	40	2.3	30	1.9	40	2.0	40	2.4	50	2.6	50	2.8	50	2.9
All 22+	1280	5.9	1080	5.0	450	2.1	420	1.9	190	0.8	180	0.8	190	0.8	190	0.8	260	1.1	270	1.2	210	0.9	200	0.9
All men	430	3.6	340	2.9	190	1.5	160	1.3	80	0.7	80	0.6	80	0.6	70	0.6	100	0.8	100	0.8	90	0.7	90	0.7
All women	970	8.7	860	7.6	320	2.7	320	2.7	140	1.2	150	1.3	140	1.2	150	1.3	200	1.7	220	1.8	160	1.4	160	1.3
Full-time men	300	2.7	230	2.1	140	1.2	110	1.0	60	0.5	50	0.5	50	0.4	50	0.4	70	0.6	60	0.6	60	0.5	60	0.6
Part-time men	140	16.2	110	12.8	50	5.4	40	4.8	30	2.9	30	2.8	30	2.9	30	2.8	30	2.8	30	3.4	30	2.9	30	2.4
Full-time women	320	4.7	280	4.1	110	1.6	100	1.5	50	0.7	50	0.7	40	0.6	40	0.6	60	0.9	60	0.9	60	0.8	50	0.8
Part-time women	650	14.8	580	12.5	200	4.4	210	4.4	100	2.0	100	2.0	100	2.1	110	2.2	140	2.8	160	3.1	110	2.2	110	2.1
All full-time	620	3.5	510	2.9	250	1.4	220	1.2	100	0.6	100	0.6	90	0.5	90	0.5	130	0.7	120	0.7	110	0.6	120	0.6
All part-time	790	15.0	700	12.6	250	4.6	250	4.4	120	2.1	130	2.1	130	2.2	140	2.3	170	2.8	200	3.2	140	2.4	130	2.2
All (18+)	1410	6.1	1210	5.2	500	2.1	470	2.0	230	1.0	230	0.9	220	0.9	230	0.9	300	1.2	320	1.3	260	1.1	250	1.0

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

*For the NES, estimates are suppressed if they are based on fewer than 30 records

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Industry Sector	Jobs ¹ paid below the national minimum wage by industry sector; NES vs ASHE comparison*															
	1998		1999		2000		2001		2002		2003					
	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE				
	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%		
A: Agriculture, hunting & forestry	20	9.3	10	8.8	10	3.8	10	3.7	*	*	x	x	*	*	x	x
B: Fishing	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x
C: Mining, quarrying	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x
D: Manufacturing	130	3.0	110	2.5	40	0.8	30	0.7	20	0.4	20	0.4	10	0.3	10	0.3
E: Electricity, gas & water supply	*	*	x	x	*	*	x	x	*	*	x	x	*	*	x	x
F: Construction	30	3.4	20	3.2	10	1.5	10	1.5	10	0.9	10	1.1	10	1.0	10	1.0
G: Wholesale, retail & motor trade	270	7.4	260	7.2	90	2.4	110	2.9	40	1.1	40	1.2	50	1.3	50	1.3
H: Hotels & restaurants	310	24.5	180	21.2	90	7.1	50	6.1	40	2.9	20	2.8	40	2.7	20	2.6
I: Transport, storage & communication	30	2.6	30	2.1	10	1.1	10	0.9	10	0.4	10	0.5	*	*	10	0.5
J: Financial intermediation	10	1.1	10	0.9	10	0.6	-	-	*	*	x	x	*	*	x	x
K: Real estate, renting & business activity	210	7.0	170	6.8	90	3.0	70	2.7	30	0.9	30	0.9	30	0.8	20	0.7
L: Public administration & defence	20	1.2	20	1.4	10	0.5	10	0.6	*	*	x	x	*	*	10	0.6
M: Education	80	4.0	120	4.0	50	1.7	60	2.0	20	0.8	40	1.1	20	0.7	40	1.1
N: Health & social work	150	6.4	170	6.1	60	2.5	70	2.4	30	1.4	40	1.4	30	1.3	40	1.4
O: Other community, social & personal	140	15.0	100	12.6	40	4.1	30	3.7	20	2.4	20	2.4	20	1.9	20	2.1
All (18+)	1410	6.1	1210	5.2	500	2.1	470	2.0	230	1.0	230	0.9	220	0.9	230	0.9

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

*For the NES, estimates are suppressed if they are based on fewer than 30 records

-Negligible, less than half the final digit shown

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Government Office Region	Table 11 Jobs ¹ paid below the national minimum wage by government office region; NES vs ASHE comparison*																							
	1998		1999		2000		2001		2002		2003													
	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE												
	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%												
North East	90	8.9	70	7.6	30	2.7	30	2.7	10	1.3	10	1.4	10	1.5	20	1.5	20	1.7	20	1.7	10	1.5	10	1.4
North West (including Merseyside)	170	6.8	150	5.8	60	2.4	50	2.1	30	1.1	20	1.0	20	1.0	20	0.9	40	1.4	30	1.3	30	1.2	30	1.1
Yorks & Humber	140	7.2	130	6.2	40	2.0	40	1.9	20	1.1	10	1.1	20	1.0	20	1.0	30	1.4	30	1.5	20	1.1	20	1.1
East Midlands	130	7.8	110	6.6	40	2.5	40	2.5	20	1.4	20	1.4	20	1.2	20	1.1	20	1.4	20	1.5	20	1.2	20	1.2
West Midlands	140	6.6	130	5.8	50	2.3	50	2.2	20	1.1	20	1.1	20	0.9	20	0.9	30	1.4	30	1.4	20	1.1	30	1.2
Eastern	110	5.5	100	4.9	50	2.4	50	2.4	20	1.1	20	1.1	20	1.1	20	1.1	30	1.2	30	1.6	20	1.2	20	1.1
London	100	2.9	80	2.3	40	1.2	40	1.1	10	0.3	20	0.4	10	0.4	10	0.4	20	0.7	30	0.7	20	0.7	20	0.5
South East	140	4.7	120	4.0	60	1.8	50	1.7	20	0.6	10	0.7	20	0.8	30	0.8	40	1.1	40	1.3	30	0.9	30	0.9
South West	120	6.5	110	5.7	40	2.3	40	2.2	20	1.1	20	1.1	20	1.2	20	1.1	30	1.3	30	1.4	30	1.4	30	1.3
Wales	80	8.1	70	7.0	30	2.7	20	2.3	10	1.2	20	1.1	10	1.2	10	1.1	10	1.3	10	1.2	10	0.8	10	0.9
Scotland	130	6.7	110	5.1	40	2.2	40	2.0	20	1.0	10	0.8	10	0.7	20	0.8	30	1.3	30	1.3	20	1.0	20	1.0
Northern Ireland	50	7.8	40	7.1	20	3.0	20	2.8	10	1.6	20	1.4	10	1.3	10	1.2	10	1.0	10	0.9	10	1.0	10	0.8
All (18+)	1410	6.1	1210	5.2	500	2.1	470	2.0	230	1.0	230	0.9	220	0.9	230	0.9	300	1.2	320	1.3	260	1.1	250	1.0

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

*For the NES, estimates are suppressed if they are based on fewer than 30 records

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Occupation	Jobs ¹ paid below the national minimum wage by occupation; NES vs ASHE comparison*																					
	1998		1999		2000		2001		2002		2003											
	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE	NES	ASHE										
	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%										
Managers & administrators	60	1.9	50	1.5	40	1.2	30	1.0	*	*	10	0.3	10	0.3	10	0.5	10	0.4	*	*	x	x
Professional	30	1.3	30	1.1	20	0.8	20	0.7	*	*	10	0.2	10	0.2	10	0.2	10	0.4	*	*	x	x
Associated professionals & technical	30	1.6	40	1.4	20	1.1	20	0.9	10	0.3	10	0.4	10	0.3	10	0.3	20	0.5	10	0.2	10	0.2
Clerical & secretarial	130	2.8	100	2.5	60	1.2	40	1.1	30	0.6	20	0.6	20	0.4	30	0.7	20	0.6	30	0.6	20	0.5
Craft & related	90	4.0	70	3.3	30	1.5	30	1.5	20	1.0	20	1.0	20	0.9	30	1.2	20	1.1	20	1.1	20	1.1
Personal & protective services	410	15.6	370	12.7	130	5.0	120	4.2	70	2.6	80	2.5	70	2.4	50	2.6	40	2.6	50	2.6	50	2.5
Sales	190	10.5	200	9.8	60	3.0	80	3.7	30	1.4	30	1.2	30	1.7	30	1.6	40	2.3	40	2.1	40	2.1
Plant & machine operatives	100	4.3	80	3.6	20	1.0	20	0.9	10	0.5	10	0.4	10	0.6	10	0.6	20	0.9	20	0.8	10	0.6
Other	360	18.2	290	15.6	120	5.9	100	5.6	50	2.6	50	2.5	50	2.4	70	2.2	110	3.2	120	3.6	100	2.9
All (18+)	1410	6.1	1210	5.2	500	2.1	470	2.0	230	1.0	230	0.9	220	0.9	230	0.9	300	1.2	320	1.3	260	1.1

¹ Estimates of jobs are given as counts and as the percentage of jobs in the labour market

*For the NES, estimates are suppressed if they are based on fewer than 30 records

Note that up to and including 2000, occupation is based on the SOC 1990 classification.
From 2001 onwards, occupation is based on the SOC 2000 classification.

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Acceptable CV > 10% and <= 20%
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Changes to Pension Statistics in the Annual Survey of Hours and Earnings

By **Chris Daffin** and **Bob Watson**, Employment, Earnings and Productivity Division, Office for National Statistics

Summary

The introduction of the new 2005 questionnaire has improved the pension results from the Annual Survey of Hours and Earnings (ASHE) survey. In particular the 2005 questionnaire provided better estimates of the number of employees who have pension provision with their employer. Estimates of employee and employer contribution rates are now available, which, when combined with other information available from ASHE, allows for a wealth of analysis.

Methodology has been developed to rework the results for 1997 to 2004 for comparison to the results produced from the new questionnaire. However, differences in the questions mean that these earlier results do under estimate pension provision. Therefore, comparisons between the 2005 and earlier results should be done with caution. Changes to the 2005 questions mean that the 2005 results now include a category covering employees who had a pension but did not give their pension type. It is not possible to estimate the size of this type of non-response in the 2004 and earlier results.

The range of tables available from the ASHE has been extended with nine new tables added and some tables now include breakdowns by earnings. The full set of published tables is available on the National Statistics website at www.statistics.gov.uk/statbase/Product.asp?vlnk=14058. Further analysis reports will also be published on the website as part of the Pension Trends publication, see www.statistics.gov.uk/pensiontrends. Further information on ASHE can be obtained by contacting the ASHE help desk at earnings@ons.gov.uk or on pensions in general from pensionsanalysis@ons.gov.uk.

Section 5 contains a few examples of the type of analysis possible from the new tables. These include for the period 1997 to 2005; membership by sex, pension type and whether the pension scheme is contracted out or not. Employee and employer contribution rates for the public and private sectors are also given from the 2005 survey.

1. Introduction

One of the recommendations of the Review of ONS Pension Contributions Statistics (2002) was to use the New Earnings Survey (NES) to collect pension contributions data. The NES was chosen because of its large sample size and the fact that it was entering a period of review. At around the same time the Review of Statistics on the Distribution of Earnings (2002) made several methodological recommendations for improving the NES that resulted in the new Annual Survey of Hours and Earnings (ASHE). The ASHE was introduced in 2004 and used the same NES questionnaire but with improved estimation methodology and better coverage.

A new questionnaire was introduced in 2005 for ASHE, which gave the opportunity to improve existing questions as well as to add new questions on pension contributions from employees and employers. Pension results from the new questionnaire have recently become available. This article looks at the impact of the changes and presents some summary results from the new questions.

2. Background

2.1 NES pension questions

The ASHE estimation methodology has been applied to data collected using the NES questionnaire for the period 1997 to 2004. NES questionnaires before 1997 did not include questions on pensions. The NES questionnaire had two pensions questions (5 and 6) which both dealt with the type of pension scheme the

employer provided. The questionnaire also had four pages of guidance notes, one page of which related to guidance on how to complete these two questions.

5. Pension arrangements (see page 4, guidance note 5)			
What pension provision has the employee made within your company? (for stakeholder pensions see note 5).			
● Please use the guidance notes on page 4 to identify the code to enter here.			<input type="text"/> 3 1
6. Stakeholder Pensions (see page 4, guidance note 6)			
(a)	Does the employee have a stakeholder pension?	Yes - 1 No - 2	<input type="text"/> 3 2
(b)	Is it paid through payroll deductions?	Yes - 1 No - 2	<input type="text"/> 3 3

The answer given for question 5 could take a numeric value ranging from 1 to 9, indicating a variety of different pension schemes. The respondent would pick the relevant pension scheme for the employee from those listed in the guidance notes and repeated below:

1. contracted-out salary related scheme (COSR)
2. contracted-out money purchase scheme (COMP)
3. not contracted-out salary related
4. not contracted-out money purchase
5. contracted out salary related scheme **and** a not contracted out occupational pension
6. contracted out money purchase scheme **and** a not contracted out occupational pension
7. group personal pension - employee contracted out of State Earnings Related Pension Scheme (SERPS)
8. group personal pension - employee not contracted out of State Earnings Related Pension Scheme (SERPS)
9. none of the above

Question 6 was added in 2002 and simply requested a yes/no answer for parts (a) and (b).

2.2 ASHE pension questions

The new ASHE questionnaire was introduced in 2005 and had no separate guidance notes. Section 5 deals with pension arrangements and contains 6 questions. Questions 5a, 5b and 5c replaced questions 5 and 6 of the NES questionnaire, although there are important differences in wording and structure of these questions.

Section 5 - Pension Arrangements

On 6 April 2005,

- 5a** was the employee contracted out of the state second pension scheme?
When contracted out, the employer and employee pay lower national insurance contributions Yes No
- 5b** did the employee have any pension provisions in place with your organisation?
Include: if the employer or employee is currently on a contribution holiday. Yes → **5c** No → **6a**
- 5c** what was the employee's main type of pension provision?
Defined benefit scheme: those in which the rules specify the benefits to be paid, some based on final salary and some based on average salary
Defined contribution scheme: those in which benefits are determined by contributions paid into the scheme and the investment return on those contributions
Group personal pension scheme: an arrangement made of employees to participate in a personal pension scheme on a grouped basis. This is not a single scheme, it is a collecting agreement
Stakeholder pension: must meet certain conditions laid down by the Government and be registered with the Occupational Pensions Regulatory Authority (OPRA). Include employer sponsored and other stakeholders

For the pay period given in question 4a which includes 6 April 2005,
 For each question, where the value is known to be nil, please write a single zero.

- 5d** how much of the employee's pay was pensionable?
Pensionable pay is the pay on which benefits and/or contributions are calculated under the scheme rules..... £ . p
- 5e** how much did the employee contribute to their main pension?..... £ . p
- 5f** how much did the employer contribute to the employee's pension?..... £ . p

Questions 5d, 5e and 5f were added to the questionnaire following recommendations from the Review of Statistics on the Distribution of Earnings (2002). These three questions ask for the amount of pensionable pay, employee contributions and employer contributions.

2.3 Differences between NES and ASHE questions

With the exception of the contributions questions, the ASHE questions attempt to collect the same data as the NES. The ASHE questions improve on the NES in that they are clearer to the respondent, the wording has been updated, guidance is with the question and not on separate notes and the stakeholder question is included with the other pension types for consistency. Changes to the structure of the questions make it easier to compile results on the total number of employees who have an employer sponsored pension. The 2005 survey asks three separate questions; whether the employee is contracted out of the State Second Pension scheme, whether the respondent has any pension provision, and if so, what type of pension it is, whereas the 2004 survey asked these three questions as one.

The changes have had an impact on how respondents complete the questions, with some respondents completing the ASHE questions differently to how they completed the NES. An analysis of responses indicates that respondents are answering the new questions with more internal consistency than the old. However, because it is difficult to assess the size of the impact, no attempt has been made to correct the 2004 and earlier results for these differences.

Changes to the questions for the 2005 survey mean that the number of respondents with a pension where the type of pension is unknown is now available. For the 2004 and earlier surveys it was not possible to identify these employees separately. Therefore, previously published results based on the NES questionnaire did not include an estimate of the total number of employees with pensions, only the number with salary-related, money-purchase-related and group personal pensions. No estimate was published of the number of people without a pension. The stakeholder question for 2004 was separate from the other pension questions and results including it were not included in the tables published on the National Statistics website, but were available as special analyses on request.

The new questionnaire allows for the estimation of the total number of employees with and without pension provision with their employer, as well as the number of employees with stakeholder pensions as their main pension provision. Work has been done to map the 2004 and earlier data sets onto a basis that is similar to the 2005 question structure so that comparable results can be produced. While the majority of responses can be mapped, a number cannot for the reasons outlined above, in particular responses for those who did not have any pension provision or did not answer the old question 5 on pension arrangements. Therefore, total counts of employees with a pension for 2004 and earlier will still exclude a significant number of employees whose employers did not respond to the pension questions. It is impossible to determine how many of these non-responders had a pension. Therefore results presented for 2004 and earlier will under-estimate the number of people with a pension.

It is still possible for employers to not answer question 5b on the 2005 questionnaire and for these cases it is not known whether their employee has any pension arrangements with the employer. However, the simplification of this question in 2005 has considerably reduced the number of employers who do not answer this question

3. Data issues

3.1 Missing responses to the new questions

The 2005 ASHE had a total of 170,953 responses of which 53.4 per cent (91,374) stated that they had pension provision with their employer. The following table summarises the non-response for the three new pension variables on contributions, after imputation of some missing responses:

	Number of missing responses	Per cent
Of the 91,374 respondents with a pension the number with at least one missing response to the contribution questions was:	8,012	8.8
Of which:		
pensionable pay missing	331	0.4
employer contributions missing	5,659	6.2
employee contributions missing	6,208	6.8

3.2 Imputation of missing responses

Imputation was performed for the small number of missing responses for pensionable pay. Analysis confirmed that basic pay was a good estimate of an employee's pensionable pay and so was used to replace missing pensionable pay.

Employees who have pension provision in place with their employer are either contracted out of the State Second Pension or not. A small number of respondents did not answer this question and it was decided to impute for these cases. Analysis determined that the two most relevant indicators for contracted-out status was the employee's type of pension scheme and the sum of contributions provided by both the employee and employer. A probabilistic model was created using these two factors to impute for contracted-out status.

3.3 Calculation of contribution rates

The questionnaire collects data on amounts contributed to pensions but it was decided to publish information on contribution rates. Employee and employer contribution rates were derived by dividing pensionable pay by employee and employer contribution amounts respectively, after imputation of missing pensionable pay.

Missing values were assigned to both the employee and employer percentage contributions if:

- the employee did not hold a pension with the employer
- the employee held a valid pension with the employer but no information was given regarding their pensionable pay and it had not been imputed.

If neither of the above conditions held but no information was given regarding the employee's pension contribution then a missing value was given for the employee percentage contribution. Similarly, if no information

was given regarding the employer's pension contribution then a missing value was given for the employer percentage contribution.

3.4 Quality assurance of the results

As is normal practice with ONS surveys, individual responses were validated against a set of criteria to identify large errors that may impact on results. In addition the aggregate results from the survey have been compared with other data sources such as the Occupational Pension Scheme Survey and HM Revenue and Customs data. While a direct comparison is difficult because of differences in definitions and coverage, the new ASHE results are in broad agreement with results published from these sources. Key government users of the data have also been involved in the quality assurance of the final results.

4 Availability of results

4.1 Tabulations

Three tables of pension type by age, occupation and industry were published from the ASHE for the period 1997 to 2004. There were seven pension types; salary-related (contracted out and not contracted out), money-purchase-related (contracted out and not contracted out), group personal related (contracted out and not contracted out) or none of these. Each table was also broken down by sex of the employee and whether they worked full- or part-time. The number of tables published has now been extended, taking into account the extra information available in 2005 and making use of the mapping of old to new questions. The following tables are now published:

	Pension Type	Employee Contributions	Employer Contributions
by age group and earnings	1	5	9
by industry and earnings	2	6	10
by occupation and earnings	3	7	11
by size of employer and earnings	4	8	12

The new pension type is similar to that used in previously published tables, with salary-related changed to defined benefit, money-purchase to defined contribution and the addition of stakeholder pensions. Tables 1 to 4 are broken down by the sex of the employee. For tables 5 to 12 breakdowns by sex and whether an employee worked full- or part-time are not given as the results are not of sufficient quality. Extra tables by size of employer have also been added. Further tables are available on request; contact the ASHE help desk for more information.

Previous pension tables published from the ASHE were based on those employees on adult rates of pay whose pay was not affected by absence. Membership of a pension scheme and contribution rates do not change with absence and so this restriction has been removed for the new tables. Tables 1 to 12 are now based on all employees.

4.2 Backseries

The NES and ASHE questionnaires both captured information on the type of pension scheme, albeit in different ways. It is therefore possible to transform the NES pension variables to the relevant ASHE variables for the years 1997 to 2004. In this way a backseries of pension data has been produced for tables 1-4 given in section 4.1 above. For the reasons already noted above it is not possible to do a perfect match between the 2005 and 2004 and earlier series and hence caution should be exercised when comparing results between 2004 and 2005. With no information on pension contributions available before 2005, it is not possible to create a backseries for tables 5 to 12.

5 Summary results

As well as collecting information about employees' pensions, ASHE also collects other information either directly through the questionnaire or indirectly through linking to other data sources. Hence it is possible to break down the pensions results by variables including sex, age, hours worked, earnings, company size, and industry. The following are a few examples of the type of analysis possible. As noted above 2004 and earlier results do not estimate the number of persons with an employer sponsored pension. The following results are presented as percentages only. If you assume that the missing responses for 2004 and earlier are representative of the population as a whole then using percentages gives a better comparison over time.

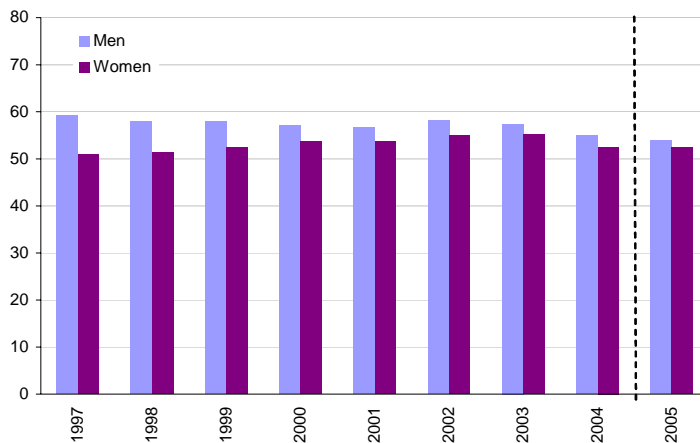
5.1 Employee membership of employer-sponsored pension schemes

5.1.1 Membership by sex

Overall, the percentage of employees belonging to any type of employer-sponsored pension scheme has fallen since 2002. The decrease has been particularly marked for men, falling by more than four percentage points from 58.2 per cent in 2002 to 53.7 per cent in 2005, to reach the lowest level in the post-1997 period covered by the ASHE backseries.

Employee membership of an employer-sponsored¹ pension scheme: by sex United Kingdom

Percentages



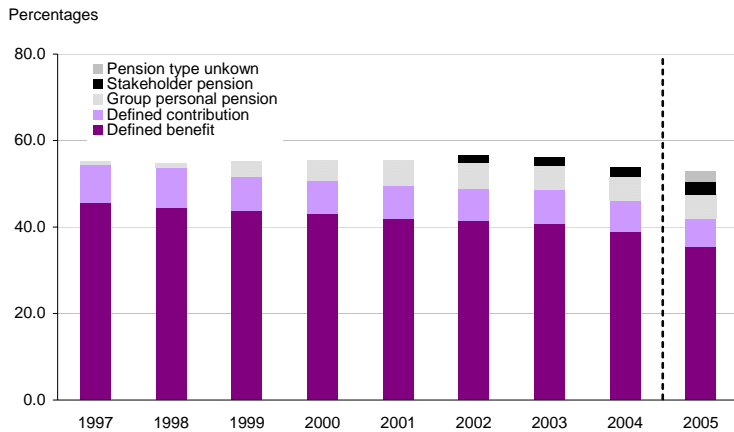
¹ Occupational, group personal and stakeholder pensions

² Figures for 2004 and earlier are discontinuous with 2005 due to a change in the questionnaire

5.1.2 Membership by scheme type

There has been a steady fall in the percentage of employees who are members of defined benefit pension schemes, from 45.7 per cent in 1997 to 35.3 per cent in 2005. While we advise caution when comparing results between 2004 and 2005 for reasons given earlier, the fall of 3.5 percentage points between 2004 and 2005 is larger than in previous years. A similar sized fall was noted by the 2005 Occupational Pension Scheme Survey for private sector schemes, falling from 78.2 to 75.3 per cent. The proportion of employees with group personal and stakeholder pensions has increased to 5.4 and 3.1 per cent respectively between 1997 and 2005. Stakeholder pensions were first introduced in 2002.

Employee membership of an employer-sponsored¹ pension scheme: by pension type
United Kingdom

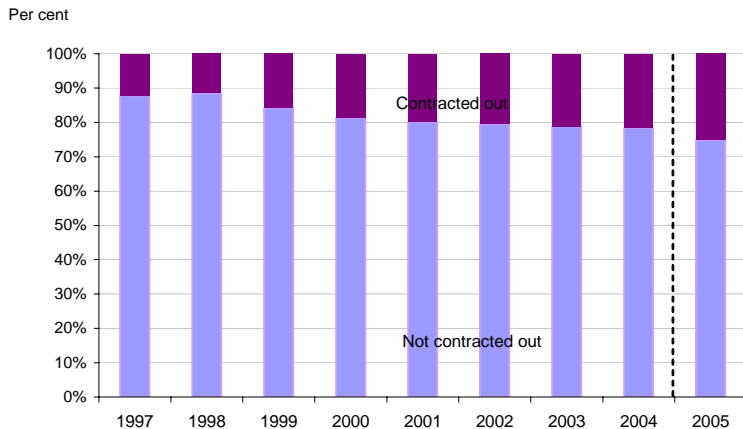


¹ Occupational, group personal and stakeholder pensions
² Figures for 2004 and earlier are discontinuous with 2005 due to a change in the questionnaire

5.1.3 Membership by whether pension scheme is contracted out or not

The percentage of employees who contracted out of the State Second Pension (formerly SERPS) has fallen from 87.9% in 1997 to 74.9% in 2005, with a fall of 3.6 percentage points between 2004 and 2005. The Occupational Pension Scheme Survey shows a similar fall between 2004 and 2005, from 79 per cent in 2004 to 76 per cent in 2005, although its analysis covers only the private sector.

Employee membership of an employer-sponsored¹ pension scheme: by whether contracted out or not
United Kingdom

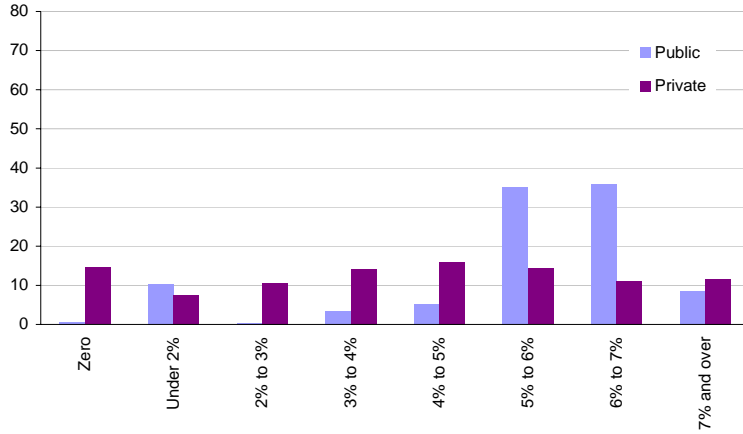


¹ Occupational and group personal pension, excludes stakeholder pensions
² Figures for 2004 and earlier are discontinuous with 2005 due to a change in the questionnaire

5.2 Employee and employer contribution rates

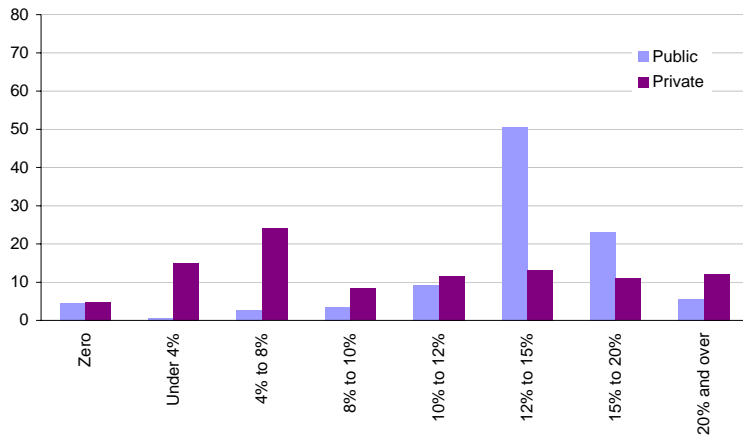
The distribution of employee and employer contribution rates for defined-benefit and defined-contribution schemes was strongly linked to whether the employee was in the private or public sector. This factor has a dominant effect on the distribution of contribution rates to schemes overall. As shown in the chart below, public-sector employee contribution rates to all types of employer schemes combined most frequently fell into the 5 to 7 per cent band. Private sector employee contributions were distributed more broadly. Because the public sector is concentrated in the service rather than manufacturing sector, similar employee contribution peaks also occurred in the 5 to 7 per cent range for service sector employees.

Employee contributions to all employer-sponsored pension schemes by sector
United Kingdom
 Percentages



The public-private sector split played a similarly strong role in employer contributions, with contribution rates being most frequent in the 12 to 20 per cent band for public sector workers and in the 4 to 8 per cent range for private sector workers (shown below). Again, because of the concentration of public sector employees in services and private sector employees in production, employer contributions to the service and production sectors also peaked in the 12 to 20 per cent and 4 to 8 per cent ranges respectively.

Employer contributions¹ to all employer-sponsored pension schemes by sector
United Kingdom
 Percentages



¹ Figures are solely for regular contributions

CHANGES TO ASHE IN 2007

Methodological changes

There have been two key methodological changes that have taken place during the collection and processing of the 2007 Annual Survey of Hours and Earning (ASHE). The changes are described in more detail below.

Introduction of automatic occupation coding

The automatic coding tool, Automatic Coding by Text Recognition (ACTR) has been introduced for assigning Standard Occupational Classification (SOC) codes to ASHE records. This replaces the current system whereby SOC codes are carried forward for employees who were in the same job as the previous year, or manually allocated by a team of coders if the employee was either not included in ASHE for the previous year or has subsequently changed jobs. Although ACTR has been shown to significantly improve the quality of occupation coding and is more efficient than manually coding records, it also brings a moderate discontinuity in the ASHE results. Nevertheless, the benefits of its adoption are significant. Briefly, these are;

- An improvement in the quality and consistency of ASHE results.
- Out-of-date codes will be updated annually.
- ACTR provides ASHE and ONS with a standard tool for coding occupation.

Special Arrangements treated as a separate stratum

A number of businesses have a Special Arrangement (SA) in place with the ONS to provide their data electronically. These employers have internal systems set up to extract and return information on all relevant employees at the survey reference date. Consequently the likelihood of response for an employee of one of these businesses is higher than for employees in businesses that return paper questionnaires.

For use in calculating the estimates of earnings that appear in the ASHE results, a number of weights are applied to each record in the ASHE dataset. One of these weights gives an adjustment for non-response and is determined by which category or stratum a particular record falls into. Previously, there were three strata;

1. Paper questionnaires sent out in the initial despatch in April and SAs.
2. Employees identified as changing jobs between initial sample selection and the survey reference date.
3. Employees who started jobs between the initial sample selection and the survey reference date.

SAs have a response rate significantly higher than the returns from the paper questionnaires sent out in the original despatch. This meant that SA records were receiving a higher weight than they ideally ought to. Treating SAs as a separate stratum allows us to allocate more appropriate weights to them.

Impact of the changes

Introduction of automatic occupation coding

The effect of using ACTR was to code more jobs into higher paying occupations. The jobs that tended to be recoded into these higher paying occupations generally had lower levels of pay than the jobs already coded to those occupations. Conversely they tended to have higher levels of pay than the other jobs in the occupations that they were recoded out of. The impact of this was to lower the average earnings of both the occupation group that they had moved from and that they had moved to. It also resulted in the existing higher paid jobs in the higher paying occupations having lower weight in the overall estimates of UK earnings. Across the whole of the UK this resulted in a decrease in median gross weekly pay of £3 (0.67%).

SAs treated as a separate stratum

SA employees have lower average earnings and higher levels of response than employees falling into other strata. Putting these records into a separate stratum from the paper questionnaires changes the comparative relative response rates of these strata, resulting in changes to the weights. The impact of the changes to the weights is very small on overall estimates of average earnings.

Other changes

ASHE sample cut

In March 2007, ONS released information on its statistical work priorities over the period 2007-2008. ONS announced that the sample size of the ASHE was to be reduced by 20%.

The sample size has been reduced, with ASHE results for 2007 based on approximately 142,000 returns, down from 175,000 in 2006. Reductions were targeted on those industries that exhibit the least variation in their earnings patterns. The reduction in the sample has taken the ASHE sample size back to where it was in the 1980s, but the survey design and the process for weighting the results to population totals has been improved since then and we have introduced routine reporting of appropriate measures of statistical quality.

Impact of the cut

The sample cut has a very small impact on the quality of highly aggregated figures. The table below shows estimates, estimated standard errors and corresponding coefficients of variation for mean gross weekly pay (£) for the full 2005 survey and for a version of the 2005 survey with the 20% reduction applied. Estimates have been produced for male jobs, female jobs and all jobs.

Table 1

	Full sample			Reduced sample		
	Mean gross weekly pay	Standard error	CV	Mean gross weekly pay	Standard error	CV
All	£423.18	£0.88	0.21	£423.52	£0.95	0.22
Male	£525.48	£1.59	0.30	£525.62	£1.71	0.33
Female	£319.94	£.074	0.23	£320.43	£0.82	0.26

ASHE results published in 2007

In 2007, the following 3 sets of results will be published;

- 2006 revised (methodology consistent with 2005)
- 2006 revised (methodology consistent with 2007)
- 2007 provisional

The first set – 2006 revised (methodology consistent with 2005) – is published for comparison with results back to 2004. The second set of tables – 2006 revised (methodology consistent with 2007) – includes the changes for ACTR and treats SAs as a separate stratum. This is our best estimate of 2006 and should therefore be used to carry out comparisons between 2006 and 2007.

2007 ASHE release schedule

A copy of the 2007 ASHE release schedule can be seen below;

7 th November 2007	
Table Number	Table Name
1	All employees
2	Occupation
4	Industry
6	Age
7	Place of work by local authority
8	Place of residence by local authority
9	Place of work by parliamentary constituency
13	Public private sector
14	Occupation – 4 digit SOC [†]
21 st December 2007	
3	Government office region by occupation
5	Government office region by industry
10	Place of residence by parliamentary constituency
11	Place of work by travel to work area
12	Place of residence by travel to work area
16	Industry – 4 digit SIC [‡]
18 th January 2008	
15	Government office region by occupation (4 digit SOC [†])
17	Place of work by training enterprise council
18	Place of residence by training enterprise council
20	Age by occupation
21	Age by industry

[†] SOC – Standard Occupational Classification 2000

[‡] SIC – Standard Industrial Classification 2003

Further information

Introduction of automatic occupation coding in ASHE

<http://www.statistics.gov.uk/cci/article.asp?id=1843>

ONS statistical work priorities

<http://www.statistics.gov.uk/pdfdir/wrk0307.pdf>

FEATURE

James Scruton
Office for National Statistics

Introduction of automatic occupation coding in ASHE

SUMMARY

The automatic coding tool, automatic coding by text recognition (ACTR), is being introduced for the Annual Survey of Hours and Earnings (ASHE). ACTR has been shown to improve the quality of occupation coding. However, it also brings a moderate discontinuity in the ASHE results. The improvement in the quality of the coding, and the savings obtained from using ACTR, mean that the benefits of its adoption are significant. For continuity, a revised 2006 data set will also be created on an ACTR-coded basis.

Historically, Standard Occupational Classification (SOC) codes were allocated to records on the Annual Survey of Hours and Earnings (ASHE) in two different ways. Firstly, SOC codes were carried forward for employees who were in the same job as the previous year. These codes may have been carried forward for a number of years without any reassessment of the employee's occupation. Secondly, for employees who were either not included in ASHE for the previous year, or employees who had changed jobs, the SOC codes were manually allocated by a team of coders through examining the job titles and descriptions supplied on the ASHE questionnaire and selecting the most suitable code.

Automatic coding by text recognition (ACTR) is a tool supplied by Canada's national statistical agency Statistics Canada and is approved by the Office for National Statistics (ONS) for assigning classification codes to text descriptions. The use of ACTR for coding GB occupations on ASHE was desirable as it had been shown to increase the quality of the SOC codes while reducing the burden on the coders within ONS. There was, however, the potential that moving from manual to ACTR coding would cause a discontinuity in the ASHE results, and this article assesses the discontinuity caused by coding all records (where possible) using ACTR on 2006 ASHE.

Quality of ACTR coding

A representative sample of 2,998 records was drawn from the 2006 ASHE survey, and ACTR was able to give an exact code to 1,358 (45.3 per cent) of these records. An expert coder (somebody who had an excellent knowledge of SOC 2000, and was able to match a job title to the most suitable occupation code) then assigned occupation codes manually to the 1,358 records, which allowed comparison of ACTR, existing ASHE coding as taken from the 2006 survey, and expertly coded records to assess the quality of ACTR's coding. All three methods for coding agreed on a code for 1,019 (75.0 per cent) of the records; however, the correspondence between ACTR and the expert coder was 98.5 per cent, while the correspondence between the ASHE codes and the expert coder was only 76.1 per cent. This gave a clear indication that ACTR was significantly improving the coding of occupations on ASHE.

Coding occupations using ACTR

ACTR works by reading the job title taken from the ASHE questionnaire, and where possible allocating the most suitable SOC code. In an exercise undertaken on the full 2006 ASHE data set, specific codes were allocated to around 45 per cent of records, an 'interactive' method was used to identify around 35 per cent of records, while the remaining 20 per cent were not allocated a code. This could be for reasons such as

poor-quality input data, or new records where the knowledge bases underpinning ACTR need to be updated to accommodate the new job titles. Interactive coding is used where the job title contains insufficient information to assign a SOC 2000 code, and so ACTR presents the coders with a number of options from which they can pick the most suitable based on the additional job information supplied on the respondent's questionnaire. For example, consider the job title 'teacher'. The level at which the person teaches is not known from this title, so for quality purposes it is unwise to let ACTR make an assumption. The records not coded directly by ACTR or through the 'interactive' method would need to be manually coded as in previous years if they were new, or have their SOC codes carried forward if they featured in ASHE on the previous year's survey. ASHE data relating to Northern Ireland employees are collected by the Department of Enterprise, Trade and Investment (Northern Ireland), which has no immediate plans to implement ACTR.

Positives and negatives of implementing ACTR on ASHE

Positive features arising from implementing ACTR on ASHE include:

- there is an improvement in the quality and consistency of ASHE results
- out-of-date codes will be updated annually
- fewer resources are required for coding within ONS and this will reduce costs
- ACTR gives ONS the opportunity to implement a standard tool for classifying occupations

Negative aspects include:

- introducing ACTR will cause a discontinuity in ASHE results
- automatic coding is based purely on job title, with no reference to additional information about the job supplied on the questionnaire. However, additional information may be used for interactive coding

- information management costs involved in setting up ACTR

Discontinuity in gross weekly pay

Analysis was performed on the 2006 ASHE results by coding as many records as possible using ACTR and comparing the results with the data set used to publish 2006 results. The new data set was reweighted and re-imputed as these operations depend on the one-digit occupation group of the employee (see **Table 1**).

The largest revisions to median gross weekly pay were generally in the higher-paid occupation groups where using ACTR coding on all records where possible led to a decrease in gross weekly pay. Although occupation groups 32 – health and social welfare associate professionals, 41 – administrative occupations, and 42 – secretarial and related occupations all had large movements in the number of jobs either going in or out of these groups,

Table 1

Difference in gross weekly pay¹ through using ACTR coding on all records where possible

Two-digit occupation	Median gross weekly pay					
	Manual (£)	ACTR (£)	Difference (£)	Difference (per cent)	CV (manual) (per cent)	CV (ACTR) (per cent)
11 – Corporate managers	688.1	677.2	-10.9	-1.58	0.4	0.6
12 – Managers and proprietors in agriculture and services	508.5	494.0	-14.5	-2.85	1.8	1.8
21 – Science and technology professionals	662.3	651.6	-10.7	-1.62	0.8	1.0
22 – Health professionals	1,038.4	1,037.7	-0.7	-0.07	3.0	2.8
23 – Teaching and research professionals	625.3	625.3	0.0	0.00	0.5	0.5
24 – Business and public service professionals	643.9	632.4	-11.5	-1.79	1.2	1.2
31 – Science and technology associate professionals	479.1	475.8	-3.3	-0.69	1.1	1.0
32 – Health and social welfare associate professionals	485.9	484.1	-1.8	-0.37	0.7	0.7
33 – Protective service occupations	607.6	603.2	-4.4	-0.72	0.9	1.0
34 – Culture, media and sports occupations	488.7	485.4	-3.3	-0.68	1.7	1.9
35 – Business and public service associative professionals	505.7	498.0	-7.7	-1.52	0.9	0.7
41 – Administrative occupations	337.0	335.2	-1.8	-0.53	0.4	0.4
42 – Secretarial and related occupations	340.2	339.5	-0.7	-0.21	1.0	1.0
51 – Skilled agricultural trades	321.7	319.1	-2.6	-0.81	2.0	2.3
52 – Skilled metal and electrical trades	460.0	460.2	0.2	0.04	0.7	0.7
53 – Skilled construction and building trades	416.8	413.2	-3.6	-0.86	1.3	1.4
54 – Textiles, printing and other skilled trades	320.0	320.2	0.2	0.06	1.7	1.6
61 – Caring personal service occupations	288.3	288.0	-0.3	-0.10	0.7	0.7
62 – Leisure and other personal service occupations	306.6	309.3	2.7	0.88	1.6	1.7
71 – Sales occupations	258.7	255.6	-3.1	-1.20	0.9	0.8
72 – Customer service occupations	293.2	294.0	0.8	0.27	1.0	1.1
81 – Process, plant and machine operatives	376.7	377.9	1.2	0.32	0.9	1.0
82 – Transport and mobile machine drivers and operatives	394.4	394.7	0.3	0.08	0.8	0.8
91 – Elementary trades, plant and storage related occupations	308.2	308.5	0.3	0.10	0.7	0.7
92 – Elementary administration and service occupations	286.4	286.0	-0.4	-0.14	1.1	1.0
UK	447.1	444.1	-3.0	-0.67	0.2	0.2

Notes:

1 Full-time employees on adult rates of pay whose earnings have not been affected by absence.

The quality of an estimate is measured by its coefficient of variation (CV), which is the ratio of the standard error of an estimate to the estimate.

there was little change in their median gross weekly pay. This indicated that, where jobs were moving into or out of these groups, they had a similar level of gross weekly pay to the records already in the group.

The majority of revisions to the coefficient of variation were small at either 0.0 or 0.1 percentage points. The largest increase in the coefficient of variation was 0.3 percentage points, as seen in occupation group 51 – skilled agricultural trades, while the largest decreases, of 0.2 percentage points, were in 22 – health professionals and 35 – business and public service associative professionals.

Movement of occupations

Under ACTR, a large number of jobs that were manually coded as being part of occupation group 41 – administrative occupations, moved into occupation groups that, on average, had a higher level of gross weekly pay. The biggest movements were into occupations groups 11 – corporate managers (48,000) and 35 – business and public service associative professionals (73,000). Although 41 – administrative occupations had little change in median gross weekly pay as a result of this movement, there was a significant reduction in both occupation groups 11 and 35. A similar pattern occurred in other occupation groups and, when coupled with jobs leaving these high earning groups and moving into slightly less well-paid groups, there was a reduction in median gross weekly pay that particularly affected the groups with the highest earners. The lower-paid occupation groups also saw a decrease in median gross weekly pay (albeit to a lesser extent), as they lost some of their best-paid jobs to groups with higher median gross weekly pay.

The main reason for the large number of jobs moving into occupation group 11 – corporate managers, was that the coding tool better handled the inclusion of the word ‘manager’ in the job title than those who were manually coding occupation. Reasons for other movements between occupation groups appeared to be logical when the job titles were examined, although it is unclear if these discrepancies were due to miscoding or a failure to update out-of-date codes.

Changes in ASHE weighting

ASHE weights are produced by looking at the proportion of records falling into each of 108 weighting groups, and calibrating these to the proportions represented among the same 108 groups on the Labour Force Survey. Weighted estimates are higher than unweighted ones. This may seem like a strange result, as the main exclusions are those employees below the PAYE threshold. However, high earners have a poor response rate, and have been under-represented in the unweighted sample. The weighting therefore corrects for this. One of the variables used in the weighting process is one-digit occupation, and so the move from manual to ACTR coding alters the weights assigned to each group. When coding with ACTR, the median weights generally decrease for the higher paid one-digit occupation groups (particularly 1 – managers and senior officials, 2 – professional and 3 – associate professional and technical) and generally increase for the lower-paid occupation groups. This implies that some of the bias caused by the poor response of high earners has now been addressed by coding with ACTR. What is now seen is a levelling out of the weights across the occupation groups and an overall decrease in estimates of UK earnings.

Impact on the main ASHE outputs

Gender pay gap

ASHE is used to measure the gender pay gap, which shows the difference in average earnings of men and women. This measure is based on hourly earnings, excluding overtime, for full-time employees on adult rates of pay whose earnings have not been

affected by absence. Here, full time is taken as anyone working more than 30 paid hours in a week or, in the case of teachers, 25 or more paid hours in a week. This analysis has been carried out using mean hourly earnings (see **Figure 1**).

Using all ACTR coding (where possible) on the 2006 ASHE results slightly increased the UK gender pay gap by 0.1 percentage points to 17.3 per cent. The largest increase across one-digit occupation groups was 1 percentage point for 1 – managers and senior officials, raising it to 27.2 per cent. The largest reduction was 0.8 percentage points in 2 – professional occupations, where the gender pay gap narrowed to 9.4 per cent.

Revisions to the gender pay gap figures are seen to be relatively small.

Low pay estimates

ASHE is also used to measure the number of employees paid below the National Minimum Wage (NMW). In 2006 the NMW was £3.00 for 16- to 17-year olds, £4.25 for 18- to 21-year olds and £5.05 for those aged 22 and over. **Table 2** shows the weighted counts by one-digit occupation. Compared with using manual coding, there were 335,000 jobs falling below the NMW in the UK using ACTR coding, a drop of 1,000. The largest percentage change was found to be in occupation group 2 – professional, where the number paid below the NMW decreased by 1,000. However, this group contains relatively few jobs paid below NMW and so the large percentage difference is not so significant. The figures show that there is no significant impact on the estimates of numbers paid below the NMW in the move to using ACTR.

Figure 1
Gender pay gap: by one-digit occupation

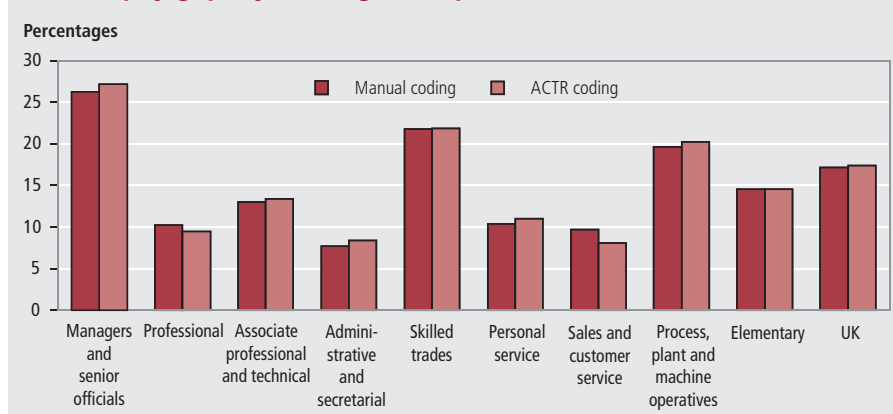


Table 2
Number of jobs falling below National Minimum Wage

One-digit occupation	Thousands	
	Number of jobs falling below NMW	
	Manual coding	ACTR coding
1 – Managers and senior officials	14	14
2 – Professional	5	4
3 – Associate professional and technical	14	15
4 – Administrative and secretarial	25	25
5 – Skilled trades	46	47
6 – Personal service	43	44
7 – Sales and customer service	67	66
8 – Process, plant and machine operatives	17	17
9 – Elementary	106	104
UK	336	335

Other options for implementation

An alternative option for implementation was to use ACTR to code only those records which did not appear in the ASHE data set in the previous year. There are no additional savings in resources for using this option. However, it would cause less of a discontinuity with the previous year's results. If it had been possible to add a marker to these records, then they could also have been identified and recoded in subsequent years and so, over time, those

records that in the past would have had their occupation codes carried forward, would now get an updated code. This option is not desirable, however, as the result would be to acquire an artificial change over time as ACTR codes an increasingly larger percentage of occupations. For this reason, it was felt best to incorporate the ACTR change in as full a way as possible, namely to code all the records in the data set which could be coded by the tool, and to quantify the discontinuity as accurately as possible.

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Plans for the publication of ASHE figures for the SOC 2000 code 6115

This note explains the ONS's plans for publishing statistics from the Annual Survey of Hours and Earnings (ASHE) for the Standard Occupational Classification (SOC 2000) code 6115, in the context of the move from SOC 2000 to SOC 2010.

Currently, ASHE provides statistics for occupations on the basis of SOC 2000. For 2011 only, ASHE will be published on both SOC 2000 and SOC 2010 bases, before moving to SOC 2010 from 2012 onwards. The new classification splits SOC 2000 code 6115 (Care assistants and home carers) into two SOC 2010 codes, 6145 (Care workers and home carers) and 6146 (Senior care workers).

Due to the importance of the 6115 code for a number of ASHE users, ONS has agreed to continue to publish figures for this code on a SOC 2000 basis following the move to SOC 2010, and for the foreseeable future. These figures will be published on the ASHE homepage of the ONS website separately from the SOC 2010 tables.

Information paper

Coverage and non-response errors in the Annual Survey of Hours and Earnings

1 Quality and reliability of the estimates

The Annual Survey of Hours and Earnings (ASHE) aims to provide high-quality statistics on the structure of earnings for various industrial, geographical, occupational and age-related breakdowns. However, the quality of these statistics varies depending on various sources of error.

Sampling error results from differences between a target population and a sample of that population. Sampling error varies partly according to the sample size for any particular breakdown or 'domain'. Indications of the quality of ASHE estimates are provided in the form of coefficients of variation (cv). The coefficient of variation is the ratio of the standard error (se) of an estimate to the estimate, expressed as a percentage. Generally, if all other factors are constant, the smaller the cv the higher the quality of the estimate. Tables of cvs corresponding to estimates are published alongside the estimates themselves.

It should be noted that at low levels of disaggregation high coefficients of variation imply estimates of low quality. For example, for an estimate of £400 with a cv of 10%, the true value is likely to lie between £321.60 and £478.40. This range is given by the estimate $\pm 1.96 \cdot se$. Where these ranges for different estimates overlap, interpretation of differences between the relevant domains becomes more difficult.

In addition to sampling error, ASHE statistics are also subject to **non-sampling errors**. For example, there are known differences between the coverage of the ASHE sample and the target population (i.e. all employee jobs). A discussion on coverage errors is given below. Further, non-response bias may also affect ASHE estimates. This may happen if the jobs for which respondents do not provide information are different to the jobs for which respondents do provide information. Similarly, a section on non-response is provided below.

Finally, ASHE results tables do not account for differences in the composition of different 'slices' of the employee workforce. For example, figures for the public and private sectors include all jobs in those sectors and are not adjusted to account for differences in the age, qualifications or seniority of the employees or the nature of their jobs, all factors which may affect how much employees earn.

2 Coverage errors

Most of ASHE's 1% sample of employees is extracted from Her Majesty's Revenue and Customs (HMRC) Pay As You Earn (PAYE) system by reference to the last two digits of an employee's National Insurance number. Survey data are collected from employers, who provide information about each eligible employee. The allocation of National Insurance numbers to people is random for the last two digits; therefore the sample can be considered to be a simple random sample. Some of the returned sample is from employers who supply data electronically for all employees within their system who are in scope. Such responses would therefore include a small number of new employees who are not yet recorded in HMRC's files, and exclude those who have left the business since the sample file was extracted.

The use of the PAYE frame gives easy access to the population members of interest and allows a longitudinal aspect easily and cheaply, but there is a need to look at all employees across the whole economy. This includes part-time workers and workers on low rates of pay. In particular, precise estimates are needed of the number of people earning low hourly rates in order to make accurate estimates of those being paid below the national minimum wage.

The coverage issue arises because not all employees are registered on PAYE schemes, and PAYE information from HMRC is the sampling frame for the survey. Employers have a legal obligation to operate PAYE on the payments made to employees if their earnings reach the National Insurance Lower Earnings Limit. For the tax year 2012/13 this is £107 per week, £464 per month or £5,564 per year. Since the sampling frame from HMRC does not include employees whose employers have not registered PAYE schemes there is some frame undercoverage. Frame undercoverage could mean that the estimates which are generated by the survey are biased. The issue for ASHE results is that the employees who are not covered could have different characteristics from those in the sampling frame obtained from HMRC. There are two sub-categories of these employers: one where the employer has registered for VAT with HMRC but not for PAYE (so-called VAT-only companies) and the other where the company has not registered for VAT nor for PAYE with HMRC. The latter case can be seen to contain a very small number of employees since the majority of businesses in this category consist of working proprietors only with no employees, but the former case has the potential to contain a greater number of employees. ONS collected earnings information from these VAT-only companies for two years but found that their employees' earnings characteristics were similar to those from companies who had registered PAYE schemes, and therefore discontinued the surveys from 2006.

A different type of coverage issue is that of so-called off-PAYE employees. This is where the employer has raised a PAYE scheme for employees, but chooses not to place certain employees onto the scheme. This could be because the employees are low paid (due either to a low hourly rate of pay or to a small number of hours worked). It is considered that this phenomenon of off-PAYE employees occurs largely in the hotels and catering sector and with very little frequency elsewhere. Again, the interest is in the fact that the employees are likely to be paid low rates of pay. The study which ONS carried out into employees in this category showed that it was very difficult to get meaningful information from businesses that followed this practice.

Other coverage issues which are dealt with satisfactorily in ASHE are those of the employees who change jobs between the date of the first PAYE extract file obtained from HMRC in January and the survey reference date in April (described in more detail in the non-response section below), and those employees who start jobs for the first time after the date of the first extract file and in time for the survey reference date. These cases are handled by taking a second PAYE extract file in April and identifying new entrants into the labour market and people who have moved jobs by comparisons with the January extract.

3 Non-response errors

In addition to these coverage errors, further biases may arise because of non-response. Two main types of non-response exist.

First, there is genuine non-response where employers fail to respond to the survey questionnaire for one or more of their employees. Generally, non-response is for the whole employer, but there are some cases of employers responding for only a partial set of their employees.

Second, the employer may not be able to respond for a particular individual for a variety of reasons, perhaps, for example, because the employee no longer works for the employer. These are known as exemptions since the employer is exempt from completing the survey questionnaire for the employee in question. In some cases, the exempt employee was out of scope — for instance, because the person had left the labour market — so these 'returns' are simply ignored. The largest exemption category is where the employee was no longer with the same employer on the survey date and was assumed to have taken another job. This situation arises largely through delays in updating the administrative systems that provide the sampling frame; the frame is extracted in January, about three months before the survey date, but even the information on that extract is subject to delays in the administrative systems. The consequences of losing these employees from the sample are potentially large because people changing employers are likely to have different characteristics from those who remain with the same employer. Therefore the second extract file is used in order to ensure the coverage, and hopefully response, for these employees, as described above in the last paragraph of the coverage section.

4 Conclusion

Like any survey, there are imperfections in ASHE which ought to be considered before results are used. However, measures have been put in place to reduce non-sampling errors (such as coverage errors) where possible. Furthermore, ONS has made other improvements over the years to questionnaire design, and to editing and imputation methods, and the combined effect of these improvements has resulted in an annual earnings survey which is widely respected and used in the UK and further afield.

Information paper

Non-government uses of the Annual Survey of Hours and Earnings

1 Introduction

This paper presents the results of investigations into the uses made by non-central government users of the Annual Survey of Hours and Earnings (ASHE). These investigations were undertaken in response to an assessment of compliance with the code of practice for official statistics, which was conducted by the UK Statistics Authority. This assessment determines whether it is appropriate for the ASHE statistics to be designated as National Statistics. The Authority concluded that the ASHE statistics would retain their National Statistics designation, subject to ONS implementing a suite of enhancements and reporting them to the Authority. This paper summarises the work that ONS undertook in respect of the requirement to "take steps to develop a more complete understanding of the use made of the statistics by non-government users, and publish the information" (Requirement 1). The full assessment report can be found on the [UK Statistics Authority website](#).

It should be noted that very significant uses of ASHE come from central government. These uses are out of scope for this paper, but the intention is to produce an expanded paper that covers both government and non-government uses which will be published on the ONS website later in 2013.

To better understand non-central government uses of ASHE statistics and the raw data, four strands of enquiry were carried out:

1. Analysis of requests for ad-hoc bespoke analyses.
2. Survey of telephone and email customers via ONS's earnings helpdesk.
3. Analysis of applications for access to ASHE data via the Virtual Microdata Laboratory and the Secure Data Service, both of which are only available to approved researchers.
4. An online survey of users of the ASHE results via the ONS website.

Please note that the information used to produce this paper was gathered over a relatively short period of time, and it only relates to users with whom ONS was able to make contact as part of this project (as well as approved researchers who are obliged to provide information as part of the application process for access to microdata). Consequently, this should be viewed as a sample of the full range of non-government uses. ONS is not able to speculate as to how representative these uses are of all non-government uses.

ONS would like to thank all those who provided feedback to inform these investigations. This feedback has provided a greater understanding of the uses made of the statistics and will help improve future ASHE outputs.

2 Uses of ASHE

The investigations outlined above revealed a wide range of uses of the ASHE statistics among non-government users. Examples of these are listed below, broken down by type of use and theme.

2.1 Use by professional bodies

Employment relations

ASHE statistics are used extensively by trade unions for various purposes, including to support pay negotiations, collective agreements on wages and research into issues such as the gender pay gap and pay distributions in the public and private sectors. In addition, ASHE figures are used by other parties in employment relations matters. Examples include:

- Estimates used to inform the work of an MOT testing company and trade associations in dialogue with the Department for Transport on issues affecting garages.
- Figures required by a non-departmental body involved in employment relations services.
- Figures used when decisions are made on pay settlements for senior managers and chief executives.

Media

ASHE statistics are covered widely in the media, particularly at the time that the statistics are released. Journalists from a variety of media organisations attend the official press release for the ASHE statistics and this is usually followed by a flurry of media coverage. Historically, ASHE statistics have been reported by news outlets on television, radio, in newspapers and online. These reports tend to cover the 'headline' statistics from the latest ASHE results as well as some time-series/historical analysis. Examples include:

- Various high-profile media organisations publishing online and newspaper articles reporting a range of headline ASHE statistics.
- Articles focusing on key stories, such as the gender pay gap, public and private sector pay or the number of people paid below the national minimum wage.
- Stories in regional news media with comparisons of earnings across UK regions.
- An online 'student finance calculator' tool, showing estimated lifetime earnings for various graduate-level occupation groups.

Regional analyses

Local government/authorities are key users of ASHE statistics with a wide range of uses, including for monitoring purposes, occupation based analyses of the local labour market, economy briefing notes, analysis of low earnings at district level and in the Local Economic Assessment to highlight variations in resident and workplace earnings across particular areas. The ASHE figures are also used by other parties when carrying out analyses in particular geographic areas. Examples include:

- Enquiry into the proportion of employees in a geographical area with annual earnings of £100,000 or more.
- Investigations of the proportions of employees above and below the London Living Wage over a period of time.
- Analysis of labour cost differences between regions supplied by different electricity distribution companies.
- Results published on a data observatory for East Sussex where they are used by county and district councils and voluntary organisations to inform strategies and funding bids.
- Local and regional news provider collating information on annual earnings to help enable the company to remain competitive in the market when advertising vacancies.

Careers, skills and teaching

- Figures used to update labour market time series for a not-for-profit company that offers advice and guidance on careers.

- Figures used by a sector skills council to compile reports and for ad hoc analyses on the IT/Telecoms labour market. Clients such as individuals, organisations and training and education providers use their reports for career planning, recruitment/HR planning and strategy development.
- Estimates are incorporated in teaching materials for post-graduate students in labour market sessions.

Legal

- Figures for home carers are used extensively in cases where judgements are made in respect of payments to people who require professional home care.
- Figures used by courts in loss of earnings and personal injury litigation cases.
- Analysis as part of a company's work representing pensioners on medical appeals.

Finance

- A bank investigating the proportion of employees paid on weekly and fortnightly cycles as part of a project to help more customers set up direct debits to pay credit card bills.
- Information relating to trends in earnings required for articles for the financial media.

Other business uses

- Business start-up requiring information on earnings.
- Figures used as an index to uprate costs/charges in respect of staff who deliver services to a large employer.
- Global consultancy firm used ASHE estimates for modelling earnings in the service sector.

2.2 Use by academics

National minimum wage and low pay

One of the most common areas of academic research is investigations into the impact of the national minimum wage; for example the impact on job retention, job entry and firm behaviour during recessions, and also the impact of the introduction of the apprentice rate.

Other research topics in this area include:

- Investigating behavioural and measurement aspects of the national minimum wage as part of a commission from the Low Pay Commission.
- Investigations into the extent of non-compliance with the national minimum wage.
- The substitution rate between low-pay workers and the national minimum wage.

Business sectors

- Estimates of inflation in the personal social services sector.
- Measuring the economic contribution of creative industries and employment to the UK economy.
- Entry into teacher training and mobility in the teacher workforce.
- Investigation into the number, type and industrial presence of designers in the UK economy, as well as their associated wage bills.

Regional

- Measuring the performance of Scottish town centres.
- Analysis of the creative industries sector in Northern Ireland.
- The impact of geography on wages.

Earnings trends

- How wages evolve during and after recessions in order to aid understanding of the cyclical behaviour of labour productivity.
- Measures of income growth and trends in earnings shares.

Other research topics

- Investigating new measures of investment in intangible assets in the UK.

- The prevalence and effects of performance related pay in Britain.
- Bonus payments and inequality in the UK.
- Using firm-level data to analyse productivity and to assess the relative contribution of aggregate and firm-specific shocks to the business cycle.

2.3 Use by the general public

The ASHE statistics also receive a significant level of interest from the general public. Sometimes this is simply general personal interest but there are also a huge variety of other more specific uses. Recent examples include:

- Information required as part of adoption application processes.
- Queries on pensions and calculations used in personal pensions.
- Figures requested in the context of wages required by prospective immigrants.
- Analysis of the proportion of jobs paid below £7 per hour by region and age for an individual's website monitoring various labour market themes.

3 Additional results from the ASHE online survey

3.1 Analysis of respondents

In conjunction with the release of the ASHE 2012 results on 22 November 2012, ONS ran a short online survey to help assess user views on the ASHE outputs. This was publicised via various channels, including the ONS website, StatsUserNet and by notifying known ASHE users. The survey closed on 10 January 2013. There were 39 responses to the survey from non-central government users out of a total of 51 responses, which was quite a healthy response rate for a voluntary survey of this type. Respondents were asked to specify the sector in which they work, their role, and provide some details about their uses of ASHE estimates. Analysis of the responses further highlighted the wide range of uses of ASHE, with the most common use of those surveyed being research and analysis by local or regional government. The results are summarised below.

- 26 respondents specified the sector in which they work:

Sector	Frequency
Local or regional government	11
School , college or university	4
Non-profit institution	4
Trade union	2
Non-financial corporation	2
Oil and gas	1
Legal	1
Health	1

- 26 respondents specified their position in the context of their use of ASHE estimates:

Role	Frequency
Researcher	10
Analyst	7
Consultant	2
Student	2
Policy maker	1
Teacher or lecturer	1
Solicitor	1
Human resources officer - pay and reward	1
Member of the general public	1

- Respondents were also able to select all the applicable uses from the following list:

Type of use	Frequency
General background information	23
Research	23
Writing reports	19
Benchmarking	17
Writing briefs	15
Monitoring	14
Policy development	13
Modelling and/or forecasting	8
Decision making	6
Legal proceedings	1

3.2 Meeting user needs

ONS regularly meets with their central government ASHE user base and so is able to listen and respond to their needs where required. However, ensuring the wide range of non-government user needs are met is a more difficult task. The enquiries outlined above have helped in this regard, particular the online survey.

Responses to the online survey reveal that the majority of non-central government users feel that the ASHE statistics meet their needs. Respondents were asked how satisfied they were with the relevance of ASHE to their needs. Of the 27 people who responded to this question, 81% said they were satisfied or very satisfied.

A number of useful comments were provided by respondents to the survey, including suggestions for improvements to ASHE. Some of the points raised were as follows:

- 1) Difficulties with accessing and using the ASHE tables - the large file size of some of the tables meant that some users had problems downloading or opening them on their computers. Suggestions were made to split the tables so that individual files could be downloaded rather than zip files. It was also suggested that more detailed metadata could be included within the Excel files to aid user interpretation.
- 2) Difficulties with finding the required tables on the ONS website - some users commented that it was difficult to find the tables they were looking for, particularly if they were searching for several years' worth of data.
- 3) Appearance of the statistical bulletin - there was a comment that the bulletin looked less professional than it used to due to the new ONS content management system. It seems likely that the user was referring to the PDF version of the bulletin but this is unclear.
- 4) The reliability of the estimates at local authority level - some users questioned the accuracy of the estimates and suggested a boost in the sample size to improve reliability.
- 5) Discontinuities over time - some users expressed concerns about the frequency of discontinuities and suggested producing a consistent time series. It was also suggested that more detailed explanations could be provided for the discontinuities.
- 6) More public/private sector analyses - there was interest from some users in more analysis of earnings in the public and private sectors, both in the bulletin itself and a suggestion to add a table showing earnings by occupation within these sectors.

ONS is keen to further improve the ASHE statistics so the points raised above will be taken on board when developing the ASHE statistics and their dissemination in future years. Some of the issues raised, for example points 1-3, are largely due to restrictions of the ONS

website, although improvements have and will be made in these areas where possible. Regarding point 4, benefits to the accuracy of the detailed earnings estimates have to be weighed against the extra costs incurred to achieve these benefits. The ASHE sample is already very large so it is unlikely ONS will be able to pursue the suggestion of increasing the sample size in the near future. Finally, in terms of points 5 and 6, some improvements have already been made in these areas; for example, this year's Patterns of Pay article was enhanced to include more analyses of public and private sector earnings and the background notes were expanded to include more detailed descriptions of methodological issues. The intention is to incorporate some of these changes into the next statistical bulletin when it is published in November 2013.

4 Conclusions

ONS's investigations have revealed that there is a great diversity in the range of uses of ASHE statistics by users outside of central government. Users include trade unions, local government, the media, solicitors, financial organisations, consultants, academics and the general public. Feedback from a sample of these users indicates that, generally, users are satisfied that their needs are met by the ASHE statistics and the accompanying publication material, though there are some areas where improvements could be made. In developing ASHE and the methods of its dissemination, ONS will consider the results of this work, along with any other relevant information, to ensure that it remains fit for purpose for its broad user base.

Geography in ASHE microdata

In contrast to what the ASHE documentation states, the ASHE microdata are GREAT BRITAIN geography. The data are based on the location of work ('wgor' variable). The data may show some Northern Ireland residents working in Great Britain when crosstabbing the 'hgor' variable (home address) with 'wgor'.

If a researcher wants UK data then additional data will have to be requested from NISRA.

This information was verified with the ASHE data producers.

Folkert van Galen,

VML team

October 2014

The new Annual Survey of Hours and Earnings questionnaire

Key points

- **ONS has introduced a new questionnaire for the 2005 Annual Survey of Hours and Earnings following testing in 2004**
- **The new questionnaire brings significant improvements to the quality of results**
- **The definition of bonus/incentive pay has been changed to give more consistent results**
- **The old questionnaire missed a significant amount of pay paid as allowances**
- **A methodology has been developed to bring 2004 results on to a comparable basis with 2005 results**
- **A set of results for 2004 that are comparable to the ASHE results for 2003 and earlier is still available.**

Summary

A new questionnaire has been introduced for the 2005 Annual Survey of Hours and Earnings (ASHE). This article analyses the impact of the new questionnaire on ASHE results that are due to be published on the 10 November 2005.

The questionnaire was tested in 2004 and its impact on 2005 results has now been assessed. The new questionnaire has a number of changes to layout and definitions that have brought a noticeable improvement to the quality of the data collected. However, the changes have had an impact on results, particularly in the two areas of bonus/incentive pay and basic pay.

1. The definition of bonus/incentive pay has been changed to enable the estimation of more consistent results by only collecting bonus/incentive pay for the April pay period. Therefore, to compare the 2005 results with those from 2004 the method of compiling estimates of bonus/incentive pay has been changed for 2004 to exclude payments made outside the April pay period.
2. It had been suspected that the old questionnaire under estimated the amount of pay, for example by missing some paid allowances. To capture this, the new questionnaire added a new question asking for 'pay for other reasons'. The results for 2005 show that this new question collects a significant amount of pay that was being missed in 2004. In order to bring the 2004 results to a comparable basis with 2005 a methodology has been designed to estimate for the missing 'pay for other reasons' in 2004.

These changes to 2004 mean that growth between 2004 and 2005 can be calculated. It should be noted that the ASHE survey was first introduced in 2004 to replace the New Earnings Survey (NES). The two main changes introduced in ASHE were weighting and extended coverage using supplementary information. In order to construct a consistent time series weighting has been applied to the NES data sets for 2003 back to 1998, see the article [Annual Survey of Hours and Earnings: An analysis of Historical Data 1998-2003](#). To give a measure of the impact of the improved coverage a second set of 2004 results that exclude supplementary information were published in 2004. These results, which will not be changed except for revisions caused by the late return of some questionnaires, are comparable with the ASHE results for 2003 and earlier.

1. Background

The development of the Annual Survey of Hours and Earnings (ASHE), to replace the New Earnings Survey (NES), was the Office for National Statistics' (ONS) first major survey redesign as part of its

modernisation programme. The NES was designed to meet the policy needs of the 1970's and has changed little over the past thirty years. ASHE provides an opportunity to meet users' requirements in the 21st Century, to improve the methodology of the survey and to make use of the new statistical tools ONS will be using in its modernisation programme.

The re-engineering of NES and the subsequent ASHE methodology take forward recommendations made in the [National Statistics Quality Review of the Distribution of Earnings Statistics](#) (DOER) for improving the collection of earnings statistics. The main differences between the ASHE and NES methodologies are the estimation of missing responses, weighting of the results and better coverage. A more comprehensive description is given in the article [Methodology for the Annual Survey of Hours and Earnings](#). These methodological changes were introduced for the 2004 survey and the survey renamed ASHE. However, the questionnaire used to collect the 2004 ASHE data was still the same as had been used for NES. While the DOER recommended a review of the questionnaire for NES as well as the methodology it was not possible to introduce a new questionnaire for the full survey in 2004, since it was necessary to conduct a field test before implementing this change.

Over the life span of the NES the scope and methodology has changed little but there have been some changes to the questionnaire, in particular the addition of new questions. However, the questionnaire was changed while keeping to its original two page design and therefore has resulted in it becoming very cramped. With the user demand to add further questions, for example on pensions and concerns about the wording of some questions, it was decided to completely redesign the questionnaire using current best practice. The new questionnaire improves the layout, routing, wording and definitions used and will lead to more consistent responses improving the quality of the data collected. The questionnaire is also easier to understand and to navigate and so reduces the time taken by users to complete. ONS introduced the new questionnaire for the 2005 survey. Whilst the core data collected by the new questionnaire is essentially the same, questions have been added to collect new information in key policy areas (for example pensions). However, changes to wording and definitions mean that some of the information requested from respondents will differ from that supplied in previous surveys, which could lead to an inconsistency between the results for 2004 and 2005.

Section 2 of this article lists the main differences between the 2005 and 2004 questionnaires. Section 3 describes how the new questionnaire was tested before full implementation. Section 4 looks at the main areas that have been impacted by the changes, that is basic hours worked, bonus/incentive pay and pay for other reasons and how ONS will plan to handle the discontinuities in the results for these questions. Sections 5 and 6 describe how the results will be published and future work that will be done.

2. The main differences between the 2005 and 2004 questionnaires

2.1 Design, layout and routing

The new questionnaire makes use of best practice in questionnaire design. The following improvements have been made:

- The NES questionnaire was accompanied by a set of four pages of explanatory notes. Respondents found it difficult to keep referring back to these notes when answering questions, especially if they had a number of employees selected for the survey and hence had several questionnaires to complete. The new questionnaire has no separate notes. They are included instead beneath the question to which they refer.
- Questions where the respondent has to select an appropriate code from the guidance notes and enter it on the questionnaire have been changed. Such 'self-coding' questions are more complicated for respondents and more difficult for ONS to capture the data for analysis. All self-coding questions have now been redesigned as 'selection questions' where the respondent is given a list of choices and asked to put a cross against one. Hence, there are

no codes for the respondent to enter which makes it easier to complete the questionnaire and should give more consistent responses.

- The new questionnaire makes use of routing questions that guide respondents through it.
- The questions are simpler and less ambiguous. For example questions such as "If the employee's basic pay was calculated by multiplying the number of hours of work by an hourly rate of pay what was the employee's hourly rate of pay?", which asks two questions in one have been simplified and split into two questions.
- The new questionnaire uses 'white space' so that questions do not appear cluttered, making it easier to read.
- Most of the questions have been reworded to simplify or clarify definitions or to improve the consistency of returns.
- More examples of what to include and to exclude have been added to aid understanding.
- The way the job title and description is collected has been changed. While the type of information requested is the same, respondents now have to enter each character in its own box rather than writing in a single box. The job title and description are used to assign an occupation to a person, which is done by a manual inspection of the questionnaire. The capture of individual characters will allow the occupation to be assigned automatically, which will give more consistent results and is more efficient.

These changes along with a small number of new questions have caused the length of the questionnaire to increase from 2 to 4 pages. These changes affected all questions. However, it was the changes to definitions that were expected to have the biggest impact on results. The main changes to definitions were:

2.2 Exemptions

The way in which exemptions from the survey are identified has been simplified. The old questionnaire had a list of eleven types of people who should be considered to be exempt from the survey, for example someone who is self-employed. These were known as exemption categories. For the new questionnaire the exemption categories were removed and replaced by the question 'was the person a paid employee working in the United Kingdom and receiving a salary or wage?'. Specific exclusions were added to an exclusion note below the question, for instance to exclude the self-employed.

2.3 Basic hours worked

The basic hours question was changed from asking for average weekly hours to asking for hours worked in the pay period. This was done to get consistency between the pay and hours information and hence to give better estimates of hourly pay.

2.4 Bonus/incentive pay

The question on bonus/incentive pay for the pay period was changed. NES asked for two types of incentive pay, 'where payments are made in every pay-period' and 'where payments are made less often than every pay period'. Many users found these definitions unclear. For the second type of incentive pay, 'where payments are made less often than every pay period', the definition is such that the amount entered can depend on when the respondent returns the questionnaire. The majority of NES and ASHE returns are received in the period May to August and therefore any incentive/bonus pay paid outside this period but that relates to work done in April will be missed. As most annual bonuses are paid in January to March, NES and ASHE will always miss a significant amount of this second type of bonus pay. However, information about bonuses earned in April will be available on payroll systems at varying times after April and hence a respondent is more likely to be able to supply a value the later their questionnaire is completed. That is questionnaires returned in August are more likely to have information about bonuses earned in April than ones returned in May.

The new questionnaire changes the question to only collect incentive pay paid and earned in the pay period. This makes the definition much clearer. While this will still understate the amount of incentive pay earned in the pay period the definition is precise and should give estimates of incentive pay that are more consistent between years, that is they will not depend on the return date of the questionnaire. This change brings the results more in line with short-term earnings statistics. A comprehensive estimate of incentive pay has always been obtained from the annual bonus/incentive question.

2.5 Pay for other reasons

The annual earnings survey collects gross pay received in the April pay period. These data are used to compile estimates of gross weekly and hourly pay for April. The gross pay is further broken down into basic pay (including allowances), overtime, shift premium and bonus/incentive pay. The NES basic pay question was a 'catch all' question intended to collect all pay that was not bonus/incentive, shift premium or overtime. However, the wording of the question was confusing and ONS suspected that some allowances were not being included by respondents with their basic pay figure. In order to gain a better understanding of the make-up of pay and to clarify what was expected for basic pay it was decided to split the NES basic pay question into two by adding a 'pay for other reasons' question to the new questionnaire. It was expected that most users would just split their old basic pay into the new basic and pay for other reasons. However, it was suspected that some respondents would include other pay that they had not included in the past but the amount of this missing pay was unknown.

2.6 Pensions

The questions on pensions, which is an extremely complex and rapidly changing area, have been updated and extended. The old questionnaire had a page of notes to guide the respondent into self-coding their pension arrangements. These notes have been simplified, brought up to date and included on the questionnaire. The respondent now selects the relevant pension arrangement rather than self-coding. These changes should improve consistency of the pensions data and make it easier for the respondent to complete. New questions asking for pension contributions of both the employer and employee have been added, to address the needs for government and other users for new and better information in this key policy area.

2.7 Collective agreements

The question asking if pay is set with reference to a pay agreement, known as collective agreements, has been simplified. The DOER recommended that ONS reconsider whether the question on collective agreements should remain as it found the quality of the information supplied for the question was not up to standard and that the compliance cost in collecting the information was not justified. Some reasons for the poor quality of the data are:

- There are many cases where the type of agreement does not match to other information on the questionnaire. For example where the person works for a private company but is covered by a public sector agreement.
- The old question was self-coded, with the respondent choosing from a list of 44 codes. This can result in the respondent choosing incorrect codes.
- The list of codes can become out of date.
- The number of respondents in certain collective agreements fluctuated considerably from year to year.

There is a user demand for information about collective agreements, as well as a European requirement at the national level. For these reasons ONS decided to keep the question but to considerably simplify it. The new question only allows for 5 choices, agreements can be either; national, sub-national,

organisational, workplace or a combination. These choices are part of the question and a respondent only has to put a mark against their choice. However, ONS is aware that a breakdown by some of the old collective agreement groups is important to some users. ONS has therefore developed a methodology for deriving a new code that is a good proxy to the old collective agreement code. To do this the methodology uses other information on the questionnaire as well as information available from other data sources. For example, there is a collective agreement for hospital doctors and dentists. This can be modelled using a person's occupation, the industry in which they work, the sector (public or private) in which they work and their place of work information. ONS believes these new proxy codes will meet the majority of user needs and will be more consistent than the old self assessed codes. Details of the methodology will be published in a separate article on the National Statistics web site.

3. Testing the new questionnaire

After discussion with the main users of earnings statistics a draft questionnaire was created in August 2003. This was cognitively tested on 16 employers from a range of industries. This testing attempted to establish if respondents could provide the information and to identify any problems they may have with the questions. It was particularly important to establish if the information could be supplied for the new questions on pension contributions.

In 2004 the questionnaire was tested on a random sample of employers selected from the main ASHE sample. A total of 4,770 questionnaires were sent of which 4,203 were returned. The sample excluded employers who return their information electronically, as it would be impractical to ask such employers to change computer systems just for a field test. Analysis of the results from the field test showed:

- Response rates from the new questionnaire were comparable to the old, despite the increase in the number of pages and the addition of new questions.
- The compliance cost per question was reduced, but the addition of new questions caused the overall time to increase slightly.
- The estimates of gross weekly pay were not statistically different from the estimates from the old questionnaire.
- The estimates of hourly pay were statistically different from the estimates from the old questionnaire. However, by chance the sample selected for the new questionnaire had proportionally more higher earners than the old questionnaire sample, which may have impacted on the results.

The field test highlighted some issues with the new questionnaire, in particular with the basic hours question. Some respondents who were paid monthly gave weekly hours instead of monthly hours or converted weekly hours using a range of different conversion factors. Where possible these errors were corrected in the data before analysis of results. Several changes were made to the questionnaire for 2005 as a result of the field test; amendments were made to the hours questions, to the annual bonus questions, to the pension questions and to the annual leave question.

4. Analysis of the impact on results of the new questionnaire

4.1 Case studies

In order to try to gain an understanding of why respondents answered the new questionnaire differently a sample of 31 employers who had responded to both the 2005 and 2004 surveys was selected and interviewed by telephone. These case studies focussed on a few particular areas of concern and asked respondents about their understanding of the questions and why their answers differed between years. The studies showed that respondents understood the basic hours question but those that were used to giving weekly hours had just continued to do so for various reasons. Respondents also said that they understood the 'pay for other reasons' question. However, whether they included other pay depended on

the type of pay and how they interpreted the question. The questionnaire for 2006 has been changed to clarify what is required for this question.

4.2 Analysis of 2005 survey returns

The final stage of the investigation and evaluation of the impact of the new questionnaire was to undertake a detailed comparison of the 2004 and 2005 returns. This identified a number of issues which needed to be studied. These included errors in completing the basic hours question and discontinuities that had been introduced by the improved questions on incentive pay and the breakdown of total pay.

4.3 Basic hours worked

Despite changes that were made to the questionnaire after the field test, a significant number of respondents still incorrectly answered the basic hours question in 2005. Most of these could be identified by comparison with last year's responses as there is around a 70 % overlap in respondents between survey years. Other checks could be made to identify new respondents who gave incorrect hours. One particular check that was done was on the hours specified for new respondents which were compared to the hours from other respondents from the same company. Another check was made on people who were paid monthly, who gave their hours as 37 or 40 and had a very high hourly rate. Such people were considered to have supplied weekly hours with monthly pay and their hours were then adjusted to a monthly equivalent. These systematic checks and edits corrected for most of the errors but a small number might remain. However, it is expected that the remaining errors have little impact on results for full time employees. This is because the errors tend to place people as part-time workers (working less than or equal to 30 hours) instead of full-time but the proportion of full-time and part-time jobs in the final data set was comparable to earlier surveys.

Further changes have been made to the 2006 questionnaire to try to address these issues. Clearer instructions have been included along with an example of how to convert weekly hours to monthly. To draw the respondents attention to these instructions they are now preceded by a 'stop marker' which consists of the word STOP in a red circle.

4.4 Incentive pay

Initial results from the 2005 survey showed that the new incentive pay was lower than the 2004 incentive pay, even allowing for the considerable variability that exists in incentive pay. This was as expected given the change in definition for the 2005 incentive pay question. The 2004 questionnaire included two incentive pay questions 'where payments are made in every pay-period' and 'where payments are made less often than every pay-period' and results were compiled by adding together data from both questions. A comparison of the returns showed that the responses in 2005 were similar to the 2004 question 'where payments are made in every pay-period'. This means that by using data from this question only, the results for 2004 could be made roughly comparable to 2005.

At an aggregate level the effect of removing the 'less often' component of bonus pay would decrease by around 1 percent the level of pay in 2004 so this change would increase the growth between 2004 and 2005 by this amount. However, bonus pay does vary by occupation and other factors and so the impact at lower levels of publication will be different. For example higher bonuses tend to be paid in the private sector and hence removing the 'less often' component of bonus pay has a bigger impact on earnings for employees in the private sector compared to those in the public sector.

4.5 Pay for other reasons

This is a new question and so has no comparable question in 2004. For the 2004 questionnaire where other pay was paid it should have been included as part of the basic pay figure. It was therefore expected that basic pay for 2004 should be comparable to basic plus other pay in 2005. To test this assumption it is

possible to look at the growth between the basic pay questions in both years. Analysis shows that this growth is lower than expected, indicating that the basic pay question for 2004 does include an element of other pay. However, when comparing basic pay plus other pay in 2005 against basic pay for 2004 the growth is higher than expected, indicating that there is other pay in 2005 that was not included in the 2004 basic pay. The case studies also support these conclusions as around half of the respondents stated that they had included other pay in with basic pay in 2004 and the rest that they had missed it out altogether. There was no indication from the case studies of any particular type of other pay that was being missed. Some of the types of other pay mentioned were; car allowances, stand-by allowances, clothing allowances. However, an analysis of the types of employees who receive other pay has showed that 27 per cent of employees in the public sector receive some form of other pay compared to 17 per cent in the private sector.

A methodology has been developed to adjust the 2004 data so that the results are on a comparable basis with 2005. This focused on 'correcting' records and estimating for missing other pay in 2004. Details of the methodology will be made available on the National Statistics web site at the time of the release of the new 2005 results. In summary, the methodology splits the data into two subsets with different approaches for each.

The first subset consisted of those respondents that had reported basic pay in both 2004 and 2005 but also reported other pay in 2005. If the growth between basic pay 2004 and basic pay plus other pay 2005 was greater than 5% then it was assumed that other pay was missing for these records in 2004. A value for other pay 2004 was estimated using the ratio of other pay to basic pay in 2005.

The second subset consisted of those records that only responded in 2004. Some of these records will have missing other pay while others will either have no other pay or will have already included it in the basic pay figure. To correct these, a probabilistic model was developed that had two stages. The first stage was to estimate the probability that a record has missing other pay. A generalised linear model was used with variables occupation, hourly rate excluding overtime and age to assess the probability of a record being incorrect and hence needing a value for other pay to be estimated. Using the responses to these variables each record could then be assessed as to whether it should be estimated or not according to these probabilities.

The second stage was to estimate the size of the missing pay. Again the generalised linear model was used to assess which variables should be used to generate the correction factor. Occupation, sex, age and hourly rate excluding overtime were included in the model and all were statistically significant. A new other pay variable was created for 2004. Correction factors were then calculated and applied to the basic pay for those records that had been selected from stage one as possibly reporting incorrectly in 2004 and a value generated for the missing other pay.

At an aggregate level estimating for missing other pay will increase the level of pay in 2004 by 1 percent and hence remove around 1 percent from the growth between 2004 and 2005. However, other pay does vary by occupation and other factors and so the impact at lower levels of publication will be different. For example, the average size of other pay paid in the public sector is lower than in the private sector but there are sufficiently more public employees that receive other pay that the net effect is to increase private sector pay more than for the public sector.

At the aggregate level the impact of the incentive/bonus pay and the pay for other reasons approximately cancel each other out. However, this is not the case when analysing the results for more detailed breakdowns of the population. Hence there is a need to adjust the 2004 results to bring them on to a comparable 2005 basis. For example, the effect of the change in definition of incentive/bonus pay decreases private sector earnings more than for the public sector, while the change in other pay increases public sector earnings more than for the private sector. The two changes therefore do not cancel each other when looking at a private/public sector comparison.

5. Publication and micro data

ONS currently publishes a consistent time series from 1998 to 2004 and a second dataset for 2004 which includes information from the supplementary surveys which were designed to improve the coverage of ASHE. The latter was previously thought to give the best estimate of the level of pay in 2004. It was not feasible to provide a back series on this basis since there was only one year of this supplementary information available which might not have been representative of other periods. ONS will not at present revise the currently published 2004 results and micro data sets that exclude supplementary information to take account of the findings on incentive and other basic pay since the aim of these results is to provide a consistent time series between 1997 and 2004. However, as is our usual practice these results will be revised to incorporate late returns.

The changes introduced by the new questionnaire have improved the quality of the 2005 data. Therefore, the new results for 2005 are considered to be our best estimates of the pay level and can be published without adjustment.

The currently available 2004 results that include supplementary information will be revised. These will include estimated missing other pay and will be compiled to exclude pay 'where payments are made less often than every pay-period'. These results will therefore be comparable to the 2005 results and will allow growth rates between 2004 and 2005 to be published.

By creating a new variable 'other pay' on the 2004 data set the adjustments described above will be available to users of the ASHE micro data. The adjustments can also be made to any tables generated from the 2004 data set. This allows ONS to answer ad-hoc queries and produce 2004 results that are comparable to 2005. However, the imputation of missing other pay for 2004 is done using a probabilistic method that was designed to give plausible results at high levels of aggregation. Using the estimated other pay at the micro data level may give some unexpected results.

6. Future work

ONS already has a long term programme of work that is looking at the feasibility of constructing consistent time series back to 1992. This programme includes looking at the impact of the supplementary surveys and the impact of the Labour Force Survey on the calculation of ASHE weights. The possibility of making adjustments to the results for 2003 and earlier for the incentive and other pay changes that have been described in this article will be included as part of this programme of work.

A copy of the NES questionnaire used in 2004 can be found at:
<http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=13101>

A copy of the ASHE questionnaire used in 2005 can be found at:
<http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=13101>