Understanding apprentice pay
Final Report

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Executive summary

This study consisted of two parts, a quantitative and qualitative element.

The quantitative study aimed to:

- review the improved Apprenticeship Pay Survey (APS) for internal quality and coherence with previous findings
- reconcile ASHE and APS estimates of non-compliance

The key findings of this section in respect to apprentice pay are that:

- APS 2014 significantly improves data collection of apprentices' pay and hours relative to past APS surveys, enabling a more accurate and detailed analysis
- The analysis of APS 2014 confirms and strengthens some of our previous findings concerning non-compliance. Non-compliance is significantly related to the age of apprentice/year of course and appears lower in better quality jobs
- Non-compliance decreases with age when the Apprentice Rate (AR) is the relevant minimum (first-year apprentices); in contrast, it increases with age when a higher minimum needs to be paid (i.e. for second-year apprentices over 18 years old)
- The measurement of hourly pay is again found to affect non-compliance estimates; more accurate responses (e.g. if both pay and hours are reported from a payslip) are related to less non-compliance
- Large differences between frameworks exist and can only partly be explained by observable characteristics.
- The new questions on awareness of the NMW legislation are a significant improvement over APS 2012; importantly, a more detailed knowledge of the NMW legislation appears negatively related to non-compliance, in general
- Future APS surveys may consider asking each apprentice about his/her knowledge of the NMW rate that applies to him/her (currently, only awareness of the AR is recorded)

In respect of the coherence between APS and ASHE we find that:

- APS information from payslips is a very welcome addition; it should be maintained and greater efforts made to ensure that respondents use this information
- ASHE data gives similar numbers to APS 2014 data when the latter is fully documented through the use of a payslip
- ASHE data appears to have a much lower number of apprentices than expected. Given the way ASHE is collected, this strengthens the idea that ASHE is a lower bound estimate of non-compliance as missing observations are more likely to be in non-compliant firms
- Concern over accuracy of self-reported pay (as shown in the qualitative part) suggests that the APS non-compliance rate is an upper bound estimate (as inaccuracy, per se, leads to over-estimation at the yes/no boundary)
- A review of the distribution of the two datasets around minimum wages suggests that measurement error (the flattening of the wage distribution) is more important than missing observations; that is, of the two bounds, ASHE is probably closer to the true value

The qualitative study aimed to explore the findings suggested by the previous quantitative analysis and confirmed by more recent work. To keep the project manageable within the very short reporting period, only apprenticeships in childcare and hairdressing were considered, as these have some of the highest non-compliance rates. The team interviewed college trainers, apprentices individually and in focus groups, and employers.

The key findings from the qualitative analysis are:

- Knowledge of what is being paid was very poor indeed; some apprentices still felt their employer did not understand how salaries would change after the second year etc. Apprentices relied upon friends, colleagues and classmates for information, and did not think of government information sources such as the LPC website
- Knowledge of training hours was also vague. Most apprentices needed to confer to check how many hours of training they had at college, despite being at college when the interviews/focus groups took place
- Apprentices saw low pay as a normal feature of being an apprentice at the bottom of the workplace hierarchy. They disliked the low take-home pay, but did not worry overmuch about the specific hourly rate
- Apprentices had a very high level of trust in their employers to 'do the right thing'
- Colleges had a role to play. They had strategies in place, and apprentices felt confident discussing pay with them; however, college staff clearly did not know apprentices as well as they thought, as the staff claimed no non-compliance whereas a questionnaire showed significant levels
- Some power issues arose between employer and employee – not necessarily intentional, but if employers made mistakes in pay there were few mechanisms for employees to find and report such mistakes
- One employer noted the conflict between government plans to encourage school-leavers to extend their education, and the need for low-cost (and young) apprentices

Recommendations

- The documented (with the use of a payslip) APS non-compliance rate is our preferred estimate, with the baseline APS sample giving the upper bound estimate, and ASHE figures providing a lower bound, but more accurate, estimate
- Future APS should try to include as many as possible fully documented cases where both pay and hours are reported from a payslip
- Apprentices have very little idea of what their wage rate is, or should be, and do not explore the internet to look for more information. Instead they rely on friends and colleagues; a downloadable mobile phone application (the "app app") allowing simple calculations might reach this group
- The message that non-compliance is associated with the idea of 'bad jobs' could be usefully targeted to support bodies such as the Citizen's Advice Bureau in identifying problematic working arrangements

- There is some evidence that apprentices feel concerned to raise low pay with their employers. Hence there may be a role for LPC in helping employees to overcome their fears by, for example, suggesting positive arguments or ways to raise the topic
- College staff should be provided with practical guidelines about apprentices' difficulties calculating wages, and the data that needs to be collected to do this

1. Introduction

1.1 Apprentice pay in the UK

Apprenticeships combine practical paid work experience and on- and off-the-job training which culminates in a nationally recognised qualification. As employees, apprentices earn as they learn and gain practical skills in the workplace (SFA, 2015). Apprenticeships should include a minimum of 280 'guided learning hours' (GLHs) per year of which 100 must be delivered away from the workplace (Higton, 2013); this equates to roughly six hours per week training, including two hours off-site.

Apprenticeships are organised around industry-specific 'frameworks' which specify the length and content of the apprenticeship for that industry. Variations between the content and delivery of apprenticeships, frameworks, employer input and apprentice figures may be partly explained by differences in the institutional characteristics of educational systems and labour markets (see, for example, Ashton et al, 2000; Hall and Soskice, 2001; Rainbird, 1993; Steedman, 2010; Toner, 2008). The face of apprenticeships has changed in recent years, shifting from skilled manual labour to service and managerial roles.

Responsibility for public funding of apprenticeships is currently shared between the Department for Business, Innovation and Skills (BIS) and the Department for Education (DfE) in England, and the devolved administrations elsewhere. Funds are provided directly to the training providers. In the 2015 Summer Budget and Autumn Statement (HMG, 2015, pp.45-46), the Government announced plans to make the apprenticeship scheme self-funding through a levy on larger businesses by 2020, to create a new body for training standards, and to give employers more control over the choice of training provider.

The number of apprenticeships in the UK has increased steadily since 2008, with 865,000 funded apprentices registered in each of the last three academic years (SFA, 2015); the current target is for three million by 2020 (HMG, 2015). Sectors tend to be gender-dominated, with females choosing apprenticeships in service sectors, and males taking up apprenticeships in industrial sectors. This has led to a marked gap in pay for male and female apprentices (Fuller et al, 2005). Similarly, there are differences across sectors in the age of apprentices: child-care has limited opportunities for younger apprentices as employers are reluctant to take on under-18s, while hairdressing tends to be youth-dominated. Drew et al (2015, p.2) estimate that 70% of apprentices worked at the organisation before beginning their apprenticeship, suggesting that the majority of apprentices would be older than the school-leaving age; LPC estimates that around 70% are aged 19 or over.

1.2 The Apprentice Rate

The National Minimum Wage (NMW) was introduced in the UK in 1999, with age-related minimum wages set every October since 2000. Employees on formal apprenticeships were exempt from the NMW legislation; instead, many of the apprenticeship 'frameworks' had industry-wide, but not statutory, agreements on weekly wages for apprentices at different stages of their training. Following recommendations from the Low Pay Commission (LPC), the Apprentice Rate (AR) was introduced in October 2010, resulting in an overall increase in apprenticeship wages (Behling and Speckesser, 2013).

The AR applies to those aged 18 or under, or those 19 and over and in their first year of apprenticeship. Table 1 shows the NMW rates since the introduction of the AR. The final column of Table 1 also shows the datasets which contain data allowing apprentice pay to be analysed for each minimum wage period, namely the Apprenticeship Pay Survey (APS) and the Annual Survey of Hours and Earnings (ASHE).

Table 1 National Minimum Wage rates 2010-2013

Rate from…	21 and over	18 to 20	Under 18	Apprentice Rate (AR)*	*Data currently available*
October 2010	£5.93	£4.92	£3.64	£2.50	*APS2011*
October 2011	£6.08	£4.98	£3.68	£2.60	
October 2012	£6.19	£4.98	£3.68	£2.65	*APS2012, ASHE2013*
October 2013	£6.31	£5.03	£3.72	£2.68	*APS2014 ASHE2014*
October 2014	£6.50	£5.13	£3.79	£2.73	*ASHE2015*
October 2015	£6.70	£5.30	£3.87	£3.30	*Questionnaires***

*applies to those under 19 or in year 1 of the apprenticeship; otherwise NMW applies
**data collected as part of this study

Broadly the AR has grown at a similar rate to other MWs, but in 2015 the Government took the unusual step of rejecting the LPC's recommended AR of £2.80. Both the Government and the LPC noted the fall in apprenticeship starts in 2014, but appear to draw opposite conclusions. The LPC (LPC, 2015, p.269) took the view that a high rate was stopping employers taking on apprenticeships and that a substantial increase in the AR may increase non-compliance, which was already exceptionally high among apprentices. While the Government's specific rationale for choosing a higher rate was not stated in the press releases, the implication is that the AR was too low to attract candidates.

1.3 Previous work on the AR

Drew, Ritchie and Veliziotis (2015, henceforward DRV) reviewed previous work on apprentice pay, noting that there were significant differences between frameworks, and that analyses of the 2011 and 2012 APS carried out by the APS survey team showed extremely high levels of non-compliance[1].

DRV also analysed the 2011/2012 APS and 2013/2014 ASHE microdata, and had access to summary results from the 2014 APS. They concluded that, while there were problems with the APS data, non-compliance appears to be significantly higher for apprentices than for other workers. It could be argued that this is just the 'bedding down' of the Apprentice Rate (AR) introduced in 2010. However,

[1] For a more detailed analysis of the problems with the old APS, see Drew, Ritchie and Veliziotis (2014). DRV summarises key findings.

there does not seem to be much empirical support for this. All surveys (APS 2011, 2012 and 2014, and ASHE 2013 and 2014) show continuing high rates of non-compliance compared with other groups. Non-compliance is not limited to those on the AR, but also includes apprentices who are eligible for the age-applicable minimum wage; in fact, non-compliance is significantly higher for the latter group.

Hence, the higher rate of non-compliance for apprentices appears real and persistent. DRV used descriptive and multivariate analyses, but concluded that there was little which seemed systematically related to the probability of non-compliance. There were suggestions that being in the public sector, working for a large organisation, and greater job protection are indicators of compliant wages, but these results were not robust. Similarly, there were weak, but only weak, indications of sectoral differences. The exception to this was that apprentices who were eligible for the age-applicable minimum wage (aged 19 or over, and not in the first year of training) were more likely to receive wages below that minimum. This result was manifest across all data sources and all periods.

This raises the possibility that apprentices and/or employers do not understand the rules. A second possibility is that some or all understand the rules, but choose to ignore them – perhaps an apprentice is afraid of being fired, or has been told that a very low wage keeps the business going, or is just wanting to 'help'. Statistical analyses cannot distinguish between these effects.

DRV noted the surprising lack of correlation between 'awareness' of the AR and the probability of non-compliance. This may be due to the ambiguity of the question. The 2014 APS clarified the question and found that while around 62% of apprentices in Great Britain are aware of the existence of the AR, only 26% of them claimed to know the actual rate for apprentices (IFF Research, 2014; see also our own analysis below). This relative lack of knowledge of the exact AR means that, potentially, there is substantial scope for non-compliance. At the same time, it also begs the question of whether power relationships override statutory duties – one may be aware that one is paid below the rate, but be unable to address the problem.

Finally, training hours are problematic. Hourly wage calculations should take account of both off- and on-the-job training, as well as regular work, and there is a concern that not all of it is (and so the hourly wage is being overstated). DRV noted that only limited inferences could be made about the training from the APS 2011 and 2012, despite the detailed questions. In response to this ambiguity, the working hours and training questions were substantially modified in APS 2014.[2] ASHE has no data on training hours; DRV investigated whether training could be inferred from variation in paid hours between apprentices and others in ASHE, but could come to no robust conclusions.

In summary, there is agreement that non-compliance is significantly higher for apprentices than other groups; that non-compliance appears to be largely random (few robustly significant influences), apart from becoming eligible for the higher age-applicable minimum wage; and that data difficulties have limited the scope of the analysis.

[2] The APS 2014 respondents are now given the opportunity to record their total hours of work as an apprentice. Any extra hours of (either on- or off-the-job) training that is not included in their answer can be recorded in a subsequent question. See below and the Appendix 2 for further details.

1.4 Aims of this study

The previous statistical analyses identified where problems were occurring, but are of limited value in distinguishing between hypotheses. For example, on observing a non-compliant wage, there is no information allowing us to ascribe this to lack of knowledge on the part of the employer or employee, power relations, or economic conditions which might have led to this outcome.

DRV also highlighted the large difference between compliance estimates from sources; ASHE is consistently lower than APS. This is consistent with findings comparing general wage distributions from the Labour Force Survey (LFS) and ASHE, but the distribution of LFS and ASHE is similar, whereas the APS seems more attenuated at specific values.

DRV's analysis was limited by the availability of data. APS 2011 data were felt to be reliable, the APS 2012 data were not, and the APS 2014 microdata were not available; the latter are now available but the survey has been substantially revised to address methodological shortcomings making it difficult to compare estimates from the 2012 and 2014 surveys. ASHE 2013 was made available in 2014 after long negotiations with ONS, but the limited sample size meant only simple analyses could be carried out. ASHE 2014 was made available in late November 2014, and preliminary analyses could be done; but much of the richness in ASHE (particularly the use of longitudinal elements) was not used. DRV noted these limitations and proposed extending analysis on all five datasets.

Accordingly, this project has two aims: to provide evidence for competing hypotheses of why wages are being paid below the minimum; and to exploit the increased microdata. These lead to the research questions for this report, outlined below:

On understanding the previous analyses through qualitative research:

- Do apprentices/and or employers understand the laws on training hours?
- Are apprentices unaware of their rights, or are they aware but unable to enforce them?
- Are employers aware of the AR?
- If they are aware, do they know how it works/how to calculate it?

On extending the previous analysis through the use of more and better data:

- Why is there a gap between ASHE and APS estimates?
- Can a more detailed analysis of the data (especially the revised questions in the APS 2014) shed light on DRV's conclusion that non-compliance is largely random?

1.5 Methods

1.5.1 Qualitative analysis

The qualitative questions have been addressed by interviews with employers and apprentices (additional interviews were also conducted with college training managers and assessors, as well as employees who have been apprentices in the past). It is important to have both, as errors on the part of either or both are consistent with the statistical findings. DRV and previous reports for LPC have suggested that human behaviour is the major source of the non-compliance observed, not employment-related factors. Given this, and the short delivery period for this project, the team

focused on two sectors which appear to have the most compliance problems (and which are also of interest to the LPC): child care and hairdressing.

In line with Silverman (2013), the qualitative stage aimed to produce a deeper understanding of the data generated by the statistical analysis. The interviews provide rich data on explanations for non-compliance, awareness of apprentice rates in both apprentices and employer populations and the impact of training hours. In addition, in the case of children's care and hairdressing apprentices, this research aimed to analyse the experiences of vulnerable and marginalised groups of low-paid workers, and hence support policy interventions to address wage discrepancies for these strata of the labour market.

1.5.2 Quantitative analysis

The interviewing process collected anonymous data from apprentices via questionnaires, post-focus group. This provided some additional quantitative information, albeit without the quality control of a formal survey.

The main quantitative analyses in this report focus on the 2014 APS. As described below, we are confident that the methodology of the APS 2014 is a substantial improvement on that of the previous APS. A positive note is that many findings from the 2014 APS are similar to those of the previous studies, but they appear to be much more robust. Unfortunately, the opportunity to combine all APS datasets is limited by the lack of overlapping variables, and hence this report mainly focuses on the 2014 APS. However, some framework-level analysis, based on pooling the data from the three APS datasets, is also presented below.

The report also uses both the 2013 and 2014 ASHE data. Analyses showed very little qualitative difference between the two surveys, and hence they were analysed jointly, improving the sample size. ASHE 2015 data was made available to the research team in December 2015, and showed similar results. Hence, all three ASHE datasets are analysed jointly, mostly without distinction between years.

2. Quantitative analysis

2.1 Understanding the Apprenticeship Pay Survey

This section discusses the characteristics of the 2014 APS. Because the construction of hours and earnings variables is complex, Appendix A2 gives a detailed breakdown of the steps needed to create the data and of potential problem areas.

2.1.1 General aspects of the APS series

Table 2 describes the three APS, conducted in 2011, 2012, and 2014[3]. DRV analysed the first two of these in great detail, while this report is mainly based on the analysis of APS 2014. Important changes in the APS were undertaken for the 2014 round (following also recommendations made

[3] There were also apprentice pay surveys carried out in 2005 and 2007; these predate the NMAR and have a different structure, so have not been analysed in this project

from the preliminary work of DRV); these are outlined in IFF Research (2014, pp.33-34) and are pointed out in the text that follows when it is deemed necessary.

Table 2 Characteristics of the APS 2011, 2012 and 2014

Survey year	2011	2012	2014
Data collection period	June 1st -July 31st	October 15th -December 23rd	July 22nd -September 14th
Coverage	UK	England, Wales, NI	Great Britain
Post-processing sample size	6140 (England) 2041 (Scotland) 1997 (Wales) 842 (NI)	6507 (England) 1817 (Wales) 640 (NI)	5481 (England) 2162 (Scotland) 1724 (Wales)
Response rate	51.9% GB 7.9% NI	45.2% (England) 47.2% (Wales) 5.9% (NI)	43% (England) 48% (Scotland) 57% (Wales)
Relevant wage rate for data period			
AR	£2.50	£2.65	£2.68
16-17	£3.64	£3.68	£3.72
18-20 (YDR)	£4.92	£4.98	£5.03
Adult NMW	£5.93	£6.19	£6.31

Source: Drew et al. (2015) and IFF Research (2014).

Note that the data collection periods of the 2011 and 2014 surveys are better timed than the 2012 one. The 2012 survey took place just after the introduction of the new minimum rates in October 2012. This could be an important factor behind the substantially higher non-compliance rates observed in that year (see below and DRV): the pay cited by respondents may have referred to the previous pay period, so appearing non-compliant at the time of interview. No such concerns can be raised for the 2011 and 2014 surveys, since both took place close to the end of the respective minimum wage periods.

2.1.2 Sample selection for analysis

In the following analysis we focus on the APS 2014 sample of Level 2 and Level 3 apprentices for Great Britain as a whole. We drop observations with missing values for any of the variables that appear in the multivariate analysis of non-compliance that will be reported below, in order to keep a consistent sample of apprentices across all descriptive and regression analyses in this report. We also drop all cases for which hourly pay could not be calculated (see IFF Research, 2014). After these choices, we end up with a sample of 6,567 apprentices. This is the baseline sample in the analyses that follow. Due to the above restrictions, our estimates and reported results are slightly different from those appearing in the published APS 2014 report (IFF Research, 2014).

A second, more restricted sample is used in some analyses that follow, in particular in the analysis of the hourly pay distribution among apprentices. This restricted sample focuses only on those apprentices that provided a 'stated hourly pay' (variable 'e11' in APS 2014; see Appendix A2). After all the core pay and hours questions in APS, the interviewees were given the option to report, if they knew it, their gross hourly pay in a single question. Focusing only on those who answered this question further restricts our sample to 4,104 observations. Note that this is not the same as those

who stated their gross pay as an hourly rate, of which there are 517 respondents. Table 3 summarises the subsets:

Table 3 Number and size of analysis subsets

Total reporting data to allow an hourly wage to be calculated ('baseline sample'):	6,567
Subset of the baseline who said they had an hourly wage, and gave it (stated hourly pay sample):	4,104
Subset of the baseline who gave their gross pay as an hourly rate (hourly paid sample):	517

In all tables and graphs that follow we note whether the sampling weights available in the published survey dataset have been used or not for the calculations, tabulations, and estimates reported. As a rule, all calculations of sample means and descriptive statistics that are presented in order to draw inferences for the whole population of apprentices are based on weighted data. All the rest of the presented results, including multiple regression analyses, are based on unweighted observations.

2.1.3 Description of the pay distribution among apprentices

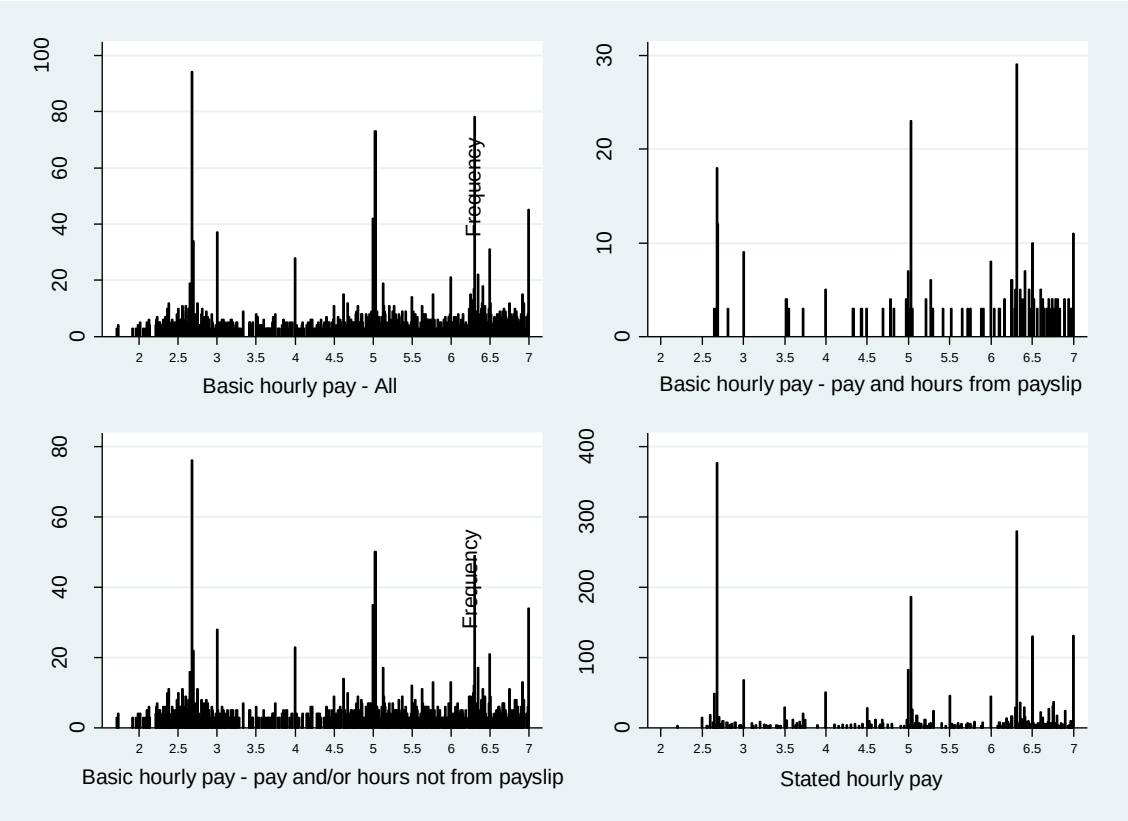
There are two main variables of pay calculated by IFF Research (2014) and used in their analysis. The first is a measure of the 'basic gross hourly pay'. This excludes all extra/overtime pay and hours and does not take account of any accommodation offsets, bonuses, tips etc. The second is a measure of the 'NMW gross hourly pay', which is calculated in order to accurately estimate non-compliance with the NMW legislation. To achieve that, all unpaid overtime hours and paid overtime hours remunerated at the standard rate are taken into account, while adjustments are also made for accommodation provision and charges (see IFF Research, 2014, pp. 34-35). Overtime paid at a higher rate, tips, bonuses and other such extra payments are not taken into account. We use this latter measure of hourly pay when we examine non-compliance in more detail below. For this section, we briefly focus on the basic gross hourly pay (using the restricted 'stated hourly pay' sample described above).

The measurement of gross hourly pay in the APS 2014 is a complex issue and depends on the way earnings and hours of work data are reported in the survey (see Appendix A2). Since it involves a series of calculations (e.g. conversions from net to gross pay, from monthly to weekly pay etc.), the resulting gross hourly pay may be calculated with considerable measurement error. DRV, Ritchie et al. (2014) and Fry and Ritchie (2013) discuss the details of such issues in great depth, based on the analysis of both the past APS surveys and other official data sources (ASHE, LFS etc.).

In contrast to the APS 2011 and 2012, APS 2014 includes a much lower proportion of direct hourly pay responses. This in part is due to a very substantial percentage of answers based on payslip information (46% in the examined sample in this section, 35% in the overall sample), which does not record a direct hourly pay for any of the apprentices. Because of this, the calculated gross hourly pay shows much more dispersion in these data than in APS 2011 and APS 2012. This is evident in the upper left panel of Figure 1. Even if we exclude the derived hourly rates that are observed less than three times in the data (as we do in all panels of Figure 1), the picture that we get is one of a substantial dispersion around some clearly identified spikes. These spikes are the legal NMW rates

that apply to apprentices (£2.68, £5.03, and £6.31), as well as some 'sensible' or 'focal' rates (Fry and Ritchie, 2013; DRV), such as £4, £5 etc.

Figure 1 Derived hourly pay, payslip information and the stated hourly pay



Source: Authors' calculations; APS 2014, unweighted data, stated hourly pay sample

An intuitive way to judge the accuracy of hourly rate calculations is to compare apprentices that report both pay and hours from their payslips with those that do not. This is similar to what DRV did by comparing hourly to non-hourly pay respondents in APS 2011 and 2012. The upper right and lower left panels in Figure 1 present this comparison. A much less dispersed and (seemingly) more accurate picture can be observed for those reporting both pay and hours from their payslips. It should be noted that all these rates are derived ones, since payslip respondents could not directly report a gross hourly rate. Nevertheless, a larger proportion of apprentices that use their payslip for providing both pay and hours of work information seem to earn an hourly rate that is either equal to one of the legal minima or to a 'sensible' number (see upper right panel in Figure 1).

As a further comparison, we also checked the distribution of responses in the additional question that asked apprentices to report directly their hourly pay (stated hourly pay – see above), if they knew it. Since we use the same sample of apprentices throughout in this section (based on those that do indeed provide a stated hourly pay), the comparison between the derived hourly pay and the stated hourly pay is a direct one and based on the same persons. By looking at the upper left and the lower right panels of Figure 1, the difference seems a startling one (note the different scaling on the y-axis): the stated hourly pay distribution shows a much smaller variation, with greater frequencies and proportions of numbers on the various legal minima and on some 'sensible' rates. This is

something to be expected and replicates the findings in DRV concerning their comparison between the hourly and non-hourly paid in APS 2011 and 2012.

2.2 Non-compliance

2.2.1 Overall non-compliance

Non-compliance with the relevant NMW rate in APS 2014 can be estimated through a more complex, but also more accurate, procedure relative to APS 2011 and 2012 (IFF Research, 2014). Questions about working and training hours have been improved and should be considered much more accurate, since it is now made clear to respondents what working and training is and how to arrive at a final answer concerning all relevant hours that should be remunerated. Also, unpaid overtime is now taken into account and included in the denominator of the formula that derives the gross hourly pay to be used for identifying non-compliance. Finally, if accommodation is provided by the employer, this is taken into account in the earnings measure. After all these adjustments, an 'NMW gross hourly pay' is derived for apprentices in the sample.

We start our analysis by presenting basic tabulations of non-compliance incidence. Table 4 shows all estimates of non-compliance from all available sources (APS and ASHE) since 2011[4]. Note that the ASHE estimates are lower than the official LPC ones. This seems to be because the LPC data is weighted; we have concerns about the ASHE weights (see below) and hence we use unweighted data.

Table 4 Overall non-compliance rates for apprentices

Eligible NMW	Non-compliance					
	APS			ASHE		
	2011	2012	2014	2013	2014	2015
AR (16-18 or first year)	11.2%	16.5%	10.2%	3.0%	2.4%	1.1%
YDR (19-20, second year)	46.9%	54.7%	33.0%	10.7%	13.4%	7.5%
Adult (21+, second year)	27.0%	35.5%	30.5%	5.4%	6.7%	5.8%
Overall	**19.8%**	**29.4%**	**15.8%**	**5.0%**	**5.5%**	**3.3%**

Source: Authors' calculations; APS 2011, 2012 and 2014, weighted; ASHE 2013-15, unweighted. Non-compliance rates in ASHE reported as a proportion of the sample of identified apprentices.

In our final selected sample from APS 2014, non-compliance is estimated at around 16%. The pattern of much higher non-compliance among second year apprentices noted by DRV for the APS 2011 and 2012 data is also apparent in the 2014 data; this is something also observed in ASHE. The APS 2014 survey also reveals a reduction in non-compliance relative to 2011 (the unusually high non-compliance estimated in the 2012 data is an unreliable estimate due to issues with the timing of the survey; see DRV for more details). However, it is difficult to conclude whether this represents an actual fall in non-compliance or just a difference due to the different survey structure and pay and hours questions in 2014. What is more certain is that the improvements in the 2014 survey provide some reassurance that the 2014 estimate is a more reliable one.

[4] Table 3 ASHE data for 2013/2014 differ from DRV due to different disclosure control treatment of small cells. ASHE data includes adjustment for rounding error; that is, we include as being 'at the AR' those who are paid a monthly wage and who have a stated wage rate at the AR but for whom the calculated wage is 1p below the AR (see DRV, p23 and Table 15).

Looking at differences in non-compliance based on the way pay and hours data were reported and collected in APS 2014 reveals some interesting findings. These indicate the importance of understanding measurement issues behind any estimate of non-compliance, particularly when that estimate is based on data reported by employees. Table 5 reports the estimates split by data source.

Table 5 Extent of non-compliance for apprentices, by APS source

	% of apprentices earning below their legal minimum
Baseline sample (*N*=6,567)	15.8%
Payslip respondents (*N*=2,698)	12.0%
Non-payslip respondents (*N*=3,869)	20.7%
Both pay and hours from payslip (*N*=1,074)	5.7%
Reporting hourly paid only (*N*=517)	3.8%

Notes: Source APS 2014, authors' calculations; weighted data

Importantly, factors that should improve reporting accuracy in pay and hours seem to lead to a reduction in non-compliance: respondents that used a payslip to answer their earnings questions are less likely to be non-compliant than respondents that did not use a payslip (12% versus 21%, respectively).

Moreover, non-compliance incidence is even lower if both pay and hours are reported directly from the apprentice's payslip: an incidence of around 6% is estimated among such apprentices. This may indicate that actual non-compliance is lower than the 15-16% headline rate found for the whole sample and reported in the first line of Table 4 and also in IFF Research (2014). In line with the findings in DRV, much lower non-compliance is also observed for apprentices that report an hourly pay. This should be expected from a measurement error perspective given that no extra calculations based on reported working and training hours need to be made in order to arrive at a gross hourly pay rate. As noted above, though, there are relatively few (517) people that provide hourly pay in the core earnings questions in APS. The small sample size means that we should be somewhat cautious in interpreting this result.

2.2.2 Reconciling ASHE and APS

The payslip-based APS figures are much closer to the ASHE data; see Table 6.

Table 6 Non-compliance rates for apprentices in ASHE

	2013	2014	2015
Hourly paid	5.1%	5.2%	3.1%
Not hourly paid	4.8%	5.8%	3.6%
Overall	5.0%	5.5%	3.3%
Sample size	1,508	1,863	1,982

Source: ASHE 2013-2015, authors' calculations, unweighted.
Rounding: adjustment made for errors in calculation made to monthly earnings; see DRV, p23

One concern of the LPC is that there is a substantial difference between APS and ASHE compliance rates. It is clear from Tables 5 and 6 that when information is taken directly from payslips (a subset in APS, and – in theory – all data in ASHE) the difference narrows or even disappears.

Hence, one reason for the difference between the two surveys may be measurement error caused by the lack of documentation. This would imply that ASHE is the more accurate measure of non-compliance, as all data collection is supposed to come from the pay records of the employer.

However, ASHE only appears to be identifying an unexpectedly small proportion of apprentices. ASHE is intended to pick up 1% of the working population; actual response rates are around 0.75%. In the case of apprentices, sampling rates are much lower:

Table 7 Sampling rates in ASHE

	2013	2014	2015
Registered apprentices in year	868,000	852,000	871,000
Estimated apprentices, point-in-time	592,000	581,000	594,000
Expected ASHE observations at 0.75%	4,400	4,358	4,455
Actual ASHE observations	1,508	1,863	1,982
Sampling rate	0.25%	0.32%	0.33%

Source: ASHE data, authors' calculation; registered apprentices from SFA (2015). Point-in-time apprentices estimated by adjusting to weighted APS estimate (581,000 in 2014)

In other words, the ASHE sampling rate appears to be less than half the expected rate if apprentices were sampled at the same rate as other employees. This is not a problem if ASHE is representative of the apprentice population, but this might not be true for four reasons.

First, the missing apprentices in ASHE are disproportionately likely to be low earners changing jobs frequently (see Knight, 2010). It seems reasonable that the observed ASHE sample is made up of individuals in more stable employment with well-established employers.

Second, APS respondents not using documentation to complete the survey may be the result of poor administrative practices on the part of the employer. This lowers the likelihood that, for example, the tax authorities will be made aware of an employee in a timely manner if at all, and so may not include them in ASHE. The lack of documentation may reflect cash-in-hand payment rather than traceable earnings.

Third, ASHE and APS data agree when payslips are being referenced, but employees in APS may not want to reference payslips if they are aware of being very low paid. This relates back to concerns about power relationships, where employees may accept unlawful wages as they believe this is necessary to retain their job. It could also be argued that employees in this position would simply lie about their wages, but this would imply higher compliance among those without payslips, which is not observed.

Finally, DRV observed that individuals who start an apprenticeship with their current employer are more likely to be paid at or above the relevant minimum wage. Individuals who remain at their employer for longer are more likely to be identified in ASHE, which uses "latest known employer" information from HMRC to trace respondents.

In summary, while the APS and ASHE broadly agree on the non-compliance rates for fully documented earnings, the low sampling rates for ASHE are likely to be biased towards compliant observations; hence, the ASHE non-compliance data can be taken as a 'lower bound' for non-compliance.

This perspective is supported by the qualitative analysis, reported below, which found that apprentices change employers much more frequently than they change courses. As the sampling frame for the APS is the Individual Learner Record (and hence the course), this suggests the APS is more likely to be representative of the apprentice population. This does also suggest that the sampling rate for the APS may fall when employer-managed training is brought in in 2017.

2.2.3 Non-compliance by relevant minimum

Table 8 gives a more detailed breakdown of the exact distribution of hourly pay responses for each subgroup presented in Table 5. We now tabulate the extent of non-compliance for each relevant minimum wage rate, looking also at percentages paid at or between the different rates. For example 2.1% of those in the whole sample which are eligible for the AR are paid it, whereas 14.3% of apprentices eligible for the AR are paid between the AR and the 16-17 year-old rate. Cells which indicate non-compliance are marked in dark red; cells which indicate compliance are marked in light green, while total non-compliance for each MW group is indicated in italics below the number of observations. The 16-17 year-old rate is not represented in the columns as 16-17 year-old apprentices are covered by the AR. However, this is included in the rows as apprentices may be (lawfully) paid this rate.

Table 8 Non-compliance, by relevant MW (APS 2014), various samples

(a) Baseline sample

Actual wage range	AR	YDR	Adult NMW
Under AR	12.7%	3.1%	1.9%
At AR	2.1%	0.2%	0.1%
Between AR and 16-17 Rate	14.3%	5.8%	1.3%
At 16-17 Rate	0.2%	0%	0%
Between 16-17 Rate and YDR	15.3%	21.2%	8.8%
At YDR	1.0%	3.9%	0.1%
Between YDR and Adult	16.2%	25.5%	17.2%
At Adult NMW	1.3%	0.5%	2.3%
Over Adult NMW	36.9%	39.9%	68.4%
Observations	5,016	670	880
Non-compliance	*12.7%*	*30.3%*	*29.4%*

	(b) Payslip sample			(c) Non-payslip sample		
Actual wage range	AR	YDR	Adult NMW	AR	YDR	Adult NMW
Under AR	11.0%	2.5%	0.7%	13.9%	3.6%	2.6%
At AR	2.0%	0%	0%	2.2%	0.3%	0.2%
Between AR and 16-17 Rate	14.9%	4.2%	0.7%	13.9%	7.0%	1.6%
At 16-17 Rate	0.1%	0%	0%	0.3%	0%	0%
Between 16-17 Rate and YDR	14.8%	17.7%	6.0%	15.6%	23.8%	10.2%
At YDR	1.2%	6.7%	0.3%	0.9%	1.8%	0%
Between YDR and Adult	16.3%	20.5%	13.3%	16.1%	29.2%	19.2%

At Adult NMW	1.4%	0.4%	3.3%	1.3%	0.5%	1.7%
Over Adult NMW	38.3%	48.1%	75.8%	35.9%	33.9%	64.5%
Observations	2,112	283	302	2,904	387	578
Non-compliance	*11.0%*	*24.4%*	*21.0%*	*13.9%*	*34.7%*	*33.8%*

	(d) Pay & hours from payslip			(e) Hourly paid sample		
Actual wage range	**AR**	**YDR**	**Adult NMW**	**AR**	**YDR**	**Adult NMW**
Under AR	3.6%	0%	0.7%	3.0%	2.0%	0%
At AR	2.3%	0%	0%	10.8%	0%	0%
Between AR and 16-17 Rate	10.3%	4.8%	0%	6.8%	4.0%	0%
At 16-17 Rate	0.4%	0%	0%	0.5%	0%	0%
Between 16-17 Rate and YDR	13.3%	8.7%	1.5%	9.8%	16.0%	0%
At YDR	2.0%	6.4%	0%	4.8%	10.0%	0%
Between YDR and Adult	16.1%	24.6%	8.9%	11.2%	28.0%	3.0%
At Adult NMW	3.1%	0%	3.0%	7.0%	2.0%	11.9%
Over Adult NMW	49.0%	55.6%	85.9%	46.3%	38.0%	85.1%
Observations	813	126	135	400	50	67
Non-compliance	*3.6%*	*13.5%*	*11.1%*	*3.0%*	*22.0%*	*3.0%*

Notes: Source APS 2014, authors' calculations; unweighted data.

Again, the pattern of lower overall non-compliance is apparent for apprentices reporting from a payslip (especially if they report both pay and hours from it) and for the hourly paid. What is also evident from this table is that these document-holding apprentices are more likely to have an hourly wage equal to some of the minimum rates (the AR, the 16-17 rate, the YDR, or the Adult NMW). For example, while only 1.8% of non-payslip apprentices eligible for the YDR are observed earning this rate (sub-table c), this percentage rises to 6.7% for payslip apprentices (sub-table b) and to 10% for hourly paid ones (sub-table e). Similar examples can be given for all relevant minimum rates. This reinforces our conclusion that responses using a payslip or reporting an hourly pay lead to a more accurate estimate of the hourly wage. A similar finding was reported for APS 2011 and 2012 by DRV, who compared responses between hourly and non-hourly paid apprentices.

It is worth noting that, for all groups and samples, most non-compliance occurs in the band just below the legal minimum, and reduces by several percentage points when payslips are used. DRV also noted the possibility of rounding/measurement error in ASHE data and accounted for that by allowing for a ±1p to be counted towards the relevant minimum rate in such tabulations and the estimation of non-compliance. To check this in APS 2014, and to see whether the number of individuals just below the MW is due to rounding, we allow for the same error for the whole sample and present the new numbers in Table 9.

Table 9 Non-compliance by relevant MW (APS 2014), allowing for ±1p error

	Baseline sample, raw			Allowing for +/- 1p		
Actual wage range	**AR**	**YDR**	**Adult NMW**	**AR**	**YDR**	**Adult NMW**
Under AR	12.7%	3.1%	1.9%	12.4%	3.0%	1.9%
At AR	2.1%	0.2%	0.1%	3.2%	0.3%	0.1%
Between AR and 16-17 Rate	14.3%	5.8%	1.3%	13.4%	5.8%	1.1%
At 16-17 Rate	0.2%	0%	0%	0.5%	0.3%	0.1%
Between 16-17 rate and YDR	15.3%	21.2%	8.8%	15.0%	20.5%	8.5%
At YDR	1.0%	3.9%	0.1%	1.4%	4.3%	0.3%
Between YDR and Adult	16.2%	25.5%	17.2%	15.7%	25.4%	16.8%
At Adult NMW	1.3%	0.5%	2.3%	1.8%	0.6%	2.7%
Over Adult NMW	36.9%	39.9%	68.4%	36.8%	39.9%	68.3%
Observations	5,016	670	880	5,016	670	880
Non-compliance	*12.7%*	*30.3%*	*29.4%*	*12.4%*	*29.9%*	*28.8%*

Notes: Source APS 2014, authors' calculations; unweighted data.

The changes are not very notable. One can now observe higher percentages clustered at each minimum rate, but the differences are not that large. In contrast to the ASHE 2013 and 2014 data (see DRV, p.23), allowing for rounding error in APS 2014 does not drastically change the distribution of hourly pay and, thus, the extent of non-compliance. A similar conclusion can be drawn for each subgroup in Table 7, if we allow for rounding error (results not reported).

Finally, it should be noted that only a small amount of underpayment occurs at one of the other minimum wages. This would suggest that the underpayment is not the result of payment at minimum wages being unchanged when the apprentices moves from one rate to another.

2.3 Awareness of NMW and non-compliance

The new APS 2014 included a series of improved questions concerning the awareness of apprentices about the NMW legislation and the minimum wage rate for apprentices (the AR). Specifically, all respondents were first asked if they have heard of the NMW. If yes, they were then asked if they are aware that there is a NMW rate for apprentices. If they responded positively again, they were finally asked if they know what this hourly minimum for apprentices is. Based on these questions, we construct four mutually exclusive categories of apprentices based on their knowledge of the NMW legislation. Table 10 reports the percentages belonging to each category, for each group of apprentices according to their relevant minimum.

Table 10 NMW awareness (APS 2014)

	All	AR eligible	YDR eligible	Adult MW eligible
Not heard of NMW	5.1%	5.3%	4.5%	4.6%
Heard of NMW	32.0%	32.3%	19.4%	35.4%
Aware of existence of AR	35.9%	34.8%	37.7%	39.4%
Aware of value of AR	27.0%	27.6%	38.4%	20.6%
Observations (unweighted)	6,567	5,017	670	880

Notes: Source APS 2014, authors' calculations; weighted data

It can be seen that most apprentices are at least aware of the NMW legislation in general. Only around 5% of apprentices (in all groups) have not heard of the NMW. However, only a minority of apprentices actually knows the specific value of the AR, with only around 28% of AR-eligible apprentices knowing its exact value. This surely seems a cause for policy concern, particularly if the aim is to effectively deal with non-compliance through increased awareness among apprentices in Great Britain. In contrast, the most knowledgeable group in this respect is that of the YDR-eligible apprentices (19-20 year olds, past their first year on the course), with about 38% of them knowing the specific rate (the AR might not apply to them, but they should have a rough idea having been paid a similar amount in previous years). Apprentices with the adult NMW as their relevant minimum appear to have the most limited knowledge of the AR value.

Turning now to the link with non-compliance, Table 11 presents non-compliance incidence, for all apprentices and for those eligible for the AR, by NMW awareness; for example, amongst those who have not heard of the NMW, non-compliance is 24% amongst all apprentices, and 17.3% amongst those who are eligible for the AR.

Table 11 Extent of non-compliance, by NMW awareness (APS 2014)

	% of apprentices earning below their legal minimum (all apprentices)	% of apprentices earning below their legal minimum (eligible for AR)
Not heard of NMW	24.0%	17.3%
Heard of NMW	15.5%	9.6%
Aware of existence of AR	12.4%	6.7%
Aware of value of AR	19.2%	13.9%

Notes: Source APS 2014, authors' calculations; weighted data

The highest non-compliance rate is observed for those apprentices that have not even heard about the NMW. Moreover, a more detailed knowledge of the NMW legislation and the AR seems to be related with less non-compliance incidence, both for all apprentices and the AR-eligible ones. In particular, among apprentices that are AR-eligible, non-compliance is as high as 17% for those that have not heard about the NMW, while it falls to less than 7% for those that are aware of the existence of a specific rate for apprentices. However, this almost linear relationship seems to break down when we focus on non-compliance of the supposedly most knowledgeable group of apprentices, i.e. those that additionally know the specific value of the AR (last row of Table 10). A higher non-compliance is estimated for this category, with around 14% of those eligible for the AR earning below that amount. It appears puzzling that those who knowing most about the AR appear to be have a higher chance of non-compliance. One explanation may be reverse causality: those who are being paid particularly low or non-compliant pay rates may have a greater incentive to find out the value of the AR, even if they cannot enforce their right to it. Additionally, it might also be explained by the specific personal, course and job characteristics of these apprentices. We return to this issue below, when we examine non-compliance using multiple regression analysis.

2.4 Multiple regression analysis of non-compliance and awareness

In this section we describe the results of different multivariate analyses of the data, which aim to identify the direction and relative importance of multiple variables in determining compliance, awareness and wage levels. As the statistical results are many, the detailed tables are given in Appendix 1 and are summarised here.

2.4.1 Factors associated with non-compliance

In this subsection we proceed by examining non-compliance in a multiple regression framework. This way we can identify which factors that seem at first sight to be correlated with non-compliance remain so when one controls for a range of other factors. The analysis closely follows that presented in DRV, but differs in some ways due to the differences in APS 2014 compared with past APS data.

A series of models of non-compliance were estimated, each one for a different group of apprentices. Specifically, we estimated a different model for each of the five groups shown in Table 5: for the baseline sample, the payslip sample, the non-payslip sample, the 'both pay and hours from payslip' sample, and the hourly paid sample. Since the dependent variable in all cases is a binary indicator of non-compliance, probit models are estimated via the maximum likelihood method for the first four samples. For the hourly paid sample, we estimate a linear probability model using OLS, since the sample size in this case is a relatively small one (*N*=517).

A series of personal, job, course and survey structure variables are entered in the model as the possible correlates of non-compliance (Table A1 in Appendix 1 presents the means of all variables for each of the five samples). Table A2 in Appendix 1 reports the whole range of regression results.

Starting from the three specifications which we judge as more reliable since they are based on a larger sample size (whole, payslip, and non-payslip samples), we can summarize the main results as follows:

- Gender and race do not seem to be significantly related to non-compliance incidence. A qualification can be made here for the male effect, since the male dummy acquires a large, statistically significant, and negative coefficient for the non-payslip specification. On the other hand, the 'white' coefficient is very small and insignificant throughout.
- Non-compliance is around 3-4 percentage points (p.p.) lower in Scotland than in England or Wales. This is a strong finding, consistent in all first three specifications.
- Another strong result is the higher non-compliance observed, *ceteris paribus*, for Level 2 apprentices relative to Level 3 ones. A difference though can be observed in this case between the payslip and the non-payslip sample: the effect is significantly larger in the second case.
- Due to the small number of apprentices (71 in the whole sample) with disabilities or learning difficulties, the effect of this variable appears inconsistent across the different specifications. It would be unwise then to draw any definitive conclusion regarding this variable, given also the imprecise estimate we get for the whole sample.
- A standard finding in previous research on non-compliance with the NMW among apprentices (see DRV and above) is the importance of the age/year of course interaction effect. Specifically, we first find that older apprentices that are eligible for the AR (because they are in the first year of their course) appear to be significantly *less* likely to earn an

hourly pay rate that is non-compliant. There is an almost linear relationship between age and non-compliance in this case. Second, apprentices aged 19 or over and in their second year of the course and, thus, eligible for a higher legal minimum than the AR, are *more* likely to experience non-compliance. The effect here is particularly strong: around 20 p.p. higher incidence of non-compliance is observed among apprentices aged 21 and over in Year 2 or above, compared with apprentices aged between 16-18 years and in their first year of the course. The pattern of these two results is similar in the first three specifications (1) to (3), where most information is not based on payslip data. Moreover, the consistency of this finding across all APS analyses points to important and policy-relevant conclusions: either a limited understanding by employers and/or employees of the rules governing the minimum wage for apprentices, or a conscious choice by employers to avoid the higher labour costs associated with older apprentices past their first year, are things that need to be addressed in order to achieve a reduction in overall non-compliance.

- Consistent with previous findings, as well as the tabulations provided in IFF Research (2014), the apprenticeship framework seems to be strongly related to non-compliance, even when a range of other factors is controlled for in a multiple regression setting. In particular, significantly higher non-compliance is observed in hairdressing and in children's care, while non-compliance is significantly lower in the more modern electrotechnical, engineering, business and management frameworks. These results are in general robust across the different specifications. They again point to the need for qualitative research to get a better understanding of the pay and hours practices in the more non-compliant frameworks like hairdressing, something that we contribute to in the second part of this report.
- There is evidence that some indicators of job quality are significantly related to non-compliance. Having a contract, being in a permanent post and having a longer tenure with current employer, are all negatively related to the probability of receiving a wage below the eligible minimum.
- Regularly receiving tips is not associated with non-compliance in our data. On the other hand, receiving bonuses seems to be negatively related to non-compliance. Since bonuses do not appear to be used (illegally) as a substitute for regular pay, this result may point to more profitable employers that offer higher quality and better remunerated jobs.
- Variables related directly to the calculation of hourly pay, as well as the questionnaire's design and structure, are also found to be significantly related to non-compliance. This points to the importance of measurement issues, a recurrent finding in analyses of the different APS rounds (see DRV). Higher reported basic and unpaid overtime hours are positively correlated with non-compliance; this is to be expected as our measure of non-compliant wages takes account of these unpaid hours. On the other hand, receiving accommodation is correlated with less non-compliance; remember that accommodation can be included in pay if it is provided by the employer. Among the whole sample, if information is provided by the payslip, and especially if both pay and hours are provided from it, this leads to a lower incidence of non-compliance, *ceteris paribus*. This confirms, in a multiple regression setting, the descriptive finding reported above and is probably related to a more accurate reporting of pay and hours information. Finally, the hourly paid (note that we can only observe hourly paid apprentices in the non-payslip sample) are less likely to be paid below their legal minimum rate: there is a ceteris paribus reduction in the probability of non-compliance of around 9 p.p. (or 11 p.p. in the non-payslip sample) for the hourly paid

relative to the non-hourly paid. This should be mainly related to the fact that not many extra calculations need to be made to arrive at the rate which will be judged against the eligible minimum rate for the identification of non-compliance.

- The results taken in the multiple regression framework concerning the relationship between awareness with the NMW legislation and non-compliance, differ a bit from the simple relationships we reported above. Specifically, having heard about the NMW does not cause a significant change in non-compliance relative to a situation where the apprentice has not heard of the NMW. What seems to matter more for non-compliance, and in the expected direction, is increased knowledge concerning the AR. Both apprentices that know the existence of an AR and those that know its value, are significantly less likely to earn a wage less than their legal minimum than those that just know about the NMW or have not even heard about the latter. A slightly bizarre finding (also mentioned in the previous section) has to do with the lower non-compliance observed among apprentices that are aware of the AR than those that additionally know the specific value of the AR. However, this difference is not as pronounced as in Table 11, and in the case of the non-payslip sample is not even statistically significant at a conventional level of confidence.

The above summarize the main results for the more robust specifications (1-3) reported in Table A2 in Appendix 1. As mentioned above, in addition to these specifications, we also estimated two models of non-compliance (see specifications 4 and 5) for two substantially smaller samples: one for those apprentices that report both their pay and hours from their payslip (*N*=991), and one for those that directly report an hourly pay in the core earnings questions of the survey (*N*=517). Although sample sizes are much smaller, this should be partly offset by the expected greater accuracy of the hourly wage. Perfect prediction and the possibility of obtaining inconsistent maximum likelihood estimates led us to estimate an OLS regression for the smaller hourly-paid sample, while perfect prediction meant that some observations and the relevant variables could not be used in the probit model of the hours-and-wages sample.

The above issues with estimation also mean that the results taken here should be treated with some caution. Nevertheless, what emerges from these specifications is a picture of more imprecision in estimates, with a lot more variables than in the first three specifications discussed above failing to achieve statistical significance at a conventional level of confidence. Some of the main results reported above are still observed though. For example, the importance of the age/year of course interaction can still be observed to a certain extent in the 'both pay and hours from payslip' sample, while the same is the case with the awareness variables in the hourly paid sample.

Some of the insignificant findings here may also mean that the importance of certain variables in explaining non-compliance no longer applies in these more specific samples. This is the case with some of the system/survey variables. For example, while basic hours and unpaid overtime hours are still negatively related to non-compliance incidence in the restricted payslip sample, this is not the case for the hourly paid sample. This is something to be expected: if there is some measurement error in non-compliance due to the way basic and overtime hours are reported, this fact should not affect the apprentices that directly report an hourly pay.

To conclude this section, the specifications on which we place more confidence (1-3, and 4 to a certain extent), seem to confirm and, thus, strengthen previous findings based on past APS surveys

(DRV). In particular, the importance of age and year of course in explaining non-compliance is a recurrent finding and surely a matter of policy concern. We also confirm here that some non-compliance is, at least to a certain extent, related to the way the hourly pay is calculated from earnings and hours data. Finally, the improved questions regarding awareness of the NMW legislation were used and pointed to an important finding: increased levels of awareness, and in particular knowledge about the existence of an AR, are negatively correlated with non-compliance incidence. The policy implications of this finding are obvious. In the following section we examine awareness in more detail.

2.4.2 Awareness

How does awareness of the existence of an AR vary with the personal, course, and job characteristics of apprentices? Since awareness is related to a lower incidence of non-compliance, it seems worthwhile to have an understanding of what determines it in the first place. For this reason, we estimated a series of simple probit models of awareness for the whole sample of apprentices and those that are eligible for the AR. The latter group is the most relevant one in this case, since it is the one that the AR applies to. Table A3 in Appendix 1 reports the whole set of estimates. For each group, we are estimating a model of 1) simple knowledge of the existence of an AR, and 2) knowledge of the specific value of the AR.

The first thing to note is that the results appear in general consistent across the two samples. This is something that should be expected, since a large part of the whole sample consists of AR-eligible apprentices (5,017 out of a total of 6,567 apprentices). Demographic variables are much more important in the case of awareness than in the case of non-compliance. Men are more likely to be aware of the existence of an AR and the specific value of the AR than women, while the 'white' coefficient is positive and significant only in the case of awareness of the existence of an AR. On the other hand, apprentices in Scotland and Wales are far less likely than apprentices in England to be aware of the NMW legislation concerning the AR. As we saw above, however, this does not appear to affect their non-compliance differential with apprenticeships in England. It should still be a cause for concern though, if the aim of policy is to limit any differences across different demographic and regional groups in order to raise the overall level of awareness.

Another important result concerns the knowledge of Level 2 apprentices. They are less likely than Level 3 ones to know the AR part of the NMW. This appears as a worrying result, since Level 2 apprentices are also more likely to earn a wage that is below the legal minimum. The results about the age/year of course interactions are not so clear cut and, also, not as intuitive as in the case of non-compliance. Lower awareness is observed for Aged 16-18, second year, and Aged 21+, first year apprentices than Aged 16-18, first year ones; however, these apprentices are also less likely to experience non-compliance than the latter group.

Framework differences are also not so pronounced in this case. We can observe a significant and substantial higher awareness among business apprentices than other frameworks, a group that also experiences lower non-compliance. On the other hand, we do not estimate significant differences for apprentices in the less compliant frameworks, *ceteris paribus*. Finally, it is interesting to mention the higher awareness of the specific value of the AR among the hourly-paid apprentices. Note, that these are also apprentices that appear to be less likely to be non-compliant, as the results reported above have already indicated.

2.4.3 Determinants of basic hourly pay

Up to now, we have mainly examined the hourly pay of apprentices only in relation to the eligible NMW rate and, hence, its compliance with legislation. In this section we look more generally at the determination of apprenticeship hourly pay. In particular, we use the log of the 'basic gross hourly pay' measure mentioned above as the dependent variable and estimate a standard log-linear regression model of the basic hourly pay on the usual range of characteristics available in the APS 2014 and used up to now in this report. Table A4 in Appendix 1 reports the full set of estimates.

When we move beyond non-compliance, the estimated effects of different demographic, course, job and survey characteristics on the basic hourly pay provide some new findings and insights. Male apprentices receive around 6% higher hourly pay than similar female ones. Note, importantly, that this difference does not depend on the differential sorting of males and females on high- and low-paying industries and occupations, since we control for framework in the model. However, we cannot really claim that we have identified some sort of gender discrimination, since there are still many unobservable personal, job and workplace factors that we do not take account of. The same is the case with the nearly 13% lower pay for those apprentices with disabilities or learning difficulties. As we saw above, these pay differences do not lead to higher non-compliance among these groups: the average pay of females and for disabled apprentices may be lower, but this does not lead to an increased probability of them being paid below their eligible minimum rate.

Level 2 apprentices are paid less than Level 3 ones, as expected, consistent with their increased propensity to receive a non-compliant hourly pay. On the other hand, apprentices in Wales and, mainly, Scotland, are better paid than similar apprentices in England. The result for Scotland is in line with the lower incidence of non-compliance across the Scottish sample.

Age and year, of course, depict a positive relationship with average pay. This is a picture that is relatively simpler than the picture shown above concerning non-compliance. For Age 21+ apprentices in their first year of the course, average pay is around 43% higher than that of Age 16-18, Year 1 apprentices. This pattern confirms the lower non-compliance among the older Year 1 apprentices. Average pay also increases with age for Year 2+ apprentices, but this does not seem to be enough to accommodate the increases needed due to the higher legal minimum that needs to be paid, hence the higher non-compliance among the older groups of Year 2+ apprentices.

Differences in pay across frameworks reflect different industrial, occupational and workplace pay structures and practices. Higher pay is observed in apprenticeships such as management, business, electrotechnical, and engineering, with significant pay premiums in customer services as well. On the other hand, significant and large pay penalties are observed in hairdressing and children's care. These average pay differences broadly correspond to non-compliance differences across frameworks.

Characteristics pointing to higher job quality are also related to higher pay, similar to their relationship with non-compliance. Having a contract, holding a permanent job and having a longer tenure with the employer are all positively and significantly related to hourly pay. Pay premiums of around 9-12% are associated with these characteristics. On the other hand, receiving tips seems to depress hourly pay, probably because tips are largely used as a supplement to regular pay by

employers. Receiving bonuses is correlated with higher pay; this reiterates the finding concerning non-compliance and may point to more profitable employers offering better remunerated jobs.

Measurement and survey characteristics are also correlated with average hourly pay. As expected, basic hours are negatively related to hourly pay, being included in the denominator of the formula that calculates hourly pay; unpaid extra hours are not as, in contrast to the 'non-compliant wage' used earlier, the hourly pay variable here does not use unpaid overtime.

An interesting finding has to do with the significantly higher pay observed for people that use a payslip to provide their information to the survey. Remember that we interpreted lower non-compliance for payslip respondents as an indication of more accurately provided information. Under-reporting of pay and/or over-reporting of hours may be more prevalent among apprentices that do not use a payslip in their answers. This may indeed be the case and also explain our finding here. A different explanation may point to higher quality employers and/or employees: these should be more likely to be found among apprentices that have and use a payslip in their answers. This may also support the argument that ASHE (all fully documented wages; see section 2.2.2) should be interpreted as a lower bound for compliance estimates.

Finally, there is a pay premium for apprentices that are aware of the existence of the AR. On the other hand, no such premium is observed for persons that know the specific value of the AR. This is a pronounced difference, not as in the case of non-compliance, and it may have something to do with the unobserved characteristics of the most knowledgeable group of apprentices.

2.4.4 Framework-level analysis

The purpose of this section is to pool the data from APS 2011, 2012, and 2014 and compare the pay, non-compliance with the NMW, and the characteristics of apprentices across the different frameworks. A comparison between the lowest and the highest paid frameworks (hairdressing and children's care versus management) also paves the way for the qualitative analysis that follows, which focuses on the hairdressing and child care sectors. We should note from the beginning that because of the need to harmonize the data across the different years and to keep as many observations as possible in each survey, the 2014 sample used in this section differs slightly from the one used up to now in this report.

In DRV's work, framework-level analysis was constrained by the fact that not many observations were available for each apprenticeship framework. This is no longer the case, since we now have three rounds of APS surveys to utilize. Pooling the data is a fair response, as this analysis and previous ones suggest that, although non-compliance measures are not comparable across surveys, the determinants of wages do seem common to all years. However, the changes in the survey design and questionnaire over the years mean that our analysis is constrained to the common variables; it cannot be as detailed as single-year analyses like the preceding one on the 2014 APS and is more likely to suffer from omitted variable bias; hence the results should be interpreted with more caution.

As a starting point in our analysis, Table 12 reports non-compliance incidence by framework and survey year. We have already noted the highest overall non-compliance observed in the 2012 data due to the timing of the survey; this distinctive characteristic of the 2012 data is also obvious when one looks at non-compliance by framework. Here, however, we are interested in the *relative*

differences (i.e. the different *rankings*) across frameworks and survey years, and not the absolute numbers. Such a comparison of relative rankings effectively controls for any differences arising from survey design and questionnaire changes across the three APS survey years.

Table 12 Extent of non-compliance, by framework and survey year

2011		2012		2014	
1. Hairdressing	47.7%	1. Hairdressing	68.6%	1. Hairdressing	45.1%
2. Construction	31.1%	2. Children's care	43.0%	2. Children's care	28.4%
3. Other	27.5%	3. Other	42.4%	3. Other	22.2%
4. Children's care	26.0%	4. Construction	41.9%	4. Construction	22.0%
5. Engineering	19.6%	5. Electrotechnical	31.0%	5. Electrotechnical	17.7%
6. Electrotechnical	19.1%	6. Business	30.5%	6. Engineering	16.2%
7. Business	14.6%	7. Health	21.0%	7. Business	13.9%
8. Hospitality	13.2%	8. Engineering	20.6%	8. Health	12.5%
9. Health	5.1%	9. Hospitality	19.0%	9. Retail	12.4%
10. Customer	4.7%	10. Customer	18.0%	10. Customer	11.4%
11. Management	4.4%	11. Retail	16.6%	11. Hospitality	9.7%
12. Retail	3.7%	12. Management	3.9%	12. Management	4.3%

Notes: Source APS 2011, 2012, and 2014, authors' calculations; weighted data.

Although some differences between years in the ranking of the different frameworks according to their non-compliance incidence can be observed, the broad ranking pattern appears quite similar. Specifically, hairdressing is consistently the sector appearing as the most non-compliant one, with a relatively large difference from the sector that is ranked second each year (construction in 2011, children's care in 2012 and 2014). The children's care, 'other' and construction frameworks always occupy the second, third, and fourth highest places, with 'other' consistently appearing in third place. On the other hand, retail, customer services, hospitality/catering, and management are always observed at the bottom of the rank with respect to their non-compliance. Management appears as the most compliant sector in two of the survey years (2012 and 2014), with retail taking that position in 2011. Finally, in the middle of the rank we can always observe the engineering, electrotechnical and business frameworks.

A relevant question that arises here is the following: are these differences across frameworks expected, given the different characteristics of apprentices and apprenticeship jobs in each one of them? A first answer to this question can be given by comparing the structural differences of apprenticeships across the different frameworks. Table A5 in Appendix 1 reports these differences by focusing on a specific subset of the independent variables we have used up to now in this report. Looking only at these specific variables is a choice dictated by the fact that these are the only ones available consistently in all three APS surveys. Note also the large sample size for each framework that can be obtained by pooling the data across the three years: sample sizes as large as 2,675 (for the Engineering framework) are now available.

There are some findings in Table A5 in Appendix 1 that appear consistent with the different non-compliance incidence across frameworks and the results of our analysis in the previous section concerning the correlates of non-compliance. Apprentices in the highest non-compliant frameworks are consistently lower-paid and younger, and are also less likely to have been working with their current employer before the apprenticeship started. The opposite characteristics are observed in the

lowest non-compliant frameworks. For example, 98% and 87% of apprentices in management and retail, respectively, have been working with their employer before the course started, compared with only 61% of apprentices in either hairdressing or children's care. Moreover, apprentices in management are overwhelmingly among the Age 21+, Year 1 group (77%), a group that is consistently found to exhibit the lowest levels of non-compliance (see Table A2 in Appendix 1). In contrast, the majority of apprentices in hairdressing are aged between 16 and 18 years.

Not all structural differences, though, appear consistent with the non-compliance differences across frameworks. For example, hours of work and training do not differ much between hairdressing and management, while overtime incidence is higher in the latter sector. Children's care apprentices also appear to be more likely to be hourly paid than management apprentices.

To examine, thus, how far the differences in characteristics can explain the differences in non-compliance, a comparison of frameworks using a multiple regression framework can be quite useful. In Table 13 we report results of different probit models of non-compliance, where the hairdressing indicator variable, which captures the highest non-compliance sector, is now used as the reference (excluded from models) category. In each specification, we gradually add the controls described in Table A5 in Appendix 1 as independent variables in the models. In this way we can examine how the size and significance of the marginal effects of the framework indicator variables change as structural differences between the frameworks are accounted for (see Table A6 in Appendix 1 for the full results).

Table 13 Non-compliance differences between hairdressing and other frameworks

	(1)	(2)	(3)
(Base: Hairdressing)			
Business and related	-0.1603***	-0.1594***	-0.0857***
	[0.0043]	[0.0043]	[0.0048]
Children's Care	-0.1079***	-0.1067***	-0.0000
	[0.0064]	[0.0064]	[0.0112]
Construction and related	-0.1294***	-0.1271***	-0.0858***
	[0.0054]	[0.0055]	[0.0050]
Customer Service	-0.1755***	-0.1744***	-0.0902***
	[0.0035]	[0.0035]	[0.0044]
Electrotechnical	-0.1379***	-0.1374***	-0.0914***
	[0.0050]	[0.0049]	[0.0046]
Engineering/Manufacturing	-0.1617***	-0.1598***	-0.1069***
	[0.0045]	[0.0046]	[0.0045]
Health, Social Care and Sport	-0.1758***	-0.1741***	-0.0817***
	[0.0037]	[0.0037]	[0.0054]
Hospitality and Catering	-0.1713***	-0.1697***	-0.0860***
	[0.0037]	[0.0037]	[0.0045]
Management	-0.1900***	-0.1885***	-0.1055***
	[0.0031]	[0.0031]	[0.0036]
Retail	-0.1807***	-0.1794***	-0.0851***
	[0.0034]	[0.0034]	[0.0052]
Other	-0.1214***	-0.1207***	-0.0559***
	[0.0057]	[0.0057]	[0.0069]

Controls			
Country and survey year	No	Yes	Yes
All other controls	No	No	Yes
Observations	20,018	20,018	20,018

Source: APS 2011, 2012, and 2014 pooled together and authors' calculations.
Notes: The table reports marginal effects of probit models calculated at the means of independent variables; unweighted data; standard errors in brackets (*** p<0.01, ** p<0.05, * p<0.1).

As expected, the differences in non-compliance between hairdressing and the other frameworks are reduced substantially as more controls are gradually added to the model. For example, the marginal effect of the management dummy is nearly halved in size in the "full set of controls" specification (compare specifications 1 and 3). However, large and significant differences between hairdressing and the rest of the frameworks still remain even if one controls for all observable characteristics (specification 3). The only exception to this pattern is the difference between hairdressing and children's care. The significant difference observed in the "no controls" specification (1) is fully accounted for by observable characteristics (the children's care dummy is insignificant in specification 3).

The above exercise shows the limits of any quantitative analysis in addressing in full the pattern of differential non-compliance rates observed across the different apprenticeship frameworks. In part, this can be attributed to the limited set of variables available in the pooled 2011-2014 APS dataset. Important variables such as NMW awareness or job quality characteristics cannot be used in the pooled analysis, due to non-availability across all the years. However, even if we had an extensive range of variables to work with, specific aspects of the reality concerning pay and hours practices, norms, and behaviours within each apprenticeship framework, would still be very difficult to quantify and measure with precision. The qualitative analysis that follows and focuses on the hairdressing and children's care sectors tries to cast some light on such aspects.

2.5 ASHE analysis

A preliminary analysis of ASHE 2015 shows the same patterns as 2013/2014 (as for instance in Table 8 above), but with markedly lower compliance rates. This may be due to an error in coding but none has come to light yet; and it is consistent with the lower non-compliance rates in the APS 2014 data, although these have been put down to better data collection.

Aside from the lower compliance rates, ASHE 2015 data tells almost exactly the same story as reported in DRV for the 2013 and 2014 data, including the effects of rounding during processing. As a result, we therefore pool the three years of ASHE data to investigate whether the increased sample size can shed more light on non-compliance in this dataset.

Table 14 below provides simple non-compliance rates for apprentices on the different wage rates. We include hairdressers as a separate group as we will study this group in the qualitative section. We cannot produce the exact breakdown for childcare as the ASHE data does not map exactly to the apprenticeship framework.

Table 14 Simple non-compliance rates in ASHE, by relevant wage rate

	Non-compliance rate

	AR	YDR	Adult	Overall
All apprentices	2%	11%	6%	4.5%
Apprentices, hourly paid	2%	10%	7%	4.4%
Apprentices, non hourly paid	2%	12%	5%	4.7%
Hairdressers, all	4%	15%	*	6.3%
Number of apprentices	3026	882	1445	5353
of which, hourly-paid	1700	510	729	2939
and non-hourly paid	1326	372	716	2414
Number of hairdressers	218	52	48	318

Source: ASHE 2013-2015 pooled, authors' calculations, unweighted. Insignificant values replaced by *

Table 15 reproduces the breakdown by MW rates in Tables 8 and 9 for ASHE data; we do not split it by the whole sample and hairdressers as numbers for the latter are too small to be meaningful. For comparison, we include the figures from Table 8(d), the fully-documented sample, which should be most comparable to ASHE and has the most similar over non-compliance rates.

Table 15 Non-compliance by relevant MW (ASHE and APS)

	All apprentices			APS documented		
Actual wage range	**AR**	**YDR**	**Adult NMW**	**AR**	**YDR**	**Adult NMW**
Under AR	2%	0%	0%	4%	0%	1%
At AR	14%	1%	0%	2%	0%	0%
Between AR and 16-17 Rate	19%	2%	0%	10%	5%	0%
At 16-17 Rate	1%	0%	0%	0%	0%	0%
Between 16-17 rate and YDR	16%	8%	1%	13%	9%	2%
At YDR	3%	13%	0%	2%	6%	0%
Between YDR and Adult	12%	25%	4%	16%	25%	9%
At Adult NMW	2%	2%	7%	3%	0%	3%
Over Adult NMW	30%	51%	88%	49%	55%	86%
Observations	3,026	882	1445	813	126	135
Non-compliance	*2%*	*11%*	*6%*	*4%*	*13%*	*11%*

Source: ASHE 2013-2015 pooled, authors' calculations, unweighted. Insignificant values replaced by 0

There is a noticeable difference here from the APS data. Many more apprentices in ASHE appear to be paid at exactly the correct minimum wage, even allowing for the fact that APS data has been taken from payslips. In contrast, the APS seems to show more individuals being paid at the 'between' rates. ASHE data is normally assumed to be accurate, as it should be taken from actual paid wages. Table 15 suggests that either (a) the accuracy of the payslip data in APS is only relative to the APS respondents, or (b) ASHE and APS are measuring different samples.

DRV noted that the ASHE apprentice data seemed to be particularly susceptible to rounding error. However, they did not consider whether the error was symmetrical around the MW (implying some random error in the data collection), or whether the same story held for those on other wage bands. Table 16 presents this information.

Table 16 Effect of rounding in ASHE

Relevant MW	Non-compliant	Non-compliant with error	At NMW	At NMW with error
Adult rate	1.1%	1.1%	3.5%	3.9%
Apprentice	5.4%	2.1%	10.4%	14.3%
YDR	2.1%	1.9%	6.9%	7.4%
16-17yo	1.0%	0.8%	6.4%	6.9%

Source: ASHE 2013-2015 pooled, authors' calculations, unweighted

The first two columns of numbers show the effect of allowing for a penny error when calculating whether a wage is non-compliant or not; the last two show the impact of counts at the relevant MW. For most groups the impact on the non-compliance rate is very small, and the impact on the numbers at the MW is larger, implying the observed data is being rounded down. However for apprentices the impact on non-compliance rates is much larger; allowing for 1p difference mostly implies rounding up.

We cannot identify a rationale for this differential treatment of apprentices. It may be something to do with the low absolute level of apprentice pay, but this would imply similarity with the 16-17yo rate, for example, which is not observed. In short, this is unexplained but it does affect ASHE apprentice pay estimates notably, and it does so in all three years.

Finally, regression analyses were run on the probability of non-compliance in the pooled dataset, including time dummies. These showed relatively little significant correlation; there was some suggestion that working for a larger firm reduced non-compliance, and that non-compliance is declining over time, but these correlations varied in strength across different specifications. The only persistently significant effect was the Year Two already identified.

In summary, the ASHE data broadly agrees with the APS findings, although less strongly. Confidence in the precision of the ASHE data allows us to confirm a noticeable rounding effect which affects apprentice pay more than others. The finding that ASHE data shows many more individuals being paid at exact MWs is not easily explained, unless it is evidence that APS data is not sufficiently accurate even when collected from documented sources.

3. Qualitative analysis

3.1 Data collection

In order to gain insights into the patterns which emerged from the statistical analysis of non-compliance in apprentice pay, more than seventy respondents took part in the qualitative stage of this research. Apprentice trainers, employers and apprentices were the key actors who commented on their experiences of non-compliance and their understanding of pay rates and training hours. Further interviews, for example, with existing employees who had already been through the apprenticeship process, as well as with the National Hairdressing Federation, were also conducted, in order to provide context and to check information.

3.1.1 Recruitment of the sample

Access to research participants was facilitated through a snowball sampling technique, which is an efficient way to identify research subjects who may be difficult to target directly, either because the sample is hidden or the research topic is of a sensitive nature (Atkinson and Flint, 2001; Browne, 2005; Bryman and Bell, 2011). The initial intention was to target further education colleges that were partnered with our own institution as a way of making first contact with college tutors. When this proved to be unsuccessful, direct contact with colleges where apprentices were taught was made. Through these colleges, access to apprentices and some employers was gained.

The extent to which our early sample was generalisable was called into question because we had used colleges to make initial contacts and, therefore, all interview participants were affiliated in some way to the college. As discussed above, we used a snowball sampling method to identify respondents; however, as snowball sampling relies on the use of social networks to identify respondents, this method has been criticized for leading to bias within the data as a particular sample will be selected (Van Meter, 1990). In order to limit the instance of this bias, and to speak to respondents who were unconnected to a college, a further set of apprentices, employers and trainers who were not affiliated with a college was contacted.

In order to recruit more employers for the research, we used personal networks to firstly identify hair salons and nurseries. We then asked owners and managers to suggest further employers and trainers who might speak to us. These employers also permitted us to speak to their apprentices, who, in turn, put us in touch with their contacts, thereby enabling us access to employees and apprentices who were not affiliated with any of the colleges.

In terms of apprentices, since the relationship between the apprentice and the college trainer/training assessor was cited frequently as being of importance, it was deemed important to speak to some apprentices who were not being trained by the college and, therefore, did not have the same contact with, or experience of being supported by a college. To these ends, five apprentices (2 childcare and 3 hairdressing) who did not attend a college, but were trained within their workplace, took part in the study. These apprentices were aged between 18 and 20, so we were able to collect responses from a range of apprentice levels.

The team also visited a number of websites where apprentices were commenting on work matters. These websites provided an additional source of contextual information and enabled us to identify key people to contact. We were then able to use these initial contacts to identify further research subjects, including apprentices, trainers, employees and employers.

In total, nine employers were interviewed and these came from a mixture of large and small salons. Employer interviews, as stated above, were organised through a mixture of college referrals personal contacts, recommendations and web searches. Some employers contacted did not want to be interviewed and responded with comments that suggested they did not understand the purpose of the research and that they felt there was an implication that exploring non-compliance was about apportioning blame:

"As an employer it's very easy to find all the information I need. The law is the law – doesn't matter if I am looking for apprentice laws about apprentice pay or laws about wages and health and safety laws in general. […] *I don't know what you are expecting to get out of this* (the research project)*".*

(Excerpt from telephone call with a salon manager)

"*I don't have time to do this. This is a busy salon […] we don't have any problems with pay rates here*".

(Excerpt from telephone call with a salon manager)

Whilst it would be easy to argue that employers did not want to be interviewed because they had something to conceal, comments like the ones above suggest that employers did not perceive pay to be an issue. This fits with our finding presented later that, whilst employers believe pay rates to be relatively straightforward, they make mistakes through lack of awareness or carelessness because they do not realise that the amount to be paid to a trainee shifts as apprentices become older and/or go up a level.

A number of employees who were prepared to participate were also identified. The aim of these interviews was to put the apprentice-employer employment relationship within a wider context by speaking to individuals who had already completed the apprentice process. In total, twelve short semi-structured interviews (10-20 minutes) were conducted with salon workers and childcare workers. Of these respondents, in the hairdressing sector, three were senior stylists, three were recently qualified stylists and two were working in other salon roles. For childcare, four interviews were conducted with employees who had completed an apprenticeship within a three to five year period. One final interview was conducted with a former hairdresser who had left the profession in the last five years. Respondents were asked to comment on their past experiences, as well as their impression of the current situation surrounding apprentices and pay rates in their own workplaces. These interviews also provided an opportunity to check information and to gain a further perspective on some of the areas where conflicting information had been gathered from, for example, employers and apprentices.

Two final interviews were carried out at the end of the interview process. Firstly, we spoke to an accountant who provided payroll services to a hair salon, in order to gain some understanding of the extent to which information around apprentice pay rates was readily available and accessible. Secondly, we conducted a telephone interview with the CEO of the National Hairdressers Federation, in order to discuss our findings and to check for clarification.

3.1.2 Focus groups and interviews

Table 17 below provides an overview of the interviews and focus groups conducted during the qualitative data collection process.

Table 17 Qualitative study numbers

Group	Method	Number	
		Children's care	Hairdressers
Provisioning managers	Semi-structured interview	2	1
Trainers/training assessors	Semi-structured interview	2	7
Apprentices	Semi-structured interview	2	3
Apprentices	Focus group and questionnaire	9 (1 f.g.)	24 (2 f.g.)
Employees	Semi-structured interview	4	8
Employers	Semi-structured interview	3	6
Other interviews	Semi-structured interview	2	
Total number of respondents		73	

Apprentices were predominantly interviewed in focus groups. As well as allowing more apprentices to participate, it also addressed concerns that the individuals were likely to be quite reticent in a single-interview format; group sessions encouraged dialogue between participants. All of the focus group participants were asked to complete a questionnaire, although there is clear evidence of a small number copying others.

In order to facilitate the semi-structured interviews, a short list of question topics was sent to the different groups of interviewees in advance. The aim behind providing these topics was to give focus to the interview in advance (Bryman and Bell, 2011). Moreover, this approach enables respondents to prepare themselves and limit the extent to which they might be apprehensive about engaging in conversations around sensitive topics. The pre-interview list did not contain a fixed set of questions; nonetheless, the interviews followed the broad structure of topics. The topics include:

- Awareness of the Apprentice Rate and minimum wage;
- Pay composition;
- On and off-the-job training;
- Employment contracts;
- Experience of apprenticeship;
- Quality and availability of work experience.

As Table 14 indicates, substantially more interviews were conducted with respondents from the hairdressing industry (49) than from the children's care sector (22). Whilst we aimed for a balance between the sectors, it was much easier, for example, to gain access to salons than to nurseries, possibly due to the nature of the childcare sector.

Interviews were recorded and partially transcribed. Instead of utilising qualitative software in order to code and classify the data, data analysis was thematic, based on a pragmatic approach to grounded theory (see, for example, Charmaz and Mitchell, 2001). This method is more closely aligned to the interpretivist perspective of qualitative research and fitted well with the overarching aim of the qualitative research to fill in the gaps around the quantitative data.

3.1.3 Generalisability of the research

The importance of maintaining the generalisability of the sample has already been discussed in the above subsection, as we considered the importance of *who* we identified as respondents. Nevertheless, generalisability was also an initial concern related to *where* to collect the data. Our previous LPC research did not encounter geographical effects, or any specific regional differences for non-compliance in the data; nor did a previous LPC study by Ritchie et al. (2014). Both suggested that common human responses are more important than location, industry, occupation and so on. Therefore, interviews were conducted in the South West of England and the sample in the South West was taken as generalisable.

However, once the interviews began, it became clear that experiences in the urban South West area chosen for the initial data collection were relatively similar. Some interviewees suggested that more rural areas would have different experiences, consequently, additional interviews were conducted in another region of the South West where the labour market is looser and unemployment rates are higher. As it will be discussed, we did encounter some differences in responses between rural and urban areas.

3.2 Research findings

This section presents the findings from our qualitative research. In the first instance, we present some of the findings which have come from the apprentice questionnaire, administered to apprentices during the focus group sessions. These questionnaires have significant implications for our research findings. We then present the results from the interviews and focus groups.

3.2.1 Questionnaire results

The 33 apprentices who took part in the focus groups were asked to fill out a questionnaire on pay, to be completed anonymously before the focus groups began. The questionnaire was intended to be completed individually; however, the majority of apprentices conferred or asked the trainer for help. When we collected the questionnaires, it was clear from the way the answers were worded that there was a substantial amount of copying or collusion. Questionnaires contained the same answers despite the fact that each apprentice worked at a different salon, nursery or crèche, and had worked different hours. Table 18 outlines the responses gathered.

Table 18 Apprentice questionnaire data

	Hairdressers	Children's care
Number	24	9
Age 16-18	19	4

Age 19+	5	5
Year 1	14	2
Year 2+	10	7
Paid below MW	8	1
Paid at MW*	3	2
Paid above MW	11	6
Don't know pay	2	0
Non-compliance rate	36.4%	11%

Note: * two wages of £3.29 and £5.29 assumed to be compliant at £3.30 and £5.30 respectively

The non-compliance rate for hairdressers is similar to the APS rate, whereas that of childcare is lower. These figures should be treated with caution as, as well as being small numbers, there is clear evidence of a number of apprentices copying from each other to complete the form. In addition, wages were gathered at various levels (hourly, weekly, monthly) and are likely to be subject to rounding errors.

Training hours varied. For the hairdressers, 6 hours per week (or one day) off-site seemed to be the norm, although this was as low as 1.5 and as high as 8. Most hairdressers reported 2-3 hours of on-site training, but several suggested that it was variable. Childcare workers mostly reported 4 or 6 hours per week off-site, but 8 out of 9 reported no on-site training.

The apprentice questionnaires demonstrate the extent to which there is a lack of knowledge around apprentice pay rates for apprentices. Even though the form was very simple to complete, apprentices needed to collude and produced almost identical answers. Consequently, the questionnaires suggest that misreporting might be behind some of the non-compliance we have found because, as discussed below, there is a distinct lack of awareness amongst apprentices around pay.

3.2.2 Interview and focus group findings

Awareness of pay rates

There was general acknowledgement that hairdressing and childcare are low paid sectors. In the hairdressing sector, the consensus between training assessors, managers and salon workers is that employers will try to pay as little as possible and that low pay is woven into the culture of the industry.

"Salons want to pay the least they can get away with"

(Hairdressing training assessor)

"Without us, they (other salon employees) wouldn't be able to do their jobs. I'm surprised they don't feel guilty (that apprentices receive low pay)".

(Year 1 hairdressing apprentice)

Employer interviews suggested that salon owners and managers felt justified in keeping apprentice pay as low as possible. Small salon managers referred to the overall costs of running a salon and the importance of keeping wage bills as low as possible. Low pay for apprentices was justified by another employer who pointed to the value of the experience, as a hairdressing apprenticeship combines on-the-job training, with real salon experience and a qualification at the end:

"What the apprentices get from us is a lot. [...] it's very labour-intensive [...] they shouldn't be paid a lot".

(Salon owner)

This stance that the overall benefits of apprenticeships overshadowed the challenges of extreme low pay in the early years was echoed by one of the college trainers:

"In this job, you start at the bottom. It's three, four years and then you can really see the value of the qualification. I tell the girls 'don't give up; it's worth sticking out these first years' and everyone's been in the same boat".

(Hairdressing trainer)

Colleges preferred to work with existing employer partners because this minimised the extent to which they had to deal with bad practice and, in the urban South West, both parties indicated that there were positive relationships between colleges and employers. Consequently, it was not surprising that training assessors and apprentice managers interviewed in the urban South West colleges were unaware of any non-compliance among their students. Only a small number of training assessors said they were aware of a few isolated cases where employers had been taken to court. In the rural areas, however, the picture was different with apprentice managers indicating that they had had to tackle several cases where apprentices were being paid incorrect rates. Predominantly, these errors occurred when apprentices turned nineteen. A childcare trainer from a college in the rural South West commented:

"I notice that nineteen seems to be an issue and employers can get it wrong. Twenty-one confuses them as well. Do we pay National Minimum Wage or is it still apprentice rate?"

(Childcare trainer)

The year 2 effect, where the apprentice pay rate increases, has already been flagged up by the quantitative research. A lack of awareness of this was also apparent in the qualitative research, as well as issues with apprentices reaching nineteen years. The National Hairdressing Federation (NHF) suggested that the impact on pay levels resulting from age and/or level of apprenticeship were grey areas for employers because of the way in which employers perceived apprentices:

"In the employer's eye, an apprentice is an apprentice. […] All they say is an apprentice doing the same job whether they are 18 or 19. An apprentice is an apprentice!"

(CEO, NHF)

Focus groups with apprentices indicated the extent to which low pay in general, rather than consideration about the amount they were actually being paid, was more of an issue amongst apprentices. In other words, apprentices were more concerned about the total wage than the hourly rate. The majority of apprentices were particularly vociferous when it came to the types of tasks they had to undertake at work and believed that they should be paid more for doing these jobs:

"We are professional cleaners and professional cleaners get paid more".

(Year 1 hairdressing apprentice)

"I get all the end of the day jobs, all the clearing up which takes ages and nobody helps me".

(Year 1 childcare apprentice)

"We work hard, long hours for rubbish money. We do most of the stuff that the fully trained staff do".

(Year 2 hairdressing apprentice)

Whilst all apprentices agreed that low pay was the worst part of their job, focus groups revealed that apprentices had a very poor level of knowledge about what they were actually being paid. In many cases, apprentices were surprised that they were being asked questions about pay and struggled to calculate the hours they worked. As discussed above, the questionnaire administered revealed this lack of knowledge.

Whilst tips should not be included in wage calculations, it was still important to check whether these were being taken into account as tipping is central to some service sector roles such as hairdressing. Hairdressing apprentices did not count tips in their wages as these were both irregular and very low (20p - £1):

"We don't know what we are going to get so we don't add tips into our wage."

(Year 2 hairdressing apprentice)

What was interesting here was the extent to which questions about tipping resulted in outcries of pique from hairdressing apprentices. When salons customers gave gratuities, these tips typically were given to the stylist rather than to trainees. This was a source of contention among apprentices as they claimed they did the hardest jobs:

*"This customer was in and I did everything for her. I washed her hair, I did the colour, I made her coffee, I brought her magazines...yeah, I did everything. She was in…umm…for about three hours and it came to well over £100.Then along came the stylist…snip, snip, snip [*mimes cutting hair quickly*]. She got a £10 tip. I got nothing".*

(Year 2 hairdressing apprentice)

However, many trainers pointed out that being perceived of a lower status was part of the process, whereby in the sector, hairdressers had to start at the bottom and work their way up, in order to command the tips. The fact that apprentices were usually overlooked when tips were given was also discussed as being an inherent part of the low pay culture around the sector. Again, interviews featured the same argument utilised by trainers when discussing the nature of tasks apprentices were typically given. A former hairdresser made the following comment, indicating that these concerns were fairly representative of what happened within the hairdressing sector:

"I always tip the trainees […]. They stare at the money like I must have made a mistake. I only do if I think they've done a good job, of course, and they seem pleased to get a good tip. I hated working for such low money when I was an apprentice. I had no money to go out after I'd paid the rent and I could hardly afford to buy food. […] Tips are really essential when you're on such low pay and it's unfair these apprentices get overlooked".

(Former hairdresser)

The majority of childcare apprentices were paid for attending out-of-hour meetings. Hairdressing apprentices were expected to cover for absent colleagues, but all said they got paid for this or hours in lieu. Childcare apprentices reported having regular breaks during the day in direct contrast to the hairdressing apprentices, where breaks were generally often not taken. As an existing childcare employee commented, the structure of the day and the nature of the daily routine at a nursery make it more possible to schedule in breaks. In comparison, hairdressing apprentices, existing employees and employers all spoke of the unpredictability of a day in a salon:

"*I might be rushed off my feet or it might be a Wednesday afternoon and its dead quiet*".

(Year 2 hairdressing apprentice)

Therefore, despite there being a stipulation that breaks should be taken, most hairdressing apprentices said that they did not feel comfortable being seen sitting about and taking a break:

"*I tend to hide in a corner and eat my sandwich as fast as possible*".

(Year 2 hairdressing apprentice)

Many hairdressing apprentices reported that missing breaks during busy periods was the nature of the sector. Training assessors advised apprentices to go off site, in order to be able to take the time.

First year hairdressing apprentices, although slightly more knowledgeable about their pay rates than the childcare apprentices in Year 1, displayed a lower level of awareness than second year apprentices. In general, however, overall awareness was not high, with the majority of all hairdressing apprentices unsure about apprentice pay rates and their own pay.

Checking pay rates amongst apprentices

As a lack of awareness around the correct hourly pay rates emerged very quickly within the focus groups, it was necessary to find out how much apprentices knew about their pay in general and how they would go about checking if they believed that they were being paid the incorrect rate. Moreover, it was useful to check if there was an awareness of the tools available to apprentices to check pay.

The support offered by colleges was a key factor in awareness of pay rates. It had been suggested that colleges would not welcome debates around apprentice pay rates being discussed with their trainees. On the contrary, trainers used the interviewer's presence as a lead into checking wages and discussing good practice. In one college, the interviewer's presence was very much welcomed as a way to check with first year apprentices if their salaries were right and if they remembered what they had learned about wages. Colleges covered calculating pay rates at the outset of the apprenticeships:

"*We do a maths lesson where apprentices learn how to work out their hours and pay*".

(Hairdressing trainer)

"*I spend a bit of time showing them the minimum wage calculator on the internet so they know where it is if they need it!*"

(Childcare trainer)

A key difference between the hairdressers and childcare trainees was that around half of all hairdressing apprentices interviewed said that they discussed their pay with friends or with the college. Childcare apprentices seemed especially incurious about their pay and when asked how they knew if their pay was correct, the majority said they did not know if it was right.

"*It* (salary) *just appears in my bank account at the end of the month*".

(Year 1 childcare apprentice)

When asked how they would go about checking if they were paid the correct hourly rate, the responses from first year childcare apprentices further underlined the lack of awareness:

"I wouldn't check".

"I'd ask (name of trainer at college)*".*

"I'd ask the others".

When pressed for an answer, first year childcare apprentices overwhelmingly replied to the question about how to check their pay rates by stating that they would check with friends or the college. Unlike the childcare apprentices, more than half of the hairdressing apprentices were able to explain how to go online and check on the relevant website. This suggested that, even if awareness of actual

pay amounts was limited, these hairdressing apprentices at least were aware of the need to check their pay and had some mechanisms in place to do so.

There was some awareness of online support for checking pay rates by the Government but, as the above paragraph suggests, the majority of apprentices were not accessing the online national minimum wage calculator, nor were aware of its existence.

In terms of the childcare apprentices, we were interested to explore what was behind the lack of knowledge about pay rates and the lack of desire to have the knowledge. Initially, it seemed that this apathy might be related to a lack of commitment to the apprenticeship, or even a limited interest in the experience so far, as these respondents were in their first year. However, further questions revealed that the main reason that Year 1 childcare apprentices did not feel compelled to have a greater understanding of their pay was that they trusted their employer to pay them the right wages.

"I trust the nursery to pay me the right money".

"Why wouldn't they pay me the right wage?"

The second quotation illustrates the element of surprise at being asked about pay which was present in many of the focus groups.

Conversely, the element of trust cited by childcare apprentices within the employment relationship was missing from many discussions with hairdressing apprentices. Hairdressing apprentices, as is also the case with childcare apprentices, described their relationship with their college as being based on trust, but did not speak of trust when discussing their employer. This seems to fit with the suggested characteristics of the hairdressing sector: the extent to which salons might be perceived as unscrupulous and that hairdressing apprentices become almost socialised into a low pay culture.

First year apprentices were, in general, apprehensive about broaching the subject of pay with their employer and, consequently, colleges, especially in the urban areas, had strategies in place to support apprentices who were nervous about entering into a discussion around pay:

"They (apprentices) *don't want me to go in* (to the salon) *with them* (in order to discuss pay) *but there's lots of things I can do if I find out an apprentice might be paid the wrong rate, for example, they've just had a birthday. I've got leaflets that they can take into work with them and then casually say 'I got this from the college and it was my birthday last week, so I think this means I should have a pay increase'".*

(Hairdressing trainer)

In the rural areas, however, we got some different responses regarding how to support apprentices who might be incorrectly paid, suggesting that not all colleges have such close relationships with the apprentices:

"*We've got a liaison officer who they* (apprentices) *can go to. Or I direct them to the gov.com. But I sit on the fence. I have to*"

(Childcare trainer)

Apprentices in their second year tended to be more confident around broaching the subject of pay with their employer. Employers at salons where apprentices were trained at the local college also noted a greater likelihood of awareness of pay rates:

"They'll come to me and say 'I'm 19 next week'. They are quite savvy".

(Salon owner)

Employer perspectives on apprentice pay

To begin, employers were insistent that the set pay rates for apprentices were relative to the tasks and the amount of experience gained through an apprenticeship. Having said this, as apprentices tend to start their training later than in the past, this change has placed burdens on employers because, as one employer argued, older apprentices cost more and need to be paid a higher wage in their second year, which makes wage bills higher:

"Schools are encouraging them (young people who become apprentices) to stay later and then they realize that they aren't cut out for academics. So they come to us at eighteen. [...] This (hairdressing) *used to be a default rather than a chosen career".*

(Salon owner)

Some salon owners were also concerned that the National Living Wage would create further financial pressures for them:

"Whilst I agree obviously that people have to be paid a decent wage, it squeezes us small salons. Wages go up but the public won't pay. [...] I say fifty pounds for a haircut and out of this the stylist earns x pounds but then the customer won't pay fifty pounds. […] Lots more small salons are going to go out of business".

(Salon owner)

Apprentice and trainer interviews suggested that employers are not always conversant with pay legislation which might result in non-compliance as a result of error. Colleges in rural areas were more likely to be aware of non-compliance happening and, again, the year 2 problem was raised. The focus groups with apprentices revealed that apprentices were subject to a number of mixed responses from employers during conversations around pay:

"I *mentioned it to my manager* (that the apprentice had turned 19 and, therefore, need to have her pay increased) *and she got funny*".

(Year 1 hairdressing apprentice)

"*My boss is new to this […] she said I had to get in touch with payroll*".

(Year 1 childcare apprentice)

"*When I told my boss that I was going to be 21, she wasn't sure whether this would mean that my pay should go up so she….well, it took some time to sort out….but I'm like the oldest apprentice there and I think I am one of the first so she wasn't sure*."

(2nd year hairdressing apprentice)

The above comments suggest that not all employers are completely aware of the correct pay rates for apprentices. The comments also indicate that mistakes are not the result of an unscrupulous attempt to pay the wrong wages. Trainers and some employers also expressed similar views on this lack of awareness. College trainers argued that employers may be unsure about how much to pay apprentices, suggesting that employers benefitted from close relationships between the college and the employer:

"*Without us* (the college giving information)*, they wouldn't get it right*".

(Hairdressing trainer)

"*Employers find this* (apprentice pay information) *hard to understand*".

(Hairdressing trainer)

Interviews with employers provided further evidence that there is a lack of awareness or even recognition that there is room for error in calculating pay rates. In the first instance, the employers in our sample overwhelmingly argued that they had good knowledge about what they should pay their apprentices and were clear that they knew where to go to find the relevant information:

"*All the info we get comes from online. It's very easy to find*"

(Salon manager)

"*I can always lean on other people, such as payroll or the Hairdressing Federation*"

(Salon owner)

"*The National Hairdressing Federation is pretty conversant and we get regular updates*".

(Salon owner)

The above comments would seem to suggest that any non-compliance in pay rates *must*, therefore, be the result of deliberate choice by employers. But even the National Hairdressing Federation agreed that there was sufficient space to make mistakes within the application of the law:

"On the surface, it looks very simple"

(CEO, NHF)

Therefore, despite claiming that apprentice pay is straightforward and that employers are able to access information on pay rates easily, the majority of employers freely admitted that understanding the legislation around pay was often difficult to grasp and many used an accountant to manage their payroll.

The use of an accountant to look after the payroll called into question whether any non-compliance in pay may be the result of mistakes made by an accountant who was not fully conversant with the legislation. However, an interview with an accountant who works for a hairdressing salon indicated that she had access to the correct information published by the Government and was kept updated about any changes to the legislation. On the one hand, this suggested that using an accountant to manage payroll would limit the extent to which mistakes could be made. On the other hand, this also raised questions about the extent to which employers were proactive in keeping their accountants up to date with the pertinent details of their apprentices (birthday, year of apprenticeship etc). As we had already noted that employers often made mistakes about this information themselves, it did not seem very likely that they could be trusted to pass on the correct information at the correct time.

As previously highlighted, there was a suggestion of geographical variation between the urban and rural areas of the South West with a small number of training managers from the rural colleges having witnessed some tribunals around pay. Since the managers and salon owners in our sample had agreed to participate in our study, it was not surprising that they displayed good practice and that we were unable to find any concrete evidence of non-compliance. In order to gain more insights into how and why non-compliance might occur, we asked questions where there might be evidence of poor work practices:

> *"Some hairdressers ignore paperwork … […] any modern salon that can hold its head up should be aware* (of pay rates)*".*
>
> (Salon owner)

College trainers advised that many small salons were run by young managers who had little experience of running a business. Therefore, the age of small salon owners was a further explanation for why error may occur:

> "*Some employers are young and don't know the legal issues. They come and ask us for advice because they don't have enough knowledge and experience themselves when they are new to running a salon*".
>
> (Hairdressing assessor)

An interview with the CEO of National Hairdressing Federation (NHF) provided some useful context to the hairdressing sector. The CEO suggested that of around 40,000 barbers and hair and beauty salons, only around 5000 are members of the NHF and, amongst the hair salons, it is usually bigger salons that become members. NHF affiliated salons receive regular updates about changes to legislation, especially pay rates and how to implement these, and member salons were described as "good employers".

The hairdressing section is dominated by small businesses[5] and small salons are less likely to join the NHF because of the high membership fees, despite college trainers advising salons to become members. We were interested in finding out if there might be a greater likelihood of non-compliance amongst the small salons that did not join the NHF. Many of these salons, the CEO explained, were

[5] The NHF CEO estimated that with 93% of salons have ten or less employees.

"fly by night", "low cost" providers who "flout the law and get away with not paying anything". Whilst the HMRC attempt to limit and prevent non-compliance, "reputable salons are the ones that tend to be chased and held up if they make a mistake". The latter comment is interesting as it suggests that, on the whole, (observable) non-compliance may be the result of error and this fits with our findings.

Apprentice training

Aside from issues around awareness of pay rates, knowledge of training hours was also vague amongst apprentices. Most apprentices needed to confer to check how many hours training they had at college. There was a variation amongst hairdressers for the amount of time devoted to training given in the salon. As it has already been discussed, apprentices found it difficult to complete the questionnaire they were given to complete individually.

Some hairdressing apprentices said their salon was reluctant to release them for training. One of the college assessors indicated that, in some cases, employers even prevented apprentices from taking a day out for college:

> *"Many apprentices can be kept back from college during busy periods; however, we would intervene if the apprentice was being disadvantaged in their learning by this."*
>
> (College training assessor)

Employers we spoke to were supportive of the apprentices' training but, as the above comment from the training assessor illustrates, there are some tensions regarding releasing apprentices for training at peak times. Moreover, there seemed to be a variation between employers' understanding of whether on-the-job training is included in training and how the colleges calculate this.

> *"Training that takes place in the salon must be part of the apprentices working day. If it takes place after working hours this must be taken into account of their working week".*
>
> (College training manager)

From the employer-side, apprentices get in-salon training time, but a large amount of learning is expected to be carried out independently and this is unpaid:

> *"They've* (apprentices) *got a training plan and depending on what they are doing – colouring, foils – it might 3 or 4 hours or less if they are starting out and its basic stuff. But anything else is up to them. I'm happy for them to stay in the salon and they can use the head blocks or sometimes they bring in a model – their mum or a friend – and they get their hair done".*
>
> (Salon manager)

How colleges monitor on-the-job training varied between training providers, but one college asked students to complete a training portfolio which they used to monitor in-salon training (on-the-job training).

As with training and development in general, apprenticeship training has witnessed the introduction of blended learning, whereby some content is delivered remotely[6]. Pedagogical models, such as flipped classrooms, have some implications for working hours as these strategies are designed for learning to take place outside the classroom, salon or nursery and might, therefore, be unpaid. We did not, however, find much evidence of distance learning for apprentices:

"We use Moodle here at the college. This is where most of our resources are placed for the apprentices; we don't really do much online training - if any".

(College training manager)

What was interesting here, however, was that, in a follow-up question, the training manager quoted above, seemed to indicate that any e-learning would not be included in the apprentices' training hours:

"*I would suggest any revision set would need to be completed in their* (apprentices) *own time. Some employers are happy to let them complete in their working day*".

(College training manager)

This suggests that online learning may, in the future, raise further questions about what is counted as part of apprentice training and may impact on the calculation of hours.

Aside from the need to pay older trainees more money discussed above, interviews with salon staff suggest that there is some resentment amongst salon owners that they are expected to release apprentices for training and are, therefore, paying for valuable lost working time. Early employer interviews suggest that there may be some truth in this:

"I get the impression that colleges expect our sole focus to be on training the apprentice".

(Salon manager)

Perceptions around the quality of training provided varied and, to a large extent, this seemed to depend on the attitude of the employer towards college training. Employers who did not send apprentices to college were more likely to suggest that high quality training was only available if training was done in-house:

"*I had a friend who was still an apprentice after 4 years. Her salon kept telling her she wasn't ready. This is why I make sure that I am in control of what my apprentices learn. […] I want staff who are competent in all areas of the job*".

[6] See, for example, Cattaneo, Motta, and Gurtner (2015) and Ricky and Rechell (2015).

(Salon manager)

Employers who did use a college saw some aspects as being positive, but still argued that some of the key skills, especially for hairdressers, could only be learned through on-the-job training.

From the apprentice point of view, college-taught hairdressing apprentices were very positive about their college experiences. As highlighted above, there were mixed responses to the question of how much training apprentices received. The hairdressers who received regular in-salon training perceived this to be of great value and enjoyed the opportunity to have this. Conversely, from the small number of childcare apprentices we interviewed, these respondents valued their on-the-job training as being of greater value than the time spent in college.

As it has been indicated already, relationships between the apprentice and the college, the apprentice and the employer and the employer and the college are of significance. It is clear from the research so far that, where the college has a positive relationship with both the apprentice and the employer, awareness and good practice seem to be more evident. Older apprentices seemed to be more confident in raising the issue of pay with an employer.

Apprentice interviews suggest that older apprentices are more likely to be confident enough to approach their employer if there was an issue, for example, with being paid the wrong wage and this has been confirmed, to some extent, by the employer interviews. First year apprentices, both childcare and hairdressing, preferred to seek support from the college. Apprentices clearly had expectations that the college and their tutors would look after their interest and this was also noted in the relationship between the trainers and the apprentices. Throughout the focus groups, it was clear that the relationship between the college and the apprentices was perceived as strong and supportive by the apprentices. Similarly, trainers and training assessors stated that they had a close relationship with their apprentices:

"They know they can come to us and we'll help to sort out the problem".

(Childcare trainer)

It had been suggested that there was some disconnect between the colleges, apprentices and employers. In our sample, as it has been noted already, we did not find this to be the case. However, from interviews with salon employees who had completed an apprenticeship previously, it became clear that the quality of training, as well as the extent to which the college provided support differed from college to college:

"I had lots of problems during my apprenticeship and I didn't find my college was a lot of help".

(Recently qualified stylist)

3.3 Discussion

The above findings are conclusive that there is a lack of awareness of pay rates on the part of both hairdressing and childcare apprentices. As far as apprentices are concerned, the majority are either indifferent to how their pay is calculated or expect that their employer or their college is working in

their best interests and will pay them the right amount each month. Clearly, this widens the possibility for apprentices to be taken advantage of in that they are unlikely to notice if they are not being paid correctly. Having said this, apprentices *are* aware that their pay is low. For hairdressers, this is partly to do with the fact that the notion of a low pay culture is constantly reinforced by actors around them. Instead of fixating on hourly pay rates and whether or not there may be errors, our overarching finding around apprentice pay awareness is that apprentices are interested primarily in their take-home pay and the fact that it is low. This calls into question all debates around hourly pay and apprentices which is underpinned by the notion of a correct hourly rate.

Despite the evidence from the focus group questionnaire, no evidence was found of non-compliance in our interviews. Actors were aware that this was a reality, especially, as the interview with the NHF revealed, where salons might be small and/or flying under the radar of the HRMC and owners may lack experience. Some evidence pointed towards variations between urban and rural areas, with the suggestion that there might be more likelihood of non-compliance in regions with a looser labour market. The year two effect, as well as issues with changes to apprentice pay when apprentices reach 19 years, has been widely observed in the quantitative data and this was also apparent in the qualitative data.

Despite claims by employers that they had good awareness of pay rates, we found this not to be the case and this evidence points towards non-compliance cases being probably the result of mistakes through lack of knowledge. It is especially of concern that employers are so convinced that they have sufficient information about pay rates and that they know where to look, when the evidence points otherwise. This would suggest that employers are unlikely to change their habits and that smaller salons may continue to pay incorrect rates. Even where accountants are used there does not seem to be much evidence to suggest that accountants have access to the right data about apprentices other than the legal information required. Hence, mistakes, especially with year 2 apprentices, could continue to take place.

The qualitative study raises concerns about pay data in the APS: apprentices seem relatively incurious about the detail of wages, so responses might be inaccurate. This may explain the much higher compliance rate when the APS respondents use payslips, suggesting perhaps that the “payslip measure” is a better one. These results may also explain the fact that awareness of the NMW or the AR did not mean 100% compliance: the ethos, particularly in hairdressers, seemed to be that low pay generally is part of the price paid for starting one’s career; a few pounds one way or another isn’t going to make a difference.

As part of the focus group exercise, apprentices were asked to complete a questionnaire and we noted that there was widespread collusion in order to formulate answers. This activity demonstrated two points: firstly, that they provided some data around pay rates and working hours and, secondly, that we were able to prove that apprentices did not have enough knowledge about what they were being paid. What is also of interest here, however, is that in the APS (telephone survey), apprentices do not have the opportunity to copy their answers or to ask a trainer for help. Arguably, this level of uncertainty we have observed casts doubt on the reliability of the data provided by apprentice respondents to the APS.

The lack of knowledge about training hours suggests APS 2014 was correct to focus on total paid-for hours. The responses from childcare suggest little on-site training, and hairdressers are very

confused about the amount of hours spent training; both of these might explain the low levels of training reported in the 2011/2012 APS. Of more concern perhaps is that breaks and training seem to be residuals for hairdressers, taken when work allows it.

Power issues seem important and worthy of further note. We observed trust between apprentices and trainers, for example, and these strong trust relationships go some way to explaining why apprentices do not check pay rates. Having said this, these relationships leave apprentices exposed to risk from dishonest employers. Apprentices, especially the younger ones, are apprehensive about approaching their employer to discuss wages and may fear losing their jobs if they are seen to be confrontational. This suggests that employers could exploit that fear. Yet, this study observed that apprentices generally seem to trust employers to do the right thing, or, at least, are not curious enough to check. This again gives employers opportunities for exploitation and also means that if well-meaning employers make mistakes in paying employees, there is not a strong check from the employees to correct the error. No evidence was collected showing that employers are deliberately underpaying their employees, and the apprentices did not give any impression that their employer was being underhand. As already discussed, our key findings was that apprentices were dissatisfied with their pay, but it seemed to be the general level rather than the detail that exercised them.

Notwithstanding the positive relationship between colleges, employers and apprentices, there does seem to exist a disconnection between perceptions and experience. Trainers, especially in the urban South West, indicated that there were no non-compliance problems, and they argued that all the apprentices received appropriate training about how to go about checking their pay rates. Our findings pointed to a mixed picture around the quality of training; hence, it is clear that trainers are not as well-informed as they think. This suggests an additional area for LPC to consider as a target for an information campaign. Nevertheless, on a positive note, it can be suggested that colleges fulfil some very important functions in monitoring apprentices and their pay and the trust relationship that exists between trainers and apprentices can be useful as a vehicle for sending out the right messages.

Finally, there were some concerns around the issue of late-starting apprentices following extended secondary education and the fact that this feeds through into apprentice wages very quickly. A salon might get three years of low paid work out of a 16-year-old, but only one year from an 18 with the same qualifications and ability. There is, therefore, a potential conflict between the plans for apprenticeships and the Government plans to encourage staying on at school.

3.4 ASHE vs APS accuracy revisited

Analysis of both APS and ASHE finds similar types of apprentices where non-compliance is more of a problem, but they differ on the statistical side. As noted above, ASHE and APS seem closely aligned when APS data is taken wholly from payslips. The qualitative analysis suggested a poor understanding of wage rates, at least in childcare and hairdressing. If the difference in non-compliance rates is simply a result of error on the part of apprentices, then ASHE is the more accurate estimate.

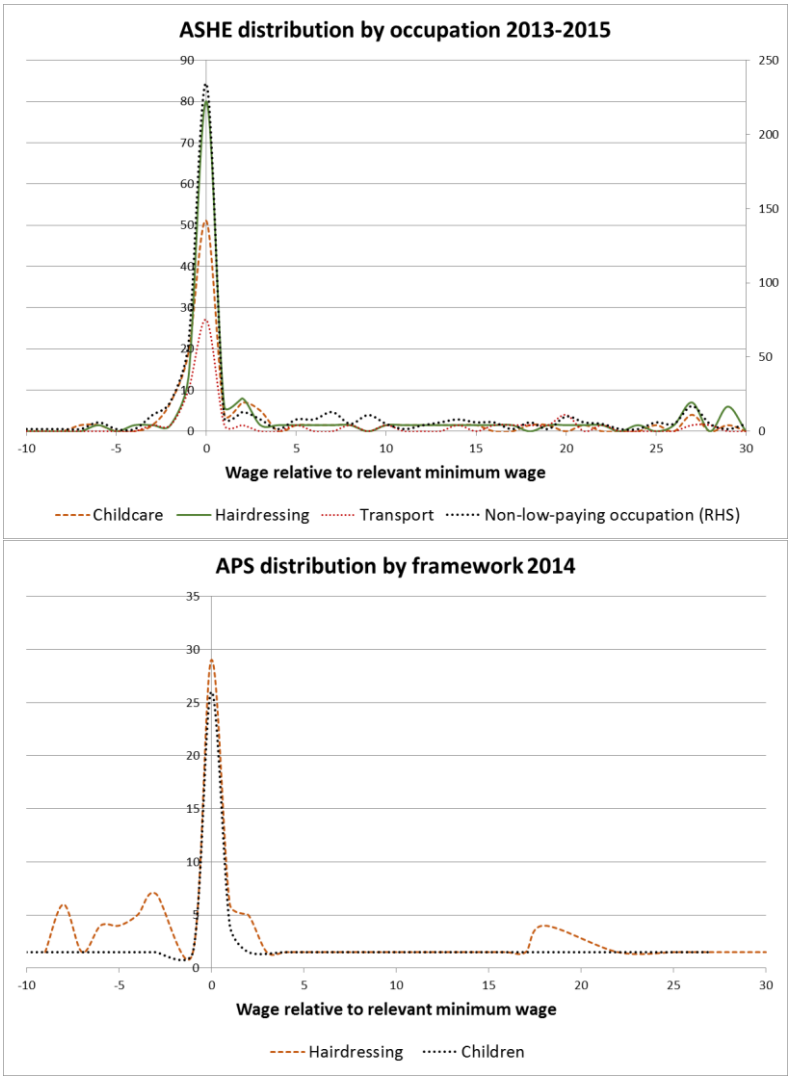
On the other hand, it was noted that ASHE seems to be missing a substantial number of apprentices, and we speculated that these might be more likely to work for small employers with poor record-keeping and possibly more informal practices; this makes APS more representative. However, the

analysis above concentrated on the sectors with the highest level of non-compliance; these are also sectors where the focus is on take-home pay. It is likely that apprentices working in a hourly-pay culture (such as retail or hospitality) might be more aware of their exact wage rates.

Given that the difference between the rates may be the result of missing data, inaccurate data, or both, it is not possible to say whether APS or ASHE is closer to the true rate. An indication may be given by looking at the distribution of the reported earnings around the minimum wage. If the APS rates are higher just because of inaccuracy, then they should have the same mean as ASHE data but a flatter distribution; if on the other hand the APS data are not distributed around the ASHE mean, this implies that ASHE is not an accurate mean estimate.

Figure 2 plots the distribution of earnings around the minimum wage for occupational groups (ASHE) or frameworks (APS). Data are calculated relative to the appropriate minimum wage; that is, the hairdressing count at +5p shows numbers earning five pence over the relevant minimum wage whether they are on the Apprentice Rate or one of the other rates.

Figure 2 Distributions around the NMW for occupations, ASHE and APS



Source: authors' calculations. ASHE summed over 2013-2015, APS 2014 only. Numbers of observations less than 4 set to 1.5 for illustrative purposes.

Only a few occupations or frameworks have sufficient numbers of observations to show anything other than a spike at the minimum wage; hence only a few occupations are shown. These do seem to indicate that in both surveys mass is concentrated at the minimum wage. Figure 1 (in section 2.1.3) showed the distribution for the whole APS data, and this did seem to be symmetric around the Apprentice Rate where the apprentices did not use payslips. This would overall seem to suggest that the ASHE data may be closer to the true non-compliance level.

4. Conclusion and recommendations

On the quantitative side, we are now confident about the interpretation of the data. ASHE data seems likely to be an underestimate of non-compliance and so can be taken as a lower bound. The new APS data seem to cover a wider range of apprentices, and seem more reliable when compared with estimates from past APS, although the complexity of the wage measures makes it difficult to be certain. Also, the fact that the qualitative analysis revealed that apprentices lack awareness of what they are being paid, means that the new APS compliance rates should probably be seen as an upper bound. An ad hoc review of the data suggests that the 'inaccuracy' is more important than the 'missing observation', suggesting that the ASHE estimates are a closer approximation to the true value.

Our preferred ('central') estimate would be the non-compliance rate from the APS baseline sample where both hours and wages are taken from payslips. In order for this to really be the best estimate, there should be no extra hours worked but not paid (so not appearing in the payslips). The fact that "unpaid overtime" is included in the calculations, means that this is probably not an issue. If there were any extra unpaid hours worked, these would probably be reported and taken into account.

The multivariate findings on the relationship between wages, compliance and awareness confirms what was suspected from the 2011 and 2012 APS, but with much more confidence. It would be reasonable to say that we are now confident that non-compliance is robustly associated, in order of importance, with:

- whether the AR applies or whether the apprentice is due to receive an age-related NMW (i.e. second or more year, aged 19 or more)
- the framework
- awareness of the NMW and the AR
- job characteristics and attachment to the employer
- the country

The qualitative analysis has also shed some light on the above. There is strong evidence to suggest that the exact wage rate is not of central importance to apprentices, at least those in childcare and hairdressing; and that these apprentices' expectations may be low, such that they accept low pay generally as part of the apprentice 'experience' or 'duty', along with being at the bottom of the pecking order.

There is also evidence of a power relationship, with apprentices trusting employers to do the right thing, and trainers accepting the apprentice's word that wages were being paid correctly. While we uncovered no evidence of deliberate abuse, some employers admitted to confusion; and it is easy to see how errors in wages might not be picked up by trusting apprentices or reassured trainers.

The qualitative analysis also raised concerns about apprentices' ability to identify wages and hours correctly, let alone calculate wage rates accurately. This partly underlies our belief that the true non-compliance rate is best estimated by the documented cases in the APS, and why we feel that the perceptions of trainers about the treatment of apprentices should be considered with caution. College staff are potentially very powerful levers for the LPC as they appear to be able to build good relationships with apprentices and employers; but their apparent over-confidence may reduce this potential. There is scope to consider how they may be encouraged to help apprentices systematically identify and calculate pay, rather than taking assertions of being paid properly as proof. College staff were keen to engage and help their apprentices.

Recommendations

- The documented (with the use of a payslip) APS non-compliance rate is our preferred estimate, with the baseline APS sample giving the upper bound estimate, and ASHE figures providing a lower bound, but more accurate, estimate
- Future APS should try to include as many as possible fully documented cases where both pay and hours are reported from a payslip
- Apprentices have very little idea of what their wage rate is, or should be, and do not explore the internet to look for more information; instead, they rely on friends and colleagues; a downloadable mobile phone application (the "app app") allowing simple calculations might reach this group
- The message that non-compliance is associated with the idea of 'bad jobs' could be usefully targeted to support bodies such as the Citizen's Advice Bureaux in identifying problematic working arrangements
- There is some evidence that apprentices feel concerned to raise low pay with their employers; hence, there may be a role for the LPC in helping employees to overcome their fears by, for example, suggesting positive arguments or ways to raise the topic
- College staff should be provided with practical guidelines about apprentices' difficulties calculating wages, and the data that needs to be collected to do this

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Appendix 1: Tables of full results

Table A1 Variable means across the samples – APS 2014

	(1)	(2)	(3)	(4)	(5)
Sample	**Whole sample**	**Payslip sample**	**Non-payslip sample**	**Both pay and hours from payslip**	**Hourly paid**
Male	0.58	0.59	0.58	0.64	0.53
White	0.94	0.94	0.94	0.94	0.94
Disabled and/or having learning difficulties	0.01	0.01	0.01	0.01	0.01
England	0.58	0.56	0.60	0.53	0.65
Wales	0.18	0.17	0.18	0.18	0.15
Scotland	0.24	0.27	0.22	0.28	0.20
NVQ Level 2	0.48	0.47	0.49	0.47	0.49
Age	23.60	23.39	23.75	24.11	24.43
Age and year of course					
Age 16-18, Year 1	0.21	0.25	0.19	0.19	0.15
Age 16-18, Year 2 or above	0.05	0.05	0.05	0.05	0.05
Age 19-20, Year 1	0.18	0.19	0.18	0.18	0.20
Age 19-20, Year 2 or above	0.10	0.10	0.10	0.12	0.10
Age 21+, Year 1	0.31	0.29	0.33	0.33	0.37
Age 21+, Year 2 or above	0.13	0.11	0.15	0.13	0.13
Framework					
Business and related	0.11	0.10	0.12	0.01	0.08
Children's Care	0.06	0.08	0.06	0.06	0.07
Construction and related	0.12	0.12	0.12	0.14	0.09
Customer Service	0.05	0.04	0.06	0.03	0.05
Electrotechnical	0.07	0.08	0.07	0.12	0.10

Engineering/Manufacturing	0.17	0.19	0.16	0.19	0.13
Hairdressing	0.06	0.06	0.06	0.02	0.07
Health, Social Care and Sport	0.10	0.10	0.11	0.14	0.16
Hospitality and Catering	0.07	0.07	0.07	0.11	0.10
Management	0.05	0.05	0.05	0.05	0.06
Retail	0.06	0.06	0.06	0.09	0.07
Other	0.05	0.05	0.06	0.03	0.02
No contract	0.09	0.08	0.10	0.09	0.12
Permanent job	0.71	0.70	0.72	0.80	0.78
Worked for employer before course started	0.59	0.57	0.60	0.67	0.64
Receives tips	0.10	0.09	0.10	0.09	0.12
Receives bonuses	0.18	0.19	0.18	0.18	0.14
Basic hours	38.57	38.61	38.54	36.59	36.91
Unpaid overtime hours	0.26	0.13	0.35	0.08	0.16
Receives accommodation	0.04	0.03	0.04	0.04	0.04
Using a payslip	0.41	1	0	1	0
Both pay and hours from payslip	0.16	0	0	1	0
Reporting net pay	0.12	0	0.20	0	0.10
Hourly paid	0.08	0	0.13	0	1
Awareness					
Not heard of NMW	0.06	0.06	0.07	0.06	0.06
Heard of NMW	0.29	0.30	0.28	0.34	0.32
Aware of existence of AR	0.37	0.36	0.38	0.35	0.33
Aware of specific value of AR	0.27	0.28	0.27	0.25	0.29
Observations	**6,567**	**2,698**	**3,869**	**991**	**517**

Source: APS 2014 and authors' calculations.
Notes: Unweighted data.

Table A2 The correlates of non-compliance – APS 2014

	(1)	(2)	(3)	(4)	(5)
Sample	**Whole sample**	**Payslip sample**	**Non-payslip sample**	**Both pay and hours from payslip**	**Hourly paid**
Estimator	**Probit**	**Probit**	**Probit**	**Probit**	**OLS**
Independent variables					
Male	-0.0162	0.0169	-0.0403***	-0.0122	-0.0078
	[0.0104]	[0.0130]	[0.0150]	[0.0176]	[0.0218]
White	-0.0099	0.0036	-0.0155	0.0130	-0.0623
	[0.0156]	[0.0179]	[0.0226]	[0.0087]	[0.0481]
Disabled and/or having learning difficulties	0.0819	-0.0495***	0.2120**	-	0.1513
	[0.0500]	[0.0153]	[0.0844]	-	[0.1219]
Wales	-0.0047	-0.0072	-0.0014	-0.0069	-0.0255
	[0.0103]	[0.0127]	[0.0150]	[0.0083]	[0.0193]
Scotland	-0.0372***	-0.0283***	-0.0438***	-0.0183**	0.0073
	[0.0078]	[0.0092]	[0.0115]	[0.0079]	[0.0296]
NVQ Level 2	0.0474***	0.0191*	0.0715***	0.0029	0.0037
	[0.0086]	[0.0106]	[0.0126]	[0.0089]	[0.0211]
Age	-0.0048***	-0.0033***	-0.0058***	-0.0006	-0.0017**
	[0.0008]	[0.0010]	[0.0011]	[0.0007]	[0.0008]
(Base: Age 16-18, Year 1)					
Age 16-18, Year 2 or above	-0.0445***	-0.0434***	-0.0319	-0.0172***	-0.0255
	[0.0107]	[0.0094]	[0.0195]	[0.0066]	[0.0452]
Age 19-20, Year 1	-0.0405***	-0.0326***	-0.0427***	-0.0240***	0.0480
	[0.0084]	[0.0094]	[0.0131]	[0.0081]	[0.0319]
Age 19-20, Year 2 or above	0.1531***	0.0913***	0.2038***	0.0272	0.2206***
	[0.0212]	[0.0253]	[0.0314]	[0.0190]	[0.0623]
Age 21+, Year 1	-0.0968***	-0.0792***	-0.1037***	-0.0295***	0.0431
	[0.0097]	[0.0117]	[0.0147]	[0.0108]	[0.0290]
Age 21+, Year 2 or above	0.1994***	0.1383***	0.2518***	0.0464	0.0483
	[0.0246]	[0.0352]	[0.0337]	[0.0290]	[0.0375]
(Base: Other framework)					
Business and related	-0.0497***	-0.0371***	-0.0559***	-	0.0084

	[0.0118]	[0.0144]	[0.0173]	-	[0.0864]
Children's Care	0.0910***	0.0872*	0.0995**	0.0346	0.0535
	[0.0304]	[0.0460]	[0.0421]	[0.0629]	[0.0868]
Construction and related	-0.0351***	-0.0249	-0.0438**	0.0181	0.0418
	[0.0134]	[0.0172]	[0.0187]	[0.0411]	[0.0934]
Customer Service	-0.0371**	-0.0221	-0.0501**	0.0028	-0.0413
	[0.0156]	[0.0206]	[0.0214]	[0.0377]	[0.0752]
Electrotechnical	-0.0536***	-0.0439***	-0.0604***	-0.0133	-0.0463
	[0.0114]	[0.0122]	[0.0172]	[0.0142]	[0.0837]
Engineering/Manufacturing	-0.0614***	-0.0495***	-0.0689***	0.0148	0.0158
	[0.0110]	[0.0135]	[0.0159]	[0.0363]	[0.0851]
Hairdressing	0.1080***	0.0927	0.1065**	0.0399	0.0927
	[0.0371]	[0.0586]	[0.0474]	[0.0831]	[0.0962]
Health, Social Care and Sport	0.0051	0.0213	-0.0056	-0.0219**	-0.0428
	[0.0197]	[0.0313]	[0.0259]	[0.0107]	[0.0747]
Hospitality and Catering	-0.0373**	-0.0324*	-0.0443**	-0.0113	-0.0240
	[0.0156]	[0.0181]	[0.0219]	[0.0163]	[0.0750]
Management	-0.0439**	-0.0599***	-0.0268	-	-0.0492
	[0.0179]	[0.0099]	[0.0306]	-	[0.0765]
Retail	-0.0186	-0.0134	-0.0237	0.0154	-0.0622
	[0.0186]	[0.0239]	[0.0260]	[0.0429]	[0.0750]
No contract	0.0641***	0.0149	0.0986***	0.0077	0.0311
	[0.0150]	[0.0163]	[0.0222]	[0.0136]	[0.0348]
Permanent job	-0.0521***	-0.0222**	-0.0774***	-0.0044	-0.0266
	[0.0091]	[0.0102]	[0.0138]	[0.0086]	[0.0323]
Worked for employer before course started	-0.0408***	-0.0256***	-0.0503***	-0.0118	-0.0137
	[0.0083]	[0.0099]	[0.0122]	[0.0089]	[0.0288]
Receives tips	0.0002	0.0358	-0.0198	0.0126	-0.0434
	[0.0150]	[0.0277]	[0.0187]	[0.0231]	[0.0386]
Receives bonuses	-0.0237***	-0.0133	-0.0332***	-0.0036	0.0172
	[0.0084]	[0.0102]	[0.0121]	[0.0079]	[0.0290]
Basic hours	0.0055***	0.0043***	0.0061***	0.0009**	-0.0015
	[0.0004]	[0.0005]	[0.0006]	[0.0004]	[0.0009]
Unpaid overtime hours	0.0149***	0.0219***	0.0152***	0.0125***	-0.0005
	[0.0023]	[0.0056]	[0.0029]	[0.0045]	[0.0031]
Receives accommodation	-0.0429***	-0.0295*	-0.0526***	0.0046	-0.0252

	[0.0124]	[0.0154]	[0.0175]	[0.0172]	[0.0585]
Using a payslip	-0.0273***	-	-	-	-
	[0.0082]	-	-	-	-
Both pay and hours from payslip	-0.0700***	-0.0637***	-	-	-
	[0.0078]	[0.0096]	-	-	-
Reporting net pay	-0.0049	-	-0.0065	-	-0.0258
	[0.0104]	-	[0.0122]	-	[0.0270]
Hourly paid	-0.0862***	-	-0.1119***	-	-
	[0.0060]	-	[0.0086]	-	-
(Base: Not heard of NMW)					
Heard of NMW	-0.0129	-0.0065	-0.0160	0.0057	-0.0893
	[0.0131]	[0.0168]	[0.0188]	[0.0152]	[0.0651]
Aware of existence of AR	-0.0466***	-0.0335**	-0.0550***	-0.0066	-0.1376**
	[0.0123]	[0.0154]	[0.0177]	[0.0127]	[0.0648]
Aware of specific value of AR	-0.0250**	-0.0102	-0.0344*	0.0009	-0.1271*
	[0.0125]	[0.0162]	[0.0177]	[0.0141]	[0.0675]
Constant	-	-	-	-	0.3040**
	-	-	-	-	[0.1368]
Observations	**6,567**	**2,698**	**3,869**	**991**	**517**

Source: APS 2014 and authors' calculations.
Notes: For probit models, the table reports marginal effects calculated at the means of independent variables; standard errors in brackets (*** p<0.01, ** p<0.05, * p<0.1).

Table A3 Awareness of the AR – APS 2014

	(1)	(2)	(3)	(4)
	Whole sample		AR eligible sample	
Dependent variable	**Aware of AR**	**Aware of specific value of AR**	**Aware of AR**	**Aware of specific value of AR**
Estimator	**Probit**	**Probit**	**Probit**	**Probit**
Independent variables				
Male	0.0624***	0.0589***	0.0551***	0.0542***
	[0.0165]	[0.0151]	[0.0182]	[0.0168]
White	0.1093***	-0.0098	0.0958***	-0.0333
	[0.0263]	[0.0234]	[0.0300]	[0.0274]
Disabled and/or having learning difficulties	-0.0420	0.0081	-0.0741	0.0297
	[0.0598]	[0.0575]	[0.0676]	[0.0647]
Wales	-0.0555***	-0.0736***	-0.0441**	-0.0732***
	[0.0177]	[0.0144]	[0.0194]	[0.0161]
Scotland	-0.0991***	-0.1574***	-0.0995***	-0.1693***
	[0.0162]	[0.0120]	[0.0195]	[0.0139]
NVQ Level 2	-0.0563***	-0.0099	-0.0746***	-0.0217
	[0.0139]	[0.0129]	[0.0157]	[0.0148]
(Base: Age 16-18, Year 1)				
Age 16-18, Year 2 or above	-0.0182	-0.0608***	-0.0140	-0.0596**
	[0.0300]	[0.0234]	[0.0302]	[0.0241]
Age 19-20, Year 1	0.0485**	-0.0060	0.0426**	-0.0099
	[0.0189]	[0.0169]	[0.0194]	[0.0172]
Age 19-20, Year 2 or above	0.0444*	-0.0155	-	-
	[0.0230]	[0.0203]	-	-
Age 21+, Year 1	-0.0307	-0.1246***	-0.0438**	-0.1372***
	[0.0193]	[0.0156]	[0.0202]	[0.0173]
Age 21+, Year 2 or above	-0.0271	-0.1133***	-	-
	[0.0225]	[0.0165]	-	-
(Base: Other framework)				
Business and related	0.1437***	0.1338***	0.1615***	0.1471***
	[0.0266]	[0.0329]	[0.0290]	[0.0364]
Children's Care	-0.0346	0.0135	-0.0455	0.0194
	[0.0366]	[0.0341]	[0.0410]	[0.0385]

Construction and related	0.0156	-0.0137	0.0134	0.0044
	[0.0313]	[0.0286]	[0.0352]	[0.0333]
Customer Service	0.0338	0.0285	0.0370	0.0436
	[0.0354]	[0.0357]	[0.0385]	[0.0398]
Electrotechnical	0.0386	-0.0093	-0.0049	-0.0130
	[0.0346]	[0.0316]	[0.0463]	[0.0398]
Engineering/Manufacturing	0.0429	-0.0067	0.0540	0.0079
	[0.0293]	[0.0274]	[0.0330]	[0.0319]
Hairdressing	0.0010	0.0159	-0.0019	0.0055
	[0.0371]	[0.0352]	[0.0411]	[0.0388]
Health, Social Care and Sport	-0.0916***	-0.0878***	-0.0789**	-0.0869***
	[0.0338]	[0.0263]	[0.0374]	[0.0301]
Hospitality and Catering	-0.0170	-0.0226	0.0018	-0.0038
	[0.0347]	[0.0314]	[0.0375]	[0.0359]
Management	-0.0224	-0.0338	0.0116	0.0062
	[0.0377]	[0.0343]	[0.0411]	[0.0413]
Retail	-0.0406	-0.0700**	0.0067	-0.0452
	[0.0364]	[0.0296]	[0.0392]	[0.0353]
No contract	0.0125	0.0249	0.0173	0.0278
	[0.0206]	[0.0196]	[0.0235]	[0.0227]
Permanent job	0.0055	-0.0115	0.0124	-0.0112
	[0.0146]	[0.0131]	[0.0168]	[0.0151]
Worked for employer before course started	-0.0093	-0.0532***	-0.0188	-0.0580***
	[0.0142]	[0.0128]	[0.0165]	[0.0150]
Total hours	0.0005	0.0002	0.0009	0.0004
	[0.0006]	[0.0006]	[0.0007]	[0.0007]
Using a payslip	-0.0040	0.0202*	-0.0113	0.0298**
	[0.0126]	[0.0118]	[0.0145]	[0.0136]
Hourly paid	-0.0155	0.0489**	-0.0289	0.0641**
	[0.0231]	[0.0227]	[0.0266]	[0.0265]
Observations	**6,567**	**6,567**	**5,017**	**5,017**

Source: APS 2014 and authors' calculations.

Notes: The table reports marginal effects of probit models calculated at the means of independent variables; standard errors in brackets (*** p<0.01, ** p<0.05, * p<0.1).

Table A4 The determinants of basic hourly pay – APS 2014

Dependent variable	Log of basic hourly pay
Independent variables	
Male	0.0620***
	[0.0135]
White	-0.0282
	[0.0209]
Disabled and/or having learning difficulties	-0.1421***
	[0.0472]
Wales	0.0249*
	[0.0143]
Scotland	0.0571***
	[0.0126]
Age	0.0085***
	[0.0008]
NVQ Level 2	-0.1172***
	[0.0117]
(Base: Age 16-18, Year 1)	
Age 16-18, Year 2 or above	0.1375***
	[0.0234]
Age 19-20, Year 1	0.1483***
	[0.0165]
Age 19-20, Year 2 or above	0.3390***
	[0.0185]
Age 21+, Year 1	0.3601***
	[0.0182]
Age 21+, Year 2 or above	0.4471***
	[0.0205]
(Base: Other framework)	
Business and related	0.0955***
	[0.0282]
Children's Care	-0.1801***
	[0.0324]
Construction and related	0.0177
	[0.0287]
Customer Service	0.0997***
	[0.0320]
Electrotechnical	0.0930***
	[0.0323]
Engineering/Manufacturing	0.0986***
	[0.0270]
Hairdressing	-0.1716***
	[0.0339]
Health, Social Care and Sport	-0.0441

	[0.0295]
Hospitality and Catering	0.0602**
	[0.0303]
Management	0.2490***
	[0.0354]
Retail	-0.0202
	[0.0307]
No contract	-0.0973***
	[0.0169]
Permanent job	0.1162***
	[0.0125]
Worked for employer before course started	0.1010***
	[0.0125]
Receives tips	-0.0541***
	[0.0196]
Receives bonuses	0.0691***
	[0.0128]
Basic hours	-0.0144***
	[0.0009]
Unpaid overtime hours	0.0020
	[0.0035]
Receives accommodation	0.0199
	[0.0371]
Using a payslip	0.0455***
	[0.0123]
Both pay and hours from payslip	0.1017***
	[0.0164]
Reporting net pay	0.0021
	[0.0162]
Hourly paid	0.0565***
	[0.0161]
(Base: Not heard of NMW)	
Heard of NMW	-0.0188
	[0.0235]
Aware of existence of AR	0.0541**
	[0.0227]
Aware of specific value of AR	-0.0044
	[0.0235]
Constant	1.6188***
	[0.0527]
Observations	6,565
R-squared	0.4457

Source: APS 2014 and authors' calculations.
Notes: The table reports OLS estimates; robust standard errors in brackets (*** p<0.01, ** p<0.05, * p<0.1).

Table A5 Variable means by framework (pooled APS 2011, 2012, and 2014 data)

	All	Business	Children's care	Construction	Customer service	Electrotechnical	Engineering	Hairdressing	Health	Hospitality	Management	Retail	Other
APS 2011	0.42	0.38	0.46	0.36	0.49	0.43	0.32	0.45	0.40	0.45	0.48	0.47	0.46
APS 2012	0.27	0.27	0.29	0.24	0.29	0.29	0.21	0.31	0.24	0.27	0.31	0.27	0.33
APS 2014	0.30	0.35	0.25	0.40	0.21	0.27	0.46	0.24	0.36	0.28	0.21	0.26	0.21
England	0.71	0.72	0.74	0.59	0.74	0.76	0.65	0.75	0.71	0.69	0.72	0.74	0.71
Wales	0.14	0.14	0.11	0.18	0.12	0.11	0.14	0.10	0.16	0.16	0.15	0.10	0.16
Scotland	0.16	0.15	0.15	0.22	0.14	0.14	0.21	0.15	0.13	0.15	0.13	0.16	0.13
Hourly pay	6.09	5.95	4.74	5.12	6.88	6.65	6.26	3.41	6.76	6.07	10.07	6.44	5.66
Non-compliance	0.18	0.15	0.28	0.24	0.08	0.20	0.16	0.50	0.09	0.10	0.03	0.07	0.25
Male	0.51	0.28	0.05	0.98	0.37	0.99	0.96	0.08	0.20	0.47	0.41	0.38	0.70
White	0.94	0.93	0.91	0.98	0.92	0.98	0.96	0.98	0.90	0.95	0.92	0.94	0.94
NVQ Level 2	0.50	0.56	0.31	0.59	0.63	0.06	0.30	0.74	0.54	0.70	0.38	0.76	0.45
Age 16-18, Year 1	0.19	0.24	0.24	0.29	0.13	0.14	0.22	0.41	0.07	0.15	0.01	0.12	0.20
Age 16-18, Year 2+	0.06	0.02	0.04	0.12	0.01	0.09	0.09	0.19	0.01	0.01	0.00	0.01	0.08
Age 19-20, Year 1	0.16	0.24	0.20	0.18	0.16	0.10	0.16	0.15	0.09	0.17	0.04	0.20	0.18
Age 19-20, Year 2+	0.10	0.05	0.07	0.16	0.02	0.29	0.21	0.11	0.02	0.03	0.00	0.03	0.11
Age 21+, Year 1	0.35	0.35	0.32	0.14	0.57	0.09	0.14	0.09	0.60	0.52	0.77	0.53	0.31
Age 21+, Year 2+	0.14	0.10	0.13	0.11	0.12	0.30	0.18	0.04	0.21	0.11	0.18	0.11	0.13
Worked for employer	0.66	0.57	0.61	0.52	0.81	0.50	0.41	0.61	0.85	0.86	0.98	0.87	0.59
Hourly paid	0.19	0.11	0.23	0.13	0.18	0.26	0.14	0.12	0.28	0.30	0.15	0.35	0.14
Hours of work and training	37.37	36.34	34.85	41.72	34.41	42.15	41.61	38.74	34.08	35.48	37.85	29.74	38.47
Any overtime	0.58	0.40	0.55	0.55	0.53	0.74	0.60	0.39	0.64	0.65	0.69	0.72	0.54
Receives tips	0.13	0.01	0.00	0.07	0.07	0.07	0.03	0.80	0.00	0.38	0.07	0.03	0.08
Receives bonuses	0.22	0.19	0.08	0.23	0.28	0.20	0.37	0.20	0.09	0.15	0.26	0.36	0.22
Observations	24,042	2,334	1,855	2,278	1,785	1,951	2,675	1,856	2,117	1,843	1,674	1,768	1,906

Source: APS 2011, 2012, and 2014 data pooled together and authors' calculations.
Notes: Unweighted data.

Table A6 Non-compliance differences between hairdressing and other frameworks – Full results of probit models

	(1)	(2)	(3)
(Base: Hairdressing)			
Business and related	-0.1603***	-0.1594***	-0.0857***
	[0.0043]	[0.0043]	[0.0048]
Children's Care	-0.1079***	-0.1067***	-0.0000
	[0.0064]	[0.0064]	[0.0112]
Construction and related	-0.1294***	-0.1271***	-0.0858***
	[0.0054]	[0.0055]	[0.0050]
Customer Service	-0.1755***	-0.1744***	-0.0902***
	[0.0035]	[0.0035]	[0.0044]
Electrotechnical	-0.1379***	-0.1374***	-0.0914***
	[0.0050]	[0.0049]	[0.0046]
Engineering/Manufacturing	-0.1617***	-0.1598***	-0.1069***
	[0.0045]	[0.0046]	[0.0045]
Health, Social Care and Sport	-0.1758***	-0.1741***	-0.0817***
	[0.0037]	[0.0037]	[0.0054]
Hospitality and Catering	-0.1713***	-0.1697***	-0.0860***
	[0.0037]	[0.0037]	[0.0045]
Management	-0.1900***	-0.1885***	-0.1055***
	[0.0031]	[0.0031]	[0.0036]
Retail	-0.1807***	-0.1794***	-0.0851***
	[0.0034]	[0.0034]	[0.0052]
Other	-0.1214***	-0.1207***	-0.0559***
	[0.0057]	[0.0057]	[0.0069]
(Base: APS 2011)			
APS 2012		0.0624***	0.0967***
		[0.0079]	[0.0078]
APS 2014		0.0199***	0.0125**
		[0.0064]	[0.0051]

(Base: England)		
Wales	-0.0144*	0.0115
	[0.0079]	[0.0071]
Scotland	-0.0091	-0.0213***
	[0.0075]	[0.0055]
Male		-0.0054
		[0.0063]
White		-0.0104
		[0.0104]
NVQ Level 2		0.0685***
		[0.0051]
(Base: Age 16-18, Year 1)		
Age 16-18, Year 2 or above		-0.0252***
		[0.0070]
Age 19-20, Year 1		-0.0501***
		[0.0049]
Age 19-20, Year 2 or above		0.1574***
		[0.0123]
Age 21+, Year 1		-0.1419***
		[0.0053]
Age 21+, Year 2 or above		0.1502***
		[0.0113]
Worked for employer before course started		-0.0708***
		[0.0053]
Hourly paid		-0.0870***
		[0.0040]
Hours of work and training		0.0062***
		[0.0002]
Any overtime		-0.0215***
		[0.0045]
Receives tips		0.0346***
		[0.0092]
Receives bonuses		-0.0225***
		[0.0048]

Observations	20,018	20,018	20,018

Source: APS 2011, 2012, and 2014 pooled together and authors' calculations.
Notes: The table reports marginal effects of probit models calculated at the means of independent variables; unweighted data; standard errors in brackets (*** p<0.01, ** p<0.05, * p<0.1).

Appendix 2: Deriving earnings and hours in APS 2014

The purpose of this Appendix is to describe the survey structure and questions related to earnings and hours in the 2014 APS. The most basic difference in the questionnaire routing among the APS respondents is between those who can provide information from a payslip and those that cannot. We thus first categorize respondents into these two categories and then describe any differences in the questionnaire within each category.

Note that we only describe here the survey structure and questionnaire concerning the core APS questions. IFF Research has produced a series of extremely useful derived variables, some of which were used in our own analysis. These are not described in the following. IFF Research (2014), as well as the 'Technical Report' and 'SPSS User Guide' for APS 2014 provided with the publicly available dataset, present all details concerning these derived variables.

Payslip respondents (question c3g=1 or c3h=1)

1) Those paid same amount each week

Earnings: question c6 asks respondents to provide gross pay from payslip (excluding any bonuses, commissions, or tips). The response can be in an amount that is weekly, fortnightly, four weekly, monthly or other (question c5 records the payment period the payslip covers).

Hours: question c8 asks respondents to record their weekly hours of work. These do not come from the payslip, and include unpaid overtime. In c9 the same respondents are asked to record any extra weekly training hours that they did not include in c8. The sum of c8 and c9 gives the total working and training hours.

2) Those that their weekly pay varies depending on hours

Earnings: question c11 asks respondents to provide total gross pay from payslip (total amount shown on payslip, apart from any bonuses, commissions, or tips). The response can be in an amount that is weekly, fortnightly, four weekly, monthly or other (question c5 records the payment period the payslip covers).

Hours: We have two groups of respondents here.

a) *If payslip shows amount of hours* (question c13=1): question c14 asks respondents to record the hours of work recorded in payslip, which can be the total for any payment period. Paid overtime is included. In c17 the same respondents are asked to record any extra weekly training hours not recorded above. Finally, c19 and c20 are used to report if any of the above stated hours are paid at a higher rate.
b) *If payslip does not show amount of hours* (question c13=2): question c16 asks respondents to record their weekly hours of work. Paid overtime is included. In c17 the same respondents are asked to record any extra weekly training hours not recorded above. The sum of c16 and c17 (c18sum) gives the total. Finally, c19 and c20 are used to record if any of the above stated hours are paid at higher rate.

For both the above groups, (a) and (b), c22 and c23a (and c23b) are used to record any extra hours that were unpaid during the payment periods used by respondents in their answers. These questions thus cover unpaid overtime working.

Non-payslip respondents

Earnings: question e1 asks respondents if they can provide their pay as a gross or a net amount. Then, we have two groups of respondents:

a) Gross pay: e2 asks about the payment period that will be reported (annual figure, monthly, four weekly, fortnightly, weekly, daily or hourly). Then, e3 records pay. No overtime, bonuses, commissions, or tips are included.
b) Net pay: e4 asks about the payment period that will be reported (annual figure, monthly, four weekly, fortnightly, weekly, daily or hourly). Then, e5 records pay. No overtime, bonuses, commissions, or tips are included.

Hours: questions d1 and d2 ask respondents to record their weekly hours of work and extra training (if any) respectively, for their last full working week. Overtime is excluded. The total hours are given by d1d2_sum. If the above hours are not the usual hours worked in a typical week by the respondents, they are asked to record the total amount of typical hours in d5. Again, no overtime is included. The option is given in d6 to record average weekly hours, if usual/typical hours cannot be given. Overtime incidence and hours are recorded in d7 and d8 (last full working week), d10 (typical/usual, if different from last), and d11 (average, if typical/usual is not known). Finally, variable d1_tot_usualhrs counts total hours including overtime, based on the previous series of questions. Note here that with questions e6 and e7, the respondent reports how many of the overtime hours are paid and the average rate for these.

All respondents

After the above core earnings and hours questions, all respondents are asked if they know their gross hourly (standard) pay rate (question e10) and, if yes, what it is (question e11). Questions e15, e16, e18, e19, e20, e21, and e22, are a series of questions concerning receipt and amount of any tips and bonuses. Finally, questions e23, e24, e25, and e26, are concerned with accommodation provision and charges (if any).