

# Unpredictable times: the extent, characteristics and correlates of insecure hours of work in Britain

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## ABSTRACT

This article presents new British evidence that suggests that cutting working hours at short notice is twice as prevalent as zero-hours contracts and triple the number of employees are very anxious about unexpected changes to their hours of work. The pay of these employees tends to be lower, work intensity higher, line management support weaker and the threat of dismissal and job loss greater. In addition, the well-being of these employees is lower and they are less committed to the organisations that employ them. However, the prevalence of insecure working hours is reduced by workplace level employee involvement exercised individually or through collective representation.

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## 1 INTRODUCTION

The growth of zero-hours contracts (ZHCs), the increase in levels of underemployment and the rise of the gig economy are all features of the UK economy that have triggered much academic debate (Lepanjuuri *et al.*, 2018; Koumenta and Williams, 2019; ONS, 2019a). They have also become the focus of high and sustained media attention. For example, ZHCs rarely featured in newspaper articles or Internet searches prior to 2013, but since then, they have been the source of regular commentary (Farina *et al.*, 2019). ZHCs have also prompted interest from government about ways of mitigating some of their worst effects (e.g. BIS, 2013; BEIS, 2019).

These labour market developments are all symptoms of increased attempts by employers to align the duration and timing of work to the peaks and troughs in demand. As a consequence, working time has become more unpredictable for many workers (Rubery *et al.*, 2015). Not knowing whether, when and how much work they will actually get can create problems for the individuals involved. It can make it difficult to pay the weekly bills and plan for the future, and it can weaken job-related well-being (Citizens Advice, 2017).

In response, the Living Wage Foundation recently launched a Living Hours campaign designed to provide workers with greater security over working time. The

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Foundation accredits organisations that agree to pay the Real Living Wage (RLW) to their direct employees and to those who normally work on their premises but are paid by contractors (Prowse and Fells, 2016). However, the Foundation has recognised that the unpredictability of working hours may mean that workers who receive the RLW hourly rate of pay may *not* receive a decent wage if their hours are low and/or are changed at short notice. Getting employers to provide Living Hours alongside the RLW addresses this issue. In addition to paying the RLW, Living Hours employers agree to (i) offer contracts that reflect actual hours worked and guarantee a minimum of 16 hours a week and (ii) give employees at least four weeks' notice of when they are expected to work and make payment in full if shifts are cancelled (Living Wage Foundation, 2019). The first of these elements may receive legislative backing with the UK government recently announcing that it plans 'to bring forward legislation that introduces a right for all workers to potentially move towards a more predictable and stable contract' (BEIS, 2019: 10). The second element, however, has so far not received government backing, but changes in this area are under review.

Much of the associated empirical evidence and debate on insecure working hours—including the Living Hours campaign—focuses on the details of employment contracts and/or respondents' knowledge of what they contain. The approach presented in this article widens the concept of insecure working hours by going beyond focusing solely on the *contractual* form of the employment relationship (i.e. ZHCs) to include *actual experience* of working hours being cut with little warning and *anxiety* about unexpected changes to hours of work.

The remainder of the article is structured as follows. Section 2 reviews the existing evidence on insecure working hours that has focused primarily on ZHCs. Section 3 outlines the data sources, methods used and approach taken to generate a wider set of evidence. Where possible, this new evidence is set alongside data taken from the Labour Force Survey (LFS) on ZHCs. This new evidence is taken from the Skills and Employment Survey (SES) 2017 and questions it asks about employees' experience of cuts being made to their weekly working hours and how anxious they feel that their working hours might be changed unexpectedly by their employer. Section 4 uses both data sources to present findings on the extent, characteristics and correlates of four different measures of insecure working hours. Section 5 concludes by arguing that if policy makers are serious about creating good work, more attention needs to be paid to reducing the prevalence of unpredictable working hours rather than just focusing on formal aspects of the employment contract.

## 2 EXISTING EVIDENCE

In this article, we focus on two aspects of working time.<sup>1</sup> The first is the duration of time spent at work. This involves setting the daily, weekly or annual number of hours to be worked and establishing whether the employer is at liberty to increase or decrease these totals. The second aspect is the timing of work. This refers to when during the day, night, week or year work is performed. When combined, these two conceptual dimensions constitute a work schedule detailing how long work lasts and when it takes place (Berg *et al.*, 2004).

<sup>1</sup> However, there are other dimensions of working time not covered here, such as the extent to which workers can vary working hours to meet their own needs (Eurofound, 2012).

In many societies, there are regulations on the maximum number of hours worked. However, regulating the minimum number of hours worked and placing restrictions on changes to the timing of work have received far less attention. Yet the length of the working week and the hourly rate of pay determines the wage received, and the timing of working hours influences how and at what cost commitments outside of work such as childcare can be met.

Research based on the European LFS shows that employers even in more regulated economies than the UK have reduced average hours through the increased use of part-time work, casual contracts, ZHCs and reductions in working time. In Denmark, for example, the yearly income of many workers is low despite relatively high hourly pay and so in order to survive a large proportion of part-timers have more than one job (Ilsøe *et al.*, 2017). A persistently large gap between the number of hours worked and the number desired—one measure of hours-constrained under-employment—is also suggestive of the difficulties some workers face in making ends meet. In the second quarter of 2019, 7.6 per cent or 2.5 million employees in the UK reported that they wanted to work more hours in their existing job than they were given (ONS, 2019a).

The growth of ZHCs gives employers greater ability to vary the number and timing of hours and even to offer no work at all. In the absence of a guaranteed minimum number of hours, workers may experience highly unpredictable work schedules. This can have negative consequences (TUC, 2017). These include the uncertainty of a minimum weekly income, dependency on line management for the allocation of hours, the inability to exercise real choice in taking the hours given for fear of being ‘zeroed-down’ as punishment and the difficulties of claiming benefits that often require claimants to work a minimum of 16 hours a week (Pennycook *et al.*, 2013).

A key source of evidence in this debate is the LFS that has carried a question on ZHCs since 1994. Respondents are asked whether their main job comprises one of eight ‘special working hours arrangements’. ZHCs are seventh on the list with respondents allowed to select up to three arrangements. If unsure, respondents are told that a ZHC refers to a situation ‘where a person is not contracted to work a set number of hours, and is only paid for the number of hours that they actually work’.

Analysis of this data source suggests that ZHCs quadrupled in size from 225,000 (0.8 per cent) in 2000 to 907,000 (2.9 per cent) in 2016 and have fallen a little since then to 896,000 (2.7 per cent) in 2019 (ONS, 2019b). Further analysis suggests that these contracts are disproportionately held by the young, the less well qualified and those working in certain parts of the economy such as accommodation and food, where almost a quarter of all ZHCs can be found (Adams and Prassl, 2018; Farina *et al.*, 2019; Koumenta and Williams, 2019).

In order to complement the employees’ perspective, ONS used to gather data from a survey of around 5,000 employers. Nine waves of the survey were carried out between 2014 and 2017, but in November 2017, the series was discontinued. Evidence from the 2017 survey suggests that there were 1.8 million contracts that did not guarantee workers a minimum number of hours and that they accounted for around one in 20 (6 per cent) employment contracts (Petkova, 2018).

Despite these insights, the ONS employer and individual-level data are restricted. In the case of the business survey, the number of questions asked is limited, the data are not available for secondary analysis and the survey is no longer carried out. The LFS, on the other hand, provides more scope for secondary analysis given the number of questions asked, its regularity and accessibility. Even so, many non-pay

characteristics of jobs, which have a proven link to well-being, are absent (Felstead *et al.*, 2019). These include the intensity of work, the threat of dismissal, the level of managerial support, the ability to take time off for emergencies and the probability of job loss.

Other data sources provide a partial response to this neglect. Most notably, the Chartered Institute of Personnel and Development (CIPD) commissioned three surveys of ZHCs—two focused on the experience of employers and one focused on employees. All three collect more extensive data than collected by ONS (CIPD, 2013 and 2015). The employee survey, for example, collected data on some features of job quality such as work-life balance, workload pressures and managerial support. Its results highlight the unpredictability of work schedules for those on ZHCs with almost half (46 per cent) having no notice at all when shifts are cancelled. The finding that only one in 10 (9 per cent) of ZHC workers get more than four weeks' notice when they are not required illustrates the scale of the challenge facing the Living Hours campaign that seeks to make this the norm (CIPD, 2013: table 17).

However, the experience of having working hours cut at short notice and anxiety that unexpected changes will be made to work schedules does not just apply to ZHCs, but can be experienced by other workers regardless of their contractual status. The aim of this article is to quantify, profile and examine the correlates of these forms of insecure working hours alongside ZHCs.

### 3 DATA SOURCES, METHODS AND APPROACH

Most of the comparative data on ZHCs presented in this article are taken from the LFS for the second quarter of 2017 (i.e. April–June). This provides the most contemporaneous data to the Skills and Employment Survey 2017 (SES2017), interviewing for this survey peaked towards the end of the second quarter of 2017. However, we also draw on the fourth quarter LFS for 2017. We do so when examining the correlation between ZHCs and the presence of trade unions in the workplace since that is the only quarter where data on both ZHCs and unions are regularly collected.

SES2017 is the seventh in a series of nationally representative sample surveys of individuals in employment aged 20–65. The 2017 survey collected data from across Britain. Respondents were interviewed face-to-face for about an hour in their own homes. The sample was drawn using random probability principles subject to stratification based on a number of socio-economic indicators. Only one eligible respondent per address was randomly selected for interview, and 50 per cent of those selected completed the survey. Data collection was directed by the authors and conducted by GfK. A weight was computed to take into account the differential probabilities of sample selection, the over-sampling of certain areas and some small response rate variations between groups (defined by sex, age and occupation). All of the descriptive analyses that follow use this weight to correct for sampling and non-response biases (Felstead *et al.*, 2015).

This article addresses the following research questions. How extensive are the various forms of insecure working hours? What are the characteristics of the employees and employers involved? How is working hours insecurity related to other aspects of job quality? Data on ZHCs come from the LFS. For other types of working hours insecurity, such as the experience of cuts to hours of work at short notice and the level of anxiety about unexpected changes to working hours, we draw on SES2017. Since these particular SES questions were only asked of employees, we restrict the analysis

Table 1: Prevalence of insecure working hours

Type of insecure working hours	Percentage of employees (1)	Number of employees (2)
Zero-hours contacts <sup>1</sup>	2.6	636,659
Cuts at short notice to weekly working hours	4.9	1,216,600
Unexpected changes to working hours (narrowly defined)	7.0	1,744,372
Unexpected changes to working hours (widely defined)	25.1	6,214,325

<sup>1</sup> The Labour Force Survey population weight is used to derive this estimate.

of both data sets to employees, thereby ensuring that only like-for-like comparisons are made. A mixture of descriptive and regression results is presented in what follows.

## 4 EXTENT, CHARACTERISTICS AND CORRELATES OF INSECURE WORKING HOURS

### 4.1 Extent of insecure working hours

Despite its limitations, the LFS remains the key source of evidence on ZHCs (Chandler and Barrett, 2013; ONS, 2014; Adams and Prassl, 2018: 8–9). It is therefore apt that we start with estimates of the numbers of employees whose main job is carried out on a ZHC basis. As outlined earlier, LFS respondents are asked whether their main job can be categorised as one of eight ‘special working hours arrangements’. Respondents are asked to choose up to three arrangements, thereby ensuring that ZHCs are captured even if they are not the only arrangement mentioned.

However, two issues need to be borne in mind. First, the ‘special working arrangements’ question is only asked in the spring and autumn quarters. Second, each quarterly LFS is made up of five waves, so that the same respondents are interviewed five times over the course of 15 months. This means that if respondents fail to answer ‘special working arrangements’ question when asked in, say, the spring quarter, it is not possible to carry forward their response to that question from the winter quarter since it is only asked every six months. Rather than treat these cases as missing, ONS recommends the use of imputation protocols that we have followed. These assume that sample members who did not answer the question would have answered in similar proportions to those who did. This minimises non-response bias and improves the precision of the resulting estimates by boosting the sample size on which these calculations are made.

In order to provide a like-with-like comparison to SES2017, the LFS data reported here are restricted to those living in Britain aged 20–65 years old inclusive and working as employees.<sup>2</sup> The first row in Table 1, therefore, reports that at the time of

<sup>2</sup> The self-employed were included in the ZHCs estimate given in Felstead *et al.* (2018); hence, small differences with the ZHC data presented here.

SES2017, 640,000 employees were employed on a ZHC. This represents 2.6 per cent of the employee population or around one in 40 jobs (Table 1).

SES2017 asks employees about the insecurity of working hours. The data produced go beyond employees' awareness of the *contractual* terms and conditions on which they are employed. It captures their *actual experience* of working hours being cut with little warning and their *anxiety* about unexpected changes being made to their hours of work. This first aspect is captured by affirmative responses to the question: 'Does your employer ever reduce your weekly hours of work at short notice?' This percentage is, then, multiplied by the estimated number of employees living in Britain aged 20–65 years old according to the LFS. Measured in these terms, working hours insecurity is more widespread than ZHCs with 4.9 per cent of employees—or 1.2 million people—having experienced cuts to their weekly working hours at short notice.

SES2017 also asked how anxious employees were about 'unexpected changes to my hours of work'—this could be movements up or down in the number of hours worked and/or changes to when work is carried out, that is, changes to the work schedule. Respondents were offered four options: 'very anxious', 'fairly anxious', 'not very anxious' and 'not anxious at all'. We derive a narrow and broad measure of work scheduling anxiety based on the responses given. Our narrow measure takes those who reported feeling very anxious about unexpected changes to hours of work, while our broad measure includes those feeling very or fairly anxious. We refer to these as 'acute' and 'mild to acute' anxiety, respectively. Based on this evidence, there are about three times as many employees (7.0 per cent or 1.7 million people) who are acutely anxious about unexpected changes to hours of work than there are employees engaged on a ZHC. The proportion and numbers reporting mild to acute anxiety levels are higher still (25.1 per cent or 6.2 million people).

While there is qualitative evidence on how various forms of insecurity—most notably ZHCs—can place financial pressures on workers and their families (e.g. Pennycook *et al.*, 2013; Pickavance, 2014; TUC, 2017), there is less evidence on the association it has with worker well-being. Where it does exist, it is based on small and sector-specific studies that often produce inconclusive results. For example, a survey of 199 care workers found that overall, those on ZHCs did not suffer from significantly lower mental health than other workers, but a greater proportion of them reported experiencing very poor mental health (Ravalier *et al.*, 2017). However, SES2017 offers a robust, economy-wide basis on which to test the strength of the association between insecure working hours and worker well-being.

SES2017 carries a battery of survey items designed to measure job-related well-being, that is, the extent to which jobs prompt arousal and pleasure, or enthusiasm for short (Warr, 1990). Respondents were asked: 'Thinking of the past few weeks, how much of the time has your job made you feel each of the following ...?' They were given a series of adjectives, each describing a different feeling. To construct an enthusiasm scale, we use responses given to the following: 'cheerful', 'enthusiastic', 'optimistic', 'depressed', 'gloomy' and 'miserable'. The response set comprises six points ranging from 'never' to 'all of the time'. We devise a scale by averaging the responses given using a 1–6 scoring system (after reversing the three negative items in the second half of the list). High enthusiasm equates to those who reported that their job makes them feel positive 'most' or 'all of the time' (i.e. a score of 5 or 6), whereas low enthusiasm captures those whose job makes them feel positive 'some of the time', 'occasionally' or 'never' (i.e. a score of 3, 2 and 1).



However, jobs may simultaneously prompt high arousal and low pleasure or low arousal and high pleasure—referred to as anxiety and contentment, respectively. These job-related feelings are captured by the following adjectives: ‘worried’, ‘uneasy’, ‘tense’, ‘content’, ‘relaxed’ and ‘calm’. Scores for the first three items are reversed, so that higher scores indicate higher contentment, and labelling contentment as high or low equates to positive and negative feelings as outlined previously for the enthusiasm scale.

The bivariate results show that the experience of cuts to working hours at short notice and anxiety about unexpected changes to hours of work are associated with lower levels of well-being as measured by levels of enthusiasm and contentment. For example, over half (56.9 per cent) of those reporting acute anxiety also reported low enthusiasm levels compared with less than a third (30.6 per cent) of those who felt less anxious about changes to their hours of work. The figures for low contentment are 74.1 and 59.3 per cent, respectively. Similarly, only around one in 12 (7.9 per cent) of those who felt very or fairly anxious about changes to their working hours also reported high levels of enthusiasm for their job compared with approaching a fifth (18.4 per cent) who were not very anxious or not anxious at all. The figures for high contentment are 3.3 and 7.3 per cent, respectively (Table 2). The statistical significance of these results is confirmed in multivariate analysis. These use the two additive scales as outcomes and take into account other explanatory factors such as social class, education, industry and personality traits.

However, despite our bleak new evidence of extensive working hours insecurity, it should also be noted that in 2017, the risk of job loss was at its lowest level in over 30 years. Less than one in 10 (9.2 per cent) of workers in Britain in 2017 reported that they had a better than evens chance of losing their job in the next 12 months. This is half the proportion (18.2 per cent) who made a similar assessment in 2012. Anxiety about changes to the job has also fallen dramatically. For example, in 2012,

Table 2: *Insecure working hours and well-being*

Type of insecure working hours		Job-related well-being <sup>1</sup>			
		Low enthusiasm (1)	High enthusiasm (2)	Low contentment (3)	High contentment (4)
Row percentage					
Cuts at short notice to weekly working hours	Yes	42.0	14.9	66.7	1.0
	No	32.0	15.8	60.0	6.6
Unexpected changes to working hours (narrowly defined)	Yes	56.9	9.2	74.1	3.2
	No	30.6	16.3	59.3	6.5
Unexpected changes to working hours (widely defined)	Yes	48.0	7.9	71.9	3.3
	No	27.2	18.4	56.4	7.3

<sup>1</sup> The row totals are not equal to 100 per cent because 45.1 and 31.1 per cent of employees have an enthusiasm and contentment score, respectively,  $\geq 4$  but  $< 5$  (i.e. much of the time).

37.3 per cent of employees were anxious about having a pay cut, but by 2017, this had fallen to 28.4 per cent (Felstead *et al.*, 2018).

#### 4.2 Characteristics of insecure hours workers and their jobs

There are a number of studies that have examined the demographic and socio-economic characteristics of those working on ZHCs (e.g. Adams and Prassl, 2018; Farina *et al.*, 2019; Koumenta and Williams, 2019). They have identified that ZHCs are more prevalent among women, the young and the old, ethnic minorities, disabled people, the lower qualified, part-timers, temporary workers, those in lower social classes, those outside the public sector and those working in distribution, hotels and restaurants or other services. This is confirmed by our analysis (Table 3).

While many of these patterns are repeated for other forms of insecure working hours, the contrasts are often not as pronounced. Take gender where most, but not all, types of insecurity are more prevalent among women than men. For example, 3.1 per cent of female employees are on ZHCs, while 1.8 per cent of men are similarly engaged. However, both sexes are more or less equally represented among those experiencing cuts to working hours at short notice.

The experience of insecure working hours and anxiety about unexpected changes to work schedules are also spread more evenly across social classes, contract types and hours worked. Rarely, for example, do those in the 'higher managerial and professional' class report being on a ZHC (0.3 per cent). This compares with one in 20 (5.0 per cent) 'routine' workers. The class gradient for other forms of insecurity is not as steep. For example, around one in 12 'higher managers and professionals' (13.8 per cent) report feeling very or fairly anxious about unexpected changes to their work schedule. This compares with 29.8 per cent for 'routine' workers. Similar patterns are found elsewhere in the data. Around a fifth (18.2 per cent) of temporary workers, for example, report being on a ZHC compared with only one in 50 (1.7 per cent) of those in permanent jobs. For other types of working hours insecurity, the permanent versus temporary contrast, while still evident, is not as dramatic—a quarter (24.8 per cent) of permanent workers report feeling very or fairly anxious that their work schedule may change unexpectedly compared with 29.3 per cent of those on temporary contracts.

These descriptive patterns could, of course, be artefacts of the data; that is, these bivariate contrasts may disappear when other associations are simultaneously taken into account. To test the robustness of the findings, we therefore carry out four logistic regressions that simultaneously control for demographic and socio-economic characteristics along with personality traits. The latter are entered to control for subjective differences in outlook when respondents are asked to self-rate their levels of anxiety about unexpected changes to hours of work.

This analytical approach reinforces many of the descriptive findings. It confirms, for example, that ZHCs are strongly related to age—with the young and old significantly more likely to be engaged on such contracts holding other things constant. By contrast, experience of cuts to working hours and anxiety about changes to work schedules are reported more or less equally across all age groups. The odds of being on a ZHC, for example, are 1.7 times higher for those in their twenties or sixties than for those in their forties. However, the odds of experiencing or feeling anxious about changes to work schedules do not vary significantly by age (Table 4). Ethnic minorities, on the other hand, are significantly more likely to report all four forms of



Table 3: Descriptive pattern of insecure working hours

Demographic and socio-economic characteristics	Zero- hours contracts <sup>1</sup> (1)	Cuts at short notice to working hours (2)	Unexpected changes to working hours		
			Very anxious (3)	Very + Fairly anxious (4)	
					Row percentages
All	2.6	4.9	7.0		25.1
Sex					
Male	1.8	5.0	5.8		22.3
Female	3.1	4.9	8.4		28.0
Age					
20–29	4.4	5.5	5.8		28.9
30–39	2.0	5.2	7.2		27.3
40–49	1.7	4.1	7.3		24.3
50–59	1.9	5.4	8.5		21.2
60–65	3.8	3.5	4.7		19.1
Ethnicity					
White	2.4	4.2	6.3		23.6
Black, Asian and minority ethnic	3.9	9.3	12.1		34.1
Health <sup>2</sup>					
Non-disabled according to the Equality Act 2010	2.4	NA	NA		NA
Disabled according to the Equality Act 2010	4.1	NA	NA		NA
Excellent/very good health	NA	4.5	6.7		24.4
Good/fair/poor	NA	8.7	9.8		32.3
Education level					

(Continues)

Table 3. (Continued)

Demographic and socio-economic characteristics	Zero- hours contracts <sup>1</sup> (1)	Cuts at short notice to working hours (2)	Unexpected changes to working hours	
			Very anxious (3)	Very + Fairly anxious (4)
			Row percentages	
Level 4 and above	1.9	3.3	5.8	21.9
Level 3	3.2	6.2	6.8	28.1
Level 2	2.8	4.4	7.8	26.1
Level 1	3.5	9.3	13.2	34.7
No qualifications	4.7	8.5	7.7	23.4
Working time				
Full-time	1.5	3.8	7.0	23.4
Part-time	6.1	8.9	7.4	30.9
Contract type				
Permanent	1.7	4.0	6.9	24.8
Temporary	18.2	18.2	10.2	29.3
Social class				
Higher managerial and professional	0.3	1.1	3.1	13.8
Lower managerial and professional	1.2	2.7	5.6	20.8
Intermediate	2.0	3.0	8.9	31.5
Lower supervisory and technical	2.4	7.9	9.4	31.1
Semi-routine	5.8	7.9	10.8	32.5
Routine	5.0	10.9	7.2	29.8
Sector				

(Continues)

Table 3. (Continued)

Demographic and socio-economic characteristics	Zero- hours contracts <sup>1</sup> (1)	Cuts at short notice to working hours (2)	Unexpected changes to working hours	
			Very anxious (3)	Very + Fairly anxious (4)
			Row percentages	
Public sector	2.0	4.8	7.3	27.8
Private sector or third sector	2.9	4.8	6.9	23.4
Industry				
Agriculture, forestry and fishing (A)	0.8	0.0	0.0	14.6
Energy and water (B,D,E)	1.5	0.0	11.3	24.8
Manufacturing (C)	1.4	2.2	5.1	20.6
Construction (F)	0.7	6.6	5.5	18.3
Distribution, hotels and restaurants (G,I)	3.4	8.1	9.1	31.1
Transport and communication (H,J)	1.7	8.3	6.5	27.9
Banking and finance (K,L,M,N)	2.0	4.1	6.5	19.0
Public administration, education and health (O,P,Q)	3.0	3.6	7.4	27.1
Other services (R,S,T,U)	5.0	2.8	2.7	21.4

<sup>1</sup> The Labour Force Survey estimates are weighted using the ONS weight supplied.

<sup>2</sup> For the Labour Force Survey analysis (column 1), we use a derived variable that classifies respondents as disabled or not according to the Equality Act 2010. For SES (columns 2-4), we use a self-assessment health question that asks respondents 'In general, would you say your health is ... excellent, very good, good, fair or poor?'

Table 4: Demographic and socio-economic correlates of insecure working hours

Demographic and socio-economic correlates	Zero-hours contracts (1)	Cuts at short notice to working hours (2)	Unexpected changes to working hours	
			Very anxious (3)	Very + Fairly anxious (4)
Odds ratios				
Sex	Ref	Ref	Ref	Ref
Male	<b>1.249**</b> (0.133)	0.956 (0.213)	<b>1.503**</b> (0.263)	<b>1.310***</b> (0.142)
Female				
Age				
20–29	<b>1.727***</b> (0.254)	0.788 (0.259)	0.938 (0.234)	1.016 (0.151)
30–39	1.151 (0.164)	1.461 (0.397)	1.043 (0.220)	1.169 (0.151)
40–49	Ref	Ref	Ref	Ref
50–59	1.082 (0.161)	1.382 (0.397)	1.313 (0.291)	0.827 (0.119)
60–65	<b>1.690***</b> (0.293)	0.702 (0.304)	0.814 (0.276)	<b>0.706*</b> (0.143)
Ethnicity				
White	Ref	Ref	Ref	Ref
Black, Asian and minority ethnic	<b>1.422***</b> (0.194)	<b>1.926***</b> (0.495)	<b>2.664***</b> (0.561)	<b>1.516***</b> (0.218)
Health				
Non-disabled according to the Equality Act 2010	Ref	NA	NA	NA
Disabled according to the Equality Act 2010	<b>1.317***</b> (0.154)	NA	NA	NA
Excellent/very good health	NA	Ref	Ref	Ref
Good/fair/poor health	NA	1.436 (0.392)	<b>1.685**</b> (0.352)	<b>1.643***</b> (0.236)
Education level				
Level 4 and above	0.816 (0.152)	1.131 (0.414)	0.786 (0.253)	0.946 (0.295)
Level 3	-0.799 (0.149)	1.122 (0.395)	0.651 (0.209)	0.979 (0.208)
Level 2	0.855 (0.156)	0.895 (0.324)	0.824 (0.260)	0.963 (0.204)

*(Continues)*

Table 4. (Continued)

Demographic and socio-economic correlates	Zero-hours contracts (1)	Cuts at short notice to working hours (2)	Unexpected changes to working hours	
			Very anxious (3)	Very + Fairly anxious (4)
	Odds ratios			
Level 1				
No qualifications	0.842 (0.169)	1.481 (0.556)	1.432 (0.486)	1.244 (0.295)
Working time	Ref	Ref	Ref	Ref
Full-time	Ref	Ref	Ref	Ref
Part-time	<b>2.159***</b> (0.220)	<b>1.674**</b> (0.371)	<b>0.730*</b> (0.135)	1.047 (0.121)
Contract type				
Permanent	Ref	Ref	Ref	Ref
Temporary	<b>11.264***</b> (1.175)	<b>4.195**</b> (1.078)	<b>1.781**</b> (0.486)	1.263 (0.236)
Social class				
Higher managerial and professional	<b>0.274***</b> (0.080)	0.466 (0.261)	<b>0.342***</b> (0.119)	<b>0.458***</b> (0.091)
Lower managerial and professional	0.856 (0.137)	0.719 (0.285)	<b>0.555*</b> (0.133)	<b>0.622***</b> (0.091)
Intermediate	Ref	Ref	Ref	Ref
Lower supervisory and technical	<b>2.353***</b> (0.451)	<b>3.221***</b> (1.326)	1.459 (0.413)	<b>1.439*</b> (0.269)
Semi-routine	<b>2.899***</b> (0.422)	<b>2.818***</b> (1.029)	1.399 (0.342)	<b>1.365*</b> (0.219)
Routine	<b>2.787***</b> (0.457)	<b>3.922***</b> (1.491)	1.057 (0.307)	1.203 (0.222)
Sector				
Public sector	<b>0.427***</b> (0.055)	1.151 (0.288)	0.972 (0.200)	<b>1.265*</b> (0.164)
Private sector or third sector	Ref	Ref	Ref	Ref
Industry				
Agriculture, forestry and fishing (A)	0.427 (0.324)	—	0.000 (0.000)	0.933 (0.655)

(Continues)

Table 4. (Continued)

Demographic and socio-economic correlates	Zero-hours contracts (1)	Cuts at short notice to working hours (2)	Unexpected changes to working hours	
			Very anxious (3)	Very + Fairly anxious (4)
Energy and water (B,D,E)	1.417 (0.642)	—	<b>3.015**</b> (1.664)	1.443 (0.562)
Manufacturing (C)	Ref	Ref	Ref	Ref
Construction (F)	0.648 (0.238)	2.163 (1.145)	0.966 (0.461)	0.891 (0.239)
Distribution, hotels and restaurants (G,I)	1.178 (0.241)	<b>2.571**</b> (1.090)	1.539 (0.465)	1.289 (0.236)
Transport and communication (H,J)	1.221 (0.307)	<b>3.453***</b> (1.583)	1.527 (0.537)	1.162 (0.252)
Banking and finance (K,L,M,N)	1.718 (0.241)	<b>2.722**</b> (1.220)	1.609 (0.521)	0.971 (0.192)
Public administration, education and health (O,P,Q)	<b>2.669***</b> (0.555)	1.604 (0.750)	1.568 (0.511)	1.304 (0.255)
Other services (R,S,T,U)	<b>2.852***</b> (0.687)	—	0.446 (0.471)	0.995 (0.402)
Personality traits <sup>1</sup>	No	No	Yes	Yes
Region	Yes	Yes	Yes	Yes
Other controls (marital status, children)	Yes	Yes	Yes	Yes
Pseudo- <i>R</i> <sup>2</sup>	0.20	0.17	0.10	0.08
<i>N</i>	25,340	2,702	2,784	2,797

<sup>1</sup> Respondents were presented with a pair of five personality traits and asked how strongly these traits applied to them. They were asked to use a five-point scale in response. Each pair of traits has a positive and negative element. The latter are reverse scored in the construction of five personality domains.

\*  $p < 0.1$ ;

\*\*  $p < 0.05$ ;

\*\*\*  $p < 0.01$ ; and bold figures indicate statistical significance at  $p < 0.1$  or better.



working hours insecurity, and those with a disability or poorer health have significantly higher odds of being on ZHC or feeling anxious about changes to their hours of work.

The multivariate results also confirm a stronger social class gradient for ZHCs and cuts to working hours compared with anxiety about unexpected changes to work schedules. For example, the odds of being on a ZHC for 'higher managers and professionals' are 0.3 times the odds for 'intermediate' workers, while for 'routine' workers, the multiple is 2.8. The contrast, however, is narrower for anxiety about changes to work schedules—varying from 0.3 and 0.5 for 'higher managers and professionals' to no significant difference at all for 'routine' workers.

In addition, these results highlight the statistically strong association between ZHCs and temporary working. The odds of temporary workers being on ZHCs are 11.3 times the odds of permanent workers being similarly engaged. The odds are lower for other forms of insecurity—4.2 in the case of experiencing cuts to working hours, 1.8 for feeling very anxious about unexpected changes to work schedules and statistical parity for those feeling very or fairly anxious about changes to hours of work. Part-timers are also more likely to be on a ZHC compared with their otherwise identical full-time equivalents—2.2 times as likely in fact. In addition, their odds of experiencing cuts to weekly working hours are 1.7 times the odds of permanent workers experiencing cuts. But these differences disappear and even move in favour of part-timers for those feeling very anxious about changes to their hours of work.

While we can use the data at our disposal to compare the demographic and socio-economic profiles of those on ZHCs with other forms of working hours insecurity, we can also examine the association that insecure working hours has with other aspects of job quality. After taking into account differences in employee characteristics, we find that those on ZHCs as well as those who experience cuts to working hours are significantly more likely to be low paid (that is, paid below £7.50 an hour, the National Living Wage for those aged 25 or over in 2017). However, raw differences in their hourly pay can be explained by demographic and socio-economic factors. This suggests that ZHC workers and those subjected to cuts to hours of work at short notice are clustered towards the bottom of the pay hierarchy. On the other hand, those whose jobs make them anxious about unexpected changes to hours of work are paid 4–5 per cent less than otherwise identical individuals, but they are unlikely to be classified as lowly paid (Table 5). This suggests that anxiety about changes to work schedules is spread more evenly across the pay distribution.

In addition, jobs that provide insecure working hours are poorer, on average, in other respects. For example, they are significantly more likely to be required to work very hard, and to operate at very high speed and to tight deadlines for three-quarters or more of the time. They are also significantly more likely to be working in conditions where they are at risk of being quickly dismissed (less than one week) for not working hard enough and where they have an even or higher chance of losing their job in the next 12 months. Those working insecure hours are also less able to easily 'take an hour or two off during working hours to take care of personal or family matters' and are less likely to have supportive line managers willing to develop the skills of those in their charge, recognise the abilities of their staff and ease the pressure of work when necessary (note the significance of the coefficients reported in Table 5).

Working hours insecurity may also carry costs for employers if associated with lower levels of organisational commitment. This can, in turn, reduce employee motivation and weaken business performance (Allen and Meyer, 1990; Steers *et al.*, 2004).

Table 5: Associated job quality characteristics of those working insecure hours

Job quality characteristics	Zero-hours contracts (1)	Cuts at short notice to working hours (2)	Unexpected changes to working hours	
			Very anxious (3)	Very + Fairly anxious (4)
			Correlation coefficients <sup>1</sup>	
Low pay (<£7.50 an hour)—dichotomous	<b>0.424**</b> (0.177)	<b>0.482*</b> (0.267)	0.038 (0.242)	0.159 (0.159)
Hourly rate of pay (logged)—continuous	0.127 (0.802)	0.048 (0.039)	− <b>0.052*</b> (0.030)	− <b>0.040**</b> (0.019)
Requirement to work very hard—ordered	NA	<b>0.289***</b> (0.108)	<b>0.255***</b> (0.087)	<b>0.119***</b> (0.054)
Working at very high speed for ¾ or more of the time—dichotomous	NA	<b>0.524***</b> (0.190)	<b>0.747***</b> (0.153)	<b>0.538***</b> (0.094)
Working to tight deadlines for ¾ or more of the time—dichotomous	NA	<b>0.605***</b> (0.199)	<b>0.622***</b> (0.159)	<b>0.331***</b> (0.096)
Threat of quick dismissal (after less than one week) for not working hard enough—dichotomous	NA	<b>0.663**</b> (0.284)	<b>0.598**</b> (0.271)	<b>0.800***</b> (0.192)
Evens or higher chance of job loss—dichotomous	NA	<b>0.508*</b> (0.290)	<b>0.637***</b> (0.227)	<b>0.845***</b> (0.158)
Easy to take time off for emergencies—ordered	NA	− <b>0.336***</b> (0.097)	− <b>0.408***</b> (0.078)	− <b>0.400***</b> (0.049)
Line management support in managing work pressure, development and abilities—continuous	NA	− <b>0.402**</b> (0.097)	− <b>0.236***</b> (0.075)	− <b>0.206***</b> (0.048)

<sup>1</sup> Separate regression models are run for each job quality characteristic with controls as per Table 3. OLS for continuous job quality characteristics, ordered probits for ordinal job characteristics and logistic regressions for dichotomous characteristics. Coefficients on the relevant insecure working hours variable are reported.

\* p<0.1; \*\* p<0.05; \*\*\* p<0.01; and bold figures indicate statistical significance at p<0.1 or better.

SES2017 carries survey questions that capture employees' attitudes towards their organisations and the nature of their behaviour at work. Respondents were asked six questions—three on attitudes and three on behaviours. For the analysis, we first award scores of 4 for 'strongly agree', 3 for 'agree', 2 for 'disagree' and 1 for 'strongly disagree' according to the responses given. For presentational purposes, we refer to those who on average agreed with the six statements (i.e. had a score of 3 or 4) as exhibiting high organisational commitment and those who disagreed as having low commitment (i.e. scored 1 or 2). An index of organisational commitment is also created by adding the scales and dividing by six.

The results show a strong association between working hours insecurity and the strength of organisational commitment. Greater insecurity is associated with lower organisational commitment and vice versa (Table 6). There is, for example, a 10 percentage point gap between the proportion of employees reporting a high level of organisational commitment according to their experience or otherwise of cuts to working hours at short notice (28.3 versus 38.8 per cent). These descriptive results are confirmed in multivariate analysis for two out of three of the SES insecurity indicators; the association between the organisational commitment index and cuts to working hours is negative, but falls short of the high levels of statistical significance reached by the two anxiety indicators ( $p < 0.14$ ).

These results suggest that the practice of rescheduling work at short notice and/or creating anxiety among workers that working hours might be changed unexpectedly can carry costs for employers. Reducing the affective bonds that workers have with their employer can have negative consequences for organisational citizenship behaviour. This includes weakening employees' willingness to offer innovative ideas to improve business performance; go the extra mile when necessary; do the work when

*Table 6: Insecure working hours and organisational commitment*

Type of insecure working hours		Organisational commitment <sup>1</sup>	
		Low (1)	High (2)
		Row percentage	
Cuts at short notice to weekly working hours	Yes	13.0	28.3
	No	8.4	38.8
Unexpected changes to working hours (narrowly defined)	Yes	13.7	35.9
	No	8.2	38.4
Unexpected changes to working hours (widely defined)	Yes	12.5	31.5
	No	7.2	40.6

<sup>1</sup> Respondents were asked to what extent they agreed or disagreed using a four-point scale with the following statements: (1) 'I am willing to work harder than I have to in order to help this organisation succeed'; (2) 'I feel very little loyalty to this organisation' (note reversal); (3) 'I find that my values and the organisation's values are very similar'; (4) 'I am proud to be working for this organisation'; (5) 'I would take almost any job to keep working for this organisation'; and (6) 'I would turn down another job with more pay in order to stay with this organisation'. The row totals are not equal to 100 per cent because over half (53.7 per cent) of employees have an organisational commitment score  $>2$  but  $<3$  (i.e. averaging between disagree and agree).

required and to the necessary standard; and remain with the organisation even when offered better pay (Lincoln and Kalleberg, 1990; Mayer and Allen, 1997). Lower organisational commitment associated with insecure working hours, then, carries costs in terms of lost ideas, less discretionary effort, higher absenteeism and increased recruitment and training costs incurred as the result of higher labour turnover (Rubery *et al.*, 2015). The scale of insecure working hours is particularly worrying at time when policy makers are concerned about the failure of productivity in Britain to return to its pre-Great Recession rate (Moore and Hayes, 2017).

### 4.3 Workplace correlates of insecure working hours

We now turn to the workplace correlates of insecure working hours. For this part of the analysis, we carry out four logistic regressions to test the association that various workplace factors have with ZHCs, experience of cuts to working hours and anxiety about unexpected changes to working hours.

Despite arguments suggesting that trade unions can be a force for good (e.g. Dromey, 2018), it is a little surprising that the existing literature has failed to examine the association that trade union presence at the workplace has with ZHCs. This is even more surprising given the findings reported in Table 7. These suggest that the presence of trade unions at the workplace is a force for good with their presence negatively and significantly associated with the likelihood of employees being employed on a ZHC or of having working hours cut at short notice. However, the presence of trade unions is not associated with a reduction in anxiety about unexpected changes to work schedules.

Research on the role played by trade unions in mitigating the rise of ZHCs has identified the mechanisms that might help to explain these correlations. These include the role of trade unions in mounting sector-wide campaigns, applying company specific pressure and lobbying national and devolved governments to act (Murphy *et al.*, 2019). Both Unison and Unite, for example, have issued charters in recent years. In 2018, Unite issued a Construction Charter as well as a Fair Hospitality Charter, while Unison launched its Ethical Care Charter in 2012 with the aim of promoting both good standards of domiciliary care and good employment practices (Moore, 2017). These charters put the spotlight on employment practices that have detrimental effects on workers and are prevalent in particular sectors. By 2019, more than 40 local authorities had signed up to the Ethical Care Charter and therefore made a public commitment, for example, to minimise the use of ZHCs.

In addition, there have been high profile, trade union-led campaigns targeted at particular companies such as Sports Direct. These have often centred on the harsh employment conditions that workers endure and the treatment of 'workers as commodities rather than as human beings with rights, responsibilities and aspirations' (House of Commons, 2016: 12). Trade union organisers have, therefore, been on the look-out for and keen to challenge the use of similar practices elsewhere that are often typified by the extensive use of ZHCs.

In some parts of the UK, trade unions have also been successful in lobbying others to take action. In Wales, for example, the Wales Trades Union Congress worked with Welsh Government and employer representatives to develop a set of employment principles. These are intended to give public sector workers greater certainty over the number and scheduling of their working hours (Welsh Government, 2016). In social care, some of these principles have been enshrined in law on the grounds that



Table 7. (Continued)

Workplace correlates	Zero-hours contracts (1)	Cuts at short notice to working hours (2)	Unexpected changes to working hours	
			Very anxious (3)	Very + Fairly anxious (4)
Introduction of new computerised or automated equipment—dichotomous		<b>0.844**</b> (0.347)	0.222 (0.235)	<b>0.261*</b> (0.143)
Reduction in the number doing similar work—dichotomous	NA	0.581 (0.360)	0.352 (0.235)	<b>0.359**</b> (0.146)
Model parameters	Yes	Yes	Yes	Yes
Demographic and socio-economic controls (as per Table 3)	0.22	0.32	0.18	0.13
Pseudo- $R^2$	21,879	1,365	1,419	1,424
$N$				

\*  $p < 0.1$ ;\*\*  $p < 0.5$ ;\*\*\*  $p < 0.1$ ; and bold figures indicate statistical significance at  $p < 0.1$  or better.



poor employment conditions can undermine the quality of care provided (*The Regulated Services (Service Providers and Responsible Individuals) (Wales) Regulations 2017*).

The data also suggest that the level of direct employee involvement in decision-making at work is associated with lower prevalence of insecure working hours with the level of say over proposed changes to job design being negatively and significantly correlated with all three SES measures. Task discretion is similarly correlated with one of the three measures, but at relatively low levels of statistical significance ( $p < 0.10$ ). This evidence highlights that employees can exert pressure on employers seeking to align the duration and timing of work to the peaks and troughs in demand by varying the working hours of employees. This could be through employees voicing their concerns about the difficulties insecure working hours poses for workers; highlighting the costs that employers may incur as a result of transferring the unpredictability of demand onto workers; and/or suggesting that other forms of flexible working, which offer ‘two-sided flexibility’ that suit the needs of both workers and employers, are used instead (Low Pay Commission, 2018: 10).

Workplace change as measured by work reorganisation, the introduction of new technology or downsizing is positively and significantly correlated with SES-measured aspects of insecure working hours. Furthermore, all three forms of workplace change are associated with a greater likelihood that employees report mild or acute anxiety over unexpected changes to their work schedules. The strength of competition faced by the organisation may also prompt employers to change hours of work in line with peaks and troughs in demand. There is some evidence in the data for this prediction. Measured on a five-point scale, the strength of competition is positively and significantly correlated with the experience of cuts being made to working hours at short notice, but not with anxiety about unexpected changes to hours of work.

## 5 CONCLUSION

The notion of insecurity has widened since the Great Recession from a narrow focus on the risk of job loss to a wider focus on changes within the job, such as receiving a pay cut or being redeployed to a less interesting job (Gallie *et al.*, 2017). Insecurity over the scheduling of working hours has also captured particular attention with a spike of interest in ZHCs from academics, policy makers and civil society organisations. Not knowing whether, when and how much work will be available can create problems for workers, such as making it difficult to pay the bills and to plan for the future.

The results presented in this article suggest that insecurity over working hours is more widely experienced and felt than the prevalence of ZHCs suggests. One in 14 employees (7.0 per cent) report feeling very anxious that their working hours could change unexpectedly and one in four (25.1 per cent) report feeling fairly or very anxious that this will happen. This equates to 1.7 million and 6.2 million employees respectively and—using like for like comparisons—is between three to nine times the estimate of 640,000 employees who work on ZHCs according to official data. Even reports of cuts to weekly working hours at short notice are more frequent than ZHCs (4.9 versus 2.6 per cent). Taken together these estimates have been recognised by the UK government as providing ‘a benchmark estimate of the scale of the issue’ (BEIS, 2019: 10).

That said, there are limitations to the data we present. The cuts to weekly working hours question, for example, asks employees if their employer has ever reduced hours at short notice. We have no way of telling, therefore, how frequently this occurred and when, and how 'short notice' is defined. Similarly, the question on unexpected changes to working hours is couched in terms of feelings of anxiety. The data collected are inevitably influenced by two factors: estimates of the probability that hours of work will change unexpectedly and the personal circumstances and/or background of respondents. For this reason, personality traits of employees are entered into our multivariate models. This partially controls for, but does not fully illuminate, systematic biases of this sort.

Despite these limitations, the article shows that insecurity over working hours is a feature of a wider range of jobs and is reported by a wider spectrum of people than a narrow focus on ZHCs implies. Those working insecure hours also tend to occupy jobs that are poorer in other ways too with higher work intensity, greater threat of dismissal, higher risk of job loss and less in-work and out-of-work support. In addition, the job-related well-being of such employees tends to be lower and their organisational commitment weaker.

This evidence suggests that the short-term gains employers may reap from insecure working hours may be outweighed by the longer term losses incurred from lower levels of organisational commitment and worker well-being. On this basis, there is a business case for shifting the balance so that workers are given greater security over hours of work. The UK government is currently consulting on how this might be done (BEIS, 2019). This follows an investigation by the Low Pay Commission (2018) carried out at the suggestion of the *Taylor Review* and its recommendation that the 'Government must take steps to ensure that flexibility does not benefit the employer at the unreasonable expense of the worker' (Taylor, 2017: 44). The evidence of this article suggests that what is referred to by the *Taylor Review* as 'one-sided flexibility' includes and goes beyond those on ZHCs. The actions taken by the UK government, such as introducing legislation on 'reasonable notice' of work schedules, must therefore apply to all employees and not be limited to those on particular contracts.

The article also adds a new perspective to the debate by highlighting that the prevalence of insecure working hours is reduced by workplace level employee involvement either exercised directly through individual participation in decision-making or indirectly through trade union presence at the workplace. The evidence presented in this article, then, suggests that another way to reduce working hours insecurity, and therefore making work better, is for the UK government—and the devolved administrations in so far as they can—to promote individual and collective employee involvement at work.

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