Standardisation by occupation of self-reported workplace injury rates by country and region of residence 2015/16 to 2019/20

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Summary

Over the five-year period, 2015/16-2019/20, self-reported results from the Labour Force Survey (LFS) show that for workplace non-fatal injury rates:

- Yorkshire and The Humber, East Midlands and the South West had average workplace injury rates which were statistically significantly higher than the average for Great Britain as a whole;
- London had a statistically significantly lower average workplace injury rate than Great Britain; and
- None of the remaining regions or countries had a rate statistically significantly different from Great Britain.

Standardisation of workplace injury rates by occupation moves all the rates downwards except for London and the South East, reflecting a lower-risk occupational mix in these two regions than across Great Britain as a whole. The standardised rates were not statistically significantly different from the un-standardised rates, and the overall pattern remained the same for the two sets of rates with some exceptions; after adjusting for occupation, rates for the West Midlands and Scotland became statistically significantly lower than the rate for Great Britain and the rate for Yorkshire and The Humber was no longer statistically significantly different from the Great Britain rate.

Introduction

The Labour Force Survey (LFS) is the Health and Safety Executive's (HSE) most comprehensive source of data on workplace injuries. Annual data have been collected on a consistent basis since 1993/94, providing demographic, as well as job-related factors about injured workers.

Results from the Labour Force Survey (LFS) show that self-reported workplace non-fatal injuries in Great Britain have remained broadly flat in recent years; but when comparing rates across countries and regions of residence there is some variation in the magnitude. One possible explanation for these differences is the occupational mix in the workforce; the type of work undertaken is more risky (or less) amongst people living in one country or region compared to another. This could be examined by comparing occupational-specific injury rates across countries and regions. However, an alternative approach is to use a method called 'direct standardisation'. This provides a summary 'occupational standardised' rate for each country/region which takes account of different occupational profiles.

Methods

Direct standardisation is a method that allows for comparisons of rates when the population structures may differ and is used in this paper to consider differing occupational profiles within countries/regions.

This method produces an occupational-standardised non-fatal injury rate for each country/region. These are theoretical rates, based on rates observed in each country/region within the chosen occupation groups, and the relative frequencies of these occupations within a standard population. The occupational frequencies in each country/region are replaced with those in the standard population. This gives the rates that would be observed if the occupational profile of the countries/regions were the same as that of the standard population.

The analysis in this paper uses three occupational groups, defined as having high, medium and low risk of sustaining a non-fatal workplace injury. The LFS classifies the type of work undertaken by the LFS respondents using the 2010 Standard Occupational Classification (SOC 2010), and the occupational risk groups were compiled using this classification (see technical note for more details).

The occupational-specific non-fatal injury rates for each country/region of residence are based on an average over a five year period (2015/16-2019/20) to ensure that sample numbers are sufficiently large to provide reliable rates, and the standard population is based on workers in Great Britain over the same period.

The occupational-standardised rates and associated 95% confidence intervals presented in the analysis section have been calculated using the data analysis and statistical software package Stata. Stata adjusts the occupational-specific injury rates in each country/region according to the frequency of the occupational groups within the Great Britain working population.

Analysis

Table 1 shows workplace non-fatal injury rates by the occupation risk groups for Great Britain, along with associated 95% confidence intervals. Rates decrease as the risk decreases. Such rates can be presented for each country/region, but it is difficult to make direct comparisons across all countries and regions using this level of detail. As described above, county/regional rates have been adjusted by occupation and a summary measure produced for each country/region.

Table 1: Self-reported workplace non-fatal injury rates in Great Britain, by occupation risk group, averaged 2015/16-2019/20

Occupation risk group	Injury sustained in their current/most recent job					
	Averaged estimated incidence (thousands)			Averaged rate per 100,000 workers		
	central	95% C.I.		central	95% C.I.	
		lower	upper		lower	upper
Great Britain	**566**	543	588	**1,800**	1,730	1,870
High risk	**236**	221	250	**3,840**	3,610	4,060
Medium risk	**147**	135	159	**2,190**	2,020	2,360
Low risk	**183**	170	195	**990**	920	1,060

Un-standardised and occupational-standardised workplace non-fatal injury rates averaged over the five-year period 2015/16-2019/20 by country and region are presented in Figure 1 and Table 2, along with associated 95% confidence intervals. Prior to standardisation, Yorkshire and The Humber, East Midlands and the South West had workplace injury rate which were statistically significantly higher than for Great Britain as a whole. Conversely, London had a statistically significantly lower injury rate than Great Britain. No other country/region had a rate statistically significantly different from Great Britain.

The standardisation process has the greatest impact on those countries/regions with an occupational mix considerably different to Great Britain as a whole. Figure 1 and Table 2 show that standardising workplace injury rates by occupation moves all the rates downwards except for London and the South East, reflecting the lower-risk occupational mix in these two regions than across Great Britain as a whole. However, the standardised country/region rates were not statistically significantly different from the original rates.

The injury rate for the East Midland fell reflecting a higher-risk occupational mix than in the standard population, but the standardised rate was still statistically significantly higher than the rate for Great Britain. In terms of London and the South East, although the rates increased, they remained statistically significantly different from the rate for Great Britain. However there were some changes in the pattern between the un-standardised and the standardised rates; the rate for Yorkshire and The Humber was no longer statistically significantly different from the Great Britain rate after adjusting for occupation, and rates for the West Midlands and Scotland became statistically significantly lower than the Great Britain rate.

Figure 1: Self-reported workplace non-fatal injury un-standardised and occupational-standardised rates per 100,000 workers, by country and region, averaged 2015/16-2019/20

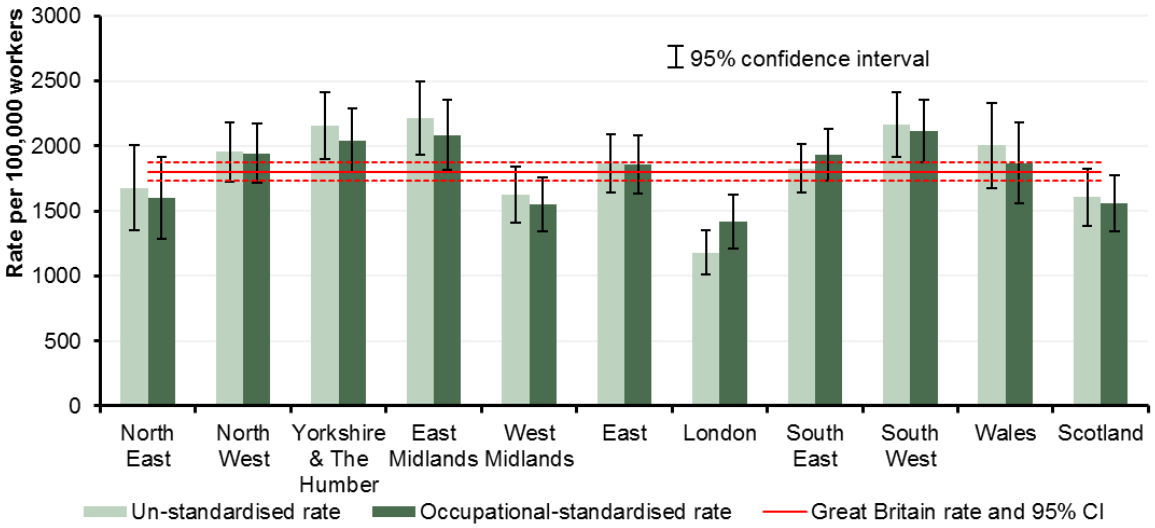

Table 2: Self-reported workplace non-fatal injury un-standardised and occupational-standardised rates per 100,000 workers, by country and region, averaged 2015/11-2019/20

Country/region of residence	Injury sustained in their current/most recent job						Whether **un-standardised rates** statistically significantly higher/lower than average across GB	Whether **standardised rates** statistically significantly higher/lower than average across GB
	Un-standardised rate per 100,000 workers			Occupational standardised rate per 100,000 workers				
	central	95% C.I.		central	95% C.I.			
		lower	upper		lower	upper		
Great Britain	**1,800**	1,730	1,870	**1,800**	1,730	1,870	..	..
North East	**1,680**	1,350	2,000	**1,600**	1,290	1,910	No	No
North West	**1,950**	1,730	2,180	**1,940**	1,720	2,170	No	No
Yorkshire & The Humber	**2,160**	1,900	2,420	**2,040**	1,800	2,290	Higher	No
East Midlands	**2,210**	1,930	2,490	**2,080**	1,820	2,350	Higher	Higher
West Midlands	**1,630**	1,410	1,840	**1,550**	1,340	1,760	No	Lower
East	**1,870**	1,640	2,090	**1,860**	1,640	2,080	No	No
London	**1,180**	1,010	1,350	**1,420**	1,210	1,630	Lower	Lower
South East	**1,830**	1,640	2,010	**1,930**	1,740	2,130	No	No
South West	**2,170**	1,920	2,410	**2,110**	1,870	2,360	Higher	Higher
Wales	**2,000**	1,670	2,330	**1,870**	1,560	2,180	No	No
Scotland	**1,610**	1,390	1,830	**1,560**	1,350	1,780	No	Lower

Technical Note

Injury data

The Labour Force Survey (LFS) is a national survey currently consisting of around 33,000 households each quarter, which provides information on the UK labour market. The Health and Safety Executive commissions annual questions in the LFS to gain a view of workplace injury based on individuals' perceptions.

The LFS survey data is used to make inferences about the whole population. When data obtained from a sample is used in this way, there is an element of sampling error, or uncertainty, about the sample estimate. Confidence intervals (C.I.) represent the range of uncertainty resulting from the estimate being derived from a sample of people, not the entire population. They are calculated so the range has a 95% chance of including the true value in the absence of bias - that is the value that would have been obtained if the entire population had been surveyed. A difference between two sample estimates is described as 'statistically significant' if there is a less than 5% chance that it is due to sampling error alone.

The non-fatal injury incidence rates presented in this document are based on averages over the five year period 2015/16-2019/20 excluding injuries caused by road traffic accidents. This is to ensure that sample numbers are sufficiently large to provide reliable occupational rates by country/region. These are required to adjust country/regional rates by occupation. However, three-year average unadjusted workplace injury rates by region are available on the HSE web site (see www.hse.gov.uk/statistics/lfs/lfsinjreg.xlsx).

The rates in this document relate to injuries sustained in the current or most recent job. No job-related information is available for other jobs.

The regions of England together with Wales and Scotland have been adopted as the geographical classification for this document.

The Office for National Statistics is the provider of the LFS data. The analysis of these data presented in this document is the sole responsibility of HSE.

More detailed information about this data source can be found at www.hse.gov.uk/statistics/lfs/technicalnote.htm

Occupational Classification

High, medium and low risk occupation groups were compiled using occupation codes from the Standard Occupational Classification (SOC) 2010. 369 separate occupations were combined with those of a similar occupational profile to form 15 distinct occupational groups. These groups were then analysed against Labour Force Survey (LFS) findings on workplace injury, using a 9 year average of data for the period 2004/05-2012/13. The 15 groups were ranked by both 'all injury' rate, and 'rate of over 3 day absence injury'; there proved to be a high degree of consistency in rankings across both variables, and those with the highest rates of workplace injury in both categories were grouped together and classed as 'high risk', those in the middle were taken to be 'medium risk', and those with the lowest rates of workplace injury were combined to form the 'low risk' category. Table A shows descriptions of the occupational risk groups.

Table A: Description of occupation risk groups

Occupation risk group	Occupation
High risk	Assemblers and packers
	Vehicle structure and maintenance
	Warehouse labourers
	Clearing
	Postal worker
	Driver - on site
	Transport driver (cargo)
	Construction and building
	Site work (transport)
	Electrical construction
	Electrical trades (other)
	Factories/plants - skilled
	Process and machinery operatives
	Textile and printing
	Woodworking
	Farmers
	Forestry and conservation
	Horticulture
	Mines and quarries
	Animal care
	Emergency services
	Protective services
	Security services
Medium risk	Carer
	Doctors and dentists
	Human healthcare - other
	Nurses and midwives
	Welfare work
	Entertainment
	Leisure
	Sport
	Food preparation
	Hotels, restaurants and bars
	Caretaking
	Cleaning
	Air and sea transport driver
	Road and rail transport driver
	Customer facing transport staff
	Transport support staff

Table A: Description of occupation risk groups (continued)

Occupation risk group	Occupation
	Child care
	Teaching (education assistants)
	Teaching (further and higher education)
	Teaching (primary)
	Teaching (secondary)
	Teaching (specialist)
	Beauty
	Pharmacies and opticians
	Property management
	Sales - multiple sites
	Shop
	General administration
	Libraries and museums
	HR
	Policy workers
Low risk	Information technology
	Business and finance
	Business management (lower risk sites)
	Financial administration
	Legal
	Customer service/relations (sales)
	Sales and marketing
	Sales management
	Design
	Literary/media
	Business management (higher risk sites)
	Construction planning/management
	Planning and surveying
	Engineering
	Inspectors
	Science and research

National Statistics

National Statistics status means that statistics meet the highest standards of trustworthiness, quality and public value. They are produced in compliance with the Code of Practice for Statistics, and awarded National Statistics status following assessment and compliance checks by the Office for Statistics Regulation (OSR). The last compliance check of these statistics was in 2013.

It is Health and Safety Executive's responsibility to maintain compliance with the standards expected by National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the OSR promptly. National Statistics status can be removed at any point when the highest standards are not maintained and reinstated when standards are restored. Details of OSR reviews undertaken on these statistics, quality improvements, and other information noting revisions, interpretation, user consultation and use of these statistics is available from www.hse.gov.uk/statistics/about.htm

An account of how the figures are used for statistical purposes can be found at www.hse.gov.uk/statistics/sources.htm.

For information regarding the quality guidelines used for statistics within HSE see www.hse.gov.uk/statistics/about/quality-guidelines.htm

A revisions policy and log can be seen at www.hse.gov.uk/statistics/about/revisions/

Additional data tables can be found at www.hse.gov.uk/statistics/tables/.

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