

LMI for All: Job Quality Indicators

1. Job Quality: A Composite Indicator

Job quality is a multi-dimensional concept encompassing six or seven different domains depending on the datasets. For instance, the European Working Conditions Survey (EWCS), which collected data from more than 35 European countries every five years since 1990, includes seven theory-based job quality domains, namely *Earnings*, *Prospects*, *Skills and Discretion*, *Social Environment*, *Physical Environment*, *Work Intensity*, and *Working Time Quality*.

Table 1. Job Quality Domains

Job Quality Domains
Earnings
Prospects
Skills and Discretion
Social Environment
Physical Environment
Work Intensity
Working Time Quality

Note: The construction of composite job quality indicators utilised the job quality domains as delineated by the European Working Conditions Survey (EWCS). Specifically, 4 out of the 7 key job quality indicators (highlighted in bold) were derived from data sourced from Understanding Society.

2. Approach

Given the primary focus of our research on the UK context, it is advisable to use survey datasets specifically tailored to the UK setting.

1) Dataset: Understanding Society

- Understanding Society is a study of people within their household context. It interviews all adults over 16 about their circumstances and lives. It is longitudinal, so follows the same people over time. Every two years it asks about commuting and people's working conditions, which includes pay rises and bonuses, hours worked, job security, flexible working and future job plans.
- Weaknesses: Only partial job quality domains are available – e.g., *Earnings*, *Prospects*, *Skills and Discretion*, *Work Intensity* and *Working Time Quality*

Table 2. Job Quality Variables

Job Quality Domains	Variables	Brief description	Questions-Text
Earnings	prearnw	Total weekly earnings	About how much does [name] earn from this job weekly?
	prearna	Total annual earnings	About how much does [name] earn from this job annually?
Prospect	jbxpcha	Expect: better job with same employer	Do you think you will actually get a better job with your current employer in the coming 12 months?
	jblkche	Expect: give up paid work	Do you think you will actually give up paid work in the coming 12 months?
	jbsec	Job security in next 12 months	I would like you to think about your employment prospects over the next 12 months. How likely do you think it is that you will lose your job during the next 12 months?
Skills and Discretion	wktech	Technology use for work	Which of the following devices do you use for work in your main job?
	wktechnet	Internet use for work	Which of these devices do you use to connect to the internet for work?
	wkout1	Autonomy over job tasks	In your current job, how much influence do you have over what you do in your job?
	wkout2	Autonomy over work pace	In your current job, how much influence do you have over the pace which you work?

	wkaut3	Autonomy over work manner	In your current job, how much influence do you have over how you do your work?
	wkaut4	Autonomy over task order	In your current job, how much influence do you have over the order in which you carry out tasks
	wkaut5	Autonomy over work hours	In your current job, how much influence do you have over the time you start or finish your working day
	wkaut6	Autonomy over work location	In your current job, how much influence do you have over where you actually do the work
	jbxpchb	Expect: work related training	Do you think you will take up work related training in the coming 12 months?
Intensity	depenth1	Feels tense about job	Thinking of the past few weeks, how much of the time has your job made you feel tense?
	depenth2	Feels uneasy about job	Thinking of the past few weeks, how much of the time has your job made you feel uneasy?
Working Time Quality	jbhrs	No. of hours normally worked per week	How many hours, excluding overtime and meal breaks, is [he/she] expected to work in a normal week?
	wktime	Times of day usually worked	Thinking still about your main jobs, which times of day do you usually work?
	wkends	Usually works weekends	Do you ever work at weekends in your main job?
	jbflex	Flexible working arrangements	I would like to ask about working arrangements at the place where you work. If you personally needed any, which of the following arrangements are available at your workplace?
	jbfxuse	Flexible work use	Do you currently work in any of these ways?

* Note: 5 out of 7 job quality domain variables are available in Understanding Society.

Table 3. Availability of job quality relevant variables

Job Quality	Variables	Waves														
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Earnings	Pearnw	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Pearna	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prospects	Jbxpcha	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Jblkche	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Jbsec	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
Skills and Discretion	Wktech	no	no	no	no	no	no	no	no	no	no	no	no	Yes	no	no
	Wktechnet	no	no	no	no	no	no	no	no	no	no	no	no	Yes	no	no
	Wkaut1	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Wkaut2	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Wkaut3	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Wkaut4	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Wkaut5	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
Work Intensity	Jbxpchb	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Depenth1	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
Working Time Quality	Depenth2	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Jbhrs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Wktime	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Wkends	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Jbflex	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Jbfxuse	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
Job-related features	Wkhome	no	no	no	Yes	no	Yes	no	no	no	no	no	no	Yes	no	no
	Jbsoc00	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Jbsemp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Jbsize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Jssize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Note: Job quality-relevant variables are not always available.

2) Methods of Constructing Job Quality Indicators

- Instead of constructing a single job quality index and ranking it based on occupation, identified by SOC 2-digit codes, thereby categorising specific job categories as "bad jobs," the project will develop multidimensional job quality indices. Those indices will be constructed based on the theory-based job quality index established by the European Committee. It will allow individuals to assess information on which jobs offer superior conditions within particular domains, while other jobs may excel in different domains.
- Domain level indices will be generated using either of the following methods:
 - the first principal component of all items within each domain
 - the weighted average, employing the 'alpha' command in Stata. Stata's calculations are based on pairwise correlations and somehow takes into account the number of cases used in the respective calculations. This approach ensures more robust results, particularly in handling missing values.

3. Preliminary Results

- Understanding Society offers a restricted number of samples containing pertinent information on job quality variables. This limitation arises from the nature of Understanding Society as a household panel survey, encompassing individuals who may not be employed.
- Also, job quality variables are exclusively available in three waves: wave d (2011), f (2013), and m (2020). To ensure an adequate sample size for analysis, data from these three waves are combined to calculate the mean values of each job quality indicator.
- Despite these efforts, a sufficient number of samples are NOT obtained to compute the mean values of job quality indicators by occupations with SOC-2000, 3-digit classification.
- Consequently, mean values of job quality indicators are computed by occupations categorised under SOC-2000, 2-digit classification, comprising 25 distinct categories.

Table 4. Descriptive Statistics

Job Quality Domains	Obs.	Mean	Std. Dev.
Prospects	587	68.88	18.25
Skills and Discretion	490	62.14	23.86
Work Intensity	490	27.42	23.79
Working Time Quality	491	65.99	12.96

**Note: All job quality indicators are normalised to 0 – 100. Survey weight is applied to all results. Work Intensity is a negative indicator, indicating that higher values correspond to more intense work.*

Table 5. Mean values of each job quality indicator by occupation (SOC 2000, 2-digit)

SOC 2000	Occupation	Job Quality Indicators			
		Prospects	Skills and Discretion	Intensity	Working Time Qual
11	Corporate managers	71.22	75.43	27.04	72.83
12	Managers and proprietors in agriculture and services	64.09	79.09	25.52	66.72
21	Science and technology professionals	65.86	57.71	14.57	68.49
22	Health professionals	67.31	92.21	24.22	76.61
23	Teaching and research professionals	69.85	56.96	26.58	68.72
24	Business and public service professionals	76.41	65.66	32.58	67.40
31	Science and technology associate professionals	81.46	48.69	53.34	73.31
32	Health and social welfare associate professionals	68.21	64.91	34.89	67.82
33	Protective service occupations	63.21	60.90	25.28	64.04
34	Culture, media and sports occupations	50.58	81.34	23.10	57.96
42	Secretarial and related occupations	69.54	62.66	29.97	68.83
51	Skilled agricultural trades	71.59	48.08	13.78	67.99
52	Skilled metal and electrical trades	72.35	68.58	19.14	69.09
53	Skilled construction and building trades	42.84	72.35	14.28	67.39
54	Textiles, printing and other skilled trades	72.59	65.30	27.21	63.62

61	Caring personal service occupations	69.09	57.78	27.83	61.33
62	Leisure and other personal service occupations	56.59	73.12	19.07	63.40
71	Sales occupations	75.73	54.58	24.20	60.14
72	Customer service occupations	72.46	34.92	36.63	61.26
81	Process, plant and machine operatives	71.27	48.11	35.74	64.44
82	Transport and mobile machine drivers and operatives	54.84	62.16	31.47	63.60
91	Elementary trades, plant and storage related occupations	72.59	57.74	39.81	63.75
92	Elementary administration and service occupations	73.88	51.83	20.85	60.51
Total		68.81	62.13	27.50	65.97
Observations		582	487	487	488

***Note:** Work Intensity is a negative indicator, indicating that higher values correspond to more intense work. Survey weight is applied to all results.

4. Alternatives

- Certain SOC2000 2-digit occupation levels have a limited number of observations, considering the total sample size of approximately 500 across more than 20 occupation categories.
- To enhance robustness and reliability through increased observation numbers, the mean values of job quality indicators for occupations categorised under the SOC2000 1-digit classification, comprising 9 distinct categories, have also been calculated. This information can be provided as well.
- The ranking of occupations by each job quality indicator using SOC2000 2-digit classification will be presented alongside the ranking using SOC2000 1-digit classification, as shown below.

Table I. Mean values of each job quality indicator by occupation (SOC 2000, 1-digit)

SOC2000	Occupation	Job Quality Indicators			
		Prospects	Skills and Discretion	Intensity	Working Time Qual
1	Managers and Senior Officials	69.20	76.40	26.63	71.20
2	Professional Occupations	71.19	61.64	27.19	68.33
3	Associate Professional and Technical Occupations	68.56	65.03	30.60	67.26
4	Administrative and Secretarial Occupations	66.85	61.70	33.26	68.94
5	Skilled Trades Occupations	63.14	67.13	18.82	67.31
6	Personal Service Occupations	66.68	60.68	26.17	61.72
7	Sales and Customer Service Occupations	74.77	48.61	27.97	60.46
8	Process, Plant and Machine Operatives	63.32	55.67	33.45	63.99
9	Elementary Occupations	73.56	53.31	25.61	61.32
Total		68.81	62.13	27.50	65.97
Observations		582	487	487	488

***Note:** Work Intensity is a negative indicator, indicating that higher values correspond to more intense work. Survey weight is applied to all results.

Table II. Ranking of occupations by each job quality indicators (SOC 2000, 1-digit)

A. Prospects

Rank	Occupation	Value
1	Sales and Customer Service Occupations	74.77
2	Elementary Occupations	73.56
3	Professional Occupations	71.19
4	Managers and Senior Officials	69.20
5	Associate Professional and Technical Occupations	68.56
6	Administrative and Secretarial Occupations	66.85

B. Skills and Discretion

Rank	Occupation	Value
1	Managers and Senior Officials	76.40
2	Skilled Trades Occupations	67.13
3	Associate Professional and Technical Occupations	65.03
4	Administrative and Secretarial Occupations	61.70
5	Professional Occupations	61.64
6	Personal Service Occupations	60.68

7	Personal Service Occupations	66.68
8	Process, Plant and Machine Operatives	63.32
9	Skilled Trades Occupations	63.14

7	Process, Plant and Machine Operatives	55.67
8	Elementary Occupations	53.31
9	Sales and Customer Service Occupations	48.61

C. Work Intensity

Rank	Occupation	Value
1	Skilled Trades Occupations	18.82
2	Elementary Occupations	25.61
3	Personal Service Occupations	26.17
4	Managers and Senior Officials	26.63
5	Professional Occupations	27.19
6	Sales and Customer Service Occupations	27.97
7	Associate Professional and Technical Occupations	30.60
8	Administrative and Secretarial Occupations	33.26
9	Process, Plant and Machine Operatives	33.45

D. Working Time Quality

Rank	Occupation	Value
1	Managers and Senior Officials	71.20
2	Administrative and Secretarial Occupations	68.94
3	Professional Occupations	68.33
4	Skilled Trades Occupations	67.31
5	Associate Professional and Technical Occupations	67.26
6	Process, Plant and Machine Operatives	63.99
7	Personal Service Occupations	61.72
8	Elementary Occupations	61.32
9	Sales and Customer Service Occupations	60.46