

Work, Health and Inequality

Tarani Chandola

University of Manchester

Personal background

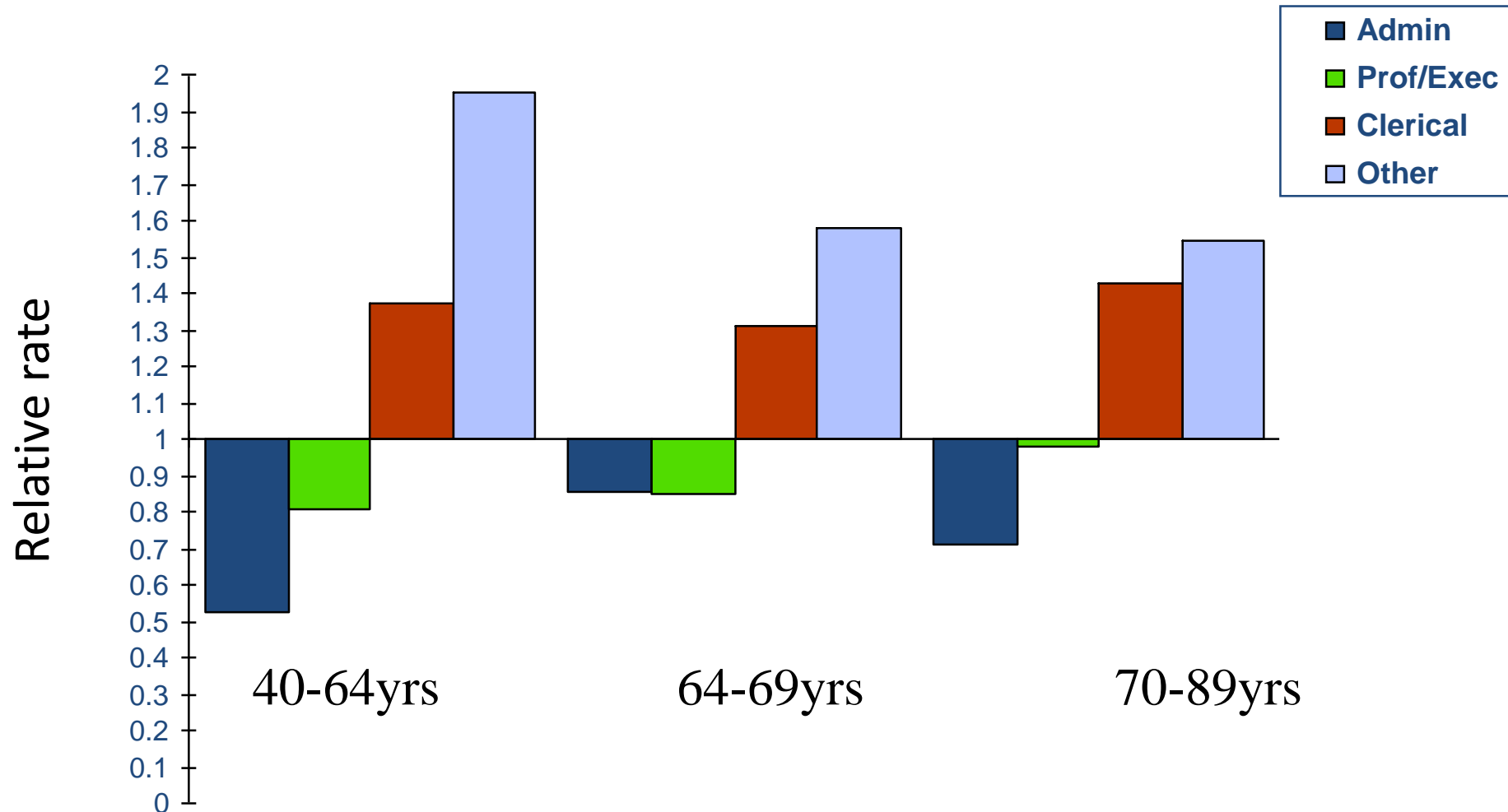
Medical Sociologist

Worked on the Whitehall II study on Stress and Health



Research on work and health using large, longitudinal datasets

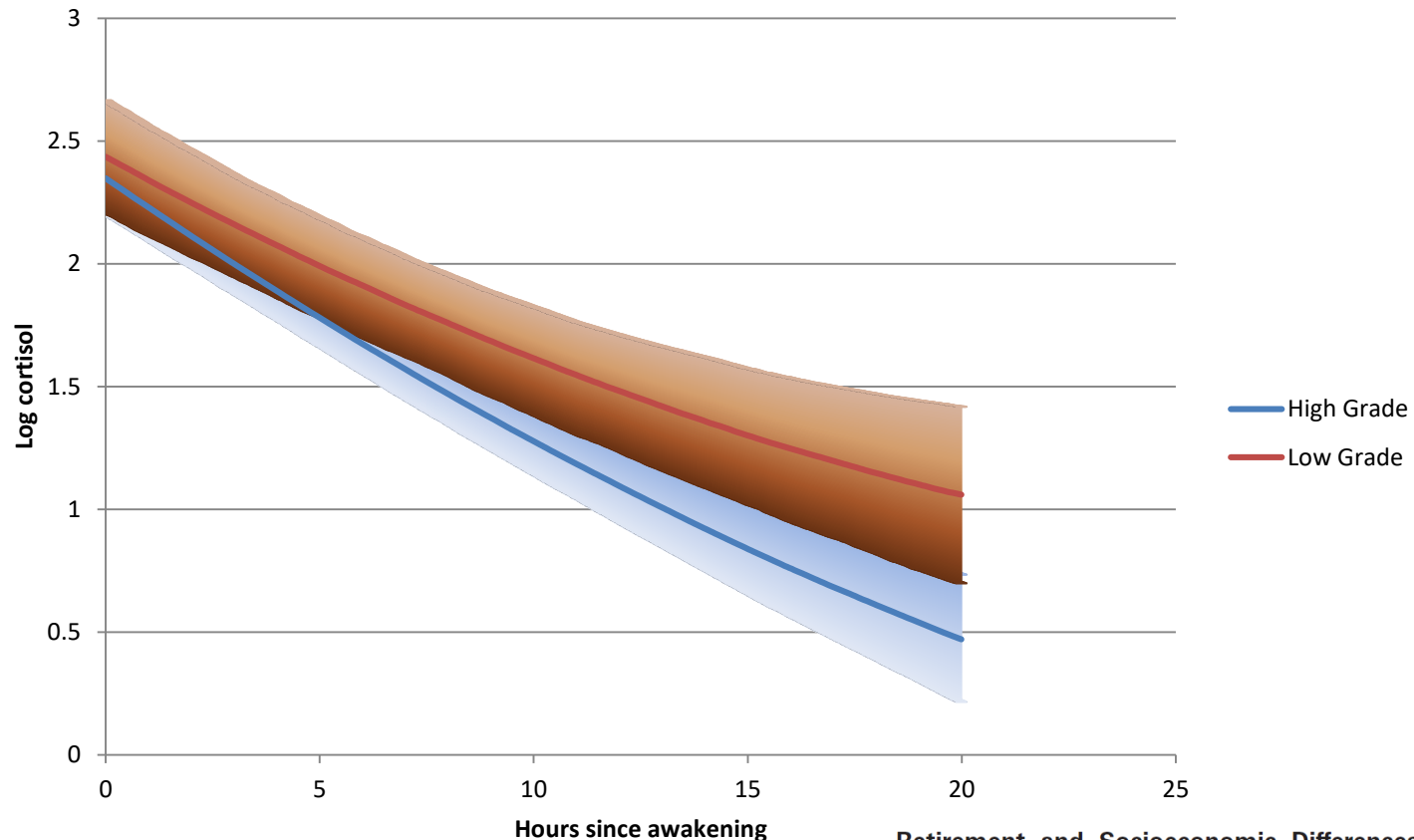
Mortality by Grade of Employment Whitehall Men 25 yr Follow-up



Marmot and Shipley, 1996

Predicted (log) diurnal cortisol slopes by employment grade and employment status

Retired (former) employees by high vs low employment grades



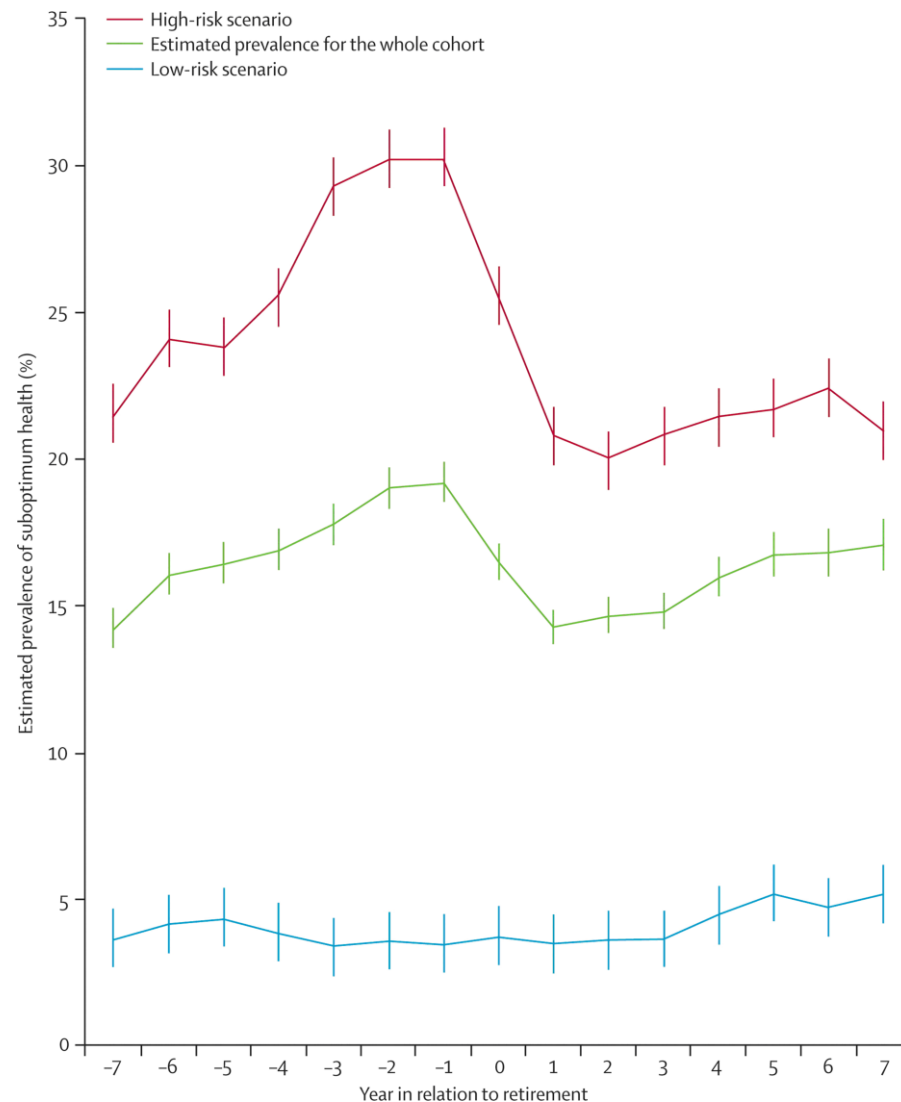
Retirement and Socioeconomic Differences in Diurnal Cortisol: Longitudinal Evidence From a Cohort of British Civil Servants

Tarani Chandola,¹ Patrick Rouxel,² Michael G. Marmot,³ and Meena Kumari⁴

Outline

- Is any job better than no job?
- The future of work and health
- What can we do to reduce workplace health inequalities?
 - Flexible work arrangements
 - Workplace accommodations
 - Work related training

Prevalence of suboptimum self-rated health in relation to year of retirement: GAZEL men who retired at the statutory age of 55 years



High-risk
profile=low grade,
high demands,
and low
satisfaction.

Low-risk profile=high
occupational grade,
low physical and
psychological
demands, and high
job satisfaction.

Group work 1

How is work good or bad for your health?

Discuss the links in a small group.

Good work matters....



#goodworkis

Taylor Review of Modern Working Practices

“Bad work – insecure, exploitative, controlling – is bad for health and wellbeing”

But also,

“The worst work status for health is unemployment”

<http://www.newstatesman.com/politics/staggers/2017/05/matthew-taylor-politicians-should-commit-making-all-work-good-work>

Is this true?

We compared the biomarkers and health of unemployed adults from Understanding Society who transition into poor working conditions to their peers who remained unemployed

“Almost any job is better than no job”

Layard, Richard (2003) Has social science a clue?: what would make a happier society? In: Lionel Robbins memorial lecture series , 03-05 Mar 2003, London, UK.

This version available at: <http://eprints.lse.ac.uk/47429/>

Low wage jobs can act as springboards to better paid work

Low-Wage Jobs – Springboard to High-Paid Ones?

Andreas Knabe (Otto-von-Guericke University Magdeburg and CESifo)

Alexander Plum (Otto-von-Guericke University Magdeburg)¹

Abstract We examine whether low-paid jobs have an effect on the probability that unemployed persons obtain better-paid jobs in the future (springboard effect). We make use of data from the German Socio-Economic Panel (SOEP) and apply a dynamic random-effects probit model. Our results suggest that low-wage jobs can act as springboards to better-paid work. The improvement of the chance to obtain a high-wage job by accepting low-paid work is particularly large for less-skilled persons and for individuals with longer periods of unemployment. Low-paid work is less beneficial if the job is associated with a low social status.

Return to work is associated with an improvement in health, but...

Review of 53 longitudinal studies

There is strong evidence that re-employment:

- Improves physical & general health and well-being
- Improves mental health
- Magnitude of improvement comparable to the harmful effects of losing a job.

However:

- That depends on the quality and security of re-employment



Research Questions

Is return to work into poor quality work associated with an improvement in health and well-being, compared to remaining unemployed, in a cohort of British unemployed adults?

Or the reverse:

Is return to work into poor quality work associated with poorer health and well-being, particularly the bio-markers associated with stress?

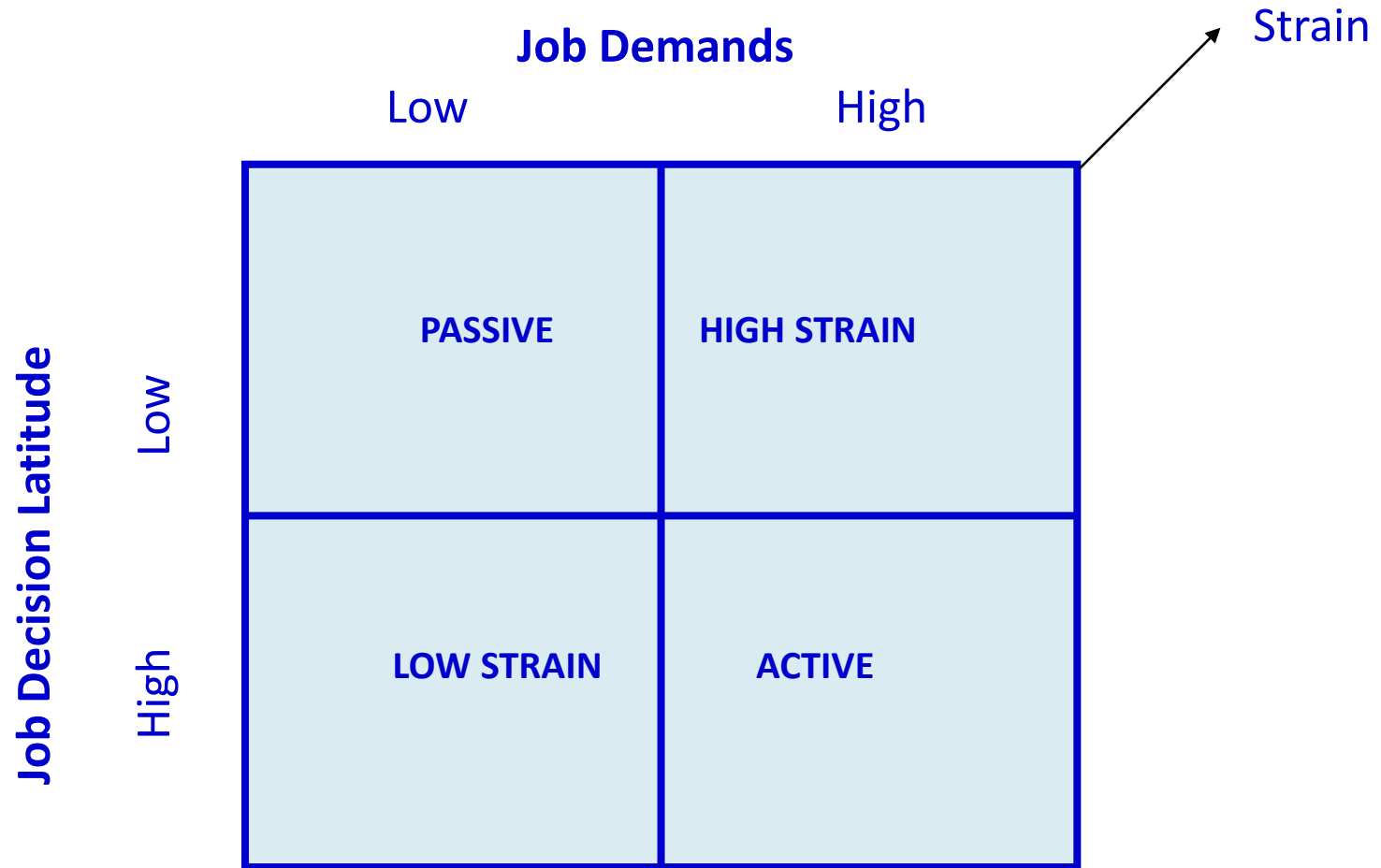
Are bad jobs good or bad for poor people?

Models of work stressors

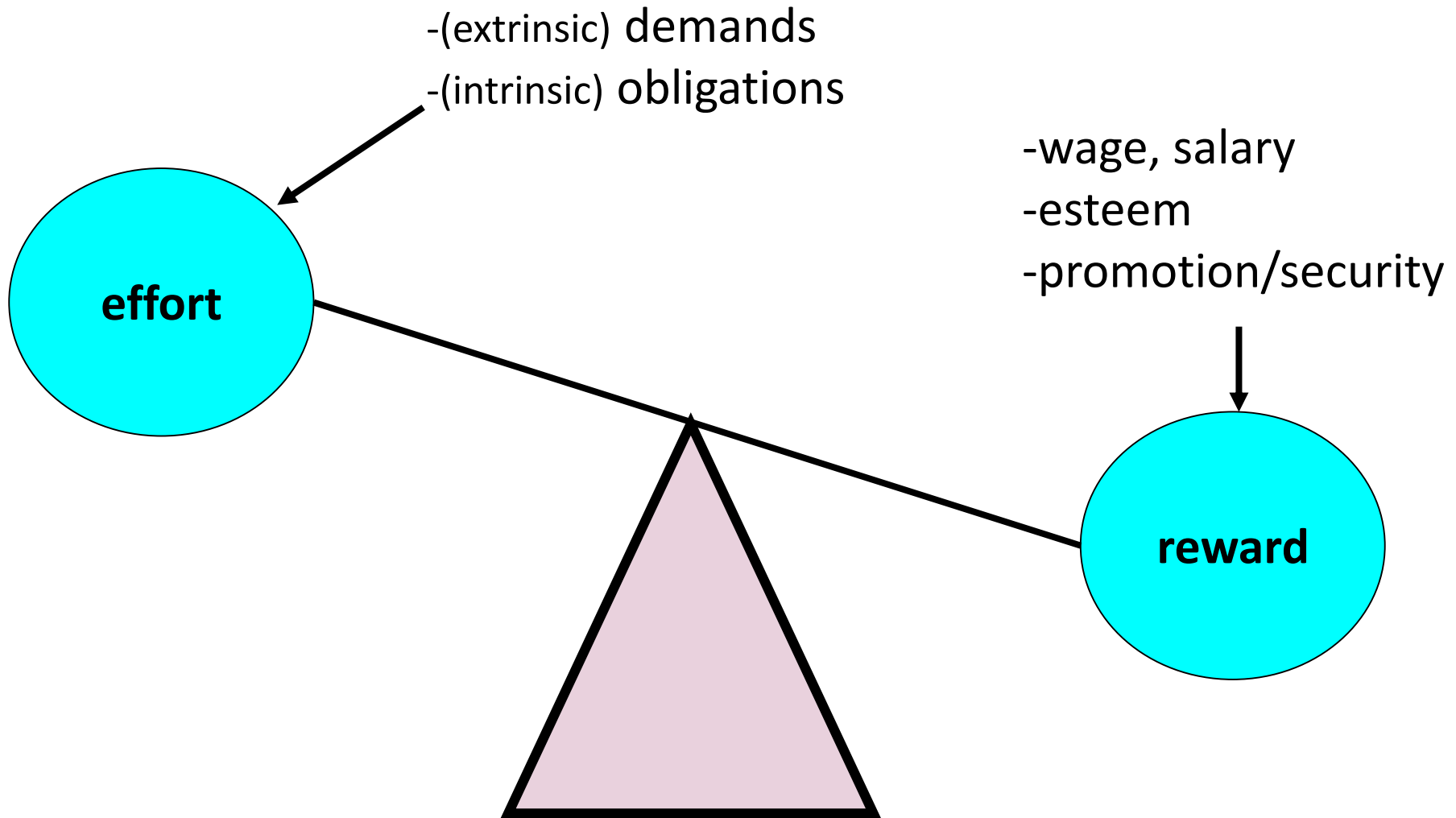
- Demand control model
- Effort Reward Imbalance model
- Management Standards model

Job demand/control/strain model

(Karasek and Theorell)



Effort-reward imbalance at work



HSE Management Standards

The six areas are:

- **Demands:** workload, work patterns, and the work environment
- **Control:** How much say the person has in the way they do their work
- **Support:** encouragement, sponsorship and resources provided by the organisation, line management and colleagues
- **Relationships:** promoting positive working to avoid conflict and dealing with unacceptable behaviour
- **Role:** Whether people understand their role within the organisation and whether the organisation ensures that they do not have conflicting roles
- **Change:** How organisational change (large or small) is managed and communicated in the organisation.

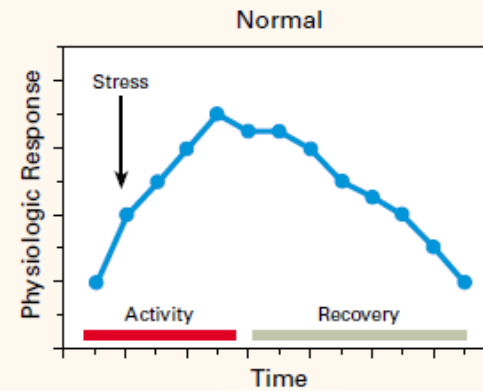
Measures of low job quality in UKHLS

- Earnings quality ('low pay')
- Labour market security ('job insecurity')
- Quality of the working environment ('low job control', 'job dissatisfaction' and 'job anxiety')

Employment status by job quality (4 categories)

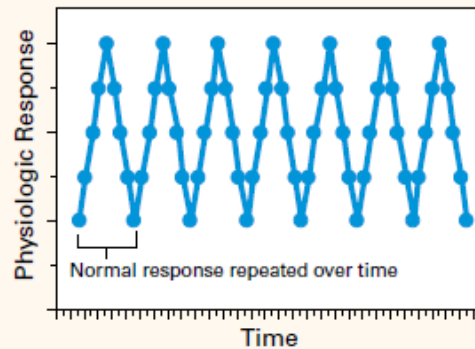
- Remained unemployed after 1 or 2 years
- Was re-employed in good quality work
- Was re-employed in work with at least one adverse job quality measure
- Was re-employed in work with two or more adverse job quality measures

Three types of allostatic load

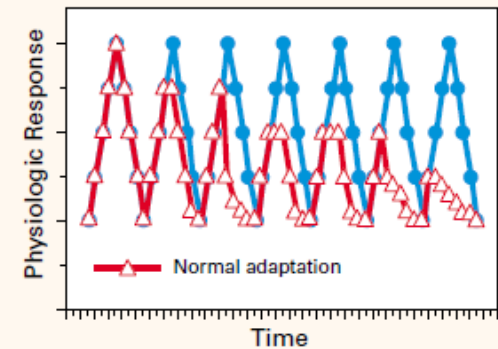


Allostatic load

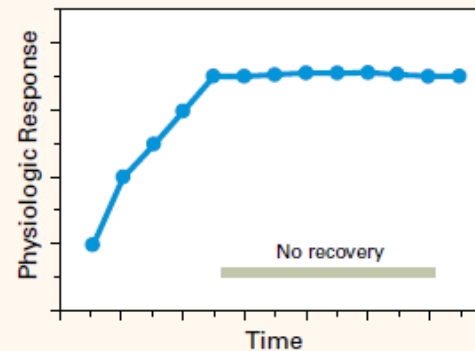
Repeated "hits"



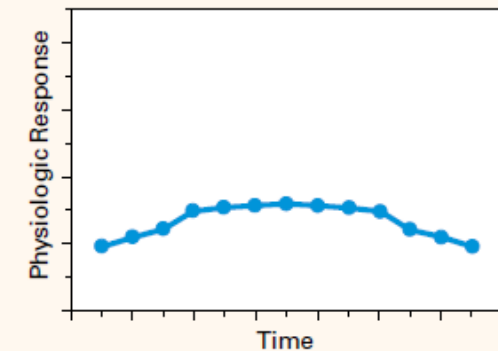
Lack of adaptation



Prolonged response



Inadequate response

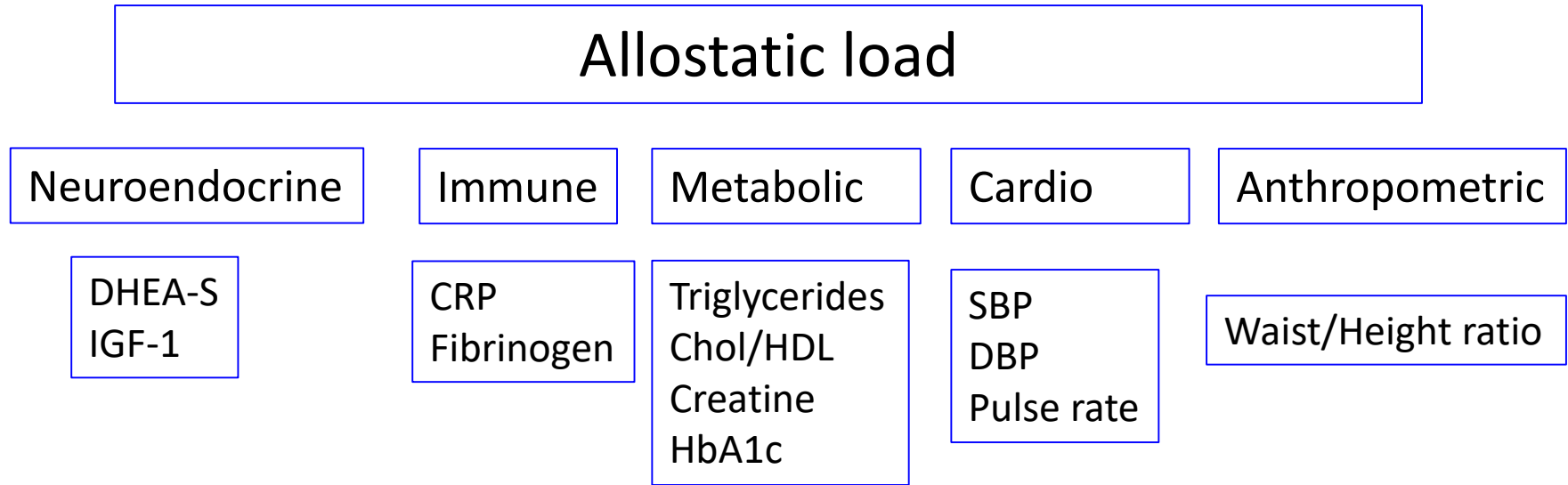


PROTECTIVE AND DAMAGING EFFECTS
OF STRESS MEDIATORS

BRUCE S. McEWEN, PH.D.

The New England Journal of Medicine

Allostatic load biomarkers in Understanding Society

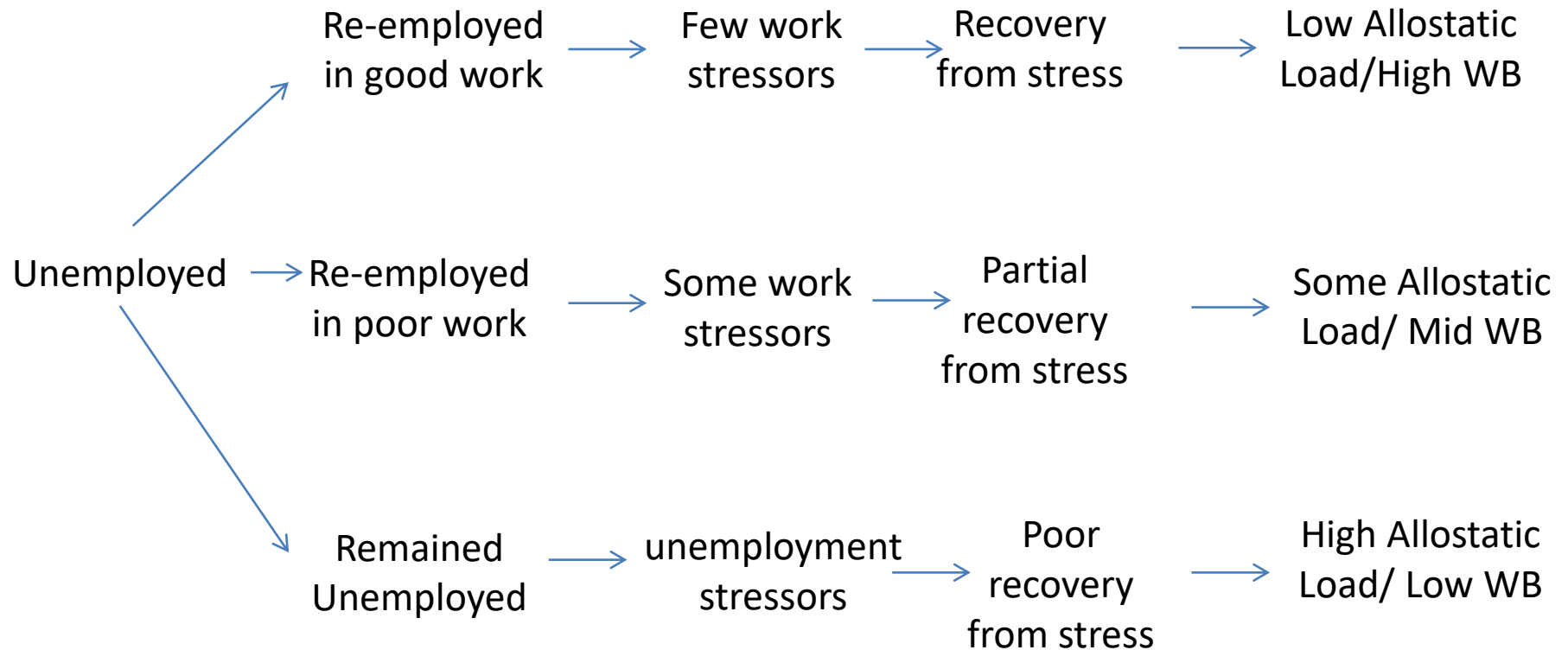


Allostatic load was constructed by first dichotomizing each of the **11 biomarkers** based on respondents in the **highest sex-specific quartile of risk** ('1') versus the remaining quartile ('0')

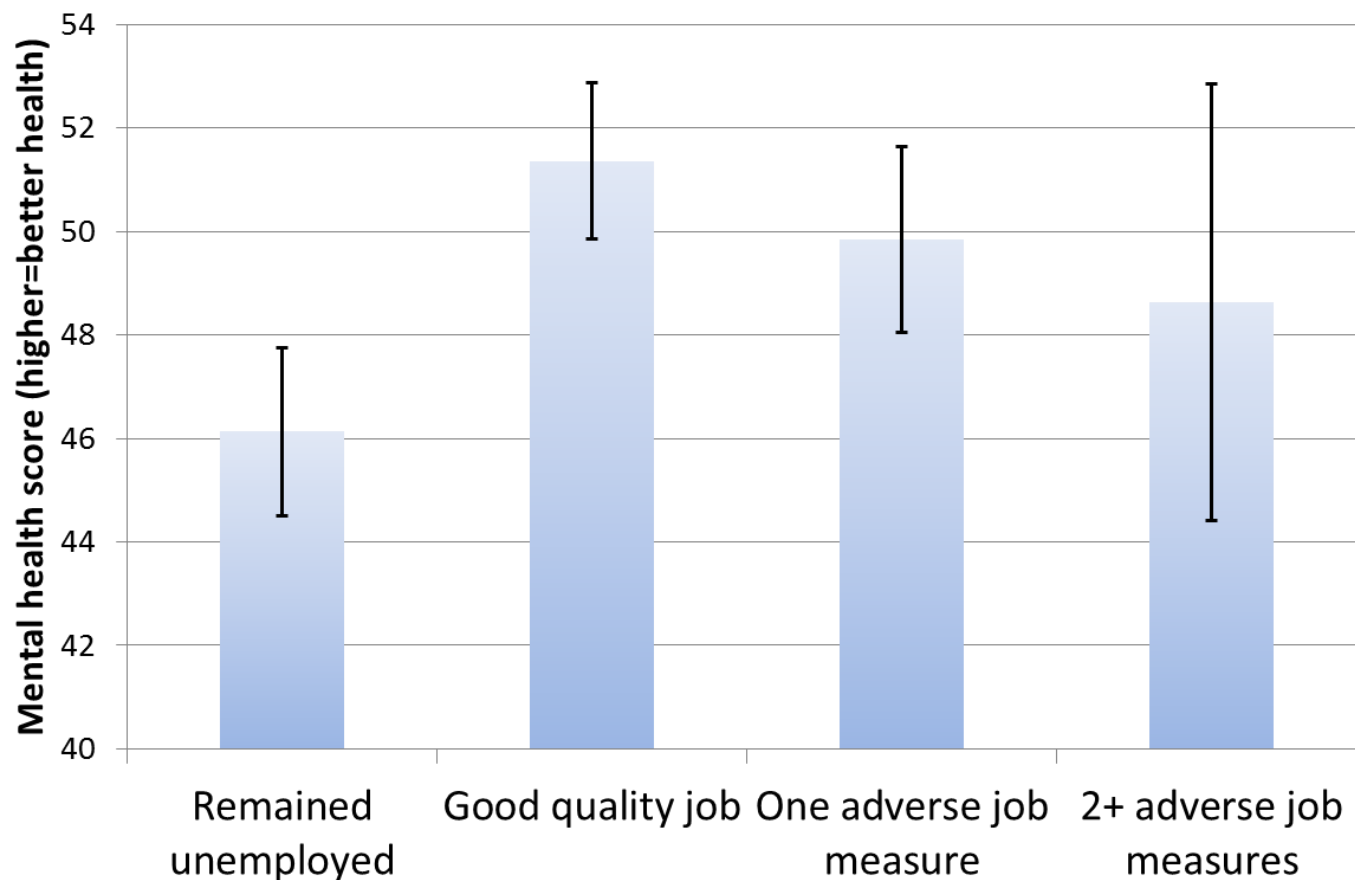
Except for DHEAS and creatine clearance rate for which the **lowest quartile** indicated higher risk

These binary measures were then summed to create the overall allostatic load score (ranging from 0 to 10)

Potential pathways linking unemployment and job quality to Allostatic Load & Wellbeing (WB)

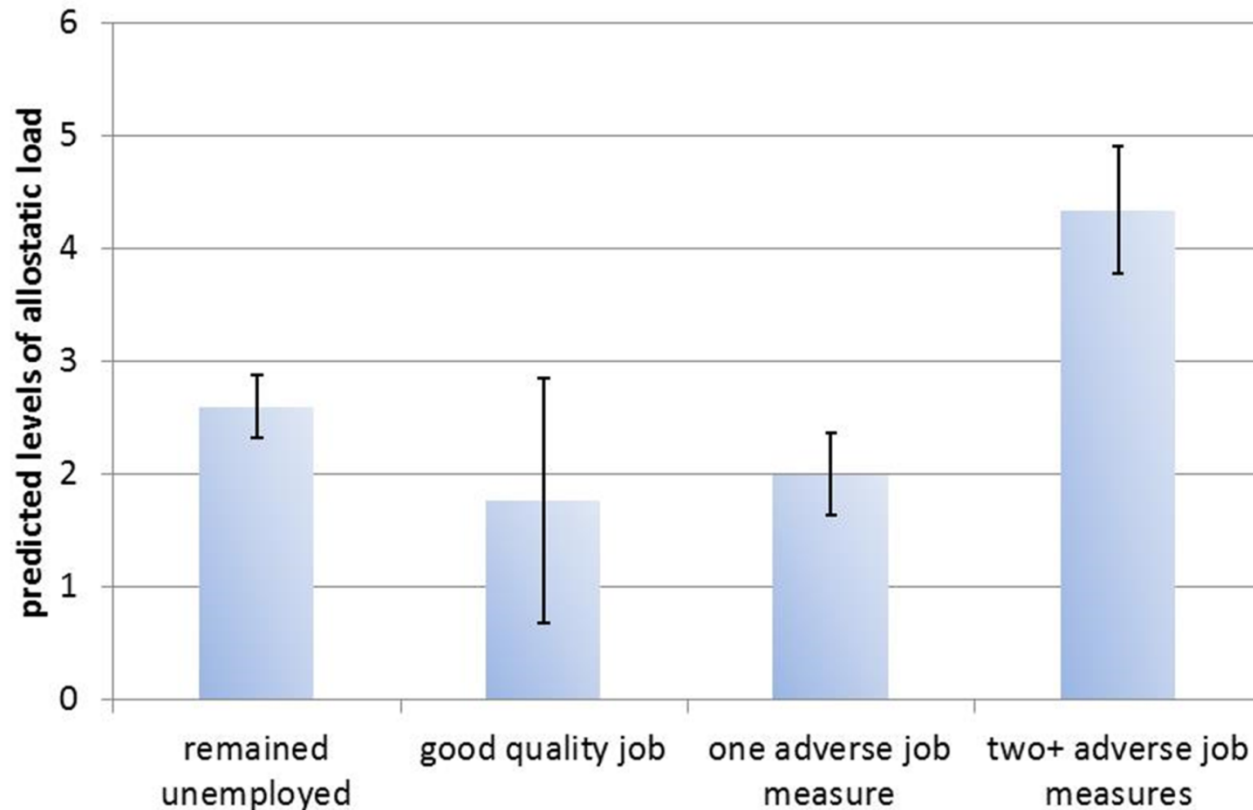


Job quality and estimated improvement in SF-12 mental health



- Formerly unemployed adults who were subsequently employed in good quality jobs improved their mental health scores
- There was little improvement for those re-employed in poor quality jobs

Job quality and estimated levels of allostatic load



Formerly unemployed adults who were subsequently employed in poor quality jobs had higher levels of allostatic load than those who remained unemployed

Summary of “any job...”

- Transition into poor quality or stressful work is associated with higher levels of bio-markers associated with chronic stress, despite overall improvement in household finances.
- The selection of the healthier unemployed adults into poor quality or stressful jobs is unlikely to explain their elevated levels of chronic stress related biomarkers.
- Job quality cannot be disregarded from the employment success of the unemployed.
- Regardless of whether bad jobs are a springboard to a better life, bad jobs are bad for health.

**Re-employment, job quality, health and
allostatic load biomarkers: prospective evidence
from the UK Household Longitudinal Study**

Tarani Chandola* and Nan Zhang

Group work-2

Worklessness and stress- activity

Design an ethical study to examine whether remaining in a “bad job” is more stressful than leaving a “bad job”

What is your population?

How will you measure “bad jobs”?

Examine the potential role of biomarkers in the study

Outline

- Is any job better than no job?
- **The future of work and health**
- What can we do to reduce workplace health inequalities?



UK COMMISSION FOR
EMPLOYMENT AND SKILLS

OECD Social, Employment and Migration
Working Papers No. 189

The Risk of Automation for Jobs in OECD Countries

Resolution
Foundation

Commission on Living Standards:
Improving the lives of people on
low-to-middle incomes

*The Changing Shape of the UK
Job Market and its Implications
for the Bottom Half of Earners*

The Future of Work: Jobs and skills in 2030

McKinsey&Company

MCKINSEY GLOBAL INSTITUTE

TECHNOLOGY, JOBS, AND THE FUTURE OF WORK

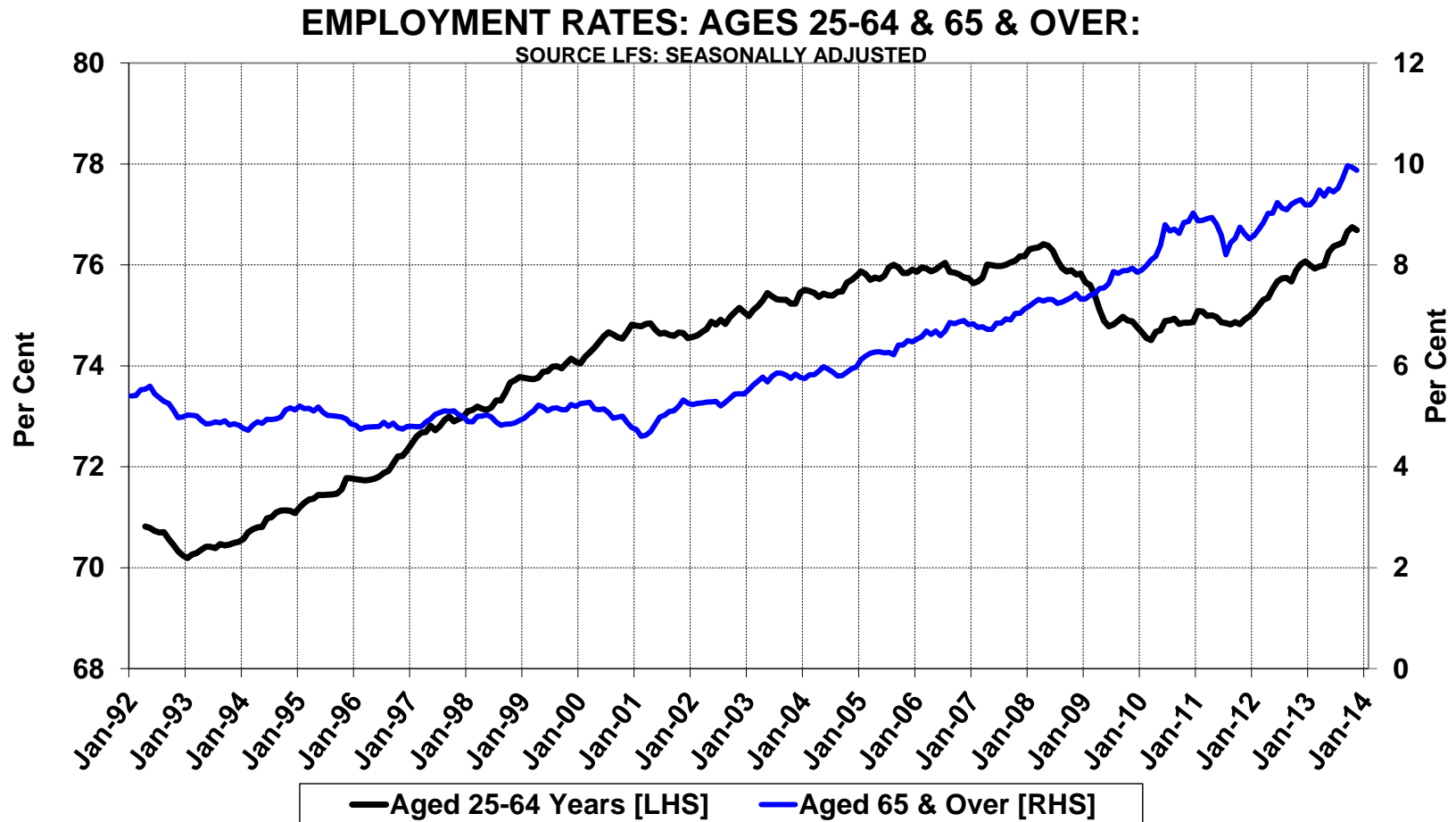


Hour glass economy

- Labour market is polarised into "lovely" and "lousy" occupations
- High wage, high skilled non-routine work at the top
- Low wage, non-routine service sector jobs at the bottom end.
- Routine middle-wage jobs are hollowed out

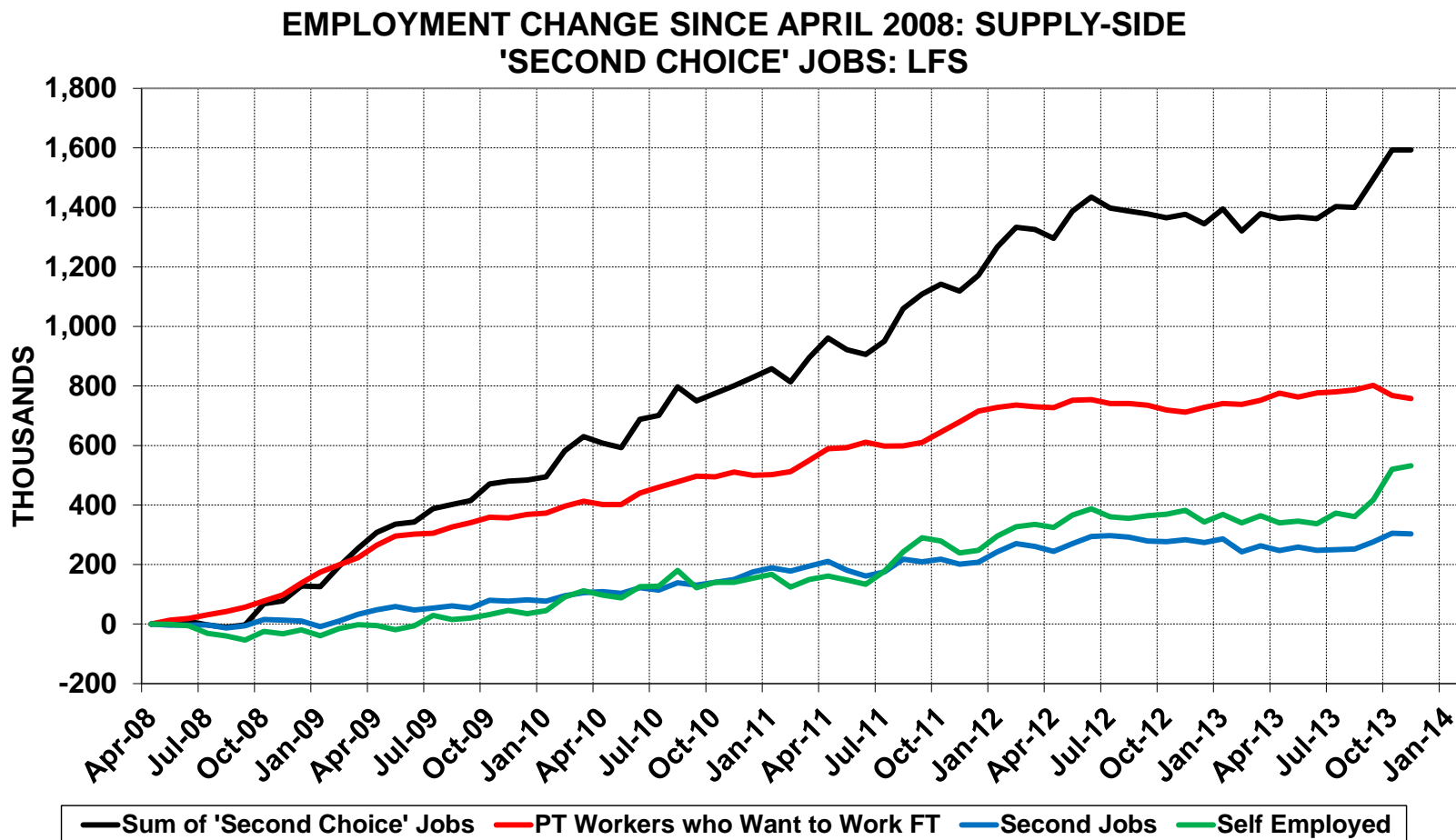


The UK's 'light and even' employment regulation has also helped the UK to show resilience during and since the recession. Those aged 25-64 and 65 & over are already above pre-recessionary levels...



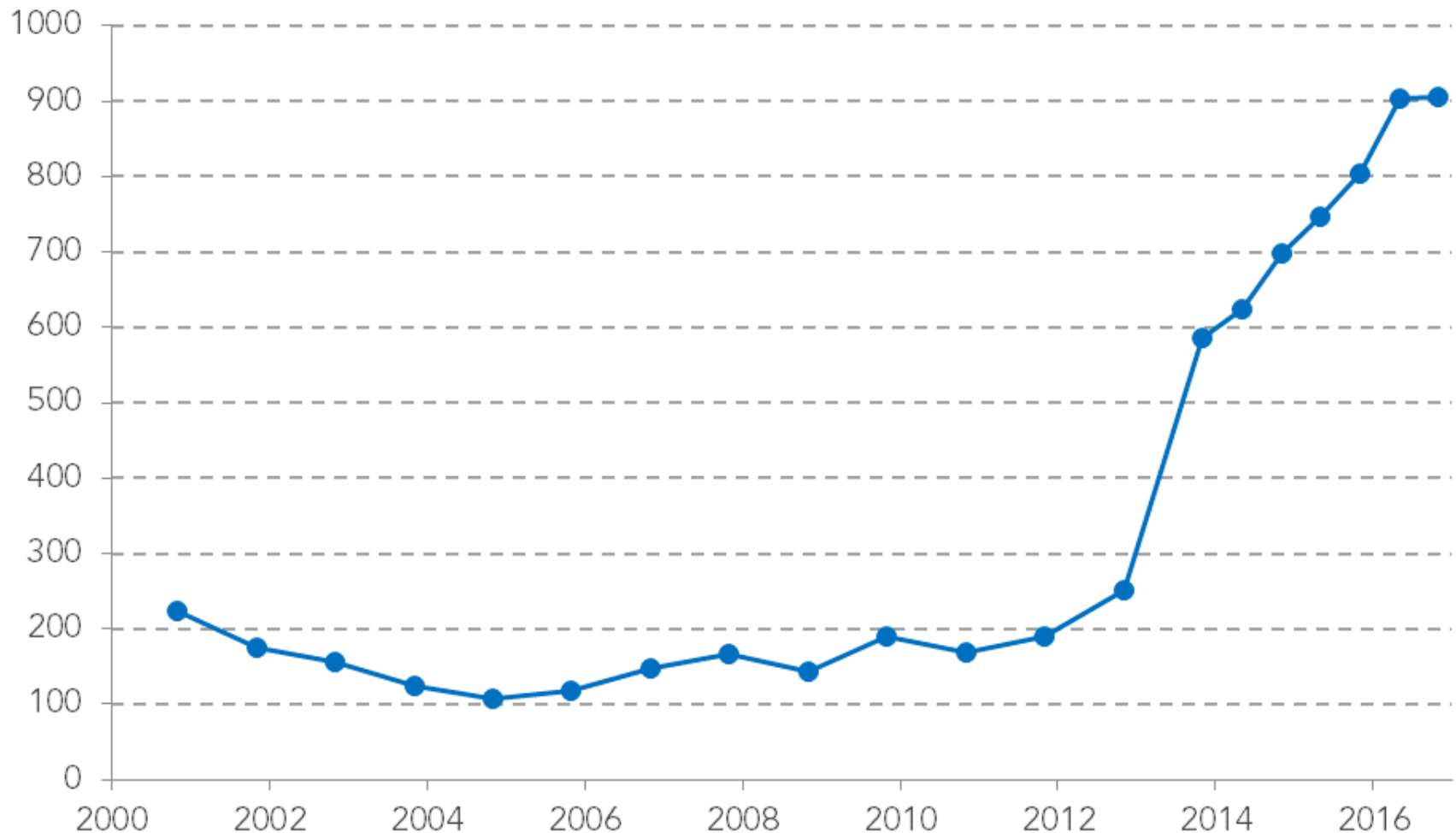
BILL WELLS:
DEPARTMENT FOR BUSINESS, INNOVATION & SKILLS

...but the recession seems to have increased the number of workers willing to take up 'Second Choice' vacancies rather than remain unemployed.



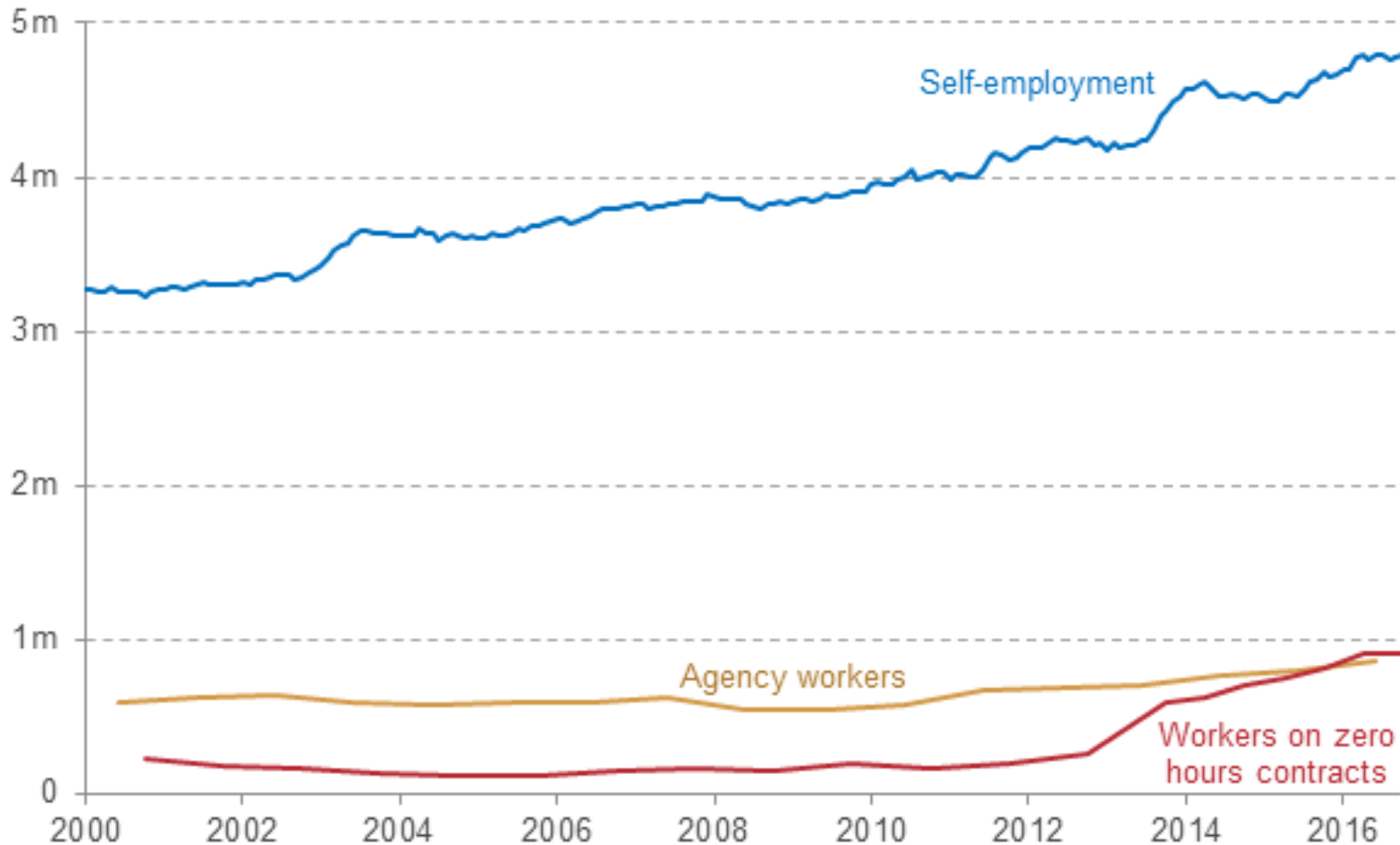
BILL WELLS:
DEPARTMENT FOR BUSINESS, INNOVATION & SKILLS

Number of workers employed on zero hours contract in their main job



Source: RF analysis of ONS, Labour Force Survey

Changing nature of work in the UK, 2000-2016

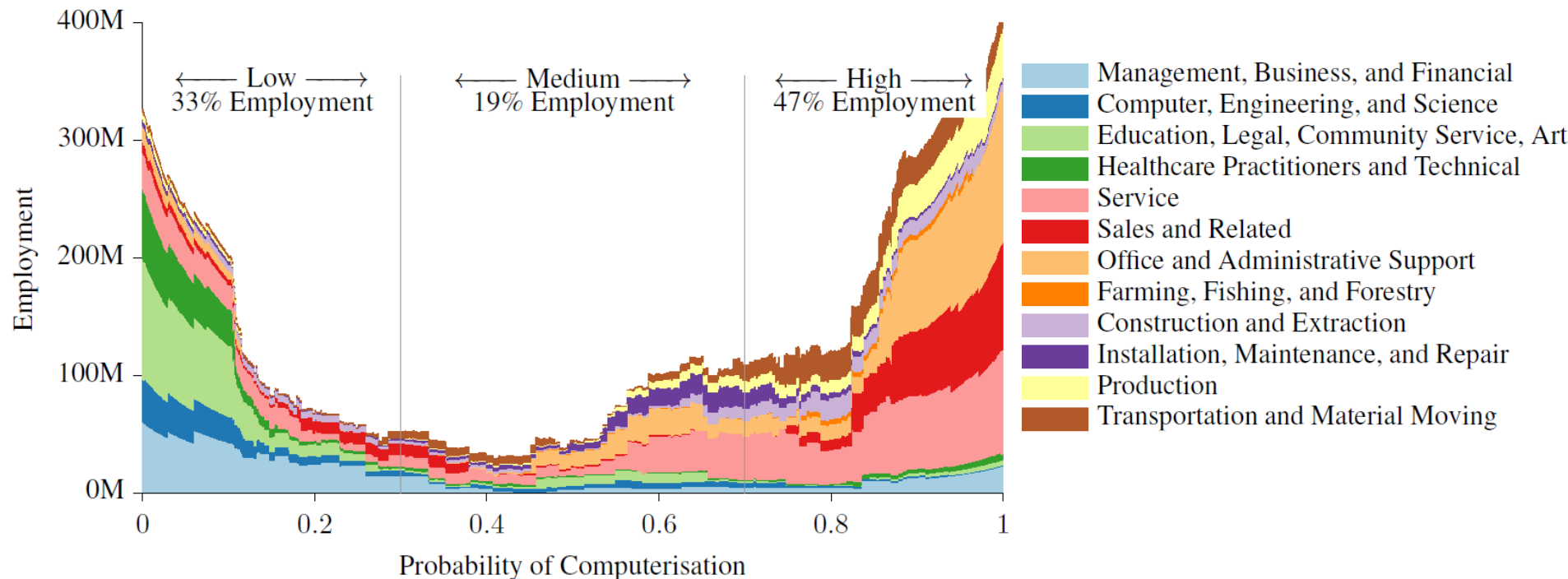


Source: Resolution Foundation analysis, ONS

Which jobs are at risk of automation?

- Hotel housekeeping
- Airline pilots
- Social workers
- Underwriters
- Teachers and lecturers

The distribution of occupational employment over the probability of computerisation



THE FUTURE OF EMPLOYMENT: HOW
SUSCEPTIBLE ARE JOBS TO
COMPUTERISATION?*

Carl Benedikt Frey[†] and Michael A. Osborne[‡]

Least likely jobs to be computerised

Computerisable				
Rank	Probability	Label	SOC code	Occupation
1.	0.0028		29-1125	Recreational Therapists
2.	0.003		49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers
3.	0.003		11-9161	Emergency Management Directors
4.	0.0031		21-1023	Mental Health and Substance Abuse Social Workers
5.	0.0033		29-1181	Audiologists
6.	0.0035		29-1122	Occupational Therapists
7.	0.0035		29-2091	Orthotists and Prosthetists
8.	0.0035		21-1022	Healthcare Social Workers
9.	0.0036		29-1022	Oral and Maxillofacial Surgeons
10.	0.0036		33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers
11.	0.0039		29-1031	Dietitians and Nutritionists
12.	0.0039		11-9081	Lodging Managers
13.	0.004		27-2032	Choreographers
14.	0.0041		41-9031	Sales Engineers
15.	0.0042	0	29-1060	Physicians and Surgeons
16.	0.0042		25-9031	Instructional Coordinators
17.	0.0043		19-3039	Psychologists, All Other
18.	0.0044		33-1012	First-Line Supervisors of Police and Detectives
19.	0.0044	0	29-1021	Dentists, General
20.	0.0044		25-2021	Elementary School Teachers, Except Special Education

Most likely jobs to be computerised

Computerisable				
Rank	Probability	Label	SOC code	Occupation
687.	0.98		43-4151	Order Clerks
688.	0.98		43-4011	Brokerage Clerks
689.	0.98		43-9041	Insurance Claims and Policy Processing Clerks
690.	0.98		51-2093	Timing Device Assemblers and Adjusters
691.	0.99	1	43-9021	Data Entry Keyers
692.	0.99		25-4031	Library Technicians
693.	0.99		43-4141	New Accounts Clerks
694.	0.99		51-9151	Photographic Process Workers and Processing Machine Operators
695.	0.99		13-2082	Tax Preparers
696.	0.99		43-5011	Cargo and Freight Agents
697.	0.99		49-9064	Watch Repairers
698.	0.99	1	13-2053	Insurance Underwriters
699.	0.99		15-2091	Mathematical Technicians
700.	0.99		51-6051	Sewers, Hand
701.	0.99		23-2093	Title Examiners, Abstractors, and Searchers
702.	0.99		41-9041	Telemarketers

Group Work- 3

What skills are needed for the future workforce?

How and when can people learn such skills?

Complex skills needed for the Future Workforce

- Sense-making
- Social intelligence
- Novel & adaptive thinking
- Transdisciplinarity
- Cognitive load management
- Computational thinking
- Virtual collaboration

Future work: two way flexibility and health

Negative correlations with health (Flexibility for employers):

- Fragmented/Portfolio careers
- Multiple jobs
- Job insecurity

Positive correlations with health (Flexibility for workers):

- Own account/Self-employed workers
- Flexible work arrangements

Outline

- Is any job better than no job?
- The future of work and health
- **What can we do to reduce workplace health inequalities?**
 1. Flexible Working Arrangements
 2. Work accommodations
 3. Work related training

1. Are Flexible Working Arrangements associated with greater employee well-being?

Flexibilization of working times and workplaces is increasing (Messenger, 2011).

All UK employees are now able to request Flexible Working Arrangements (FWA).

Instead of **regular** and **standardised working hours** at a **single location** such as an office, *temporal* and *spatial variability* in working arrangements is becoming more common (Craig and Powell, 2011; Fagan et al., 2012).

Such flexibility may provide greater **autonomy** to employees.

Job autonomy is associated with greater employee well-being and better health (Bryson et al. 2011)

Potential negative well-being effects of Flexible Working Arrangements

However, some **scepticism** around the benefits of flexible work

- Negative impacts on career trajectories, especially women in part-time work, eg. “ghettoization of women’s work” (White 1983)
- Blurring of boundaries between work and family life
- Reducing the time and energy available for personal, family, and social life (Presser, Parashar, and Gornick, 2008; Bianchi and Milkie, 2010)

TUC call for a 4 day working week

In the 19th century, unions campaigned for an eight-hour day

In the 20th century, we won the right to a two-day weekend and paid holidays

“So, for the 21st century, let’s lift our ambition again. I believe that in this century we can win a four-day working week, with decent pay for everyone.



Frances O'Grady- Manchester September 2018

Flexible Working Arrangements questions in UKHLS

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?

Reduced hours:

Part-time working

Working term-time only

Job sharing

Variable hours:

Flexi-time

To work annualised hours

Restructured hours:

Working a compressed week

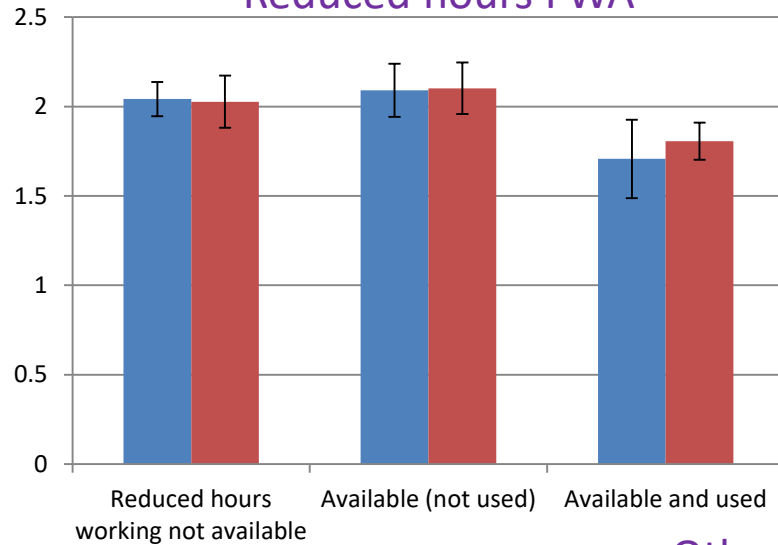
Other flexible working arrangements:

To work from home on a regular basis

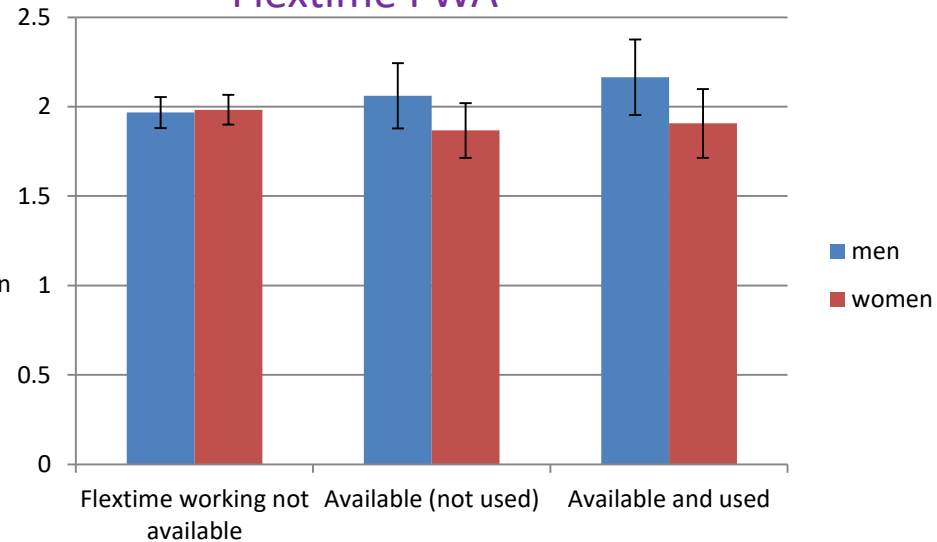
Other flexible working arrangements

Predicted Allostatic Load index by Flexible Work Arrangements

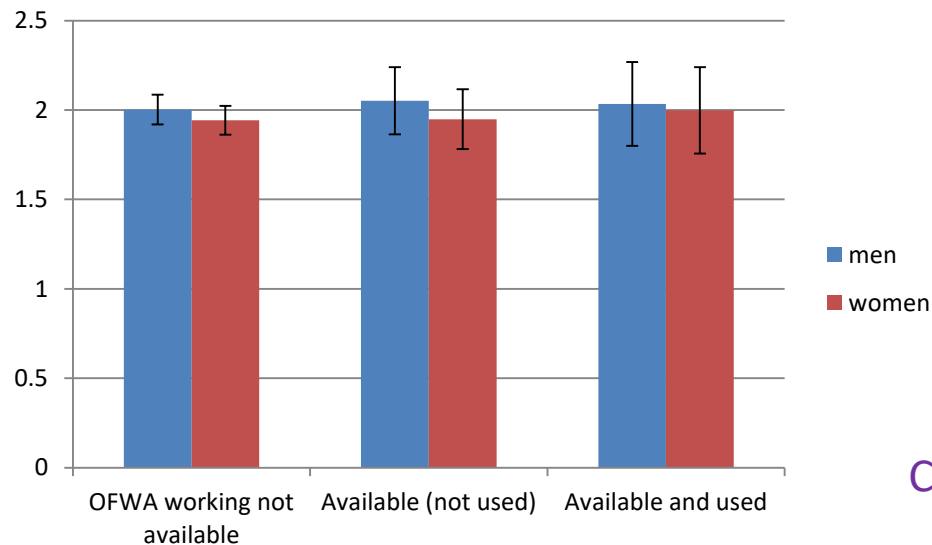
Reduced hours FWA



Flextime FWA

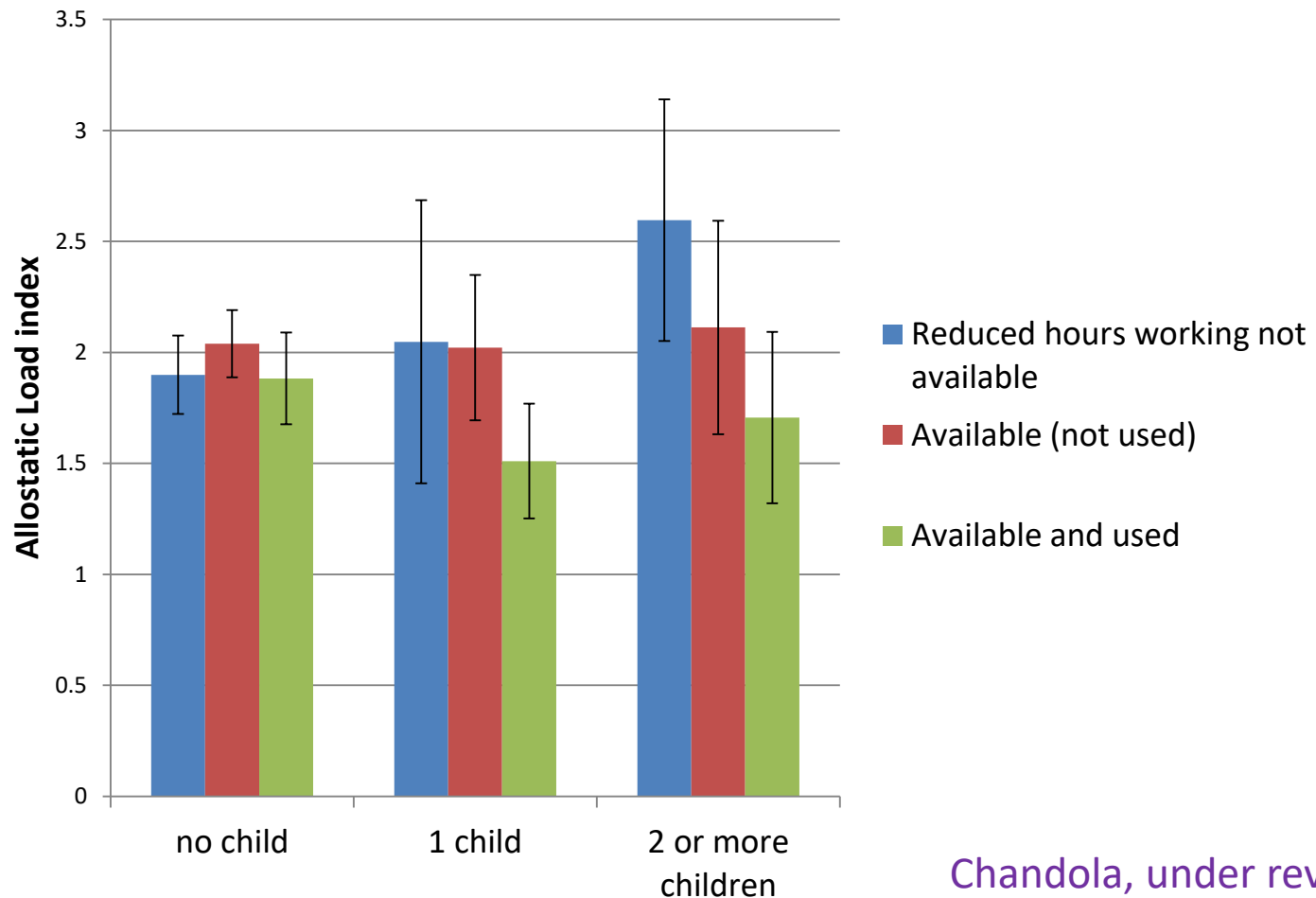


Other FWA



Chandola, under review

Predicted Allostatic Load index by Number of children under 16 in the household and reduced hours FWA- women working more than 24 hours/week



Chandola, under review

2: Workplace accommodations

- Disability employment gap in the UK: In mid-2016, 49% of disabled people aged 16–64 were in work, compared with 81% of non-disabled people
- 83% of people who have a disability acquire it while they are in work
- Around 400,000 people leave the workforce after developing a disability or work-limiting condition each year
- Over 400,000 disabled people each year lose their job and fall into unemployment or inactivity.
- One in six of those who become disabled while in work lose their employment during the first year after becoming disabled.

Are workplace accommodations effective?

- Moderate-quality evidence on workplace interventions for workers with **musculoskeletal disorders**
- Low evidence on workplace accommodations and modifications for persons with **mental illness**

<http://cochranelibrary-wiley.com/doi/10.1002/14651858.CD006955.pub3/abstract>

Foster (2007):

- negotiations on workplace adjustments are fraught
- approximately half of those interviewed said that they had experienced stress and ill health as a consequence of the workplace adjustment process
- absence of formal organizational procedures for implementing workplace adjustments

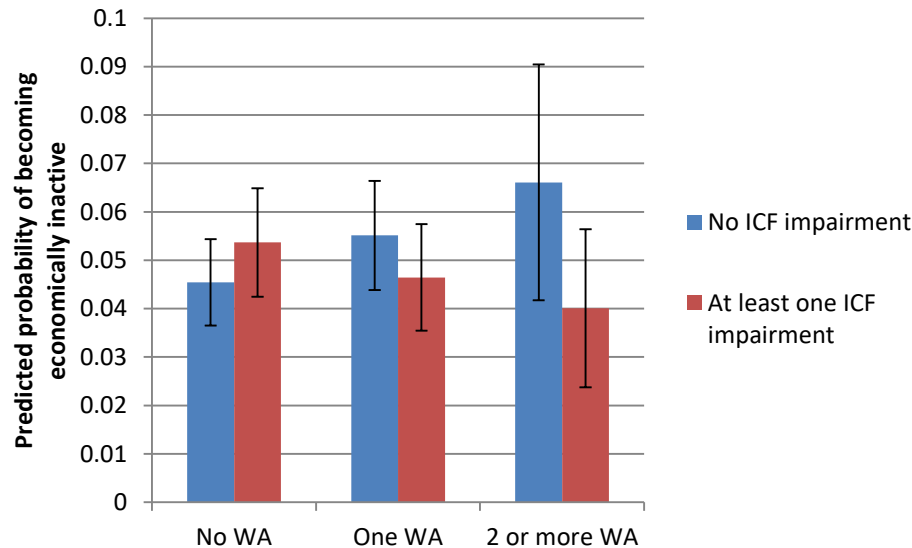
Life Opportunities Study- 2009-2012

All respondents in work were asked if anything from a list of potential work accommodations helped them at work. This list included:

- modified hours or days or reduced work hours
- modified duties
- changes to your work area or work equipment
- equipment to help with a health condition or disability
- building modifications, such as handrails or ramps
- other equipment or services
- a job coach or personal assistant

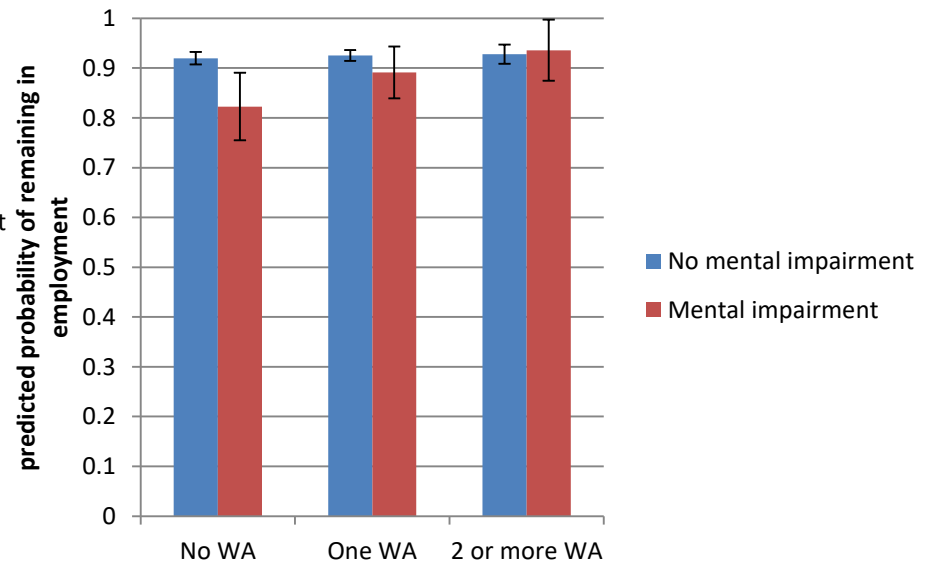
Do Workplace Accommodations enable workers with impairment to remain economically active?

Workers with/without any ICF impairments



Predicted probabilities of becoming economically inactive by workplace adjustments (WA) and ICF impairment status

Workers with/without a mental impairment



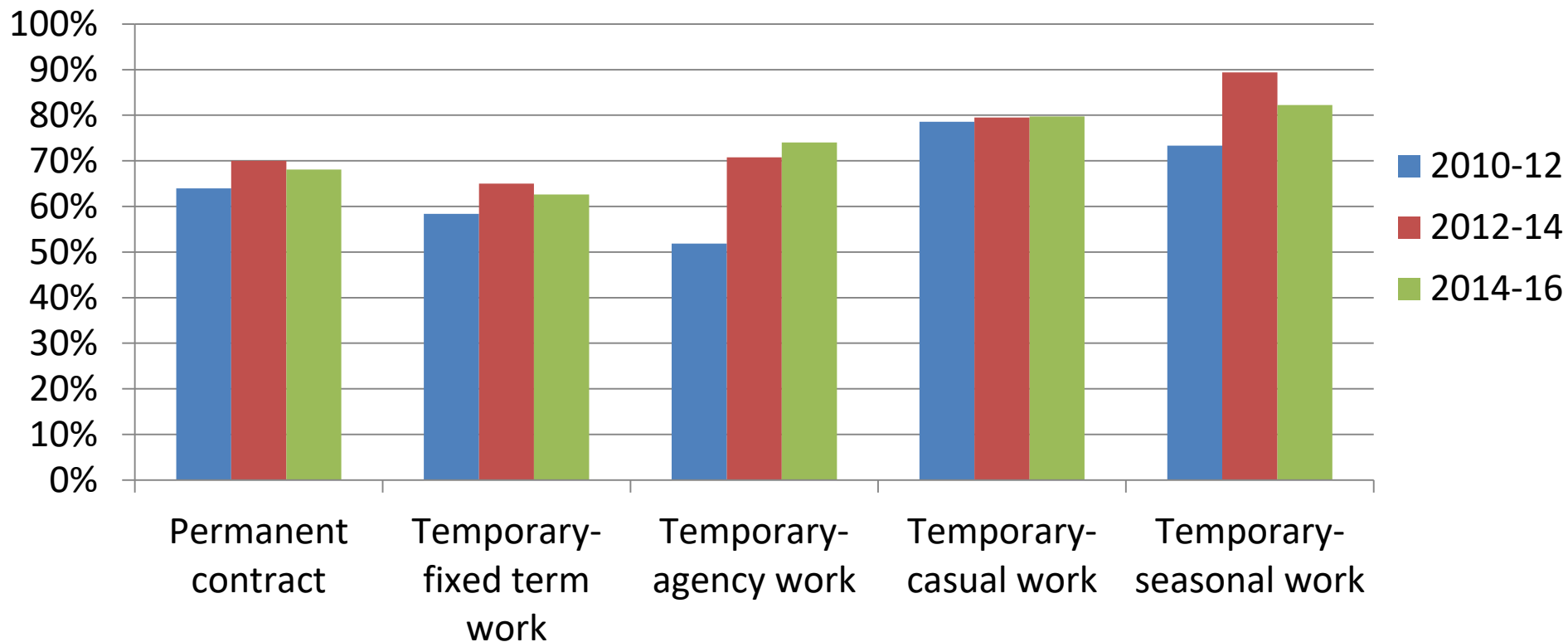
Predicted probabilities of becoming remaining in work by workplace adjustments (WA) and ICF mental impairment status

3: Workplace training

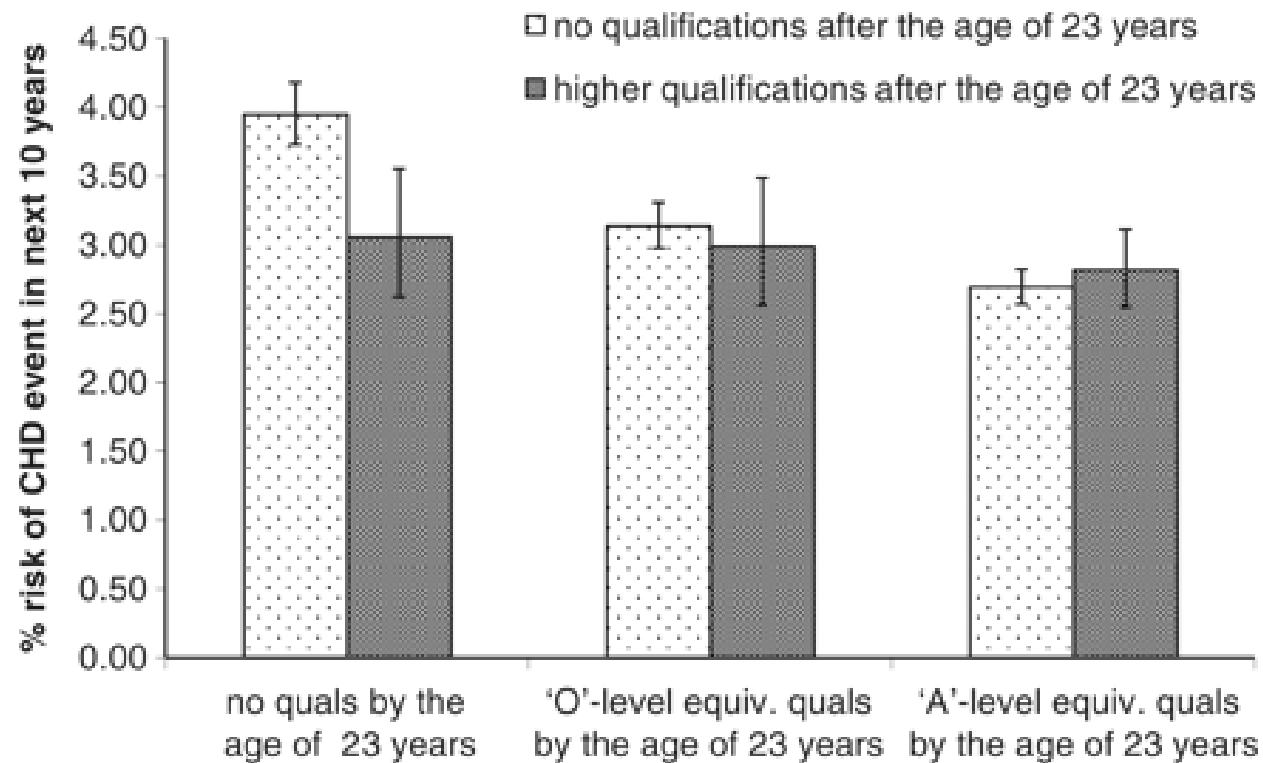
Complex skills needed for the Future Workforce

- Sense-making
- Social intelligence
- Novel & adaptive thinking
- Transdisciplinarity
- Cognitive load management
- Computational thinking
- Virtual collaboration

Percentage of workers in the UK on permanent and temporary contracts who had **no** work related training in the previous year



Interaction effect on CHD risk among men, between qualifications obtained by the age of 23 years and additional higher qualifications obtained after age 23 years



Work, Health and Inequality- concluding questions

- Will more work result in better health?
- Can the tensions of two way flexibility be resolved?
- How do we ensure disabled workers have access to formal organizational procedures for implementing workplace adjustments?
- How to provide access to workplace training for temporary workers?

Thank you to my funders and co-authors
Patrick Rouxel, Michael Marmot, Meena Kumari,
Michaela Benzeval, Nan Zhang, Cara Booker

tarani.chandola@manchester.ac.uk