Depression, unobserved management effects and the endogeneity of job demands and control at work

Kieron J. Meagher
Australian National University
Andrew Wait
University of Sydney

July 8, 2025

The scale of mental health problems (depression) is enormous

- Globally, depression is the third largest source of lived disability (James et al., 2018). The OECD found that mental-health issues such as depression affect more than one in six people in the European Union costing 600 billion Euro — or 4% of GDP – every year (OECD/EU, 2018).
- Greenberg et al. (2015) found that the economic cost to the US in 2010 of major depressive disorder to be USD$210.5 billion. Productivity Commission (2020) estimates that mental-health issues cost Australia around AUD$200-220 billion per year (one tenth of the annual economic output).
- Stress at work is bad for your physical and mental health; the annual cost of work stress in the EU is estimated at US$187 billion (Hassard et al., 2014, 2018)

Jobs, demand and control

- The preeminent framework linking workplace stress to health outcomes is the job-demand-control (JDC) theory (Karasek, 1979; Karasek et al., 1998; Johnson and Hall, 1988; Karasek, 1990; Leka and Houdmont, 2010).
- The JDC theory argues a more demanding job induces poor health outcomes, including an employee's psychological well-being (Van der doef and Maes, 1999).
- Also, the JDC theory argues negative health implications arise if an employee has a lack of control (latitude, discretion, *autonomy*) over their work activities.
  - An employee can feel some sense of independence and self determination
  - With autonomy, they can organise their work to better suit their own needs, aiding their health.
- An older version of this, power (measured by hierarchical rank) produces better health outcomes from the Whitehall studies (Marmot et al., 1991).

Related literature

- Research after WWII, like the Whitehall I studies, built a body of evidence that socio-psychological factors were strongly connected to both physical and mental health outcomes (Marmot et al., 1978).
- Lazarus (1966) provided a framework to move beyond the behavioralist approach of producing a list of stressors (and the associated physical responses) to focus on individual experiences of stress (Lazarus and Folkman, 1984; Robinson, 2018). .
- A critical element of this work suggests that individuals vary in their responses to stimuli depending on their appraisal of the situation and their coping skills.

Related literature

- JDC model (Karasek, 1979) – the psychosocial work environment, particularly a worker's psychological job demands and their decision latitude (control over work and skill discretion) could have on an individual's health (Cooper, 1998; Dunham, 2001).
- The mechanism is that high (excessive) demands at work take a toll on an individual, and this manifests in poor health outcomes.
- The theory posits that individuals value making their own decisions, and this contributes to their overall wellbeing. Greater latitude allows an employee to reorganise their work to better suit themselves and creates worker buy-in.
- Lack of job control, on the other hand, can cause disengagement and is demotivating.

Related literature

- Karasek et al. (1981, p. 694) suggested that "psychological strain, and subsequent physiological illness, result not from an aggregated list of "stressors" but from ... two types of job characteristics. Strain results from the joint effects of the demands of the work situation (stressors) and environmental moderators of stress, particularly the range of decision-making freedom (control)".
- Taken together, the JDC predicts that both high demands and low control have a negative impact on an individual's wellbeing.

Related literature: Jobs-demand-control-support model

- Johnson and Hall (1988) and Johnson et al. (1989) added a third factor – lack of support at work (isolation).
- Siegrist (1996) argued that the imbalance of effort and reward be included as an additional factor, usually measured in empirical studies through the inclusion of rewards such as pay, promotions and (feelings of) job security.
- Wood et al. (2020) consider the benefit of work and non-work supports on mental wellbeing.
- Despite these additions, the core of the JDC thesis remains intact.

Related literature: Empirical research

- JDC model examined empirically. Karasek (1979) argued "[j]ob decision latitude [control] is defined as the working individual's potential control over his tasks and his conduct during the working day ... The goal in constructing the scale of job demands is to measure the psychological stressors involved in accomplishing the work load."
- High job demands and/or low decision latitude are associated with increased rates of cardiovascular disease (Karasek et al., 1981; Marmot et al., 1997; Kuper and Marmot, 2003), mortality (Marmot et al., 1991) and psychological wellbeing (Van der doef and Maes, 1999; Stansfeld and Candy, 2006; Melchior et al., 2007; Sekine et al., 2009; Cottini and Lucifora, 2013; Sekine et al., 2011; Taouk et al., 2024).
- Some studies have focused on particularly stressful occupations, such as medical staff (Grace and VanHeuvelen, 2019; Hao and Zhang, 2024).

Related literature: Self-reported measures of mental health

- Studies on the link between JDC and mental health use a variety of both self-assessed and clinical measures of mental health.
- Bonde (2008, p. 441) notes that empirical investigations of the JDC model and the risk of depression are 'surprisingly uniform' using different measures of mental health, including self-reported measures.
- From an economic perspective the question is not so much whether self-reported depression is the same as clinically diagnosed depression but, rather, is self-reported depression a useful indicator of action.
- The existing literature has already shown that self-reported depression is associated with negative outcomes, including large economic costs.

Related literature: JDCS variables

- While work stressors can be measured in various ways, the key categories are: (i) type of production and task (such as time pressure); (ii) work organization (influence at work); (iii) interpersonal relationships and leadership (quality of superior, support, feedback); and (iv) the work-individual interface (job security).
- These four categories are the same as four of the five variables we use to describe workplace stressors based on the major theories: job demands, control, support, job security and rewards.
- Thus while there is academic debate on how best to measure the relevant factors there is substantial consensus on what those factors are.
- The meta-analysis of Stansfeld and Candy (2006) supports the use of these five factors as a measure of job stress.

Related literature: Controlling for other factors

- The JDC literature has controlled for various omitted variables, such as socioeconomic background and other individual characteristics and lifestyle choices, educational background and smoking, and so on (Bonde, 2008)
- Several longitudinal studies have examined changes in depression over time against a base rate (Melchior et al., 2007).
- Oshio et al. (2015) look at stress at work and mental health of employees, controlling for time-invariant factors. Sato et al. (2020) include individual fixed effects in their study of long and late working hours and short rest periods on white and blue collar workers.

Framework and contribution

- Our study adds to these improvements by considering another important source of endogeneity – the endogeneity of organizational design
- Also, our system-based identification approach mitigates issues of potential survey bias and simultaneity/reverse causality.

Framework and contribution

- In an adverse-selection model, greater effort by employee is associated with higher unobserved ability in equilibrium contract menu, which could include resilience and ability to cope with stress. Unobserved ability positively correlated with job demands and negatively correlated with stress and depression.
- Those who benefit from autonomy more (those workers prone to stress/depression) will seek it out more vigorously (Milgrom and Roberts, 1988). In equilibrium those workers will have more autonomy.
- Individual perceptions of job design and stress could lead to common-factor measurement error. There is also potential issue of simultaneity between job demands, autonomy and depression.

Data: Workplace Employment Relations Survey (2011)

- The UK WERS2011 is a cross-industry survey, with a matched establishment-employee structure, of establishments of 2680 establishments, and over 20 000 of up to 25 employees per establishment.
- Has unique information on depression and organisational design (autonomy, job demands and supervisor support) as well as other individual characteristics (education, age, gender, tenure, ethnic background and so on).
- Another strength of our analysis is that, given the linked employee-establishment nature of the survey, we are able to control for establishment-level effects.
- In our estimates we focus on working age ($18 - 65$ year old) employees.

Dependent variable: Depression

- *Depression* in the WERS 2011 survey utilises one dimension (three questions) of the depression-enthusiasm index of Warr (1990)
- *Depression* based on '[t]hinking of the past few weeks, how much of the time has your job made you feel ... Depressed ... Gloomy ... Miserable?'. For each of these three questions the possible responses were on a 5-point Likert scale; for 'Depressed', the answers in our sample were: Never (51.50%), Occasionally (23.97%), Some of the time (17.40%), Most of the time (4.97%), All of the time (2.16%).
- For each of the three questions we code responses $1-5$ in order of increasing negative emotion, with 5 being 'All of the time', sum, then standardised to produce a z-score.

Explanatory variables: Worker autonomy

- In the WERS each employee was asked: '[i]n general, how much influence do you have over the following?
  1. The tasks you do in your job;
  2. The pace at which you work,
  3. How you do your work,
  4. The order in which you carry out tasks,
  5. The time you start or finish your working day
- Answers in the four-point Likert scale: A lot (4), Some (3), A little (2), None (1).
- Average the 5 questions and standardize to give *Authority* (z-score).

Explanatory variables: Job Demands

- Each employee was also asked '[d]o you agree or disagree with the following statements about your job? My job requires that I work very hard' and 'I never seem to have enough time to get my work done'.
- Possible answers to both questions were on a 5-point Likert scale from Strongly Disagree (1) to Strongly Agree (5).
- *Job Demands* constructed by summing and then standardizing these questions into a single measure.
- Similar to questions used in epidemiology and psychological studies.

Explanatory variables: Effort-rewards model

- Suggests that the effort required of a job contributes to stress, and hence ill health, particularly when the employee is not adequately compensated (by monetary payments, prestige or job security) for their effort.
- Economic rewards captured by *Pay* (average weekly earnings before tax); Numerical values are entered as the midpoints of the categories, top category coded as approximately one-third above the final threshold.
- *Job Secure* derived from '[d]o you agree or disagree with the following statements about your job? I feel my job is secure in this workplace', coded 1 for those in agreement and 0 otherwise.

Explanatory variables: Manager encourages skills

- Appropriate support helps individuals cope with their jobs, reducing stress and hence stress-related illness.
- It is important to capture the nature, not just the intensity, of the interaction with management.
- *Manager encourages skills*: '[n]ow thinking about the managers at this workplace, to what extent do you agree or disagree with the following? Encourage people to develop their skills'.
- Responses scaled on a 5-point Likert scale from Strongly Disagree (0) to Strongly Agree (4). *Manager encourages skills* is coded as 1 for Agree and Strongly Agree and 0 otherwise.

Explanatory variables: Other individual employee controls

- Controls for educational attainment, with dummies for *Incomplete High School*, having completed *High School* and for workers with a *Degree* or equivalent (less than high school is the omitted category).
- *Age*, Age^2
- *Tenure* (total years working at the workplace), $Tenure^2$
- 1-digit occupation codes, dummy *Male*, five ethnic background categories.

Identification strategy

- To consider the possible endogeneity of management practices, we need instruments for both of our endogenous variables, *Job Demands* and *Autonomy*.
- Our identification strategy will be based around organizational changes in response to the Great Recession, changes which impact *Job Demands* and *Autonomy* independently of individual idiosyncratic mental health.

Identification strategy

- The Great Recession (GFC) immediately preceded the WERS 2011 survey was an exogenous shock to work conditions. The UK economy shrank 6% between the first quarter of 2008 and the second quarter of 2009.
- This recession caused a drop in demand for many firms, necessitating redundancies; unemployment increased from 5.2% in March-May 2008 to 8.5% in September-November 2011. 66% of employees in the WERS survey reported negative changes in work conditions as a result of the Great Recession.
- Our identification strategy is based around organizational changes in response to the Great Recession, changes which impact *Job Demands* and *Autonomy* independently of individual idiosyncratic mental health.

Identification strategy

- Changes in response to a recession-induced downturn are likely to be applied as a policy by higher-levels of management, rather than idiosyncratic choices made by direct-line supervisors with knowledge of individuals and their characteristics.
- In the WERS data, only 24% of workplaces had the power to make routine decisions on employee pay.
- Since restructuring and redundancies are critical and non-standard, with proscribed legal requirements, it is even more likely that authority for these decisions will be centralised away from the workplace.
- Downsizing needs to be based on technological requirements, not individual performance

Instruments: *Job demands*

- Employees asked '[d]id ... the following happen to you as a result of the most recent recession, whilst working at this workplace? My workload increased'.
- The variable *My workload increased* is coded 1 for a positive response and 0 otherwise.
- Increased work demands caused by this instrument are conditionally exogenous to *Depression* after controlling for *Job demands*; changes in workloads following a restructure or redundancies on the basis of existing skills and tasks required, as opposed to an individual's depression.
- *Job secure* included to block potential casual pathway that extra workload is an indicatation of precarious employment for the respondent.

Instruments: *Job demands*

- Also asked, as a result of the most recent recession, whilst working at this workplace, whether an employee had their 'access to overtime restricted'.
- From this we generate the binary variable *Overtime restricted*, which takes on the value of 1 if this was the case and 0 otherwise.
- A firm could respond to negative demand shock with a blanket ban or reduction in allowable overtime. Given this, whilst the restriction on overtime will affect an employee's *Job Demands*, it is orthogonal to an individual's characteristics, namely their depression, making it a valid instrument.

Instruments: *Autonomy*

- Delegation of decision-making rights is a way a firm can access an employee's specific knowledge in a timely manner (Jensen and Meckling, 1992; Dessein, 2002; Aghion et al., 2017).
- This specific knowledge, moreover, develops in a particular role with time-on-the-job, as this allows an employee to get to know the production process, product or the needs of individual customers.
- This accords with previous studies that show the probability of delegation is increasing with an employee's tenure. This means that if there is an exogenous shock that causes an employee to shift roles in the firm, this will decrease the likelihood of delegation, as that employee will have lower levels of specific knowledge, other things equal.

Instruments: *Autonomy*

- The survey asked each employee whether they had their work reorganised or if they were moved to another job while working at this workplace, following the last recession.
- From this, we generate two binary instruments *Moved jobs (by firm)* and *Work reorganised (by firm)*, both indicating whether these changes occurred (1) or not (0).
- In response to a negative shock firms will implement cost-saving measures that are applied across an organization on the basis of the roles requires and changes in demand, rather than changes that are tailored to particular individuals.
- Consequently, changes in jobs or work reorganizations reflect responses to a fall in demand for a firm's product, not the ability of any individual employee.
- This means that while these changes affect *Autonomy*, they are conditionally independent of *Depression*.

Summary statistics

Table: Summary Statistics[a]

	Mean	S.D.
JDC		
Depression	0.01	0.99
Autonomy	0.00	0.99
Job Demands	0.03	0.99
JDC+		
Job Secure	0.56	0.50
Manager encourages skills	0.57	0.49
Employee controls		
Pay (Weekly, '00's)	4.73	3.11
Tenure	6.67	4.43
Male	0.44	0.50
Age	42.00	11.30
Observations	17182	

[a] Source: WERS2011.

Empirical results

- First replicate the standard JDC model. These results provide a benchmark to our estimates that account for endogeneity.
- Our main dependent variable, *Depression* is a standardised and continuous variable, allowing us to estimate linear models.
- Two specifications: (i) the core JDC model variables *Autonomy* and *Job Demands*, plus a standard set of individual characteristics as controls; (ii) JDC+ includes *Job Secure*, *Manager encourages skills* and *Pay* from the effort-reward model.

Empirical results: Establishment-level fixed effects

- One major source of endogeneity is that common establishment levels effects (management practices or ability) may be correlated with *Job Demand* or *Autonomy*.
- We use a large matched employer-employee data set to estimate establishment-level fixed effects:

$$DE_i = \beta_1 J_i + \beta_2 A_i + \beta X_i + u_{j[i]} + e_i \tag{1}$$

DE_i is *Depression* for individual i, J_i represents *Job Demands*, A_i the employee's *Autonomy*, X_i exogenous employee characteristics, $u_{j[i]}$ is the establishment-level fixed effect and e_i zero-mean error term

OLS and Establishment-level fixed effects

	(1) JDC		(2) JDC+		(3) FE-JDC+	
			Depression			
JDC						
Job Demands	0.244	(0.009)	0.228	(0.009)	0.220	(0.009)
Autonomy	-0.240	(0.009)	-0.158	(0.009)	-0.160	(0.009)
JDC+						
Job Secure			-0.325	(0.015)	-0.297	(0.016)
Manager encourages skills			-0.466	(0.015)	-0.438	(0.016)
Pay (Weekly, '00's)			0.011	(0.003)	0.009	(0.004)
Observations	17182		17182		17182	
R^2 overall	13.0		21.8		21.6	
R^2 within					18.5	
ρ					0.169	

[a] Within R^2 for (3) excludes the fixed effects. $\rho = \frac{(\sigma_{u_i})^2}{(\sigma_{u_i})^2+(\sigma_{e_i})^2}$ where σ_{e_i} is the standard deviation of residuals of the overall error term e_i and σ_{u_i} is the standard deviation of residuals within groups u_i. Establishment-level clustered standard errors in parentheses.

OLE and FE estimate employee characteristics

	(1) JDC		(2) JDC+		(3) FE-JDC+	
			Depression			
EMPLOYEE CONTROLS						
Tenure	0.056	(0.007)	0.043	(0.007)	0.049	(0.007)
Tenure^2	-0.003	(0.000)	-0.002	(0.000)	-0.002	(0.001)
Male	0.137	(0.017)	0.080	(0.017)	0.060	(0.018)
Age	0.005	(0.005)	-0.010	(0.005)	-0.010	(0.005)
Age^2	-0.000	(0.000)	0.000	(0.000)	0.000	(0.000)
EDUCATION						
Incomplete High School	0.000	(0.023)	-0.046	(0.022)	-0.014	(0.023)
High School	-0.021	(0.028)	-0.073	(0.026)	-0.038	(0.029)
Degree	-0.012	(0.026)	-0.066	(0.025)	-0.021	(0.027)

OLE and FE estimate employee characteristics

	(1) JDC		(2) JDC+		(3) FE-JDC+	
			Depression			
ETHNICITY						
Mixed	-0.003	(0.063)	-0.036	(0.060)	-0.061	(0.063)
Asian	0.182	(0.044)	0.166	(0.041)	0.155	(0.047)
Black	0.157	(0.071)	0.151	(0.066)	0.042	(0.076)
Other Background	0.213	(0.124)	0.162	(0.114)	0.067	(0.134)
OCCUPATION						
Managers	-0.079	(0.040)	-0.051	(0.040)	-0.043	(0.046)
Professional	-0.128	(0.035)	-0.091	(0.034)	-0.041	(0.040)
Assoc. Prof.	-0.038	(0.034)	-0.056	(0.033)	-0.053	(0.039)
Admin	-0.025	(0.033)	-0.040	(0.032)	-0.043	(0.038)
Trades	-0.045	(0.045)	-0.055	(0.042)	-0.031	(0.048)
Other Service	-0.191	(0.036)	-0.098	(0.034)	-0.098	(0.041)
Sales	-0.054	(0.048)	-0.001	(0.045)	-0.023	(0.053)
Plant Operators	0.021	(0.045)	-0.001	(0.044)	-0.046	(0.051)

Endogenous *Job demands*

- Following the arguments of Angrist and Pischke (2008), we focus initially on one source of endogeneity at a time.
- First, consider *Job Demands*
- We estimate the standard IV model:

$$DE_i = \beta_1 J_i + \beta_2 A_i + \beta X_i + u_{j[i]} + e_i; \tag{2}$$

$$J_i = \Pi_J X_{Ji} + \Pi_{JX} X_i + u_{j[i]} + v_i. \tag{3}$$

DE_i is *Depression* for individual i, J_i *Job Demands*, A_i the employee's *Autonomy*, X_i exogenous employee characteristics, X_{Ji} instruments for *Job Demands*, e_i and v_i zero-mean error terms; $u_{j[i]}$ is the establishment-level fixed effect.

Depression with endogenous *Job demands*

	FE-IV-JDC+			
	2nd Stage		1st Stage	
	Depression			
JDC				
Job Demands	0.645	(0.044)		
Autonomy	-0.151	(0.010)	-0.008	(0.009)
JDC+				
Job Secure	-0.277	(0.018)	-0.016	(0.017)
Skills encouraged	-0.408	(0.018)	-0.044	(0.016)
Pay (Weekly, '00's)	-0.015	(0.005)	0.054	(0.004)
INSTRUMENTS				
Workload increased			0.450	(0.018)
Overtime restricted			0.105	(0.022)
Observations	17182		17182	
No. establishments	1786		1786	
Kleibergen-Paap[b]	335.200			
Critical value (max LIML size)	8.68	(10%)		

[b] Weak instruments test: Kleibergen–Paap rk Wald F-statistic, H_0 = weak instruments. Critical values from Stock and Yogo (2005, Table 2)

Depression with endogenous *Authority*

- There is also a potential endogeneity issue with *Autonomy*.
- Focusing on the endogeneity of *Autonomy* we estimate the following IV model:

$$DE_i = \beta_1 J_i + \beta_2 A_i + \beta X_i + u_{j[i]} + e_i; \tag{4}$$

$$A_i = \Pi_A X_{Ai} + \Pi_{AX} X_i + u_{j[i]} + \varepsilon_i, \tag{5}$$

where X_{Ai} instruments for *Autonomy* and the other variables as previously defined.

Depression with endogenous *Authority*

	FE-IV-JDC+			
	2nd Stage		1st Stage	
	Depression			
JDC				
Job Demands	0.195	(0.015)	-0.015	(0.008)
Autonomy	-1.590	(0.285)		
JDC+				
Job Secure	0.099	(0.085)	0.269	(0.017)
Skills encouraged	0.050	(0.100)	0.336	(0.016)
Pay (Weekly, '00's)	0.091	(0.017)	0.056	(0.003)
INSTRUMENTS				
Work reorganised			-0.092	(0.020)
Moved job			-0.096	(0.032)
Observations	17182		17182	
No. establishments	1786		1786	
Kleibergen-Paap[b]	20.176			
Critical value (max LIML size)	8.68	(10%)		

[b] Weak instruments test: Kleibergen–Paap rk Wald F-statistic, H_0 = weak instruments. Critical values from Stock and Yogo (2005, Table 2)

Controlling for organizational-design endogeneity: System-based estimates

- Organizational design considerations suggest that both *Autonomy* and *Job demands* could be endogenous.
- To mitigate the potential endogeneity of both variables by estimating a system of equations with jointly Normally distributed errors.
- Identification requires some pattern of exclusion restrictions: assume each of the instruments appears only once: *Workload increased* and *Overtime restricted* in the *Job-demands* equation and *Work reorganised (by firm)* and *Moved jobs (by firm)* in the *Autonomy* equation.

Controlling for organizational-design endogeneity: System-based estimates

We estimate the following system:

$$DE_i = \beta_1 J_i + \beta_2 A_i + \beta X_i + u_{j[i]} + e_i; \tag{6}$$

$$J_i = \Pi_J X_{Ji} + \Pi_{JX} X_i + u_{j[i]} + v_i; \tag{7}$$

$$A_i = \Pi_A X_{Ai} + \Pi_{AX} X_i + u_{j[i]} + \varepsilon_i \tag{8}$$

where $u_{j[i]}$ is the establishment-level fixed effect, when included.

Depression: Maximum-likelihood linear-system results

	(1) JDC++		(2) FE-JDC+	
		Depression		
JDC				
Job Demands	0.565	(0.039)	0.576	(0.045)
Autonomy	-1.058	(0.242)	-1.068	(0.228)
JDC+				
Job Secure	-0.085	(0.063)	-0.026	(0.067)
Manager encourages skills	-0.088	(0.096)	-0.099	(0.080)
Pay (Weekly, '00's)	0.040	(0.012)	0.040	(0.014)
Autonomy×Job Demands	-0.023	(0.009)		
		Job demands		
Workload increased	0.484	(0.018)	0.443	(0.018)
Overtime restricted	0.113	(0.021)	0.130	(0.021)
		Autonomy		
Work reorganised (by firm)	-0.082	(0.020)	-0.089	(0.019)
Moved job (by firm)	-0.111	(0.028)	-0.107	(0.027)
Observations	17182		17182	
No. establishments	1786		1786	

Concluding remarks

- Reexamine the preeminent framework for psychological health risks at work, the JDC model.
- Drawing on theory, we account for organizational design in determining job demands and employee autonomy (control).
- given the costs of mental health, and the influence of the JDC framework on policy.
- We find accounting for endogeneity important, as previous estimates understate the potential benefits of autonomy on mental health, and underplay the negative impact of work demands.

Concluding remarks

- Given the nature of employment, contracts cannot deal with this issue.
- Employees might underestimate the costs of demanding work on their own mental health.
- Our findings highlight the need for effective managers, and manager training, so they are aware of effects of excessive work demands.

Thank you!

References

Aghion, P., N. Bloom, B. Lucking, R. Sadun, and J. V. Reenen (2017). Turbulence, firm decentralization and growth in bad times. Harvard Business School Working Paper, No. 17-092.

Angrist, J. D. and J.-S. Pischke (2008). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton university press.

Bonde, J. P. E. (2008). Psychosocial factors at work and risk of depression: A systematic review of the epidemiological evidence. *Occupational and Environmental Medicine 65*(7), 438–445.

Cooper, C. L. (1998). *Theories of Organizational Stress*. OUP, Oxford.

Cottini, E. and C. Lucifora (2013). Mental health and working conditions in Europe. *ILR Review 66*(4), 958–988.

Dessein, W. (2002, October). Authority and communication in organizations. *Review of Economic Studies 69*, 811–838.

Dunham, J. (2001). *Stress in the Workplace: Past, Present and Future*. London: Whurr.

Grace, M. K. and J. S. VanHeuvelen (2019). Occupational