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## CUMULATIVE EFFECTS OF JOB CHARACTERISTICS ON HEALTH<sup>\*</sup>

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**Abstract.** We present what we believe are the best estimates of how job characteristics of physical demands and environmental conditions affect individual's health. Five-year cumulative measures of these job characteristics are used to reflect findings in the physiologic literature that cumulative exposure is most relevant for the impact of hazards and stresses on health. Using data from the Panel Study of Income Dynamics we find that individuals who work in jobs with the 'worst' conditions experience declines in their health, although this effect varies by demographic group. For example, for non-white men, a one standard deviation increase in cumulative physical demands decreases health by an amount that offsets an increase of two years of schooling or four years of aging. Job characteristics are found more detrimental to the health of females and older workers. These results are robust to inclusion of occupation fixed effects, health early in life and lagged health.

**Keywords:** Health, Occupational Characteristic

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## **Introduction**

Most individuals work much of their life, however, there has been relatively little inquiry into understanding how occupation and job characteristics affect health. The field of economics has contributed less than other disciplines. Yet, a better understanding of how these and other job-related factors affect health is potentially important based on mere time at work as well as evidence from other fields that occupation can affect health. Access to large, nationally representative panel data and the ability to match data on job characteristics from government data allows study of cumulative exposure to work conditions. Biologic studies increasingly suggest that cumulative or chronic exposure is critical in studying impacts on health. However, little research uses panel data to track health status over time that is related to job characteristics. Finding evidence that certain characteristics of occupations negatively affect workers' health may be able to provide insights in how to limit work-related causes of health decline.

We examine the cumulative impact of physically demanding or environmentally hazardous job characteristics on health. Based on biologic and physiologic studies that indicate that longer exposure to adverse conditions tends to result in greater harm to health, we predict that job characteristics measured cumulatively will have important impacts on health. To address the issue of the harmful impacts of cumulative exposure to job conditions, we use the rich, panel data available in the Panel Study of Income Dynamics (PSID) on both health and occupation. We merge PSID data with time-varying job characteristics from the Dictionary of Occupational Titles (DOT) (USDOL, 1991). The longitudinal nature of the PSID data allow us to develop measures of cumulative

exposure and to control for lagged measures of health. We use 5-year windows of exposure to job conditions to estimate the effect on self reported health status. Access to data a measure of health early in life helps to mitigate concerns over self-selection into jobs based on the ability to handle these potentially adverse conditions. Importantly, and in contrast to much of the extant literature, we explore difference in the impact of job characteristics by demographic groups and find distinctive differences.

Our work advances the knowledge base in several ways. First, we focus on cumulative impact that corresponds to contemporary biologic and physiologic evidence about the importance of cumulative impacts of adverse conditions on health. Because we have longitudinal data we are able to develop a 5-year measure for exposure to job conditions. Also, because of the longitudinal data, we can control for initial and lagged health. Controlling for initial health helps to mitigate the degree to which people self-select into occupations when young based on their health. The large sample size allows us to stratify the sample by gender, age and race subgroups. Distinctive differences are found across these groups. These advances may help to develop a better understanding of the impact of job characteristics on workers health. Finding evidence that certain characteristics of occupations negatively affect workers' health may provide insights into how to limit work-related causes of health decline. Evidence on who is most vulnerable to the negative health impacts may help to prioritize those populations most at risk and in need for help.

## **Background Literature**

Recent medical and epidemiologic literatures emphasize the importance of the cumulative burden of stresses such as poverty and low social status on health. The findings confirm that the body reacts to stress in physiologic and biologic ways. The short term response may be adaptive and beneficial e.g. increases in levels of adrenalin. However, if stress is suffered over a long period of time, the body can over-respond or respond in maladaptive ways that harm health. The term 'allostatic load' refers to the physiological costs of chronic exposure to stress and strain (McEwan (2000)). Biological and physiological measures have been used to identify and quantify allostatic load which in turn has been found to compromise physical health (Seeman et al. 2001; Seeman et al. 2002). The hormonal, and other, responses to stress and strain can have a protective effect associated with short term exposure, while long term and cumulative responses can damage health.

An influential set of longitudinal studies of British civil servants concludes that lower occupational and socio-economic status are associated with worse health, even when controlling for demographics, health habits and income among other factors (e.g. Marmot 1983; Marmot and Smith 1997; Marmot and Bobak 2000; Marmot 2001). Low social position of occupation, high occupational stress, and low job control are considered to be primary mechanisms for the adverse impact on health. These studies find similar results across various dimensions of health, including coronary heart disease, self-reported health, morbidity and health related behaviors (Bosma, Marmot et al. 1997). That a gradient would be found even among a set of British (and other) government

workers with relatively secure jobs, health insurance coverage and a relatively narrow set of job types is perhaps surprising, yet suggests that occupation and occupational characteristics can have profound impacts on health.

Several epidemiologic studies use PSID data on United States workers and their jobs from 1968 to 1991 to examine the role of job stress and control on subsequent mortality. They find that cumulative exposure to low control jobs and passive work significantly increases mortality. (Amick, Kawachi et al. 1998; ) (Amick and Celentano, 1991). Karasek et al. (1988) examine the relationship between job control and latitude and myocardial infarction using the US Health Examination Survey and the Health and Nutrition Examination Survey. However, they do not control for early and lagged health.

There are relatively few economic studies examining the impact of occupation and health. Recent work by Case and Deaton (2003, 2005) has provided evidence that low-paid, manual work damages self-assessed health to a greater extent than highly paid, skilled work. Furthermore, they find that the deterioration in health is faster for blue-collar workers approaching retirement age. Their results are robust to including important controls such as education and income. A limitation of their work is that they use repeated cross sectional data rather than panel data. Therefore, they are not able to track individuals over time, but rather they examine individuals in a given occupation over time. Another economic study uses historical data from the mid-nineteenth century to examine occupational categories and finds only a limited effect of occupation (Ferrie 2001). Choo and Denny (2006) also use a cross sectional database (Canadian) and confirm the findings in Case and Deaton (2003, 2005) as well as show the results are

robust to including lifestyle choices (smoking, obesity) and controls for chronic diseases (e.g. diabetes, heart disease, cancer, etc).<sup>1</sup>

While these papers represent some of the best evidence in economics of the effects of broad occupational categories on health status for national samples of individuals, there are important limitations to these studies. All but the Amick studies use contemporaneous measures of occupational characteristics rather than cumulative. Further because they use cross-sectional data they cannot control for early health and lagged health. We use information on these health measures to address respectively self-selection into initial jobs and to control for the cumulative impact of occupation on health prior to the period under study.

In related work, some of these limitations have begun to be relaxed. In a paper that is most similar to this paper, Lakdawalla and Philipson (2007) merged occupation and health information from the National Longitudinal Study of Youth 1979 (NLSY) with occupation characteristics information from the Dictionary of Occupational Titles. These authors focus on the effects of cumulative exposure to physical demands of jobs on the overweight status of workers. Lakdawalla and Philipson show that men who are employed in the most fitness-demanding occupations are 14 percent lighter than men employed in the least demanding occupations, and men in the most strength-demanding occupations are 15 percent heavier than men in occupation at the bottom of the strength distribution. The authors also use the NLSY dataset to show that there is substantial variation in the physical demands placed on workers across occupations.

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<sup>1</sup> A related emerging body of work is research linking initial occupational choices with later health outcomes. Sindelar et al. (2007) presents the first such evidence. Fletcher (2008) examines the association between first occupation and health in old age using sibling fixed effects. Fletcher and Sindelar (2008) instrument for first occupation and find large effects of blue color employment on later health.

In this paper, we extend the basic strategy of Lakdawalla and Philipson to focus on the effects of physical demands and harsh environmental conditions on the self-reported health status of working age adults. In contrast, to their study, we control for initial and lagged health to control for the health production process preceding the windows of exposure found in our data. In addition, we examine whether the effects of exposure to harsh job conditions are cushioned or worsened by income<sup>2</sup>, and examine whether the net effect of longer hours is to increase exposure to job characteristics and worsen health or whether longer hours worked are due to better ability to cope with the conditions. These results are robust to inclusion of dummies on ten broad occupational categories; the dummies control for all other invariant occupational factors.

### **Data and Empirical Model**

Our empirical model draws on the literature that estimates education production functions as well as the seminal work in the health economics literature of Grossman (1972). In Grossman, health status transitions over time in a simple way:

$$H_t = \delta H_{t-1} + I_t \quad (1)$$

where in this case health status at time  $t$  is a linear function of the depreciated health status from the previous period plus any health investments made in the current period. Thus, if we unravel this function recursively, we can see that health status at period  $t$  is a function of the health endowment (at time = 0) and the summation of the subsequent discounted investments made between the initial time period and the current time period:

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<sup>2</sup> The literature on compensating wage differentials suggest that individuals may accept more harsh job conditions in order to obtain higher income. While there is relatively little empirical support for this, we acknowledge that this could be one method whereby the cushion of income relates directly to job conditions, *cet. par.*



$$H_t = \delta^t H_0 + \sum_{k=1}^t \delta^{k-1} I_k \quad (2)$$

Broadening the health transition function to reflect the idea that there can be both positive investments and negative investments (“expenditures”) of health over time due to environmental factors, starting to smoke, etc., we have:

$$H_t = \delta^t H_0 + \sum_{k=1}^t \delta^{k-1} (I_k - E_k) \quad (3)$$

The aggregated health expenditures are akin to the concept of allostatic load or cumulative burden engendered by exposure to long-term stresses. Unfortunately, no datasets contain rich enough information on the full set of health investments and expenditures in health for an individual’s full history. Therefore, in order to examine shorter term cumulative effects of occupational conditions that may reduce health status, we estimate equations of the following form:

$$H_t = \rho H_{t-5} + \theta \sum_{k=t-5}^t E_k + X_t \beta + \varepsilon_t \quad (4)$$

This formulation assumes that prior health status captures the history of net investments made up until the point at which prior health is measured. Here we measure prior health status five periods before the current. We chose five periods somewhat arbitrarily with the idea that we need to allow enough time to elapse so that we can estimate the effects of negative health investments on health. We present results below that use a six or four year lag to check the robustness of our preferred results. We also concentrate on negative health investments from job exposures to physical demands and adverse environmental conditions and also control for individual level characteristics. To the extent that individuals make positive investments in health to offset “health

expenditures”, our estimates of  $\theta$  may understate the true decrements to health caused by job conditions. We explore this below to some extent by controlling for labor income flows that could be used as health investments.

## **Data and measures**

We use data from the Panel Study of Income Dynamics (PSID), which is a longitudinal study of a representative sample of U.S. individuals and their families. We match data on job characteristics from the Department of Labor’s Dictionary of Occupations (DOT) The PSID emphasizes the dynamic aspects of economic and demographic behavior, and it contains a wide range of information, including occupation and health.<sup>3</sup> Starting with a national sample of approximately 4,800 U.S. households in 1968, the PSID re-interviewed individuals from these households every year until 1997, and every other year since that time. New households were added as the children of the panel families grew older and formed their own family units. At the conclusion of the 2001 data collection, the PSID had collected information spanning as many as 34 years of the lives of some observations<sup>4</sup>.

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<sup>3</sup> The PSID is conducted by the Survey Research Center, Institute for Social Research at the University of Michigan, and has been primarily funded by the National Science Foundation and the National Institute on Aging.

<sup>4</sup> While the initial response rate in 1968 was somewhat low (76 percent), annual response rates for follow-up were exceedingly high. These ranged from 88.5 percent in 1969 to between 96.9 and 98.5 percent following. Given the cumulative effect of even small yearly dropout rates, attention to potential selection bias is always warranted. However, a National Science Foundation commissioned study found that only a negligible portion of attrition in the PSID is explained by systematic attrition.

As health status is only reported beginning in the 1984 wave of the PSID, we select our sample of PSID respondents between 1984-1999<sup>5</sup>. This creates a sample of 75,000 person-years for males and 85,000 person years for females. As we discuss below, we control for lagged health, which decreases the sample sizes to 37,000 person-years for males and 43,000 person-years for females. The primary reason that our sample is smaller is that it requires an extra year of data to measure health prior to our five year window of exposure to job characteristics.

Health is reported by the respondent to be in poor, fair, good, very good or excellent health. This five categorization rating of health is the dependent variable. We use OLS as the main estimation approach, but also compare the results to ordered probit to determine whether the results are robust to the estimation approach.

We merge the DOT characteristics by 3-digit occupation and year to individuals in the PSID. The data describing job characteristics are taken from two waves of the DOT (1977 and 1991) that use the standard 3-digit Census occupational categorical codes. In particular, for each job we use one assessment of physical demands needed and combine several assessments of the environmental conditions into a scale. The environmental conditions that we use include assessments of extreme heat, extreme cold, exposure to weather, wet/and or humid conditions, and atmospheric conditions.<sup>6</sup> We use factor analysis to combine the environmental conditions into a single index of exposure. The

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<sup>5</sup> The PSID Occupational Codes switch to 2000 3-digit codes after 1999.

<sup>6</sup> Examples of jobs that have exposure to weather include picking field crops, traffic crossing guard, and mail carrier. Examples of jobs with extreme cold include working in cold-storage rooms, packing fish in ice, and storing ice cream. Examples of jobs with extreme heat include working next to a hot stove, working in a laundry room, and furnace controller. Wet and/or humid conditions include pressing garments, loading damp material into tumblers, and working in a kitchen in a restaurant. Atmospheric conditions refers to exposure to conditions such as fumes, noxious odors, dusts, etc. and include jobs that stack grain by hand, takes care of animals used for medical tests, repairs and overhauls vehicles, etc. (see U.S. Department of Labor 1991).

physical demands category we focus on is strength, which is expressed by one of five terms: Sedentary, Light, Medium, Heavy, and Very Heavy.<sup>7</sup> In order to determine this overall rating, DOL makes an assessment of the worker's involvement in several domains of activities, including position (standing, walking, or sitting), duration and intensity of lifting, pushing, and pulling objects, and the amount of controls (buttons, knobs, pedals, etc.) used during the job. In order to merge this information with our primary dataset, we linearly interpolate the DOT data for years outside of the DOT years of 1977 and 1991.

In order to measure cumulative exposure to strength and environmental requirements, we add the scores over the five year period. Because the cumulative score is the aggregation across all five years, it is more akin to a continuous variable than a categorical. In order to capture the churning in and out of the labor force of some individuals, we also control for the amount of the previous five years that the individual was out of the labor force<sup>8</sup>. These two measures are standardized by gender on the grounds that women and men are drawing from different distributions. Hours worked and yearly labor market earnings are also aggregated to obtain a five year total. We compare results across alternative specifications- four, five and six year cumulative exposure alternatives.

We use a relatively parsimonious set of control variables, including a quadratic in age, years of schooling, self-employment status, marital status, labor income, weekly

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<sup>7</sup> Sedentary work involves sitting most of the time with brief periods of walking or standing. Examples of sedentary work includes jobs that take dictation or transcribe notes, writing news stories, or works as a dispatcher. Very heavy work involves exerting in excess of 100 pounds of force occasionally, 50 pounds frequently, or 20 pounds constantly. Examples include lifting lumber, loading and unloading trucks, and transferring adult patients between bed and conveyance in hospitals. See U.S. Department of Labor (1991).

<sup>8</sup> During times of not employed, we assume that the physical demands and environmental exposures are equal to zero.

work hours, time out of the labor force, and year dummies. We also control occupational fixed effects in robust checks.

Our specifications are estimated separately by gender and we also stratify the sample by age and race of the workers to examine the heterogeneity in the 5-year cumulative effects of exposure to job characteristics and other variables. We stratify a priori because differences by subgroup have been found in previous studies of health production functions. In addition, labor market conditions and responses are well known to vary by gender, age and race.

Summary statistics of our samples of men and women are displayed in Table 1. Men in our sample are slightly healthier than women (currently, previously, and initially). Men are more likely to report being self employed and earn more labor income than women. Women and men sort into different occupations, with key difference being that men are more likely to be in the categories of craftsman, operative and laborer while women are more likely to be in the service sector. Women also have more spells out of the labor force. The mean level of standardized working conditions are negative for our analytical sample because the standardization was done on the larger sample. This indicates that the analysis sample has slightly better working conditions than the full sample. Working conditions cannot be compared across genders as they are standardized by gender.

Table 2 stratifies the working conditions descriptive statistics by subgroups, including race, education, and age. For both men and women, non-white workers have worse job conditions, lower incomes, and work fewer hours. Examining the job conditions by educational attainments, we find that men with more than a high school

diploma work in jobs with substantially better working conditions. The picture is more mixed for women—high school dropouts have lower physical demands but harsher environmental conditions. Older workers generally face lower physical demands and less harsh environmental conditions compared with young workers (<40 years old).

## **Results**

### *Estimates for Males*

In Table 3, we begin our baseline regression analyses linking cumulative job exposure to current self-reported health status.<sup>9</sup> We find evidence consistent with prior studies—white males report better health, health decreases with age, and education is positively associated with health. For males, we find little association in the full sample between job exposures and health status (column 1). However, when we further stratify the analysis, we find that physical demands are associated with lower health for non-white males and older males. A one standard deviation increase in the five-year cumulative physical demands reduces health by 0.056 units over five years, which is comparable to a reduction in two years of schooling for non-whites.<sup>10</sup> Likewise, for older male workers (age>40), we find that a one standard deviation increase in physical demands reduces health by 0.029 units, which is similar to a one year decrease in schooling. We also find that this decrease in health for older workers is approximately the same as the reduction in health from aging 9 years using a linear age control (results not shown). Otherwise, we find no evidence of links between job exposures and health for white or young workers.

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<sup>9</sup> We show results that do not control for initial health status (between ages 0 and 16) in Appendix Table 1.

<sup>10</sup> In Appendix Table 2A, we present results that use 4 or 6-year lags instead of 5-year lags in our main results.

In Table 4, we extend the analysis from Table 3 by controlling for two additional job attributes—cumulative income and weekly hours worked. In all cases, we find that income is positively and significantly related to health<sup>11</sup>; weekly hours worked are positive and significant for all but younger workers, although the magnitude is small. Hours worked could be capturing at least two distinct processes—workers who are healthier could be able to work longer hours and/or workers who work longer hours are exposed to job conditions for longer periods. For males, the coefficient on cumulative hours worked is positive and significant but very small in magnitude. We also find that, compared to results from Table 3, the new results suggest that labor income may moderately cushion the negative effects of job exposures on health since the physical demands-health links for non-whites and older workers are reduced and no longer statistically significant. Since our self-reported health is categorical, we also estimate ordered probit models in Appendix Table 3 and find very similar results.

#### *Estimates for Females*

In Table 5 we shift our analysis to examine the links between job characteristics and health status for female workers. Overall, we find stronger links than those found for men suggesting that strength demands and harsh environmental conditions are harmful to self-reported health status. For the full female sample, both job conditions are linked with lower health. A one standard deviation increase in cumulative physical demands exposure reduces health over five years by 0.029 units, which is similar to a reduction of one year of education or aging by approximately 3 years. A one standard deviation

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<sup>11</sup> Compensating wage differentials could result in higher income as a reward for taking higher risks, *ceteris paribus*. However, this does not interfere with, and may support, the interpretation as income operating to cushion the impact of adverse conditions.

increase in harsh environmental conditions reduce health by 0.017 units over five years, which is similar to a reduction of one-half years of schooling or aging over one year. When we separate the results by race, we find that environmental conditions negatively affect health for non-whites (twice the effect of physical demands), and we find the opposite relative effects for whites—physical demands lower health more than similar changes in environmental conditions. When we separate the results into old (>40) and young workers, the effects of physical demands deteriorate health more for older workers than younger workers, and environmental conditions show the opposite relationship.

In Table 6, we again extend our first set of results for females by controlling for cumulative labor income and weekly hours worked. Similar to what we found for men, income is positively related to health. Unlike for men however, cumulative weekly work hours are negatively associated with health for women. We also find only slight decreases in the links between negative job conditions and health after these controls are added (comparing Table 5 with Table 6). Since our self-reported health is categorical, we also estimate ordered probit models in Appendix Table 3 and find very similar results.

*Strengths and limitations.* The linking of DOT data on to PSID data allows us to analysis job characteristics on health while controlling for lagged health, initial health and other factors in a large national sample. This paper advances the knowledge base by: 1) focusing on cumulative impact reflecting contemporary biologic and physiologic findings about the importance of cumulative impacts of adverse conditions on health; 2) controlling for initial health which helps to mitigate the degree to which people self-select into occupations when young based on their health; 3) controlling for health lagged to the period before of observation of job characteristics to control for the cumulative



impact of occupation on health prior to the period under study; 4) examining subgroup differences in response to job conditions; and 5) using occupational fixed effects to control for other job characteristics. We use the current occupation as the fixed effect variable, so it will capture all other job characteristics so those who change jobs over the five year time period.

While our study contributes to the literature by using a national panel data set and measuring the 5-year cumulative effects of job conditions on health, there are several limitations with our approach. Endogeneity of occupation and occupational change does not allow our estimates to have a causal interpretation, although endogenous switching out of jobs with harsh conditions in order to mitigate negative effects on health suggests that our estimates could be lower bounds. We also lack information on whether workers invest in their health to offset the decrements caused by poor job conditions, which would also make our estimates conservative. That labor income is positively and significantly related to health suggests individuals may spend money to compensate. Use of self-reported health is both a strength and a weakness- it is a comprehensive measure but is not an objective measure. One particular concern would be that men and women self-report health differently, by estimating regressions separately by gender we have addressed this concern.

## **Conclusions**

We present evidence linking cumulative exposure to physical demands and harsh environmental conditions at work to a comprehensive measure of health for a national sample of workers. Our method of controlling for early and also lagged health helps to both 1) address early self-selection into occupations based on health and 2) isolate the contribution of cumulative exposure to changes in health over a five year time period. These factors result in what we think is likely the best current evidence linking cumulative exposure to poor job conditions to a global measure of health. We find that job conditions can harm health and also that the impacts vary considerably by gender, age and racial subgroups. To the extent that individuals make positive investments in health to offset these exposures, our estimates may understate the true decrements to health caused by job conditions. Income earned may cushion the impact to some extent. The net effect of hours worked may be to increase exposure for women. Results suggest that some subgroups are most at risk for decrements in health due to jobs and additional workplace or governmental policies may be needed to blunt these impacts.

## Tables

Table 1  
Descriptive Statistics  
PSID Analysis Sample: Men and Women

Variable	Men			Women		
	Obs	Mean	Std.	Obs	Mean	Std.
Current Health	34721	3.70	1.04	41178	3.56	1.03
Cumulative Physical Demands (standardized)	34721	-0.01	0.96	41178	0.05	0.98
Cumulative Environmental Conditions (standardized)	34721	-0.12	0.79	41178	-0.03	0.89
Nonwhite	34721	0.29	0.45	41178	0.36	0.48
Age	34721	42.61	9.91	41178	42.25	10.40
Years of Schooling	34721	13.26	2.40	41178	13.00	2.19
Self Employed	34721	0.14	0.35	41178	0.07	0.25
Married	34721	0.81	0.39	41178	0.69	0.46
Labor Income (\$10,000s)	34721	3.97	4.27	41178	1.72	2.01
Weekly Work Hours	34721	38.95	17.91	41178	25.36	19.51
Cumulative Labor Income	34721	19.32	19.44	41178	8.12	8.26
Cumulative Weekly Work Hours	34721	198.72	69.92	41178	126.72	83.21
Initial Health	34721	4.32	0.73	41178	4.19	0.78
Out of the Labor Force Proportion	34721	0.09	0.23	41178	0.27	0.37
Lag Health	34721	3.85	1.01	41178	3.66	1.02
Professional (Current)	34665	0.17	0.38	41131	0.17	0.37
Manager (Current)	34665	0.17	0.37	41131	0.08	0.27
Sales (Current)	34665	0.05	0.21	41131	0.04	0.18
Clerical (Current)	34665	0.04	0.20	41131	0.21	0.40
Craftsman (Current)	34665	0.19	0.39	41131	0.01	0.12
Operative (Current)	34665	0.14	0.35	41131	0.07	0.25
Laborer (Current)	34665	0.05	0.22	41131	0.01	0.09
Farmer (Current)	34665	0.02	0.14	41131	0.00	0.05
Service (Current)	34665	0.07	0.25	41131	0.14	0.35
Home Maker (Current)	34665	0.00	0.02	41131	0.01	0.11
Not Employed (Current)	34665	0.10	0.30	41131	0.26	0.44

Notes: The "current" occupation summary statistics are conditional on reporting a current occupation

Table 2  
Work Condition Differences By Group

<u>Variable</u>	<u>All Men</u>			<u>All Women</u>		
	<u>Obs</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Obs</u>	<u>Mean</u>	<u>Std Dev</u>
Cumulative Physical Demands (std)	34721	-0.01	0.96	41178	0.05	0.98
Cumulative Environmental Conditions (std)	34721	-0.12	0.79	41178	-0.03	0.89
Cumulative Labor Income	34721	19.32	19.44	41178	8.12	8.27
Cumulative Weekly Work Hours	34721	198.72	69.93	41178	126.72	83.21
<b><u>Non White</u></b>						
Cumulative Physical Demands (std)	9952	0.12	1.06	14909	0.11	1.07
Cumulative Environmental Conditions (std)	9952	0.06	0.91	14909	0.15	1.15
Cumulative Labor Income	9952	13.12	10.33	14909	6.92	6.66
Cumulative Weekly Work Hours	9952	175.80	74.44	14909	122.49	83.22
<b><u>White</u></b>						
Cumulative Physical Demands (std)	24769	-0.06	0.91	26269	0.01	0.92
Cumulative Environmental Conditions (std)	24769	-0.19	0.73	26269	-0.13	0.68
Cumulative Labor Income	24769	21.82	21.57	26269	8.81	8.99
Cumulative Weekly Work Hours	24769	207.93	65.82	26269	129.12	83.11
<b><u>HS Dropouts</u></b>						
Cumulative Physical Demands (std)	4651	0.08	1.29	5839	-0.23	1.21
Cumulative Environmental Conditions (std)	4651	0.10	0.86	5839	0.21	1.25
Cumulative Labor Income	4651	9.34	7.47	5839	3.20	4.25
Cumulative Weekly Work Hours	4651	158.41	89.55	5839	76.72	81.12
<b><u>HS Graduates</u></b>						
Cumulative Physical Demands (std)	12896	0.29	0.92	16880	0.10	1.01
Cumulative Environmental Conditions (std)	12896	0.02	0.85	16880	0.06	0.98
Cumulative Labor Income	12896	15.01	9.58	16880	6.54	6.18
Cumulative Weekly Work Hours	12896	194.22	68.19	16880	124.90	81.40
<b><u>HS Plus</u></b>						
Cumulative Physical Demands (std)	17174	-0.26	0.79	18459	0.10	0.83
Cumulative Environmental Conditions (std)	17174	-0.28	0.69	18459	-0.20	0.58
Cumulative Labor Income	17174	25.27	24.57	18459	11.12	9.64
Cumulative Weekly Work Hours	17174	213.02	59.69	18459	144.20	78.77
<b><u>Old Workers</u></b>						
Cumulative Physical Demands (std)	18185	-0.13	1.03	20594	0.03	1.03
Cumulative Environmental Conditions (std)	18185	-0.20	0.71	20594	-0.03	0.92
Cumulative Labor Income	18185	21.30	23.64	20594	8.47	8.75
Cumulative Weekly Work Hours	18185	193.55	77.52	20594	125.19	85.89
<b><u>Young Workers</u></b>						
Cumulative Physical Demands (std)	16536	0.12	0.85	20584	0.08	0.92
Cumulative Environmental Conditions (std)	16536	-0.02	0.86	20584	-0.04	0.85
Cumulative Labor Income	16536	17.16	13.05	20584	7.77	7.74
Cumulative Weekly Work Hours	16536	204.41	59.97	20584	128.25	80.41

Table 3  
The Effects of Cumulative Job Characteristics on Health Status for Men

Outcome	SRHS	SRHS	SRHS	SRHS	SRHS
Sample	Males	Non White	White	Old	Young
Cumulative Physical Demands (std)	-0.019 (0.013)	-0.056** (0.026)	-0.002 (0.014)	-0.029* (0.016)	-0.001 (0.018)
Cumulative Environmental Conditions (std)	-0.009 (0.011)	-0.003 (0.022)	-0.011 (0.012)	-0.004 (0.017)	-0.016 (0.013)
Lagged Health	0.450*** (0.009)	0.405*** (0.015)	0.469*** (0.011)	0.491*** (0.011)	0.381*** (0.012)
Age	-0.049*** (0.006)	-0.067*** (0.012)	-0.042*** (0.007)	-0.110*** (0.018)	-0.024 (0.036)
Age-squared	0.044*** (0.007)	0.060*** (0.014)	0.037*** (0.007)	0.103*** (0.017)	0.009 (0.054)
Non White	-0.073*** (0.017)	0.000 (0.000)	0.000 (0.000)	-0.084*** (0.022)	-0.075*** (0.024)
Education	0.043*** (0.004)	0.026*** (0.008)	0.048*** (0.005)	0.041*** (0.005)	0.045*** (0.006)
Self Employed	0.047*** (0.018)	0.020 (0.049)	0.043** (0.019)	0.020 (0.023)	0.091*** (0.028)
Married	0.034* (0.019)	-0.047 (0.031)	0.090*** (0.024)	0.078*** (0.027)	-0.006 (0.025)
Out of the Labor Force Proportion	-0.333*** (0.056)	-0.432*** (0.108)	-0.339*** (0.065)	-0.346*** (0.069)	-0.205** (0.094)
Initial Health	0.163*** (0.011)	0.145*** (0.021)	0.168*** (0.013)	0.123*** (0.013)	0.229*** (0.016)
Constant	2.049*** (0.142)	3.004*** (0.285)	1.652*** (0.162)	3.559*** (0.451)	1.602*** (0.591)
Observations	34721	9952	24769	19579	15142
R-squared	0.401	0.356	0.402	0.450	0.288

Robust standard errors clustered at the individual level in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.  
Additional Controls: missing initial health dummy, missing self employed information. Year fixed effects controlled

Table 4  
The Effects of Cumulative Job Characteristics on Health Status for Men  
Controls for Income and Weekly Work Hours

Outcome	SRHS	SRHS	SRHS	SRHS	SRHS
Sample	Males	Non White	White	Old	Young
Cumulative Physical Demands (std)	-0.008 (0.013)	-0.026 (0.026)	0.005 (0.014)	-0.018 (0.016)	0.008 (0.018)
Cumulative Environmental Conditions (std)	-0.007 (0.011)	0.003 (0.021)	-0.011 (0.012)	-0.000 (0.017)	-0.015 (0.013)
Lagged Health	0.445*** (0.009)	0.392*** (0.015)	0.466*** (0.011)	0.485*** (0.011)	0.378*** (0.012)
Cumulative Weekly Work Hours	0.000*** (0.000)	0.001** (0.000)	0.000* (0.000)	0.001*** (0.000)	0.000 (0.000)
Cumulative Labor Income	0.002*** (0.001)	0.011*** (0.002)	0.001*** (0.000)	0.002*** (0.001)	0.003*** (0.001)
Age	-0.053*** (0.006)	-0.075*** (0.012)	-0.045*** (0.007)	-0.116*** (0.018)	-0.027 (0.036)
Age-squared (divided by 100)	0.047*** (0.007)	0.066*** (0.014)	0.040*** (0.008)	0.109*** (0.017)	0.012 (0.054)
Non White	-0.060*** (0.017)			-0.073*** (0.022)	-0.062** (0.025)
Education	0.039*** (0.004)	0.015* (0.008)	0.045*** (0.005)	0.037*** (0.005)	0.039*** (0.007)
Self Employed	0.040** (0.018)	0.011 (0.049)	0.037* (0.019)	0.011 (0.022)	0.084*** (0.028)
Married	0.023 (0.019)	-0.083*** (0.032)	0.082*** (0.024)	0.065** (0.026)	-0.016 (0.025)
Out of the Labor Force Proportion	-0.164** (0.068)	-0.043 (0.129)	-0.210*** (0.079)	-0.153* (0.082)	-0.059 (0.115)
Initial Health	0.161*** (0.011)	0.137*** (0.021)	0.167*** (0.013)	0.121*** (0.013)	0.227*** (0.016)
Constant	2.076*** (0.146)	3.152*** (0.291)	1.663*** (0.167)	3.611*** (0.453)	1.666*** (0.592)
Observations	34721	9952	24769	19579	15142
R-squared	0.404	0.365	0.403	0.453	0.290

Robust standard errors clustered at the individual level in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.  
Additional Controls: Missing initial health, missing self employed information. Year fixed effects controlled

Table 5  
The Effects of Cumulative Job Characteristics on Health Status for Women

Outcome Sample	SRHS Females	SRHS Non White	SRHS White	SRHS Old	SRHS Young
Cumulative Physical Demands (std)	-0.029** (0.012)	-0.012 (0.021)	-0.041*** (0.015)	-0.024 (0.016)	-0.033* (0.018)
Cumulative Environmental Conditions (std)	-0.017** (0.008)	-0.022** (0.011)	-0.017 (0.010)	-0.022** (0.009)	-0.012 (0.013)
Lagged Health	0.436*** (0.008)	0.392*** (0.012)	0.461*** (0.010)	0.477*** (0.011)	0.373*** (0.010)
Age	-0.027*** (0.005)	-0.048*** (0.009)	-0.017*** (0.006)	-0.057*** (0.016)	-0.008 (0.028)
Age-squared	0.017*** (0.006)	0.037*** (0.010)	0.008 (0.007)	0.048*** (0.015)	-0.011 (0.042)
Non White	-0.209*** (0.015)	0.000 (0.000)	0.000 (0.000)	-0.216*** (0.021)	-0.198*** (0.020)
Education	0.041*** (0.004)	0.038*** (0.007)	0.039*** (0.004)	0.038*** (0.005)	0.043*** (0.005)
Self Employed	0.006 (0.023)	0.035 (0.056)	0.007 (0.025)	0.011 (0.032)	-0.011 (0.031)
Married	0.081*** (0.015)	0.071*** (0.022)	0.086*** (0.021)	0.087*** (0.020)	0.078*** (0.020)
Out of the Labor Force Proportion	-0.119*** (0.035)	-0.131** (0.065)	-0.121*** (0.042)	-0.099** (0.048)	-0.107** (0.048)
Initial Health	0.176*** (0.010)	0.144*** (0.015)	0.192*** (0.012)	0.151*** (0.012)	0.209*** (0.013)
Constant	1.624*** (0.120)	2.291*** (0.217)	1.234*** (0.144)	2.346*** (0.408)	1.373*** (0.449)
Observations	41178	14909	26269	22128	19050
R-squared	0.402	0.348	0.368	0.449	0.292

Robust standard errors clustered at the individual level in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Additional Controls: Missing initial health, missing self employed information. Year fixed effects controlled

Table 6  
The Effects of Cumulative Job Characteristics on Health Status for Women  
Controls for Income and Weekly Work Hours

Outcome	SRHS	SRHS	SRHS	SRHS	SRHS
Sample	Females	Non White	White	Old	Young
Cumulative Physical Demands (std)	-0.026** (0.012)	0.004 (0.022)	-0.039*** (0.015)	-0.031* (0.018)	-0.021 (0.016)
Cumulative Environmental Conditions (std)	-0.016** (0.008)	-0.021* (0.011)	-0.016 (0.010)	-0.011 (0.012)	-0.020** (0.009)
Lagged Health	0.435*** (0.008)	0.389*** (0.012)	0.460*** (0.010)	0.372*** (0.010)	0.476*** (0.011)
Cumulative Weekly Work Hours	-0.000*** (0.000)	-0.001* (0.000)	-0.000** (0.000)	-0.000* (0.000)	-0.000 (0.000)
Cumulative Labor Income	0.004*** (0.001)	0.010*** (0.003)	0.003*** (0.001)	0.004** (0.002)	0.004*** (0.001)
Age	-0.028*** (0.005)	-0.052*** (0.009)	-0.017*** (0.006)	-0.006 (0.028)	-0.057*** (0.016)
Age-squared (divided by 100)	0.018*** (0.006)	0.041*** (0.010)	0.008 (0.007)	-0.013 (0.042)	0.049*** (0.015)
Non White	-0.207*** (0.015)	0.000 (0.000)	0.000 (0.000)	-0.195*** (0.020)	-0.216*** (0.021)
Education	0.038*** (0.004)	0.033*** (0.007)	0.036*** (0.004)	0.040*** (0.005)	0.034*** (0.005)
Self Employed	0.007 (0.023)	0.042 (0.056)	0.007 (0.025)	-0.013 (0.031)	0.014 (0.032)
Married	0.081*** (0.015)	0.069*** (0.022)	0.085*** (0.021)	0.079*** (0.020)	0.087*** (0.020)
Out of the Labor Force Proportion	-0.145*** (0.046)	-0.117 (0.090)	-0.146*** (0.053)	-0.142** (0.064)	-0.105* (0.061)
Initial Health	0.175*** (0.010)	0.142*** (0.015)	0.192*** (0.012)	0.208*** (0.013)	0.150*** (0.012)
Constant	1.736*** (0.125)	2.477*** (0.226)	1.329*** (0.150)	1.450*** (0.450)	2.435*** (0.408)
Observations	41178	14909	26269	19050	22128
R-squared	0.402	0.350	0.368	0.293	0.449

Robust standard errors clustered at the individual level in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.  
Additional Controls: Missing initial health, missing self employed information. Year fixed effects controlled



Appendix Table 1  
The Effects of Cumulative Job Characteristics on Health Status  
No Control for Initial Health

Outcome Sample	SRHS Males	SRHS Non White	SRHS White	SRHS Old	SRHS Young	SRHS Females	SRHS Non White	SRHS White	SRHS Old	SRHS Young
Cumulative Physical Demands (std)	-0.024* (0.012)	-0.062** (0.026)	-0.007 (0.014)	-0.033** (0.016)	-0.008 (0.018)	-0.037*** (0.012)	-0.009 (0.021)	-0.054*** (0.015)	-0.040** (0.018)	-0.033** (0.016)
Cumulative Environmental Conditions (std)	-0.009 (0.010)	0.001 (0.020)	-0.015 (0.012)	-0.007 (0.016)	-0.013 (0.014)	-0.017** (0.008)	-0.022** (0.011)	-0.020* (0.011)	-0.003 (0.012)	-0.027*** (0.009)
Lagged Health	0.467*** (0.009)	0.412*** (0.015)	0.495*** (0.011)	0.502*** (0.011)	0.413*** (0.013)	0.465*** (0.008)	0.409*** (0.012)	0.500*** (0.010)	0.412*** (0.010)	0.499*** (0.010)
Constant	2.558*** (0.138)	3.504*** (0.281)	2.101*** (0.157)	3.826*** (0.444)	2.307*** (0.588)	2.118*** (0.118)	2.738*** (0.210)	1.685*** (0.141)	1.958*** (0.451)	2.772*** (0.411)
Observations	35588	10290	25298	20058	15530	41604	15096	26508	19224	22380
R-squared	0.380	0.337	0.377	0.433	0.252	0.384	0.332	0.346	0.266	0.434

Robust standard errors clustered at the individual level in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Same specification as Tables 2 and 3 except no control for initial health.

Appendix Table 2  
The Effects of Cumulative Job Characteristics on Health Status  
Examination Using Different Lag Structures: Males

Outcome	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS
Sample	Male	Male	Non White	Non White	White	White	Old	Old	Young	Young
Lag Length	Lag 4	Lag 6	Lag 4	Lag 6	Lag 4	Lag 6	Lag 4	Lag 6	Lag 4	Lag 6
Cumulative Physical Demands (std)	0.001 (0.011)	-0.012 (0.014)	-0.007 (0.022)	-0.037 (0.028)	0.010 (0.012)	0.004 (0.016)	-0.010 (0.014)	-0.018 (0.018)	0.016 (0.015)	-0.001 (0.020)
Cumulative Environmental Conditions (std)	-0.004 (0.009)	-0.008 (0.013)	0.003 (0.017)	0.007 (0.024)	-0.006 (0.010)	-0.013 (0.014)	0.002 (0.015)	-0.006 (0.019)	-0.010 (0.010)	-0.013 (0.015)
Lagged Health	0.465*** (0.008)	0.436*** (0.010)	0.403*** (0.014)	0.382*** (0.017)	0.491*** (0.010)	0.456*** (0.012)	0.505*** (0.010)	0.467*** (0.012)	0.403*** (0.011)	0.375*** (0.014)
Cumulative Weekly Work Hours	0.001*** (0.000)	0.000** (0.000)	0.001*** (0.000)	0.000 (0.000)	0.000** (0.000)	0.000* (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001** (0.000)	0.000 (0.000)
Cumulative Labor Income	0.003*** (0.001)	0.002*** (0.000)	0.013*** (0.003)	0.010*** (0.002)	0.002*** (0.001)	0.001*** (0.000)	0.002*** (0.001)	0.002*** (0.000)	0.004*** (0.001)	0.003*** (0.001)
Constant	1.855*** (0.121)	2.198*** (0.173)	2.882*** (0.242)	3.247*** (0.347)	1.458*** (0.137)	1.819*** (0.198)	3.233*** (0.409)	3.829*** (0.498)	1.708*** (0.441)	0.971 (0.762)
Observations	40401	29575	11774	8338	28627	21237	21666	17520	18735	12055
R-squared	0.413	0.398	0.365	0.358	0.418	0.395	0.464	0.440	0.301	0.289

Robust standard errors clustered at the individual level in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Same specification as Tables 2 and 3 except lag variable.

Appendix Table 2 (continued)  
The Effects of Cumulative Job Characteristics on Health Status  
Examination Using Different Lag Structures: Females

Outcome	SRHS Female Lag 4	SRHS Female Lag 6	SRHS Non White Lag 4	SRHS Non White Lag 6	SRHS White Lag 4	SRHS White Lag 6	SRHS Old Lag 4	SRHS Old Lag 6	SRHS Young Lag 4	SRHS Young Lag 6
Cumulative Physical Demands (std)	-0.017* (0.010)	-0.042*** (0.013)	0.015 (0.018)	-0.019 (0.023)	-0.031** (0.012)	-0.052*** (0.016)	-0.030** (0.014)	-0.046** (0.019)	-0.004 (0.013)	-0.037** (0.017)
Cumulative Environmental Conditions (std)	-0.011 (0.007)	-0.018** (0.009)	-0.014 (0.010)	-0.021* (0.013)	-0.012 (0.009)	-0.018* (0.011)	-0.009 (0.011)	-0.005 (0.013)	-0.012 (0.008)	-0.029*** (0.011)
Lagged Health	0.455*** (0.007)	0.415*** (0.008)	0.410*** (0.011)	0.364*** (0.013)	0.004*** (0.001)	0.003** (0.001)	0.388*** (0.010)	0.348*** (0.011)	0.504*** (0.010)	0.454*** (0.011)
Cumulative Weekly Work Hours	-0.000* (0.000)	-0.001*** (0.000)	-0.000 (0.000)	-0.001*** (0.000)	0.481*** (0.009)	0.443*** (0.011)	-0.000 (0.000)	-0.001** (0.000)	-0.000 (0.000)	-0.001*** (0.000)
Cumulative Labor Income	0.005*** (0.001)	0.004*** (0.001)	0.012*** (0.003)	0.010*** (0.002)	-0.000* (0.000)	-0.000** (0.000)	0.005*** (0.002)	0.005*** (0.002)	0.005*** (0.001)	0.003*** (0.001)
Constant	1.607*** (0.103)	1.907*** (0.147)	2.229*** (0.187)	2.816*** (0.266)	1.153*** (0.123)	1.462*** (0.174)	1.648*** (0.339)	1.678*** (0.592)	2.158*** (0.367)	2.793*** (0.449)
Observations	47783	35214	17466	12607	30317	22607	23303	15393	24480	19821
R-squared	0.415	0.393	0.360	0.337	0.387	0.357	0.303	0.284	0.467	0.437

Robust standard errors clustered at the individual level in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Same specification as Tables 2 and 3 except lag variable.

Appendix Table 3  
The Effects of Cumulative Job Characteristics on Health Status  
Results using Ordered Probit

Outcome	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS
Sample	Males	Non White	White	Old	Young	Males	Non White	White	Old	Young
Cumulative Physical Demands (std)	-0.013 (0.018)	-0.031 (0.032)	0.005 (0.021)	-0.025 (0.022)	0.011 (0.026)	-0.033** (0.017)	0.008 (0.028)	-0.056*** (0.021)	-0.025 (0.021)	-0.040 (0.025)
Cumulative Environmental Conditions (std)	-0.011 (0.014)	0.005 (0.026)	-0.018 (0.017)	-0.003 (0.022)	-0.021 (0.018)	-0.020* (0.010)	-0.026* (0.014)	-0.021 (0.014)	-0.024** (0.012)	-0.015 (0.017)
Lagged Health	0.585*** (0.012)	0.474*** (0.020)	0.639*** (0.016)	0.639*** (0.016)	0.505*** (0.017)	0.579*** (0.011)	0.497*** (0.017)	0.633*** (0.014)	0.630*** (0.015)	0.506*** (0.014)
Cumulative Weekly Work Hours	0.001*** (0.000)	0.001* (0.000)	0.001* (0.000)	0.001*** (0.000)	0.000 (0.000)	-0.001*** (0.000)	-0.001* (0.000)	-0.001** (0.000)	-0.000 (0.000)	-0.001** (0.000)
Cumulative Labor Income	0.003*** (0.001)	0.014*** (0.003)	0.002*** (0.001)	0.003*** (0.001)	0.004*** (0.002)	0.006*** (0.002)	0.012*** (0.004)	0.006*** (0.002)	0.006*** (0.002)	0.007** (0.003)
Age	-0.070*** (0.008)	-0.093*** (0.015)	-0.061*** (0.010)	-0.151*** (0.024)	-0.041 (0.050)	-0.037*** (0.007)	-0.064*** (0.011)	-0.024*** (0.009)	-0.078*** (0.021)	-0.010 (0.038)
Age-squared	0.062*** (0.009)	0.082*** (0.017)	0.054*** (0.011)	0.141*** (0.023)	0.023 (0.075)	0.025*** (0.008)	0.050*** (0.013)	0.012 (0.010)	0.067*** (0.021)	-0.016 (0.058)
Non White	-0.079*** (0.023)			-0.096*** (0.029)	-0.081** (0.033)	-0.273*** (0.020)			-0.281*** (0.028)	-0.263*** (0.028)
Education	0.053*** (0.006)	0.018* (0.010)	0.064*** (0.007)	0.050*** (0.007)	0.058*** (0.009)	0.051*** (0.005)	0.043*** (0.009)	0.051*** (0.006)	0.046*** (0.007)	0.056*** (0.008)
Self Employed	0.061** (0.026)	0.026 (0.062)	0.059** (0.029)	0.020 (0.032)	0.129*** (0.041)	0.017 (0.032)	0.054 (0.071)	0.019 (0.036)	0.029 (0.045)	-0.014 (0.044)
Out of the Labor Force Proportion	-0.163* (0.091)	-0.065 (0.160)	-0.206* (0.109)	-0.182* (0.111)	0.000 (0.153)	-0.179*** (0.063)	-0.155 (0.115)	-0.179** (0.077)	-0.121 (0.083)	-0.184** (0.090)
Initial Health	0.220*** (0.015)	0.167*** (0.026)	0.239*** (0.018)	0.165*** (0.017)	0.309*** (0.022)	0.238*** (0.013)	0.180*** (0.020)	0.273*** (0.017)	0.205*** (0.017)	0.284*** (0.018)
Observations	34721	9952	24769	19579	15142	41178	14909	26269	22128	19050

\_Robust standard errors clustered at the individual level in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Same controls as Tables 4 and 6.

Appendix Table 4  
Results Controlling for Occupational Dummies

Outcome	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS	SRHS
Sample	Males	Non White	White	Old	Young	Females	Non White	White	Old	Young
Cumulative Physical Demands (std)	-0.012 (0.015)	-0.033 (0.031)	0.002 (0.017)	-0.024 (0.020)	0.007 (0.021)	-0.036*** (0.014)	-0.013 (0.025)	-0.045*** (0.017)	-0.038** (0.018)	-0.034* (0.019)
Cumulative Environmental Conditions (std)	-0.006 (0.011)	0.002 (0.021)	-0.007 (0.012)	-0.000 (0.017)	-0.014 (0.013)	-0.018** (0.008)	-0.022** (0.011)	-0.017 (0.010)	-0.025*** (0.009)	-0.011 (0.013)
Cumulative Weekly Work Hours	0.001*** (0.000)	0.001** (0.000)	0.000* (0.000)	0.001*** (0.000)	0.000 (0.000)	-0.000** (0.000)	-0.001 (0.000)	-0.000** (0.000)	-0.000 (0.000)	-0.000** (0.000)
Cumulative Labor Income	0.002*** (0.001)	0.011*** (0.002)	0.001*** (0.000)	0.002*** (0.001)	0.003*** (0.001)	0.004*** (0.001)	0.010*** (0.003)	0.003** (0.001)	0.004*** (0.001)	0.003** (0.002)
Manager	-0.022 (0.020)	0.033 (0.050)	-0.026 (0.022)	-0.042 (0.026)	0.011 (0.030)	0.027 (0.022)	0.043 (0.045)	0.021 (0.025)	0.054* (0.030)	-0.016 (0.029)
Sales	-0.066** (0.030)	-0.009 (0.081)	-0.067** (0.032)	-0.095** (0.038)	-0.014 (0.044)	0.056** (0.028)	0.022 (0.075)	0.063** (0.030)	0.088** (0.037)	0.017 (0.039)
Clerical	-0.037 (0.031)	-0.042 (0.057)	-0.010 (0.037)	-0.039 (0.041)	-0.024 (0.044)	-0.010 (0.018)	-0.015 (0.032)	-0.013 (0.021)	0.005 (0.025)	-0.035 (0.024)
Craftsman	-0.000 (0.024)	0.018 (0.049)	0.001 (0.028)	-0.005 (0.032)	0.015 (0.035)	0.048 (0.039)	-0.045 (0.070)	0.087* (0.048)	0.033 (0.063)	0.051 (0.052)
Operative	-0.037 (0.026)	0.033 (0.047)	-0.066** (0.033)	-0.050 (0.034)	-0.018 (0.037)	-0.001 (0.026)	-0.023 (0.041)	0.004 (0.037)	0.037 (0.036)	-0.053 (0.037)
Laborer	-0.031 (0.035)	0.015 (0.062)	-0.040 (0.041)	-0.004 (0.049)	-0.052 (0.046)	0.058 (0.045)	0.087 (0.073)	0.036 (0.059)	0.092 (0.069)	0.014 (0.061)
Farmer	0.049 (0.056)	0.037 (0.128)	0.047 (0.062)	0.022 (0.074)	0.106 (0.076)	-0.133 (0.095)	-0.291 (0.191)	-0.081 (0.103)	-0.022 (0.124)	-0.296** (0.125)
Service	-0.024 (0.032)	0.041 (0.054)	-0.041 (0.041)	-0.040 (0.043)	-0.002 (0.042)	0.041* (0.022)	0.058 (0.037)	0.013 (0.027)	0.081*** (0.031)	-0.010 (0.029)
Home maker	0.321 (0.377)	0.084 (0.549)	0.685** (0.309)	0.086 (0.485)	0.798*** (0.284)	0.032 (0.053)	0.076 (0.078)	-0.049 (0.072)	0.137** (0.066)	-0.159** (0.075)
Observations	34665	9926	24739	19545	15120	41131	14892	26239	22108	19023

Robust standard errors clustered at the individual level in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Same controls as Tables 4 and 6, with additional of occupational dummies.

## **Data Appendix**

In order to retain observations, we edit the data in several ways.

For occupational codes, there are several problems that we address. For individuals with missing occupational codes who are working, we fill in codes where that occupational codes in the year  $t+1$  and the year  $t-1$  is the same. We also fill in codes if the  $t-1$  information is available but not  $t+1$ . When the occupations in  $t-1$  and  $t+1$  differ, we fill in the occupational characteristics at year  $t$  with the average. After these corrections, if there are still missing occupation codes, missing occupational observations are replaced with the average occupational measures over four years and a dummy variable is created to reflect missing data. As mentioned in the text, unemployed waves are given a value of 0 for the occupational characteristics and we control for the number of unemployed waves for each 5-year cumulative measure.

All income is CPI-adjusted to reflection 1999 dollars.

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