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# Health and the Work Absence Gap Across Employment Sectors in the United States

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Those in the public sector in the United States are historically known to have more work absences than those in the private sector. While long attributed to various individual-level or organizational-level characteristics, there has not been an examination of the role that physical and mental health may play in impacting that difference. Using data gathered from the National Health Interview Study, descriptive statistics found that those in the public sector tend to be in worse physical health but better mental health than those in the private sector. While Poisson models found that health did not impact the likelihood of those in the public sector having more absences than those in the private sector, a Blinder-Oaxaca decompositional analysis found that the majority of the gap in absences across sectors can be attributed to the distribution of characteristics across the private and public sectors. These findings suggest that demographic and organizational differences across the public and private sectors, not simply health, are the main determinants of the gap in work absences across sectors.

Keywords: Work absences, public sector, private sector, health, Blinder-Oaxaca decomposition

## Introduction

There are a bevy of differences between the public and private sectors. These range from the more abstract, such as levels of altruism (Dur & Zoutenbier, 2015), to the more tangible, such as civic engagement (Brewer, 2003; Taylor 2010) and even frequency of blood donations (Houston, 2006). One consistent difference pertains to work absences: those in the public sector take more time off from work than those in the private sector.

There are numerous individual and organizational sources that may account for this gap. Among individual-level factors, the primary causal mechanism is attributed to laziness (Delfgaauw & Dur, 2008; Dur & Zoutenbier, 2015). At the organizational level, factors such as differences in employment protection across sectors, differences in compensation during absences, and decreased wage dispersion within the public sector are commonly cited as potential reasons for the gap (Bossaert, 2005; Kearney & Mareschal, 2014; Depalo, Giordano, & Papapetrou, 2015). However, one factor that has been under-examined in the American context is physical and mental

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health. While other studies have modeled health status (Pfeifer, 2013; Riphahn, 2004), those analyses have been in countries with health care systems that are much more socialized than in the United States.
Aside from organizational differences in health care, it is also reasonable to believe that there may be differences in the individual health of those in separate sectors of the economy within the United States. For example, work has shown that extrinsic motivations can be important to those in the public sector (Park & Word, 2012; Stazyk, 2013; Van de Walle et al., 2015). Specific to this context, the benefits of the public sector can be particularly attractive to employees, and one of these benefits is generally more affordable health insurance (French & Emerson 2014). Furthermore, the public sector workplace tends to have a higher proportion of both women and the elderly, which are two groups that utilize higher amounts of health care (Congressional Research Service [CRS], 2014).

While previous studies have noted the potential importance of health on absences, they have either modeled covariates of health but not direct measures of health or have focused on countries other than the United States (Mastekaasa, 2020; Pfeifer, 2013; Riphahn, 2004). However, for this analysis, two direct measures of health can be modeled: one that captures the respondent's mental health, and another that measures the respondent's physical health, both of which are taken from a lengthy survey battery.

To examine the role of health on work absences across sectors, several years' worth of data gathered from the National Health Interview Study are analyzed. Descriptive statistics found that mental health was better among those in the public sector ($t(54,680)=5.76$, $p<0.001$). However, health was poorer among those in the public sector across the three physical health categories of upper body, lower body, and social ($t(54,680)=-2.19$, $p=0.01$; $t(54,680)=-1.81$, $p=0.04$; $t(54,680)=-1.65$, $p=0.05$). That said, Poisson models found that including all four of the aforementioned measures of health did not impact the gap in work absences across sectors. Furthermore, a Blinder-Oaxaca decompositional analysis found that about 93% of the work-absence gap across sectors could be explained by differences in characteristics across the two groups.

This article proceeds as follows. The literature is reviewed, then the hypotheses are proposed. The data are described, and then the results are presented. The article closes with a discussion and the conclusion.

## Literature Review and Hypotheses

Public sector employees are known to have more work absences than their private sector counterparts. In the United States, public employees take off around 40% more time than those in the private sector (D'Amuri, 2017). This gap is constant across the globe; there is evidence for it in other countries such as Canada, Norway, and Germany (Mastekaasa, 2020; Pfeifer 2013; Uppal & LaRochelle-Cote, 2013).

Understanding the causes of absenteeism are critical for several reasons, but particularly for its effect on governance. Work absences add to the direct costs of administration, as it can lead to overtime or understaffing. Performance is also impacted by absenteeism; in a meta-analysis, Viswesvaran (2002) highlighted the negative relationship between absenteeism and effort. Given the negative consequences of absenteeism, deepening our understanding of the causes of this problem is a critical challenge.

Several explanations have been put forth to explain the source of this difference. Some scholars have focused on institutional reasons, such as a lack of incentives within the public sector to encourage attendance. Due to features such as increased employment protections or seniority systems, public employees may not believe that higher attendance would increase the likelihood of promotion, nor would absences lead to an increase in the likelihood of dismissal (Bossaert, 2005; Depalo, Giordano, & Papapetrou, 2015). When these incentives change, behavior changes as well; for example, Italian public sector workers were less likely to be absent following the passage of a law reducing sick leave compensation (De Paola, Scoppa, & Pupo, 2014). Given their current incentives, however, United States public sector employees may be more apt to take time off from work.

There are other institutional forces that may shape attendance. For example, work has demonstrated that managerial turnover can impact absenteeism; public sector employees are more apt to not be at work following the hiring of a new boss (Lokke & Sorensen, 2021). Related, relationships with management tend to reduce absenteeism (Pihl-Thingvad et al., 2022). The political environment may also indirectly shape attendance; a study of Brazilian public sector employees found that negative political attacks on the public sector had a negative effect on emotional and physical health (Lotta, Tavares, & Story, 2023). Larger organizations tend to have more absences (Barmby & Stephen, 2000). Those with paid sick leave are likely to have more absences than those who do not; furthermore, absences increase with tenure, and there can be differences in absences across occupations (Callison & Pesko, 2022; Hackett, 1990; Mastekaasa, 2020).

Other scholars have focused on differences in the distribution of underlying personal attributes to explain work attendance behaviors. Some have suggested that those in the public sector may be lazier than those in the private sector (Delfgaauw & Dur, 2008; Dur & Zoutenbier, 2015). This laziness may increase the likelihood of absence. In contrast, others have pointed to public service motivation as an attribute that may increase attendance, but evidence of its effect is either nonexistent or mixed (Gross, Thaler, & Winter, 2019; Jensen, Andersen, & Holten, 2019; Koumenta, 2015; Wright, Hassan, & Christensen, 2017).

However, what has been lacking from studies analyzing the difference in work absences across sectors among employees in the United States is a focus on health. While scholars have suggested that health differences may impact this difference (Mastekaasa, 2020), and there have been some attempts to include it in studies of other countries (Pfeifer, 2013; Riphahn, 2004), it has not been analyzed in the American context. Pfeifer (2013) found that those in the public sector had more absences than the private sector, even when modeling health, while Riphahn (2004) found that employment protections increased work absences even when modeling health.

It is worthwhile to examine the impact of health on attendance in the United States for several reasons. First, while health has been included in studies of other countries, the institutional context in the United States is unique enough that additional analysis is likely warranted. For example, in their studies, both Pfeifer (2013) and Riphahn (2004) analyze Germany. Germany has stronger employment protections for those in both the public and private sector as well as a health care system where insurance is not as tethered to employment as it commonly is in the United States; both differences could influence the distribution of employees across sectors or alter their decision-making.

Second, the health of those in the United States in the public sector merits detailed examination. There may be selection reasons for health differences across sectors. There is evidence that many are drawn to government employment in the public sector because they possess "public sector

motivation"; that is, they are motivated by more self-interested factors such as "job security, wages/salary, and fringe benefits" (French & Emerson, 2014). This is distinct from the more widely-studied "public service motivation," which analyzes the intrinsic motivations of those in the public sector (Perry & Wise, 1990; Perry 1996). Public employment may be an attractive incentive for those in poor health who may fear loss of employment in the private sector and subsequent difficulties in obtaining insurance without an employer. Related, there is also evidence that more absence-prone individuals seek out employment in the public sector (Mastekaasa, 2020).

Additionally, the demographics of the public sector suggest that there may be differences in health across sectors. The public sector typically has a higher proportion of both women and the elderly than the private sector (CRS, 2014); both groups usually have increased absences, sometimes due to health-related concerns (Martocchio, 1989; Mastekaasa & Olsen, 1998).

There may also be socialization differences that have a disparate effect on the health of those in the public sector. For example, red tape has a negative effect on both the attitudes and behaviors of government employees; furthermore, public service motivation increases the magnitude of this relationship such that red tape has a larger negative effect on those with higher public service motivation (Quratulain & Khan, 2015). Such negative attitudes and behaviors could contribute to increased work absences.

Prior studies have found that the areas of poor health of those in the public sector tend to cluster around two categories: physical and mental. In a literature review of studies on the health of public sector employees, mental and behavioral disorders (particularly depression) as well as musculoskeletal system diseases were the largest causes of absenteeism among government workers (Sampaio & Baptista, 2019).

Therefore, this study measures the effects of physical and mental health on the sector differences in absences. While the first two hypotheses test well-established findings in the literature, the third hypothesis proposes that differences in health have a demonstrable effect in minimizing the absence gap across sectors.

H1: As mental health worsens, work absences increase
H2: As physical health worsens, work absences increase
H3: When health is modeled, the gap in work absences across sectors is reduced

**Data**

The data used to address the effect of physical and mental health on the gap in absences across sectors comes from the National Health Interview Survey. This annual survey is administered by the National Center for Health Statistics, which is a part of the Department of Health and Human Services. It is a cross-sectional household interview survey that uses a multistage area probability design to create a sample that is representative of the United States civilian noninstitutionalized population. The survey is conducted via face-to-face interviews performed by the Census Bureau. The data used in the analysis includes those who were employed in the adult sample from the years 2014 through 2018; the descriptives are available in the appendix. Several years were analyzed to increase the sample size, but the results were robust across individual years.

The dependent variable is the number of days in the past year that the respondent was absent from work. The question used asked, "During the past 12 months, that is, since [12-month ref. date], about how many days did you miss work at a job or business because of illness or injury (do not

include maternity leave)?" Over half of the sample did not record an absence, while ninety percent who did record an absence had five absences or fewer.

The key independent variables measure the sector of employment and health. For the former, a dummy variable was created from a measure using 2012 North American Industry Classification System codes obtained from the Census. For this variable, those who noted that they were in "Public Administration Industries" were coded as 1, all else 0.

For the latter, both physical and mental health are measured. The questions were grouped together in the survey to make it clear that the relevant questions pertained to either physical or mental health. Physical health is a three-factor measure that identifies respondents who reported any difficulty with any one of twelve different functional activities. The questions used asked the following:

"By yourself, and without using any special equipment, how difficult is it for you to...

1. Walk a quarter of a mile - about 3 city blocks?
2. Walk up 10 steps without resting?
3. Stand or be on your feet for about 2 hours?
4. Sit for about 2 hours?
5. Stoop, bend, or kneel?
6. Reach up over your head?
7. Use your fingers to grasp or handle objects?
8. Lift or carry something as heavy as 10 pounds such as a full bag of groceries?
9. Push or pull large objects like a living room chair?
10. Go out to things like shopping, movies, or sporting events?
11. Participate in social activities such as visiting friends, attending clubs and meetings, going to parties?
12. Do things to relax at home or for leisure (reading, watching TV, sewing, listening to music)?"

Each question used the same Likert response scale of "Not at all difficult," "Only a little difficult," "Somewhat difficult," "Very difficult," and "Can't do at all." Each response was given an integer value with higher values corresponding to increased difficulty. The items have a high internal consistency (Cronbach's alpha = 0.87). Factor analysis revealed three underlying factors in the data: these factors were formed primarily through questions 1-5, 6-9, and 10-12. These factors were subsequently labeled "lower body health," "upper body health," and "social health," respectively. See the Appendix for more detail about the factor analysis.

Mental health is a summary measure composed of six questions pertaining to the respondent's current mental and emotional health and the extent to which those feelings interfere with her or his life or daily activities. The questions used asked the following:

"During the past 30 days, how often did you feel...

- So sad that nothing could cheer you up?
- Nervous?
- Restless or fidgety?

- Hopeless?
- That everything was an effort?
- Worthless?"

Each question used the same Likert response scale of "A lot," "Some," "A little," and "Not at all." Each response was given an integer value with higher values corresponding to increased agreement. The items have a high internal consistency (Cronbach's alpha = 0.83). Factor analysis revealed a single underlying factor, which was labeled "mental health."

Additional covariates are included to model individual and organizational characteristics. Age, race, sex, and personal income were the individual-level covariates. The presence of paid sick leave, organizational size, tenure, and occupation were modeled as well. Age was coded as a continuous variable and a squared variable (to account for the non-linear effect of aging). The remaining demographic variables were dummy coded, while income was coded as a continuous variable and was measured as the respondent's income in the previous year. Sick leave was dummy coded, while tenure was coded as a continuous variable. Organization size was a categorical variable of the number of people who worked with the respondent with the following groups of employees: 1, 2-9, 10-24, 25-49, 50-99, 100-249, 250-499, 500-999, 1000 and up. See the Appendix for a list of occupations.

*Results*

The data are briefly described here, with additional information available in the appendix. The average number of work absences a year was slightly more than three days. About 16% of the sample works for the public sector (N(private)=45,493, N(public)=9,289). The average age is around 42, and a majority of the sample is white, while the most common gender is male. Over half work in organizations that offer paid sick leave. The average tenure in a job is a little more than eight years, while the average income is close to $50,000.

Pairwise t-tests show that there are significant differences for each variable (see table 1 below). There are several possible explanations for these differences. It could be a statistical artifact, as larger sample sizes can lend themselves to an increased likelihood of detecting differences. However, given the magnitude and multitude of these differences, there is a possibility that some of them may also contribute to the work absence gap.

Looking at the descriptives by sector shows many similarities and differences across the sectors. Demographically, those in the public sector are, on average, just a few years older than those in the private sector. The public sector is slightly less white as well. However, there are stark differences in areas such as gender and paid sick leave: women make up a much larger percentage of the workforce in the public sector, and over 86% in the public sector have paid sick leave, compared to only 56% in the private sector.

Descriptive data suggests differences in health across sectors, but these differences are not in the same direction. Those in the public sector score lower than the private sector on the mental health measure, suggesting that those working in the government have better mental health than others. However, public sector workers averaged considerably higher scores on all three measures of physical health. These results suggest that public sector employees may have worse physical health than those in other sectors of the economy.

To model the data, since the number of absences is a count variable with a variance larger than its mean, a Poisson model with year fixed effects and standard errors clustered at the region-level was used. This type of model estimates conditional means that are robust to overdispersion and impose

more general and less strict assumptions than negative binomial estimates. Year fixed-effects account for year-specific shocks to absenteeism, such as a bad flu season, while the standard errors are clustered at the level at which the data forms a panel. The results are weighted to include post-stratification adjustments using Census Bureau population control totals. Both models are estimated on the same analytic sample. The results from the first model exclude the health measures, while they are included in the second model; this is to highlight the effect of these covariates on work absences.

**Table 1**. Demographic Descriptive Statistics by Sector With T-Test Results

| | Public (n=9,289) | | Private (45,493) | | | |
|---|---|---|---|---|---|---|
| Variable | M | SD | M | SD | t | p |
| Work Absences | 3.760 | 13.310 | 3.196 | 14.189 | 5.760 | <0.001 |
| Mental Health | -0.056 | 0.884 | -0.030 | 0.955 | -3.720 | <0.001 |
| Lower Body Health | 0.071 | 1.028 | 0.013 | 0.943 | 8.110 | <0.001 |
| Upper Body Health | -0.001 | 0.019 | -0.031 | 0.004 | 80.050 | <0.001 |
| Social Health | -0.010 | 0.982 | -0.048 | 0.953 | 5.300 | <0.001 |
| Age | 44.533 | 13.035 | 41.858 | 13.868 | 26.700 | <0.001 |
| Square of Age | 2153.056 | 1181.904 | 1944.383 | 1221.099 | 23.700 | <0.001 |
| White | 0.779 | 0.415 | 0.799 | 0.400 | -6.670 | <0.001 |
| Male | 0.441 | 0.496 | 0.556 | 0.497 | -31.820 | <0.001 |
| Paid Sick Leave | 0.861 | 0.346 | 0.555 | 0.497 | 95.810 | <0.001 |
| Tenure | 10.111 | 9.131 | 7.931 | 8.868 | 32.580 | <0.001 |
| Personal Income | 51071.750 | 33392.250 | 47849.010 | 37184.350 | 11.940 | <0.001 |

*Note. M = Mean; SD = Standard Deviation. T-tests were conducted with unequal variances assumed due to the large difference in sample sizes.*

It is worthwhile to describe how to interpret the incidence rate ratios (IRR) in table 2 below. A coefficient greater than one shows that the variable has a positive effect on work absences; that is, it increases work absences. Likewise, a coefficient less than one shows that the variable has a negative effect on work absences.

Looking first at the demographic variables in the more fully specified model, both measures of age were significant, showing that absences increase with age, but that this effect slows over time. This could be due to selection effects, as those who are elderly and in poor health may be more apt to retire. Race, sex, and income had no effect. The organizational variables suggest that employees at organizations that offer paid sick leave are more likely to have more absences than those that do not, as are those with longer tenures. As organization size increases, absences increase among

those in the largest organizations, while various occupations had more absences than others.[1]

Most relevant to this manuscript, there is no work absence gap across either model. In the first model, which does not include either health measure, those working in the public sector take about 20% more days off of work than those in the private sector (3.19 days versus 3.83 days). However, when this difference is plotted, there is a considerable overlap of the confidence intervals; as was discussed in Belia et al. (2005), if the confidence intervals overlap by more than a quarter of their total length, the difference between the groups is not statistically significant.[2]

Additionally, there is little change when the predicted probabilities of employment sector on work absences are plotted when controlling for health status (3.20 days versus 3.76 days); furthermore, the degree of overlap of the confidence intervals suggests that this difference is not statistically significant, either. That said, all four measures of health are significant in the second model; as either physical or mental health declines, absences increase, which supports the first two hypotheses.

To better understand the relationship between health and work absences across sectors, the predicted probabilities of work absences at different levels of health (e.g., poor, average, good) were reviewed. Across all four health factors, there was no statistically significant effect of different levels of health on the work absence gap across sectors. In other words, health does not appear to be shaping the work absence gap at any demonstrable level.

**Table 2.** Poisson Regression Models of United States Work Absences by Health, 2014-2018

| Variable | IRR | 95% CI | P>z | IRR | 95% CI | P>z |
|---|---|---|---|---|---|---|
| | | | | | | |
| Mental Health | | | | 1.152* | [1.105,1.202] | <0.001 |
| Lower Body Health | | | | 1.258* | [1.233,1.283] | <0.001 |
| Upper Body Health | | | | 1.162* | [1.101,1.225] | <0.001 |
| Social Health | | | | 1.157* | [1.103,1.214] | <0.001 |
| Public Employment | 1.200* | [1.142, 1.261] | <0.001 | 1.175* | [1.101,1.254] | <0.001 |
| Age | 1.062* | [1.044, 1.079] | <0.001 | 1.051* | [1.033,1.07] | <0.001 |
| Square of Age | 0.999* | [0.999, 1] | <0.001 | 0.999* | [0.999,1] | <0.001 |
| White | 1.019 | [0.839, 1.239] | 0.842 | 1.052 | [0.89,1.245] | 0.549 |
| Male | 0.833* | [0.695, 0.998] | 0.048 | 0.945 | [0.79,1.13] | 0.538 |
| Paid Sick Leave | 1.052 | [0.914, 1.21] | 0.484 | 1.149* | [1.033,1.277] | 0.01 |
| Tenure | 1.005* | [1.002, 1.008] | 0.002 | 1.006* | [1.004,1.009] | <0.001 |
| Personal Income | 1.000* | [1, 1] | <0.001 | 1.000 | [1,1] | 0.069 |
| | | | | | | |
| Organization Size | | | | | | |
| 2-9 Employees | 0.972 | [0.78, 1.211] | 0.797 | 0.978 | [0.809,1.182] | 0.815 |
| 10-24 Employees | 1.085 | [0.83, 1.42] | 0.549 | 1.069 | [0.753,1.517] | 0.708 |
| 25-49 Employees | 1.106 | [0.852, 1.435] | 0.45 | 1.054 | [0.827,1.345] | 0.672 |
| 50-99 Employees | 1.040 | [0.794, | 0.796 | 0.998 | [0.74,1.346] | 0.98 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 1.362] | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 100-249 Employees | 1.080 | [0.743, 1.569] | 0.687 | 1.028 | [0.663,1.596] | 0.901 |
| 250-499 Employees | 1.335 | [0.858, 2.078] | 0.202 | 1.294 | [0.877,1.908] | 0.197 |
| 500-999 Employees | 1.308* | [1.005, 1.701] | 0.046 | 1.215 | [0.909,1.625] | 0.191 |
| 1000+ Employees | 1.313* | [1.105, 1.559] | 0.002 | 1.238* | [1.001,1.532] | 0.053 |
| | | | | | | |
| Occupation Type | | | | | | |
| Business and Financial Operations Occupations | 0.954 | [0.732, 1.245] | 0.742 | 0.969 | [0.758,1.239] | 0.814 |
| Computer and Mathematical Occupations | 1.167 | [0.807, 1.687] | 0.411 | 1.218 | [0.831,1.786] | 0.31 |
| Architecture and Engineering Occupations | 0.810 | [0.618, 1.061] | 0.13 | 0.839 | [0.653,1.076] | 0.171 |
| Life, Physical, and Social Sciences Occupations | 0.975 | [0.689, 1.379] | 0.893 | 0.923 | [0.606,1.405] | 0.712 |
| Community and Social Service Occupations | 1.153 | [0.801, 1.659] | 0.439 | 1.188 | [0.82,1.72] | 0.359 |
| Legal Occupations | 1.015 | [0.757, 1.361] | 0.911 | 1.012 | [0.807,1.268] | 0.909 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Education, Training, and Library Occupations | 0.799 | [0.619, 1.031] | 0.088 | 0.842 | [0.652,1.087] | 0.191 |
| Arts, Design, Entertainment, Sports, and Media Occupations | 1.014 | [0.756, 1.359] | 0.921 | 1.046 | [0.778,1.406] | 0.759 |
| Healthcare Practitioners and Technical Occupations | 1.027 | [0.751, 1.405] | 0.859 | 1.034 | [0.724,1.476] | 0.848 |
| Healthcare Support Occupations | 1.175 | [0.91, 1.517] | 0.205 | 1.150 | [0.888,1.49] | 0.28 |
| Protective Service Occupations | 1.060* | [1.02, 1.102] | 0.002 | 0.963 | [0.817,1.135] | 0.657 |
| Food Preparation and Serving Related Occupations | 1.127 | [0.984, 1.29] | 0.082 | 1.148 | [0.98,1.344] | 0.086 |
| Building and Grounds Cleaning and Maintenance Occupations | 1.347 | [0.881, 2.059] | 0.166 | 1.233 | [0.847,1.796] | 0.271 |
| Personal Care and Service Occupations | 1.035 | [0.819, 1.307] | 0.754 | 0.953 | [0.711,1.279] | 0.766 |
| Sales and Related Occupations | 1.030 | [0.928, 1.144] | 0.565 | 1.022 | [0.895,1.167] | 0.737 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Office and Administrative Support Occupations | 1.109 | [0.912, 1.348] | 0.311 | 1.083 | [0.855,1.371] | 0.521 |
| Farming, Fishing, and Forestry Occupations | 0.834 | [0.65, 1.071] | 0.156 | 0.902 | [0.762,1.067] | 0.236 |
| Construction and Extraction Occupations | 1.695* | [1.572, 1.828] | <0.001 | 1.651* | [1.571,1.734] | <0.001 |
| Installation, Maintenance, and Repair Occupations | 1.726* | [1.411, 2.111] | <0.001 | 1.700* | [1.342,2.153] | <0.001 |
| Production Occupations | 1.615 | [1.23, 2.122] | <0.001 | 1.589* | [1.266,1.993] | <0.001 |
| Transportation and Material Moving Occupations | 1.742* | [1.372, 2.212] | <0.001 | 1.640* | [1.316,2.045] | <0.001 |
| Military Specific Occupations | 0.688* | [0.587, 0.807] | <0.001 | 0.753* | [0.64,0.886] | 0.001 |
| | | | | | | |
| Year | | | | | | |
| 2015 | 0.949 | [0.808, 1.113] | 0.511 | 0.861 | [0.731,1.014] | 0.072 |
| 2016 | 0.942 | [0.788, 1.126] | 0.519 | 0.888 | [0.726,1.086] | 0.25 |
| 2017 | 1.021 | [0.916, 1.138] | 0.676 | 0.996 | [0.928,1.069] | 0.919 |
| 2018 | 1.132 | [0.896, 1.431] | 0.3 | 1.032 | [0.805,1.323] | 0.807 |
| | | | | | | |
| Constant | 0.697 | [0.48, 1.013] | 0.058 | 0.803 | [0.585,1.102] | 0.177 |

* = p<0.05

*Note: IRR = Incidence Rate Ratio; 95% CI = 95% Confidence Interval. The excluded category for "Organization Size" is "1 Employee" while the excluded category for "Occupation Type" is "Management Occupations"*

Additionally, a Blinder-Oaxaca decomposition analysis was performed. This statistical technique is useful for examining the difference in the means of a dependent variable between two groups: in this case, it examined the difference in absences between the private and public sectors (Blinder, 1973; Oaxaca, 1973). It can separate the differences in means into a part that is "explained" by differences in group characteristics and another part that cannot be explained by those characteristics. The analysis showed that around 93% of the gap could be explained by differences in characteristics across the two groups. That is, if public and private sector members had identical characteristics, the gap in absences would be largely diminished. That said, there is still a roughly 7% part of the gap that is not attributed to those differences in characteristics. The Blinder-Oaxaca decomposition analysis therefore suggests that a primary driver of the absence gap lies in the different distribution of characteristics across the public and private sectors. See the appendix for a table of these results.

Given these unexpected results, an additional model was examined that excluded those in the private sector; the results of this model can be seen in table 3 below. There are interesting contrasts that are found in this data. For example, among the demographic characteristics, age is not a significant factor, while men are more likely to be absent than women. This latter factor is the opposite of earlier findings in the literature. Turning to additional factors, while paid sick leave increased the likelihood of being absent, tenure had no effect. There are also differences in the occupations; those in business and financial operations occupations are more likely to be absent, while those in education, training, and library occupations are less likely to be absent.
This suggests that the unexpected results may be driven by factors such as the decreased likelihood of women and educators to be absent in the public sector.

**Table 3.** Poisson Regression Models of United States Public Sector Work Absences by Health, 2014-2018

| Variable | IRR | 95% CI | P>z |
|---|---|---|---|
| | | | |
| Mental Health | 1.138* | [1.048,1.236] | 0.002 |
| Lower Body Health | 1.319* | [1.298,1.342] | <0.001 |
| Upper Body Health | 1.143* | [1.078,1.212] | <0.001 |
| Social Health | 1.106* | [1.016,1.204] | 0.019 |
| Age | 1.056 | [0.976,1.142] | 0.177 |
| Square of Age | 0.999 | [0.999,1] | 0.19 |
| White | 0.980 | [0.722,1.331] | 0.898 |
| Male | 1.047* | [1.033,1.061] | <0.001 |
| Paid Sick Leave | 1.490* | [1.242,1.789] | <0.001 |
| Tenure | 1.002 | [0.991,1.013] | 0.685 |
| Personal Income | 1.000 | [1,1] | 0.664 |
| | | | |
| Organization Size | | | |
| 2-9 Employees | 1.606 | [0.731,3.525] | 0.238 |

| | | | |
|---|---|---|---|
| 10-24 Employees | 2.095 | [0.838,5.243] | 0.114 |
| 25-49 Employees | 2.909 | [0.961,8.807] | 0.059 |
| 50-99 Employees | 1.755 | [0.679,4.535] | 0.245 |
| 100-249 Employees | 1.933 | [0.884,4.227] | 0.099 |
| 250-499 Employees | 2.056 | [0.906,4.667] | 0.085 |
| 500-999 Employees | 2.622 | [0.984,6.985] | 0.054 |
| 1000+ Employees | 1.861 | [0.853,4.058] | 0.119 |
| | | | |
| Occupation Type | | | |
| Business and Financial Operations Occupations | 1.373* | [1.135,1.659] | 0.001 |
| Computer and Mathematical Occupations | 0.919 | [0.608,1.389] | 0.689 |
| Architecture and Engineering Occupations | 0.932 | [0.625,1.39] | 0.731 |
| Life, Physical, and Social Sciences Occupations | 0.679 | [0.34,1.358] | 0.274 |
| Community and Social Service Occupations | 1.414 | [0.78,2.564] | 0.254 |
| Legal Occupations | 0.930 | [0.761,1.137] | 0.479 |
| Education, Training, and Library Occupations | 0.725* | [0.559,0.94] | 0.015 |
| Arts, Design, Entertainment, Sports, and Media Occupations | 0.732 | [0.508,1.055] | 0.095 |
| Healthcare Practitioners and Technical Occupations | 0.852 | [0.693,1.048] | 0.129 |
| Healthcare Support Occupations | 2.562 | [0.781,8.405] | 0.121 |
| Protective Service Occupations | 1.047 | [0.903,1.216] | 0.542 |
| Food Preparation and Serving Related Occupations | 1.658* | [1.094,2.514] | 0.017 |
| Building and Grounds Cleaning and Maintenance Occupations | 1.198* | [1.029,1.395] | 0.02 |
| Personal Care and Service Occupations | 1.226 | [0.699,2.149] | 0.477 |
| Sales and Related Occupations | 0.561 | [0.18,1.751] | 0.319 |
| Office and Administrative Support Occupations | 1.151 | [0.814,1.626] | 0.426 |

| | | | |
|---|---|---|---|
| Farming, Fishing, and Forestry Occupations | 0.458 | [0.186,1.13] | 0.09 |
| Construction and Extraction Occupations | 1.347 | [0.733,2.479] | 0.337 |
| Installation, Maintenance, and Repair Occupations | 0.954 | [0.51,1.784] | 0.882 |
| Production Occupations | 1.098 | [0.44,2.74] | 0.841 |
| Transportation and Material Moving Occupations | 1.319 | [0.634,2.745] | 0.459 |
| Military Specific Occupations | 0.663* | [0.564,0.78] | <0.001 |
| | | | |
| Year | | | |
| 2015 | 0.727 | [0.594,0.89] | 0.002 |
| 2016 | 0.779 | [0.653,0.929] | 0.006 |
| 2017 | 0.771 | [0.703,0.845] | <0.001 |
| 2018 | 0.948 | [0.726,1.237] | 0.693 |
| | | | |
| Constant | 0.392 | [0.037,4.173] | 0.438 |

* = p<0.05

*Note: IRR = Incidence Rate Ratio; 95% CI = 95% Confidence Interval. The excluded category for "Organization Size" is "1 Employee" while the excluded category for "Occupation Type" is "Management Occupations"*

In summary, several conclusions can be made about the role of health on work absences across sectors. Those in the public sector appear to be in worse physical health, but better mental health, than those in the private sector. There is no difference in the work absences across sectors, regardless of health status. Finally, public sector employees of the same health status are predicted to have just as many work absences as their private sector counterparts.

**Discussion**

It is important to explore why there is no work absence gap across sectors. This stands in contrast to the typical findings both from the United States and around the world. Given the time frame under analysis, a likely source could be longitudinal changes to the composition of the sectors and to the institutions within those sectors. Other studies relied on data from earlier points in time; perhaps the types of people across sectors, as well as the rules governing them, have changed over time. If so, then studies relying on older data may reach a different conclusion. For example, the Affordable Care Act, passed in 2010, sought to make private insurance more affordable, thus weakening the link between employment and insurance. Perhaps this change impacted people's preference for work in the private sector. Additional studies should look for any potential changes in the types of people in those sectors, as well as the structures governing them.

Another factor potentially influencing the findings may lie in the lack of variance in the dependent variable. Regardless of sector, most individuals do not miss much work; as was referenced earlier, over half of the sample did not miss any days of work at all in the past year. The point estimates from the predicted probabilities suggest a potential difference between sectors that only amounts

to a fraction of a day. Future studies may wish to examine this gap in different countries, or perhaps during times when the workforce may have more absences than usual (pandemics, for example).

Also, there may be additional variations within the United States that may impact these relationships. Unionization rates are usually greater among public sector employees than private sector employees, which may lead to more favorable leave policies among the former group.States also have different regulatory environments which could shape patterns of leave. Also, there may be a seasonality to work intensity in the public sector which impacts the timing of absences. Other work has also been able to include variables for factors such as education (Mastekaasa, 2020). Later work could also examine these potential differences.

Turning now to other findings from the data, why may those in the public sector be in worse physical health than those in the private sector? It is possible that the work itself in the public sector has a negative effect on the physical health of those within it. Given that the model accounted for occupation type, however, this conclusion does seem unlikely. That said, work has shown that several occupational stressors can contribute to poor health; a meta-analysis concluded that organizational constraints and interpersonal conflict have the largest effects on health, with the primary symptoms relating to sleep disturbances and gastrointestinal problems (Nixon et al., 2011). While prior studies have attempted to analyze the selection of absence-prone individuals to the public sector (Bohm & Riedel, 2013; Riphahn, 2004), they have not included measures of health in their models. Future work should explore the attraction and socialization consequences of this finding.

One potential shortcoming of this analysis is the reliance on recall data for the number of absences. People may misremember how often they were not at work due to their health. Official data from the respondent's place of work would overcome this obstacle, and future studies may wish to obtain this information. However, the use of the variable in this analysis may only be a complication to the extent that workers in different sectors have different tendencies to misremember their absences; if there are no systematic differences in recall, then this may be a minimal problem.

The measures of health used may also be incomplete. For example, the mental health variable only asked how the respondent felt over the past 30 days, while absences covered the past year; recent problems may not have had time to impact absences, while recently improved health may mask poorer health from earlier in the year that contributed to absences. That said, such a bias may potentially make it harder to find the hypothesized effect. Ensuring that the timelines for both measures are the same would add an extra measure of confidence in the results of future studies.

Relatedly, the dependent variable in the model captures absences from both illness and injury. Decomposing this into its constituent parts would allow for a more finely-grained analysis concerning work absences: for example, are specific health conditions related to different types of absences? Additional studies would benefit from the inclusion of such measures.

Finally, workers may be absent for other reasons. Government employees may have time off for federal holidays that are not observed by private sector employees; for example, Juneteenth was initially recognized as a federal holiday in 2021, yet many businesses are still open on that day. Public sector workers may also be awarded more "personal days" than those in the private sector. Maternity leave is also excluded by the measure used in this study, and the public sector has a much larger percentage of women than the private sector. A measure that takes a broader account of the employment patterns within and across sectors may better capture these sources of variation.

## Conclusion

Those in the public sector in the United States had been known to have more work absences than those in the private sector. This manuscript set out to examine the role of physical and mental health in impacting that difference. Data gathered from years of surveys in the United States was used to analyze this problem. Among the findings, this study found that those in the public sector generally had worse physical health but better mental health than those in the private sector. However, regardless of health status, there was no difference in work absences across sectors.

This article does demonstrate some support for the arguments put forth by Goodsell (2014) in defense of bureaucrats. Goodsell (2014) argues that "critics have overblown the faults and misdeeds of our bureaucrats" and that those in the public sector should instead be "recognized for the extent to which they embody principles essential to effective governance" (pp. 118-119).

Most relevant, Goodsell (2014) states that bureaucrats "are willing to make a personal commitment to that career" (p. 119). The findings in this manuscript suggest that, even with an increased likelihood of having a job with sick leave, those in the public sector are no more likely to miss work than those in the private sector. Perhaps this means that such benefits are not as prone to abuse as their skeptics may argue.

Furthermore, women and teachers in the public sector are among those who are the least likely to miss work, which is a direct challenge to popular conceptions. In a time when public education faces increasing skepticism, this article suggests that detractors may wish to direct the ire away from narratives surrounding professional absences.

Future studies of absences in the public sector should expand beyond including measures of health. There is still much to learn about different types of absences, perhaps due to maternity leave or due to federal holidays. Relatedly, additional studies could focus on differences within particular occupational sectors to gain a deeper understanding of the nuances of work absences.

More attention could also be paid to the consequences of the work absences. Studies could focus on the impact to healthcare spending, or the effect on governance. For example, if the public sector shared the same demographics as the private sector, how would health care spending on public employees change? How do bureaucracies ensure that they are meeting all of their obligations when absences vary? As the public sector faces challenges with respect to recruitment, and with an aging population, the importance of such issues continues to grow.

## Notes

1. Those occupations that were more physical in nature tended to see increased absences, such as construction and extraction occupations, or installation, maintenance, and repair occupations. Notably, these sorts of careers are concentrated more heavily in the private sector than the public sector. For example, production occupations make up over six percent of the private sector sample but just around one percent of the public sector sample. The skewed distribution of more absence-prone occupations shows the importance of modeling the effects of this variable.

2. See the Appendix for figure 1 and figure 2 of the predicted probabilities.

## Disclosures

The authors declare that there are no conflicts of interest that relate to the research, authorship, or publication of this article.

## References

Barmby, T., & Stephen, G. (2000). Worker absenteeism: why firm size may matter. The Manchester School, 68(5), 568-577.

Belia, S., Fidler, F., Williams, J., & Cumming, G. (2005). Researchers misunderstand confidence intervals and standard error bars. Psychological methods, 10(4), 389.

Blinder, A. S. (1973). Wage discrimination: reduced form and structural estimates. Journal of Human resources, 436-455.

Bohm, T, & Riedel, N. 2013. On selection into public civil service. CESifo Economic Studies 59:34–71.

Bossaert, D. 2005. The flexibilisation of the employment status of civil servants: From life tenure to more flexible employment relations? Luxembourg: European Institute of Public Administration.

Brewer, G. A. (2003). Building social capital: Civic attitudes and behavior of public servants. Journal of Public Administration Research and Theory, 13(1), 5-26.

Callison, K., & Pesko, M. F. (2022). The effect of paid sick leave mandates on coverage, work absences, and presenteeism. Journal of Human Resources, 57(4), 1178-1208.

Congressional Research Service. 2014. Selected Characteristics of Private and Public Sector Workers. https://sgp.fas.org/crs/misc/R41897.pdf

D'Amuri, F. 2017. Monitoring and disincentives in containing paid sick leave. Labour Economics 49:74–83.

Delfgaauw, J., & Dur, R. 2008. Incentives and workers' motivation in the public sector. Economic Journal 118:171–91.

De Paola, M., Scoppa, V., & Pupo, V. (2014). Absenteeism in the Italian public sector: The effects of changes in sick leave policy. Journal of Labor Economics, 32(2), 337-360.

Depalo, D., Giordano, R., & Papapetrou, E. 2015. Public–private wage differentials in euro-area countries: Evidence from quantile decomposition analysis. Empirical Economics 49:985–1015.

Dur, R., & Zoutenbier, R. 2015. Intrinsic motivations of public sector employees: Evidence for Germany. German Economic Review 16:343–66

French, P.E., & Emerson, M.C. (2014) Assessing the Variations in Reward Preference for Local Government Employees in Terms of Position, Public Service Motivation, and Public Sector Motivation, Public Performance & Management Review, 37:4, 552-576, page 571, DOI: 10.2753/PMR1530-9576370402

Goodsell, C. T. (2014). The new case for bureaucracy. CQ press.

Gross, H. P., Thaler, J., & Winter, V. (2019). Integrating public service motivation in the job-demands-resources model: An empirical analysis to explain employees' performance, absenteeism, and presenteeism. International Public Management Journal, 22(1), 176-206.

Hackett, R. D. (1990). Age, tenure, and employee absenteeism. Human Relations, 43(7), 601-619.

Houston, D. J. (2006). "Walking the walk" of public service motivation: Public employees and charitable gifts of time, blood, and money. Journal of public administration research and theory, 16(1), 67-86.

Jensen, U. T., Andersen, L. B., & Holten, A. L. 2019. Explaining a dark side: Public service motivation, presenteeism, and absenteeism. Review of Public Personnel Administration. doi:10.1177/0734371X17744865

Kearney, R. C., & Mareschal, P. M. 2014. Labor Relations in the Public Sector, Fifth Edition. London: CRC Press.

Koumenta, M. 2015. Public service motivation and organizational citizenship. Public Money & Management 35:341–8.

Lokke, A. K., & Sorensen, K. L. (2021). Top management turnover and its effect on employee absenteeism: Understanding the process of change. Review of Public Personnel Administration, 41(4), 723-746.

Lotta, G., Tavares, G. M., & Story, J. (2023). Political attacks and the undermining of the bureaucracy: The impact on civil servants' well-being. Governance.

Martocchio, J. J. (1989). Age-related differences in employee absenteeism: a meta-analysis. Psychology and aging, 4(4), 409.

Mastekaasa A. (2020). Absenteeism in the public and private sector: Does the public sector attract high absence employees? Journal of Public Administration Research and Theory. 2020; 30(1): 60-76. https://doi.org/10.1093/jopart/muz003

Mastekaasa, A., & Olsen, K. M. (1998). Gender, absenteeism, and job characteristics: a fixed effects approach. Work and Occupations, 25(2), 195-228.

Nixon, A. E., Mazzola, J. J., Bauer, J., Krueger, J. R., & Spector, P. E. (2011). Can work make you sick? A meta-analysis of the relationships between job stressors and physical symptoms. Work & Stress, 25(1), 1-22.

Oaxaca, R. (1973). Male-female wage differentials in urban labor markets. International economic review, 693-709.

Park S. M., Word J. (2012). Driven to service: Intrinsic and extrinsic motivation for public and nonprofit managers. Public Personnel Management, 41, 705-734

Perry, J. L., & Wise, L. R. (1990). The motivational bases of public service. Public administration review, 367-373.

Perry, J. L. (1996). Measuring public service motivation: An assessment of construct reliability and validity. Journal of public administration research and theory, 6(1), 5-22.

Pfeifer, C. 2013. Cyclical absenteeism among private sector, public sector and self-employed workers. Health Economics 22:366–70.

Pihl-Thingvad, S., Winter, V., Schelde Hansen, M., & Willems, J. (2022). Relationships matter: how workplace social capital affects absenteeism of public sector employees. Public Management Review, 1-28.

Quratulain S, & Khan AK. (2015). Red Tape, Resigned Satisfaction, Public Service Motivation, and Negative Employee Attitudes and Behaviors: Testing a Model of Moderated Mediation. Review of Public Personnel Administration. 2015;35(4):307-332. doi:10.1177/0734371X13511646

Riphahn, R. T. 2004. Employment protection and effort among German employees. Economics Letters 85:353–7.

Sampaio, E., & Baptista, J. S. (2019). Absenteeism of Public Workers—Short Review. In Occupational and Environmental Safety and Health (pp. 345-353). Springer, Cham.

Stazyk E. C. (2013). Crowding out public service motivation? Comparing theoretical expectations with empirical findings on the influence of performance-related pay. Review of Public Personnel Administration, 33, 252-274.

Taylor, J. (2010). Public service motivation, civic attitudes and actions of public, nonprofit and private sector employees. Public administration, 88(4), 1083-1098.

Uppal, S., & LaRochelle-Côté, S. 2013. Understanding public–private sector differences in work absences. Insights on Canadian Society. Ottawa: Statistics Canada, Catalogue no. 75-006-X.
https://www150.statcan.gc.ca/n1/pub/75-006-x/2013001/article/11862-eng.htm
Van de Walle S., Steijn B., & Jilke S. (2015). Extrinsic motivation, PSM and labour market characteristics: A multilevel model of public sector employment preference in 26 countries. International Review of Administrative Sciences, 81, 833-855.
Viswesvaran, C. (2002). Absenteeism and measures of job performance: A meta-analysis. International Journal of Selection and Assessment, 10(1-2), 12-17.
Wright, B. E., Hassan, S., & Christensen, R. K. 2017. Job choice and performance: Revisiting core assumptions about public service motivation. International Public Management Journal 20:108–31

**Author Biography**

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**Appendix 1.** Descriptive Statistics

| Variable | M | SD | Min | Max |
|---|---|---|---|---|
| Work Absences | 3.290 | 14.066 | 0 | 365 |
| Mental Health | -0.034 | 0.944 | -0.631 | 6.932 |
| Lower Body Health | 0.022 | 0.957 | -6.413 | 9.859 |
| Upper Body Health | -0.042 | 0.958 | -6.672 | 15.190 |
| Social Health | -0.023 | 0.959 | -3.993 | 19.700 |
| Public Employment | 0.160 | 0.367 | 0 | 1 |
| Age | 42.284 | 13.776 | 18 | 84 |
| Square of Age | 1977.711 | 1217.479 | 324 | 7056 |
| White | 0.797 | 0.403 | 0 | 1 |
| Male | 0.538 | 0.499 | 0 | 1 |
| Paid Sick Leave | 0.604 | 0.489 | 0 | 1 |
| Tenure | 8.279 | 8.949 | 0 | 35 |
| Personal Income | 48352.570 | 36613.650 | 1 | 149000 |
| Organization Size | | | | |
| 2-9 Employees | 0.168 | 0.374 | 0 | 1 |
| 10-24 Employees | 0.146 | 0.353 | 0 | 1 |
| 25-49 Employees | 0.117 | 0.322 | 0 | 1 |
| 50-99 Employees | 0.111 | 0.314 | 0 | 1 |
| 100-249 Employees | 0.116 | 0.321 | 0 | 1 |
| 250-499 Employees | 0.067 | 0.250 | 0 | 1 |
| 500-999 Employees | 0.067 | 0.250 | 0 | 1 |
| 1000+ Employees | 0.112 | 0.316 | 0 | 1 |
| Occupations | | | | |
| Business and Financial Operations Occupations | 0.057 | 0.233 | 0 | 1 |
| Computer and Mathematical Occupations | 0.040 | 0.195 | 0 | 1 |
| Architecture and Engineering Occupations | 0.025 | 0.156 | 0 | 1 |

| | | | | |
|---|---|---|---|---|
| Life, Physical, and Social Sciences Occupations | 0.012 | 0.108 | 0 | 1 |
| Community and Social Service Occupations | 0.020 | 0.139 | 0 | 1 |
| Legal Occupations | 0.013 | 0.112 | 0 | 1 |
| Education, Training, and Library Occupations | 0.065 | 0.246 | 0 | 1 |
| Arts, Design, Entertainment, Sports, and Media Occupations | 0.023 | 0.151 | 0 | 1 |
| Healthcare Practitioners and Technical Occupations | 0.063 | 0.243 | 0 | 1 |
| Healthcare Support Occupations | 0.022 | 0.145 | 0 | 1 |
| Protective Service Occupations | 0.022 | 0.146 | 0 | 1 |
| Food Preparation and Serving Related Occupations | 0.046 | 0.210 | 0 | 1 |
| Building and Grounds Cleaning and Maintenance Occupations | 0.036 | 0.186 | 0 | 1 |
| Personal Care and Service Occupations | 0.032 | 0.175 | 0 | 1 |
| Sales and Related Occupations | 0.096 | 0.294 | 0 | 1 |
| Office and Administrative Support Occupations | 0.119 | 0.324 | 0 | 1 |
| Farming, Fishing, and Forestry Occupations | 0.006 | 0.079 | 0 | 1 |
| Construction and Extraction Occupations | 0.050 | 0.218 | 0 | 1 |
| Installation, Maintenance, and Repair Occupations | 0.033 | 0.179 | 0 | 1 |
| Production Occupations | 0.056 | 0.230 | 0 | 1 |
| Transportation and Material Moving Occupations | 0.056 | 0.230 | 0 | 1 |
| Military Specific Occupations | 0.001 | 0.037 | 0 | 1 |

*Note. M = Mean; SD = Standard Deviation; Min = Minimum; Max = Maximum*

**Appendix 2.** Blinder-Oaxaca Decomposition of the Work Absence Gap

| | Coef. | Std. Err. | Percent |
|---|---|---|---|
| Endowments | 0.568 | 0.018 | 92.71 |
| Coefficients | 0.045 | 0.027 | 7.29 |
| Interaction | 0.612 | 0.022 | |

***Appendix 3.*** *Factor Analysis of Physical and Mental Health Components*

| Variable | Mental | Lower | Upper | Social |
|---|---|---|---|---|
| | | | | |
| sad | 0.2407 | 0.01568 | -0.03026 | -0.03846 |
| nervous | 0.22507 | -0.03291 | 0.01268 | -0.02885 |
| restless | 0.21325 | -0.02652 | 0.04259 | -0.04819 |
| hopeless | 0.25356 | -0.01295 | -0.04121 | -0.00797 |
| effort | 0.22473 | 0.01534 | -0.02936 | -0.0196 |
| worthless | 0.23392 | -0.03465 | -0.03633 | 0.01931 |
| walk | -0.02445 | 0.35005 | -0.13575 | 0.02234 |
| climb | -0.02578 | 0.33501 | -0.12965 | 0.02081 |
| stand | 0.01522 | 0.43703 | -0.17593 | -0.21847 |
| sit | 0.00426 | 0.09323 | 0.14456 | -0.02065 |
| stoop | 0.00263 | 0.30468 | 0.06578 | -0.13263 |
| reach | -0.01812 | -0.10563 | 0.48715 | -0.10214 |
| grasp | -0.00919 | -0.13683 | 0.53304 | -0.1315 |
| carry | -0.0371 | 0.01259 | 0.2597 | 0.03683 |
| push | -0.02789 | 0.10501 | 0.20802 | -0.00587 |
| shop | -0.04041 | -0.00255 | -0.15487 | 0.40434 |
| social | -0.01906 | -0.09813 | -0.18072 | 0.48571 |
| relax | -0.01439 | -0.28456 | 0.03144 | 0.42189 |

*Note: These variables are referenced in the manuscript when the questions used to measure physical and mental health are described; they are abbreviated here for space concerns. The table displays the factor loadings for the analysis.*

**Figure 1:** Predicted Probability of Work Absences By Sector (Without Health Variables)

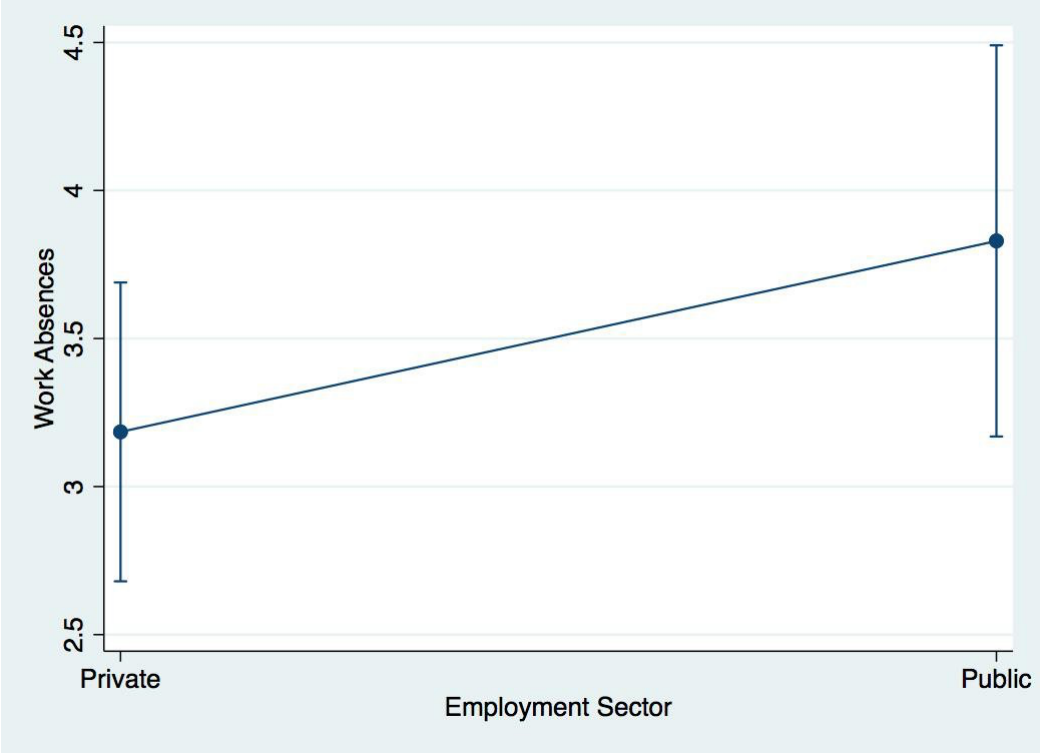


**Figure 2:** Predicted Probability of Work Absences by Sector (With Health Variables)