

Abstract

Objectives: We explore sickness absenteeism variations within the public sector and in particular the role of mental illness. Distinctively, the public sector is segmented into vocational and non-vocational sector; assuming that vocation lead to a different degree of job attachment and alter sickness leave decision.

Methods: Using British Household Panel Survey, random-effects logit models are applied to estimate the odds ratio of sickness absence with alternative measures of vocational employment. The association between mental illness and sickness absence is also explored.

Results: Absenteeism and the effect of mental illness on absenteeism rates vary within the public sector after controlling for socio-economic factors. The public vocational sector had the largest sickness absence odds ratios.

Conclusions: Differences between absenteeism rates across sectors may be more about the nature of the job and less about the nature of the sector.

Keywords: sickness absence, public sector, vocational sector, mental illness, random-effects logit

1. INTRODUCTION

Absenteeism from work is a cost to society. Estimates of absenteeism rates in countries within the EU range between 3% and 6% of working time with the associated costs estimated around 2.5% of a country's GDP (1). Much empirical research relating absenteeism to individual and/or institutional characteristics has been written, with one notable feature within the literature is the finding that absence rates are larger in the public sector compared to the private sector (2-5). Sickness absence variations across employment sectors may reflect the nature and characteristics of the job, along with individuals' characteristics.

The role of mental illness is of particular interest, with recent research suggesting that absenteeism rates due to mental illness are larger in the public sector than in the private sector (6,7), reflecting underlying differences in the prevalence of mental illness across sectors (8,9). Responses to mental illness in relation to the absenteeism decision may also be influenced by both sector-specific conditions such as sick leave provision, security of employment, combined with characteristics of the individual. Indeed, it may be hypothesised that variations in sick leave provision, namely statutory sick pay (SSP), may influence sick leave decisions.

This is especially true if the employing company has a specific sick pay scheme (or "occupational scheme"), which tends to be more generous than the basic SSP (10). However, it is still difficult to predict the sick leave decision of employees in the private or public sector since SSP varies across employing organisations. In contrast, self-employed individuals are not covered by any Government funded SSP or employment-based schemes, and so will suffer a larger financial penalty for being off work sick. There may also be larger responsibilities entailed with self-employment and as such, self-employed individuals may be less likely to be on sick leave.

This research paper expands on the classic segmentation of employment sectors into private, public and self-employment to explore specifically the variation of sickness absenteeism within the public sector and the relationship between mental illness and sickness absence. The distinctive feature of the analysis is the segmentation of the public sector into vocational and non-vocational sectors. This dichotomy is based on the assumption that there exists some underlying differences within the public sector often ignored in previous studies, in particular the ‘vocation’ status of employees working in the public healthcare sector (11).

Employees in vocational professions (as defined below) tend to render specific services to the population (healthcare or teaching) and understanding the mechanisms of mental illness and vocation in the sick leave decision is very crucial. This dichotomy has been not achieved in other studies to our knowledge. It constitutes a preliminary exploration into the role of vocation in sickness absence amongst employees; derived from the research of Heyes (2005) (11). Whilst his analysis explains the potential unintended consequences of raising nurse wages; our analysis focuses on the feature of vocation in the sickness decision. We use a standard definition of vocation to segment the public sector such that a vocation is:

“a job, especially one that involves helping people, that you do because you enjoy it or because you have a strong feeling that it is the purpose of your life to do it” (12).

Based on such definition, it is assumed that vocational workers carry out their activities as other employees, but receive an additional non-pecuniary benefit (vocational premium). Individuals with a vocation may over-perform when given the opportunity and enjoy doing so (11). Hence, it is assumed that vocational employees may behave differently compared to other non-vocational employees within the public sector, when faced with the decision to take a sick leave. The vocational element within the absenteeism decision could work in two opposing directions. The vocational premium could provide additional reward in terms of the work

decision, while that same vocational reward (in terms of quality of the services provided) may be less achievable in the presence of illness. We hypothesise that the vocational element of certain professions may bring a differing degree of job attachment compared to non-vocational and private employment sectors, as well as self-employed individuals; and hence alter the sickness leave decision.

Our analysis draws on the investigation of Whittaker et al. (2012) (7), among others, to further analyse the association of mental illness and absenteeism across different employment sectors. We therefore first investigate whether there is variation in absenteeism across employment sectors, including within the public sector. Secondly, we consider whether there is any variation in the impact of mental illness on absenteeism across sectors and within the public sector. This can provide more insight to the relationship between vocation and sickness absence within the public sector; as well as understanding how sickness absence varies across employment sectors overall.

2. METHODS

We use the British Household Panel Survey (BHPS), which was carried out by the Institute for Social and Economic Research (ISER) (13). It is an annual survey of a nationally representative sample of about 5,500 private households (10,300 individuals) that were recruited from 1991 to 2008, with around 5000 additional households added from Scotland, Wales and Northern Ireland from 1999 onwards. The same individuals are re-interviewed each successive year. BHPS respondents are followed up when they move to form a new household; as well as every member from this new household. BHPS includes core questions relating to household demographics, health, and employment, as well as yearly topics.

Our sample consists of respondents who are in paid or self-employment. We excluded respondents who were off work for reasons other than sickness or injury since they were not relevant to the study. (The other reasons were being off work due to maternity leave, being on

holidays, and other reasons). We included only those aged 16-65 years old, thus imposing a nominal retirement age of 65. The data comprised 128,184 observations of individuals during the period 1991 to 2008. Allowing for missing data among the employment and different demographic variables, a total of 103,221 observations were available for the regression analysis. As expected in panel data, most of the missing data were attributable to missing responses of respondents in a particular survey year. We explore the nature of any potential observed attrition bias by comparing descriptive statistics of selected variables for the first (wave 1) and last (wave 18) survey year (Table 1). Reassuringly, the mean values of the vast majorities of the BHPS respondents' characteristics are very similar across these two waves. Therefore, we can be reasonably confident that attrition in the sample is largely random.

[TABLE 1 HERE]

[TABLE 2 HERE]

The estimation framework mainly focuses on the association between employment sectors (with a particular interest for the vocational sector) and the role of poor mental health on absenteeism. In every wave of the BHPS, employed respondents who did not work the week preceding the interview were specifically asked “What was the main reason you were away from work last week?”. In the BHPS, this type of absence specifically refers to a leave of at least a week but no more than 6 months. There are no other questions relating to work absence in the survey. Hence our measure of sickness absence (SA) is a dichotomous variable and reflects whether a respondent who was classed as employed was away or not from work for sickness reasons.

Our employment sectors (*SECTOR*) are defined as public vocational (*PUB_VOC*), public non-vocational (*PUB_NONVOC*), private (*PRIV*), self-employed (*SE*), and non-profit (*NP*) (non-profit organisations and other). We run a series of regressions with alternative classifications

of the public sector to capture the vocational element. We first consider a broad interpretation of the term vocation to include health workers such as medical practitioners, nurses and midwives along with teachers and social workers all working in the public sector (public sector: vocational). This leaves the counterpart (public sector: non-vocational) to include every other category of the public sector (civil servant, local government and nationalised industry). We further examine a narrower grouping that confines the public vocational classification to health workers within the public sector, and finally we consider only qualified nurses (and midwives) within the public sector. This last category will provide empirical results to the theory of vocation within nursing as suggested by Heyes (2005) (11). To our knowledge, this type of segmentation of the public sector has not been executed in previous comparative studies. Most comparative studies employ the basic public/private benchmark without specifically separating health and teaching from other public sector.

We use the General Health Questionnaire 12-item version (GHQ-12) as a measure of psychological distress (*Mental_Illness*) (14,15). In the literature, there is no agreed cut-off point to indicate the presence of mental illness, although higher scores generally suggest worst mental health. While a review of 17 published papers (14) suggest the most common cut-off score was 2/3 (a score of 2 indicating no mental illness and a score of 3 or greater indicating the presence of mental illness); Goldberg et al. (1997) (14) suggest that a cut-off of 1/2 yields the best sensitivity. Other studies asserted that a higher cut-off score (3/4) was more accurate (15-18). We follow Whittaker et al. (2012) (7), in adopting a conservative cut-off point, with a score of 4 or more to indicate those respondents most likely to have psychological distress. Following Whittaker et al. (2012) (7), the regressions also include a series of control variables (X) as shown in Table 2. Thusly, the estimation framework is as follows:

$$SA_{it} = \alpha_{it} + \beta_{SECTOR} + \gamma Mental_Illness_{it} + \delta X_{it} + \epsilon_{it} \quad (i)$$

We estimate (i) using a random effects logit regression to allow for repeated observations on the same individuals. The role of poor mental health is further investigated in an adjusted specification, which include the basic demographic and employment variables; as well as the interaction terms between mental illness and employment sectors. The results from this random effects logit regression provides information on the role of poor mental health on work absence by employment sector in comparison to the counterpart employees without mental illness. The specificity of this model is to exclude the variable “mental illness” to obtain directly the interaction coefficients for all sectors. This method allows the comparison of coefficients estimates of employees with mental illness to those without mental illness by sector. (The equivalent of this method would have simply consisted in running a random effects logit model and include mental illness as a variable, then multiplying this latter with the coefficients estimates of employment sectors). Odds ratios are used for simplicity and ease of results’ interpretation.

3. RESULTS

The sickness absence (SA) rate was an average of 1.61% in our estimation sample (Table 2). Table 3 indicates that the public sector as a whole had an absenteeism rate of 2.14% compared to that of 1.49% in the private sector. Within the categorisations constructed to reflect alternative specifications of vocational employment groupings, absenteeism rate ranges from 1.78% in our broadest definition of vocational group to the highest absenteeism rate of 2.69% in our nurse and midwife group. As expected, the absenteeism rate within the self-employed group is the lowest at 0.37%. Table 3 also reports that the level of mental illness varies from a low of 16.7% in the private sector to 19.2% in the public sector as a whole. Within the public sector, the percentage of respondents with a score indicating respondents are suffering from psychological distress reaches a high of 22.07% for the nurse and midwife sub-group.

[TABLE 3 HERE]

In order to investigate these effects further, we control for socio-economic factors that might differ across employment groups. Table 4 presents the log-odds ratios adjusted for demographic and health characteristics, with the models presented representing the 3 alternative classifications of our vocational/non-vocational public sector groupings.

[TABLE 4 HERE]

Our results indicate that those within the private sector, the self-employed and non-profit sector, were less likely to be absent from work due to sickness in the week preceding the interview, compared to our non-vocational public sector group (base group). Our focus in this analysis is the segmentation of the public sector and we concentrate our discussion on this¹.

There was no significant difference between our broadest categorisation of public sector vocational employee and the non-vocational public counterparts (model 1). However, once we narrow our definition of vocation to those working within health services (model 2), we see that such public sector health services employees had the highest probability of being off work sick: they were 50% more likely to be off work sick as compared to their non-vocational counterpart. Narrowing our definition further (model 3) to capture public sector vocational employees within the nursing community we see an even higher value with this group being 77% more likely to be off absent due to sickness.

The relationship between sickness absence (SA) and mental illness by employment sector was further investigated using interaction terms (Table 5). This investigates the relative effect of poor mental health on absenteeism, in comparison with employees who do not have mental illness. For simplicity, Table 5 only shows the interactions coefficients results (odds ratios) from these regressions². The rate of SA was systematically higher for those with signs of mental

¹ The estimates on our socio-economic controls reflect results elsewhere (see for example (7))

² The remainder of the results from Table 5 is in the Appendix.

illness within the public sector compared to the private sector (and the self-employed). And interestingly for all definitions of vocation, the vocational public sector displayed higher effects of mental illness than their non-vocational counterparts.

[TABLE 5 HERE]

However, while there is a systematic pattern of a higher effect of mental illness within the vocational public sector than their non-vocational counterparts and indeed the private sector, these differences were not statistically significant.

4. DISCUSSION

This study explores sickness absenteeism variation within the public sector, and the relationships between mental illness and sickness absence. It considers the role of the vocational element characterising some professions within the public sector, and whether this alters sickness leave decisions. The vocational public sector exhibits both higher levels of sickness absence than its non-vocational counterpart and the effects of mental illness on absenteeism may be higher within the vocational sector.

Whilst comparison with other studies may prove to be difficult considering the way vocational and non-vocational sectors are set out in this study, there is evidence that our results are consistent with previous empirical research. An international comparison across countries found that “Health and Social Service” sector had the highest rates of sickness absence (19). In the same vein, other empirical papers also found evidence that the public sector experienced highest levels of sickness absence in comparison to other sectors; although their study fail to distinguish between vocational and non-vocational sector (4,7,20).

Disparities in sickness absence rates may be explained by several factors including the nature of the work. The vocational sector is characterised by long hours worked, strenuous tasks, shift-system (week-end, night job), higher occupational risks since employees are dealing with

difficult patients or injuries (including back injury, and potentially an increased exposure to infections from patients (21)); and in times of staff shortage an increased workload. In contrast, the non-vocational sector of this study consisted mainly of office-based employees, whose working conditions may be more advantageous to health (including mental health) than the public vocational sector. Employees may respond by absenteeism (or tardiness) if they perceive an imbalance between their efforts and rewards (i.e. equity theory, (22)).

Disparities between the two groups may also come from the employees' characteristics, in which case a model controlling for individual unobserved heterogeneity (resistance to stress or pain, work ethic, culture, etc.) could bring more insight to this investigation. Results from the conditional logit fixed effects sensitivity analyses (Table 6) indicate that the effect of mental illness is large, positive and significant in the 3 specifications of vocational employment sector (broad, health service and nurses/midwives respectively). Whilst the coefficients' magnitudes of employment sectors are relatively similar to the preferred initial models, they are no longer significant however; to the exception of self-employed. In contrast, there is a positive and significant relative effect of mental illness across employment sector in comparison to respondents without mental illness (interactions coefficients)(Table 7). These results suggest that the role of mental illness has a significant impact in sickness leave decision even after controlling for unobserved heterogeneity (e.g. effort, ability, or resistance to pain or stress); and that the nature of the employing sector may have a lessen impact on sickness leave decision.

This study has provided some important insights regarding the role of poor mental health across employment sectors. However, some limitations remain and require further research. The data employed for the study did not provide information on the reasons of sickness leave; which limited the interpretation of the results. Neither did the data provided information on presenteeism, which would have been beneficial since there is evidence that vocation-intensive

sectors experience high presenteeism levels; and employment groups with high presenteeism levels also have high absenteeism levels (23). Other research found that presenteeism may lead to future sickness absenteeism (24).

The definition of sickness absence, as well as the segmentation of the public sector between vocational and non-vocational sector is contextual to the UK setting. Once social, cultural and work legislation are considered, our results may not be generalizable to other non-UK countries. The binary variable measuring sickness absence did not provide information on the duration of absence from work. Hence, we could not capture the distribution of the length of absence spells. The analysis was further limited by the format of the question; which suggests that only those who were absent in the week preceding the interview (and not at any other time during the year) and whose absence does not exceed a period of six month, are included in the analysis. However, the information on sickness absence still provide a snapshot of absence rate variations across employment sectors; as well as the role of mental illness.

Whilst the vocational description was specified by the researchers and there was no individual self-reported or direct measure of vocation, the researchers assume that certain employees can be assigned to the public vocational sector given the type of service they render to the population (11,25). And while we recognise that the vocation characteristic may also vary across individuals within the vocational sector, this research provides evidence of some underlying differences within the public sector relating to this subjective measure of vocation.

Our findings suggest that there does appear to be systematic and statistically significant differences in the absenteeism rate within the public sector as defined by a vocational element and between these groups and the private sector. The impact of poor mental health on absenteeism rates also exhibits some systematic differences between the vocation-based sectors relative to non-vocational sectors. Whilst poor mental health is harmful for employees in both

vocational and non-vocational sectors, its repercussions may be more detrimental in the vocation sector because of the nature of services rendered to the population. Employees with poor mental health may be prevented to deliver high quality of care to patients, more sensitive to burnout, have lower morale, and ultimately higher levels of absenteeism and presenteeism. It is imperative that recruiters and managers identify the main determinants of poor mental health among employees of the vocational sector, in view of improving their occupational health. This is even more significant if poor mental health is attributed to work-related factors. These results provide some evidence that the vocation element brings with it a differing degree of attachment to the job as measured by absence from work. Thus, traditional differences between absenteeism rates across the public and private sector may be more about the nature of the job and less about the nature of the sector.

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