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Original Research

The contribution of health selection to occupational status inequality in Germany – differences by gender and between the public and private sectors

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ABSTRACT

Objectives: Estimating the size of health inequalities between hierarchical levels of job status and the contribution of direct health selection to these inequalities for men and women in the private and public sector in Germany.
Study design: The study uses prospective data from the Socio-Economic Panel study on 11,788 women and 11,494 men working in the public and private sector in Germany.
Methods: Direct selection effects of self-rated health on job status are estimated using fixed-effects linear probability models. The contribution of health selection to overall health-related inequalities between high and low status jobs is calculated.
Results: Women in the private sector who report very good health have a 1.9 [95% CI: 0.275; 3.507] percentage point higher probability of securing a high status job than women in poor self-rated health. This direct selection effect constitutes 20.12% of total health inequalities between women in high and low status jobs. For men in the private and men and women in the public sector no relevant health selection effects were identified.
Conclusions: The contribution of health selection to total health inequalities between high and low status jobs varies with gender and public versus private sector. Women in the private sector in Germany experience the strongest health selection. Possible explanations are general occupational disadvantages that women have to overcome to secure high status jobs.

Introduction

The relationship between health and labor market positions has been studied intensively. One important process of stratification on the labor market that has received little attention is status hierarchy *within* occupations. Anderson et al.[1] demonstrate that, for British white collar workers, a promotion is followed by a substantial reduction in the risk of heart disease. Chandola et al.[2] show that an increase in employment grade among British white collar workers reduces the risk of negative

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health conditions. These studies investigated health inequalities due to hierarchical job status from a social causation perspective. The social causation hypotheses states that social circumstances and working conditions, which are different for jobs with different statuses, affect workers' health. An alternative explanation is the health selection hypothesis, which states that health-related inequalities arise due to a process selecting those in poor health into lower-status positions and those in good health into higher-status positions, a selection process which seems especially plausible for the labor market. When employers decide which persons to hire or to promote, health status or health-related productivity can be an important criterion.[3,4] Studies that take a health selection approach to the study of health-related inequalities have often investigated occupational class, employment status, or wages.[5–10] Hierarchical job status within occupations has only rarely been assessed within a framework of health selection. Elovainio et al. is one of the few exceptions.[11] They find childhood health to be an important predictor of job status in adulthood, but not health during adult life. Using the same data from the Whitehall II study, Chandola et al.[2] find no health selection effects on employment grade. However, the analysis of both studies is limited to civil servants. The authors acknowledge that there is almost no downward movement possible in this setting. It might therefore be worthwhile to compare a situation in which job security and career paths are fairly similar to the Whitehall II study with a situation in which competition and more flexible labor laws allow for upward and downward movement within an occupation. In this study, I use data from the German labor market to investigate the extent to which health inequalities between high and low status jobs are produced by health selection processes in the private and the public sector for men and women. The differentiation between the public and private sectors serves as a distinction between more open positions in which competition should lead to stronger selection (private sector) and closed positions in which high job security and promotion schemes based on tenure allow for little health-related selection (public sector). Promotion schemes in the public sector in Germany are determined to a lesser degree by performance than in the private sector, although recent years have seen an increase in policies such as performance measurement in the public sector in Germany;[12] however, they have not been in place for the whole period of observation, and promotion procedures are still more bureaucratic than in most of the private sector. Therefore, I expect to find health selection effects to contribute to health inequalities between high and low status jobs in the private but not in the public sector. It is further expected that health selection effects are approximately the same strength for men and for women given the same sector. In addition, the question will be addressed how much health selection contributes to overall health inequalities between high and low job status for men and women in the private and public sector.

The focus on health selection does not include *indirect* health selection, which works through higher human capital in the form of educational credentials or skills acquired throughout life, and only examine *direct* health selection effects.[13] As direct health selection effects I understand the influence of health through performance that cannot be explained by human capital, effort related (e.g. household burdens), or personality factors that might be a cause of both health and job status.

Methods

The study uses data from the German Socio-Economic Panel Study (SOEP) to conduct the analyses. The SOEP is a representative household survey with annual interviews, starting in 1984, and currently includes more than 20,000 personal interviews from more than 10,000 households drawn from the original sample and regular refreshment samples (in years 1998, 2000, 2002, 2006, and 2009 for the present study).[14,15] The sample for the regression analyses comprises the annual waves K (1994) to BB (2011). Excluded are self-employed individuals, non-employed individuals, those who are still in the educational system, and all those above the age of 59 and below the age of 30. The effects of the restrictions on sample size can be seen in detail in Supplementary material A. Individuals are followed on average 5.3 years in the restricted sample.

Health is measured as self-reported health on a five-point scale (bad, poor, satisfactory, good, and very good), which has been shown to be a strong predictor of morbidity and mortality.[16–19] Due to the low prevalence of bad and poor health in the data, these two categories are combined into one category, labeled poor health, which is the reference for the study. Health is always measured at time t compared to job status, which is measured at $t+1$ (one year later). This ensures that the change in health precedes the change in job status.

The job status of an individual is based on categorizations of their position within their company's hierarchy, corresponding to the degree of autonomy, skill, and responsibility.[20] An individual is defined as being in a high status job if he or she reports having a job that requires either highly specialized skills or supervisory tasks, or both. According to this definition the responses to question have been categorized as high or low status jobs (see Table 1). It should be noted that the terms for the positions indicated in the table are well known to German employees and established in practice. More common measures associated with job or labor market status like the EGP-classification[21] or ISEI[22] cannot be used for the research question, because they are designed to reflect also differences *between* occupations, while the focus of this study is the strictly on the hierarchy *within* occupations. In the logic of analyzing promotions and demotions according to

Table 1 – Definition of high status jobs.

Job status	Position
Low	• Unskilled and semi-skilled workers • Skilled blue-collar workers • White collar workers with basic duties • White collar workers with qualified duties • (assistant) foremen
High	• White collar workers with highly qualified and supervisor duties • Master craftsmen • (Senior) foremen (blue collar) • Senior Managers