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Do higher wages come at a price?

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ABSTRACT

Using linked employer–employee data for Britain we find that higher wages are associated with higher job satisfaction *and* higher job anxiety. The association between wages and non-pecuniary job satisfaction disappears with the inclusion of effort measures whereas the positive association between wages and job anxiety remains strong and significant providing no support for a compensating differential explanation, but rather for a 'gift exchange' type of reciprocal behaviour. No support is found for the proposition that within-workplace wage differentials are a source of job anxiety.

1. Introduction

It seems reasonable to assume that the higher the compensation, the better the employee will feel when undertaking the work. Higher wages may foster greater wellbeing through spending power or social status. However, there is an emerging literature questioning the link between higher income and happiness. We contribute to the literature using linked employer–employee data to establish the relationship between wages and three dimensions of employee wellbeing, namely pay satisfaction (PS), non-pecuniary job satisfaction (NPJS) and job anxiety (JA) as captured by Warr's contentment–anxiety scale (Warr, 2007). This proves to be highly informative. Although job satisfaction (JS) and job anxiety (JA) are as we would expect, negatively correlated, their unconditional and conditional relationships with wages surprisingly go in the same direction. In keeping with the literature, wages are positively associated with job satisfaction.[1] However, wages turn out to be positively associated with job anxiety. Our measure of job anxiety is an index based on subjective answers to survey questions into what

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[1] See e.g. Clark and Oswald (1996) and Lévy-Garboua and Montmarquette (2004).

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extent the job makes the worker feel tense, calm, relaxed, worried, uneasy, and content. In this paper we establish the robustness of a positive relationship between the job anxiety index and wages, and attempt to distinguish empirically between two alternative hypotheses that might explain this relationship.

A positive relationship between wages and job anxiety may arise for two reasons. The first is compensating wages. Anxiety has a direct negative impact on subjective wellbeing, and in addition job anxiety, job strain and stress in general are detrimental to worker health (see Section 2). Such negative impacts may need compensation in terms of higher pay. This idea was first described by Adam Smith some 250 years ago (Smith, 1776) and later formalised by Rosen (1986). In this framework, a worker is given higher wages to compensate for higher effort or more challenges that come with the job, and job anxiety induces higher wages. The second idea, brought into economics by Akerlof (1982), is one of "gift exchange" or reciprocal behaviour, further developed in the experimental economics literature, see for example Fehr, Gächter, and Kirchsteiger (1997). Higher wages induce more stress if the worker feels he has to reciprocate and perform better as a result of higher pay. In this case higher wages lead to more job anxiety.

We use British linked employer–employee data to distinguish empirically between the two explanations. First we examine to what extent the inclusion of detailed workplace and job controls affects the relationship between wages and job anxiety. Next, we condition specifically on autonomy, effort and responsibilities associated with the job. If the wage–anxiety profile is a result of compensating wage differentials, the slope of this profile should diminish and disappear as we add relevant controls for working conditions. If the relationship between wages and job anxiety remains strong, even when conditioning on detailed job characteristics, we find no support for the compensating wage differential idea, but rather for the idea that wages have an independent effect on job anxiety, in line with what is predicted by the gift exchange model.

As stressed in the literature, the gift exchange model requires a careful discussion of the relevant reference point from which to measure the gift component (Akerlof, 1982; Card, Mas, Moretti, & Saez, 2011; Clark, Masclet, & Villeval, 2010). Since we have linked employer–employee data, we are able to devise a test that separately identifies the effect of relative wages via workplace mean wages and rank within the workplace versus an effect of absolute wages (relative to "market" wages that is) on job anxiety.

The remainder of the paper is structured as follows. Section 2 reviews the theoretical and empirical literatures linking wages to employee JS and JA. Section 3 introduces our data. Section 4 outlines the empirical strategy. Section 5 reports our results and Section 6 concludes.

2. Theoretical and empirical literature

There is an emerging literature questioning the link between income growth and happiness. Recent empirical evidence indicates that, at least in the case of citizens in advanced Western economies, GDP growth is not associated with greater happiness (Easterlin, 2001). Although Easterlin's Paradox has not gone unchallenged (Stevenson & Wolfers, 2008) there is also evidence at a micro-level of a less clear-cut relationship between income and wellbeing. Those receiving a random positive income shock, such as lottery winners, do indeed report higher levels of happiness than they had hitherto (Gardner & Oswald, 2007), but the effect often diminishes over time as they experience their new, richer environment. This is not simply because they must contend with previously unforseen problems (solicitations from others, etc.) but also because they become habituated to their new improved circumstances. Kahneman and Deaton (2010) argue that emotional well-being rises with log income, but not by much beyond $75,000.

Warr (2007: p. 116) identifies a number of studies establishing a positive independent correlation between wages and job satisfaction. The association is robust across time and place. It is stronger with respect to pay satisfaction, but it is also statistically significant with respect to non-pecuniary aspects of the job. The studies include longitudinal studies finding increases in pay leading to increases in job satisfaction, *ceteris paribus* (op. cit.: 228). The emergent behavioural economics literature exploring the underlying reasons for this empirical regularity focuses largely on perceptions of fairness and reciprocity. Employees' sense of self-worth may be enhanced if they feel well-paid for the job they do, if it confers social status or if it heightens perceptions of fairness in the wage–effort bargain (Fehr & Schmidt, 1999). Higher wages can also induce greater feelings of wellbeing when employees reflect with satisfaction on their rank in the wage distribution relative to their peers (Brown, Gardener, & Oswald, 2008), where they were in the past, or where they had expected to be by this point in their career (Lévy-Garboua & Montmarquette, 2004). Conversely, a wage hike may be associated with lower worker wellbeing if the worker was anticipating a larger hike, or if her peers received larger increases. A positive association between wages and satisfaction may also be observed if happiness increases productivity, as Oswald, Proto, and Sgroi (2009) show in a laboratory setting.

One would expect wages to be negatively correlated with anxiety for several reasons. First, higher wages may foster greater well-being through spending power and via social status (Stinchcombe, 1986; Marmot, 2004). Higher wages might also be associated with greater well-being if wages (as resources) increase workers' ability to cope with stress (Lazarus & Folkman, 1984).

The obvious explanation for a *positive* relationship, on the other hand, between job anxiety and wages is compensating wage differentials, as mentioned in the introduction: jobs that require hard work, stress or responsibility, may be characterised by both high pay and high levels of job anxiety. Poorer working conditions may entail risk potentially ending in injuries and personal damages, but also inherent risk associated with job loss probabilities. Either way, the higher wage is paid in