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Worker characteristics and wage differentials: Evidence from a gift-exchange experiment☆

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ABSTRACT

There is ample empirical evidence indicating that a substantial fraction of the population exhibits social preferences. Recent work also shows that social preferences influence the effectiveness of incentives in labor relations. Hence, when making contracting decisions, employers should take into account that workers are heterogeneous with respect to both their productivity and their social preferences. This paper presents causal evidence that they do. In a real-effort experiment, we elicit measures of workers' productivity and trustworthiness and make this information available to potential employers. Our data show that employers pay significant wage premia for both traits. Firms make highest profits with trustworthy workers, in particular with highly productive and trustworthy workers. We also document differences in the strength of gift-exchange across worker types. In particular, output levels of trustworthy workers are higher and much less dispersed than those of not-trustworthy workers.

1. Introduction

Firms spend substantial resources to select the "best" candidate for a job. In particular, an increasing fraction of firms uses both ability and personality tests in their hiring processes.[1] While the rationale for selecting the most "able" candidate is obvious, labor economists have traditionally focused on productivity as the core dimension of ability. What information about workers might a firm obtain from personality tests and job interviews that is not just another measure of productivity? One important piece of additional information about a potential worker are her social preferences. In particular in the

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[1] See, e.g. Autor and Scarborough (2008).

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presence of moral hazard, it is valuable for firms to have access to employees that can be motivated by "social incentives" via gift-exchange. The optimal design of employment contracts depends on the presence of social preferences.[2]

Despite the importance of information acquisition in real world contracting, our understanding of the impact of the availability of information on the terms of a contract is surprisingly limited. Empirical evidence on the issue is scarce. This paper aims to start filling this gap. We provide causal evidence from a laboratory experiment on how principals (employers) use specific pieces of information about agents (workers) when they design contracts in a gift-exchange situation. Specifically, we elicit measures of workers' productivity and trustworthiness and make this information available to potential employers. Our data show that employers pay significant wage premia for both traits. Thus, individuals seem to understand that there is heterogeneity among workers not only with respect to productivity but also with respect to their social preferences, and they take these social preferences into account when making contract offers.

When making employment and contracting decisions, firms naturally desire to minimize the risk of hiring an unsuitable candidate. They try to learn about the qualification of a candidate, his education, his family background, etc. before offering an employment contract. As a necessary simplification of reality, we concentrate in our experiment on two dimensions of information that we regard as essential on real world labor markets. The first dimension, which we call *productivity*, is an objective assessment of whether the candidate is good at the job he is supposed to accomplish. In the second dimension, a measure of *trustworthiness* captures the candidate's social and reciprocal preferences. We consider these two measures of a worker's traits the most relevant "skills" in our setting, and we expect that information about these skills matters for firms. In a situation characterized by moral hazard, we expect both elements to play an important part in the effort decision of the agent and hence for the outcome for the principal: Controlling for social preferences, an agent who is more productive at accomplishing a certain task will produce a higher outcome for the principal. Similarly, for given productivity, a reciprocal agent will put in more effort in response to a "generous" wage offer leading to a higher outcome for the principal. We examine whether this behavior is anticipated by firms and whether it affects wages.

In this article, we concentrate on a contracting situation where information about a worker stems from sources external to the firm-worker relationship. In contrast to earlier studies by Brown et al. (2004) or Bartling et al. (2012), we abstract from information about the worker that arises endogenously in a repeated relationship and can be used for firms to adapt contracts over time. Instead, we focus on the trade-off between two pieces of information and their impact on contracting in the hiring stage for both principals and agents in a one-shot interaction. Our main research question is whether these two pieces of information are conditioned upon when writing contracts and to what extent they can be used to predict behavior. Moreover, we evaluate how the presence of certain skill sets affects contracting outcomes under moral hazard. The high degree of control makes the laboratory an ideal setting to address these questions.

Our experiment consists of two parts, which are presented sequentially to subjects such that they do not know what will be the content of the next part. Subjects know in advance, however, that decisions in the earlier part may have an impact on the later part. In the first part, subjects work on a real effort task under a piece rate contract. We use their score in this piece rate task as our measure of *productivity*. Subsequently, subjects are presented with a binary, neutrally framed, trust game. We interpret the decision made in this game as a measure of *trustworthiness* and use it as a proxy for social and reciprocal concerns. In the second part, half of the players are randomly assigned to be employers and the other half to be employees. Subjects play a one-shot gift-exchange game where the employer first offers the employee a flat wage and the employee thereafter performs the real effort task from the first part under standard gift-exchange incentives.

Before making their wage offers, principals are presented with the information about workers from the elicitation tasks. We employ the strategy method; employers submit wage offers for all workers but only one match with the corresponding offer will be randomly determined. By doing so, we exclude an effect on wages from competition for workers.

The level of information provided to employers is our treatment variable. In our main treatment, employers are presented the *productivity* and the *trustworthiness* measure in a binary way (hereafter treatment PT) before submitting wage offers. To control for strategic behavior in the elicitation phase, we run two additional treatments where only one piece of information is made available to employers. In treatment "Productivity"(hereafter P), they are only presented the productivity measure. In treatment "Trustworthiness" (hereafter T), they are only presented the trustworthiness measure. By comparing the control treatments P and T to the PT treatment, we can check whether the information revelation in the final phase distorts the elicited measures in phases 1 and 2. In treatment P (T) it is communicated to subjects that in the second part only information from the elicitation of productivity (trustworthiness) is possibly made available in later parts of the experiment, whereas in PT this applies for both measures. We do not find any indication of strategic distortions. Finally, in control treatment "No Information" (hereafter NI), employers are deprived of any information about workers and enter only one wage for a randomly allocated worker.

Along the two dimensions *productivity* and *trustworthiness*, we assign workers to four types: *high productivity and trustworthy, high productivity and not trustworthy, low productivity and trustworthy, low productivity and not-trustworthy*. The analysis of the data provides five main findings. (1) Contracts offered by principals systematically vary with the information they have about the agent. Principals tailor their wage offers to employee types, offering more generous contracts to more

[2] Englmaier and Leider (2012) is a recent theoretical treatment of the issue. Dur and Sol (2010) and Mohnen et al. (2008) are examples of empirical studies that highlight the fact that the selection of the workers exhibiting social preferences enhances outcomes in team production situations. We review this literature in more detail below.