Journal of Behavioral and Experimental Economics 58 (2015) 20–32

Contents lists available at ScienceDirect

Journal of Behavioral and Experimental Economics

journal homepage: www.elsevier.com/locate/socec

Gender differences in personnel management: Some experimental evidence

Ananish Chaudhuri*, Amy Cruickshank, Erwann Sbai

Department of Economics, University of Auckland, New Zealand

ARTICLE INFO

Article history:
Received 15 May 2014
Revised 10 June 2015
Accepted 12 June 2015
Available online 22 June 2015

JEL Classifications:
C71
C91
J30

Keywords:
Contracts
Trust
Reciprocity
Leadership
Gender differences

ABSTRACT

We explore gender differences in behavior in the context of two types of labor contracts, those that rely on mutual trust and reciprocity and those that specify penalties for shirking. Our main finding is an overall lack of significant gender differences in behavior. In the treatments with penalties for shirking, female employers offer higher rent compared to men and in those treatments this generosity affects female earnings adversely. We find that while workers do reciprocate more generous contract offers by shirking less, there are no pronounced gender differences in shirking. We find that not using a penalty when the option is available leads to significantly higher levels of shirking.

1. Introduction

The existence of a "gender gap" in the work-place is well documented. Early research in the area, such as Altonji and Blank (1999), attributed this phenomenon mainly to differences in human capital and either taste-based or statistical discrimination. However, as Bertrand (2011) points out in her comprehensive review, in recent years a large body of research – to a large extent experimental – suggests the possibility that observed gender gaps may arise due to important differences in psychological attributes and preferences between men and women. Such differences may include gender differences in risk preferences, in attitudes towards competition and negotiation and in other-regarding preferences. This in turn may also have implications for gender differences in occupational choice or work-place strategies.

Babcock and Laschever (2003) and Niederle and Vesterlund (2007) argue that greater female aversion towards competition may explain why one finds fewer women occupying positions of power. Recently Sandberg (2013) has extended the debate to a wider and more popular realm by suggesting that in order to be successful in the work-place women need to adopt more assertive negotiating tactics, i.e., they need to "*lean in*" more, a trait usually associated with males.

The experimental literature in this area is large. We refer the interested reader to Eckel and Grossman (2008a) and Croson and Gneezy (2009) for comprehensive reviews primarily with regards to differences in risk attitudes and other-regarding preferences. Babcock and Laschever (2003) discuss gender differences in a variety of labor market transactions including the decision to enter into salary negotiations. For a selection of findings on causes and consequences of gender differences from the psychology literature see Walters, Stuhlmacher and Meyer (1998) or Sax (2005).

This line of inquiry also overlaps with research in leadership; specifically whether men and women tend to adopt different styles when it comes to dealing with employees. Rosener (1990), building on concepts introduced by Burns (1978), argues that men typically tend to be "*transactional*" leaders and see job performance as a series of transactions with subordinates involving rewards for services rendered and punishments for inadequate performance. Women on the other hand are seen as being more "*transformational*", relying less on explicit rewards and punishments and more on a democratic and participative style.

Eagley and Johnson (1990) undertake a meta-analysis of 162 studies on leadership and find little difference between male and female

* Corresponding author at: Department of Economics, University of Auckland, 660 Owen G Glenn Building, 12 Grafton Road, Auckland 1142, New Zealand. Tel.: +64 9 923 8307; fax: +64 9 373 7427.

E-mail addresses: a.chaudhuri@auckland.ac.nz, ananishc@yahoo.com (A. Chaudhuri), aacruickshank@gmail.com (A. Cruickshank), e.sbai@auckland.ac.nz (E. Sbai).

http://dx.doi.org/10.1016/j.socec.2015.06.003
2214-8043/

leadership styles. They find some support for the view that women adopt a more democratic style while men tend to adopt a more authoritative style.[1] Eagley, Karau and Makhijani (1995) undertake a further meta-analysis which extends the analysis of leadership styles to the issue of leadership effectiveness. They report that men and women are equally effective as leaders except that men tend to be more effective in occupations that are typically defined in more masculine terms such as the military while women are more effective in occupations defined in primarily feminine terms such as nursing. See Moran (1992) for a succinct overview of much of this work.

The bulk of prior laboratory based studies on labor market interactions have focused on one side of the interaction or the other; viz. gender differences in behavior either as employer or as employee and mostly the latter. This is understandable because it is not always feasible to address all aspects of labor relations in the context of a single study. In this paper we look at gender differences in behavior both as employer and as employee. In order to do so we rely on the well-known gift-exchange paradigm adapted from the voluminous work undertaken by Ernst Fehr and his co-authors. Representative publications include Fehr, Gächter and Kirchsteiger (1997), Fehr et al. (1998), Fehr, Kirchsteiger and Riedl (1993, 1996,1998) and Fehr, Klein and Schmidt (2007).

Camerer (2003) and Charness and Kuhn (2011) point out that laboratory gift-exchange studies such as those cited above provide a reasonable and tractable model of labor market interactions. Therefore, we believe that this serves as a good candidate experiment for our study. Using this stylized model we ask whether women behave differently than men, either as employers or as employees; and should differences emerge whether they have implications for the relative earnings of women vis-à-vis their male counter-parts. The particular experiments in this paper are adapted from Fehr et al. (1997, 2007) and have the added advantage that they mitigate some of the artificiality of lab experiments and provide greater context since, as in Fehr et al. (2007, 1997), we use loaded terms such as employer, worker, wage, effort and fines.

One caveat here, as noted in Eagley and Johnson (1990), is that laboratory and assessment studies typically report greater gender differences in behavior than are found in actual field studies. They argue that gender stereotypical behavior is more likely to occur in situations where (1) people deal with strangers, typically for one-off or short-lived interactions and (2) there are fewer social cues on which to anchor their behavior. When behavior occurs within organizational settings, which provide meaningful context, such stereo-typical differences tend to disappear. So one way to think of our experimental approach is that lab studies such as this one may help identify areas where such differences may arise and also establish bounds on how significant those differences may turn out to be.

We explore two different experimental treatments adapted from Fehr et al. (2007, 1997). Our first treatment, which we will refer to as the **"***trust***"** treatment, is designed to simulate a "*transformational*" style of leadership. Here, the interaction relies on mutual trust and reciprocity between employers and workers. The employer offers the worker a wage and suggests a level of effort. Any such suggestion is non-binding in that there is nothing to prevent the worker from accepting the wage offered and then shirking. Standard models based on the assumption of individual self-interest would predict that no more than the minimal amount of effort would be forthcoming in this treatment. Our second "*penalty*" treatment is more "*transactional*" in nature. Here the employer has the option of penalizing the worker if the latter is found to be shirking. Choosing appropriate values of the wage and the penalty can guarantee non-minimum effort from the worker.

[1] The authors suggest that these differences may arise in part from the fact that women, being out-numbered by men as leaders, face greater resistance from employees and feel the need to seek greater employee input.

Table 1
Output and cost of effort ($).

e	1	2	3	4	5	6	7	8	9	10
$V(e)$	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
$C(e)$	0.01	0.10	0.20	0.40	0.60	0.80	1.00	1.30	1.60	2.00

Our main conclusion is a null finding that there are no dramatic differences in behavior. In two of our four treatments, which involves penalties for shirking, female employers offer higher rent compared to men and tend to impose smaller penalties. However, any increase in worker reciprocity due to the higher rent paid by the employer is not enough to defray the cost of that higher rent, and in that one treatment, women end up earning less than men. But it is also that case that even here early differences dissipate with repeated interactions. We find that while workers do reciprocate more generous contract offers by shirking less, there are no pronounced gender differences in shirking. As with all experimental studies it is not always clear how generalizable the results are and therefore the results we report are best seen as representing the behavior of New Zealand women and men.[2] We proceed as follows. In Section 2 we provide an overview of the experimental design and procedures. In Section 3 we present our results. In Section 4 we provide some context for our results. We make some concluding remarks in Section 5.

2. Experimental design and procedures

2.1. Experimental design

The experiments are based on a simple principal–agent model adapted from Fehr et al. (2007, 1997). We assume readers are familiar with this research stream and therefore we provide a brief sketch of the design and omit details. Output (V) is a function of worker effort (e), i.e. $V = V(e)$. If the worker exerts an effort level, e, he incurs a cost of effort, $C(e)$. The value of effort is monotonically increasing in the effort level, and given by the specific functional form, $V(e) = e$. Effort is costly to the worker and is measured in monetary terms, $C = C(e)$ with $C'(e) > 0$, $C''(e) > 0$.[3] Without loss of generality, price is normalized to 1 which makes revenue equivalent to output. We also normalize the worker's outside option to zero. Table 1 provides details of the experimental parameters. The payoffs denoted in the table are the actual monetary payoffs that the subjects will earn.

We assume that both employers and workers are risk-neutral. We implement two separate experimental treatments: a *trust treatment* and a *penalty treatment*. The *trust treatment* is a two-stage game. At stage 1, the employer makes a take-it-or-leave-it contract offer to the worker. The contract specifies a wage (w). In return, she asks the worker to put in an effort level (e^*) but this suggested effort level is not enforceable. At stage 2 the worker decides whether or not to accept the contract offer. If he rejects the offer, then both players earn zero. If the worker accepts, he decides what actual effort level (e) to put in. The worker is not obliged to choose $e = e^*$; he can choose any feasible effort level greater than, equal to or less than e^*.

If a contract is accepted, then for any effort level e put in by the worker, the employer's payoff is $V(e) - w$, while the worker's payoff is $w - C(e)$. If we make the assumption that the employer and the worker both want to maximize their monetary payoffs, then we would expect

[2] However, the university has a large proportion of international students and among the actual participants in this study around 2/3 reported that they were not born in New Zealand.

[3] Clearly subjects are only entering numbers using their keyboards but the rationale behind using words like "effort" or "cost of effort" is that these are imputed values generated by the parameters of the underlying model and choices made have real implications for earnings. This is a standard approach in this line of work as in Fehr et al. (2007, 1997).