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Gender differences in competition and sabotage☆

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ABSTRACT

We study the differences in behavior of males and females in a two-player tournament with sabotage in a controlled lab experiment. Implementing a real-effort design and a principal who is paid based on the agent's output, we find that males and females do not differ in their performance in the real effort task but in their choice of sabotage. Males select significantly more sabotage, leading to an, on average, higher winning probability but not to higher profits. If the gender of the opponent is revealed before the tournament, males increase their performance in the real-effort task especially if the opponent is female. The gender gap in sabotage is persistent. We discuss possible explanations for our findings and their implications.

1. Introduction

Although they make up nearly half of the workforce, it is a well-known fact that females are underrepresented in upper hierarchy levels of companies worldwide. In January 2012, around three percent of the largest publicly listed companies in the European Union had a female president or chairperson, and the share of females on corporate boards was 13.7 percent. A similar pattern can be observed in the United States: in January 2013 only 21 CEOs of the Fortune500 companies were female, resulting in a share of 4.2 percent.[2] Researchers have offered several explanations for this fact such as labor market discrimination, differences in education, preferences, or biological factors as well as the reluctance of females to enter competitions (e.g., promotion tournaments). Many studies have shown that male participants react more strongly to competitive incentives (e.g., Gneezy et al., 2003) while females have a tendency to abstain from competition and prefer wage schemes with absolute instead of relative compensation (see Croson and Gneezy (2009) for an overview). Furthermore,

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[2] See http://ec.europa.eu/justice/gender-equality/files/women-on-boards_en.pdf for the European and http://ec.europa.eu/justice/gender-equality/files/women-on-boards_en.pdf for the US data.

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there exists evidence that good performance in a tournament and winning per se has a stronger impact on self-esteem of males than on self-esteem of females (see, e.g., Crocker et al. (2003) or Wieland and Sarin (2012)). One aspect that has not been discussed in the literature investigating gender differences in tournaments is the question if males and females differ in their willingness to destroy output and sabotage their opponents to ensure winning the competition, even though sabotage is not rare in organizations and tournaments are especially prone to such behavior. In promotion tournaments, sabotage might lead to selecting the less able candidate for a promotion. If, for instance, males have a higher willingness to sabotage because they react more strongly to competitive incentives or enjoy winning per se, as indicated by previous findings mentioned above, this might help to explain why females are underrepresented at leading positions or refrain from entering a competition in the first place.

We fill this gap in the existing literature and study the actions of males and females in a tournament with sabotage opportunities. For this purpose, we conducted a real-effort experiment where two players participated in a rank order tournament and had the opportunity to sabotage each other by destroying a certain amount of work of their opponent. To come closer to real world situations, we introduced a principal to our setting who was paid based on the output of the contestants. Hence, sabotaging not only affected the opponent but also reduced the payment of the principal. We conducted four different treatments: the baseline (as described above), belief, cheating, and gender treatment. In the belief treatment, we elicited beliefs about the performance in the real effort task as well as the chosen sabotage of the respective opponent to analyze if those beliefs differ between males and females. The cheating treatment allows us to check whether social preferences with respect to the principal affected the contestants' behavior. In the gender treatment, we revealed the gender of the opponent before the tournament to study if the contestant's behavior depends on the gender of the respective opponent. Our main findings can be summarized as follows: We find that (i) the males and females on average performed equally well in the real effort task (except for the gender treatment) but (ii) males chose significantly higher levels of sabotage than females. Males were therefore much more likely to win in tournaments with mixed gender participants. Despite this difference, males and females received similar payments because sabotage was costly. The gender gap is not only present in actual sabotage choices, but in the stated beliefs about the opponent's actions as well. Males not only sabotaged their opponent more severely, they also expected their opponents to inflict more sabotage on them. If we revealed the gender of the opponent, we also observe a gender gap in performance. Males performed significantly better in the real effort task than females. In the sabotage dimension, both females and males believed to be sabotaged more severely from males, but we do not find any differences in sabotaging behavior with respect to the revealed gender of the opponent. Our main finding, the gender gap in sabotage, was persistent over all treatments and cannot be explained for instance by differences in risk attitudes, human values, or social preferences with respect to the principal.

2. Related literature

Our paper is related to the literature on sabotage in tournaments as well as on gender differences in competition. In his seminal paper, Lazear (1989) shows that the optimal wage spread is lower when participants are able to sabotage each other. Hence, the tournament designer optimally uses a more equitable prize structure in order to lower the incentives to sabotage the opponent.[3] Because company data on sabotage is generally not available for research, empirical studies use sports data (see, e.g., Garicano and Palacios-Huerta (2006), del Corral et al. (2010), Balafoutas et al. (2012), or Deutscher et al. (2013)) or experimental data to investigate the impact of sabotage on tournaments. Harbring and Irlenbusch have contributed several papers dealing with different prize spreads, a varying number of participants, and different numbers of tournament prizes (see, e.g., Harbring and Irlenbusch, 2008) as well as communication in tournaments with the possibility to sabotage in lab experiments (Harbring and Irlenbusch, 2011).[4] While most papers use a chosen effort setting, we are aware of only a few papers that implement a real-effort tournament with sabotage which are closer to our study. Vandegrift and Yavas (2010) use a forecasting task and give the contestants the option to raise the forecasting error of their opponent. Players do not know the performance of their opponent when selecting the costly sabotage. The cost function of sabotage is linear meaning that the players have to pay a constant fee for each additional unit of sabotage. Players exert more sabotage if the prize spread is higher or the players are rematched after each period. In the study of Carpenter et al. (2010), the task was to prepare letters and envelopes. The authors conducted different treatments with piece rate and tournament incentives, as well as with and without sabotage. They find that output declines in the tournaments with sabotage compared to treatments with piece rate. The reduction is due to false reporting of the quality rather than the quantity of the output. Hence, the players preferred the more subtle form of sabotage and refrained from "undercounting" the total output of an opponent. In contrast to our paper, the players in the setting of Carpenter et al. (2010) selected their amount of sabotage after the production period when they already knew their own performance. Hence, Carpenter et al. (2010) studied a sequential tournament. Recently, Charness et al. (2014) matched players into groups of three and let them work on a decoding task in a flat wage environment. In the absence of monetary incentives, ranking feedback leads individuals to invest in costly sabotage in order to improve their relative position in the group. In contrast to our experiment, there are no monetary incentives to sabotage the opponent

[3] For further theoretical work on sabotage in tournaments, see, among others Chen (2003), Kräkel (2005), Münster (2007), or Gürtler (2008).

[4] For further experimental evidence on tournaments with sabotage, see, e.g., Harbring et al. (2007), Falk et al. (2008), or Gürtler et al. (2013) or the recent surveys of Dechenaux et al. (2012), Amegashie (2013), and Chowdhury and Gürtler (2013).