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# Do women have more shame than men? An experiment on self-assessment and the shame of overestimating oneself☆

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ABSTRACT

We analyze how subjects' self-assessment depends on whether its accuracy is observable to others. We find that women downgrade their self-assessment given observability, while men do not. This holds true when the self-assessment concerns a task with individual as well as competitive incentives. Women avoid the shame they may have if others observe that they overestimated themselves. Men, however, do not seem to be similarly shame averse. This gender difference may be due to different societal expectations: while we find that men are expected to be overconfident, women are not. The negative effect on women's self-assessment is eliminated when performance is only imperfectly observable. Shame aversion may explain recent findings that women shy away from competition, demanding jobs, and wage negotiations, as entering these situations demonstrates confidence in one's ability.

## 1. Introduction

Frequent and much discussed observations in labor markets concern the absence of women from top level jobs and the gender wage gap.[1] Recent studies suggest that this may be due to the fact that, compared to men, women shy away from competition, demanding work environments, and negotiations about their wage.[2] This behavior seems to be partly driven by women's lower self-assessment of their ability, higher risk aversion and lower competitiveness.[3]

In this paper, we analyze another mechanism, the effect of shame, which may imply gender differences in occupational decisions. Shame may also shed light on why women exhibit lower self-assessment. In our context, we define shame as the negatively valenced

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[1] See, e.g., Bertrand and Hallock (2001).

[2] For example, Balafoutas and Sutter (2012), Charness et al. (2013), Datta Gupta et al. (2013), Dohmen and Falk (2011), and Niederle and Vesterlund (2007) show that women are less competitive than men; Niederle and Yestrumskas (2008) show that women choose challenging tasks less often than men; Babcock and Laschever (2003), Bowles et al. (2005), and Gerhart and Rynes (1991) show that women negotiate their wage less than men.

[3] There exist other explanations for gender differences in the labor market such as discrimination against women and preference differences regarding, e.g., child rearing (see, e.g., Altonji and Blank (1999), Goldin and Rouse (2000)).

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emotion an individual may have when she is not as able or successful as she has *publicly* announced.[4] For example, an agent might have shame if, subsequent to a wage (or promotion) negotiation or a job interview, the employer notices that the agent is not as able as she claimed to be. Similarly, choosing a competitive or demanding work environment can be seen as a public statement of being sufficiently confident to succeed. An agent might feel shame if someone else (the employer or competitor) observes her suffering defeat. Agents may want to avoid shame and thus make less confident statements about their abilities or even shy away from situations in which they might end up feeling shame. Specifically, we investigate whether women make less confident statements about their ability when their true ability is observable than if it is not – because they may want to avoid the shame of overestimating their ability – and whether men's statements are less sensitive to their ability being observable.

We conduct a controlled laboratory experiment, in which subjects first perform an incentivized task. They are then randomly assigned the roles of principals and agents. One principal is matched with two agents. Both agents estimate the relative rank of their performance in the task compared to other subjects and receive a payment if their guessed rank is correct. According to their monetary incentives, agents should state the rank they think is most likely correct. The principal's expected payoff depends on the true rank of the agent with the higher self-assessment.[5]

To isolate the effect of shame, we vary the (potential) exposure to shame across two treatments, in which the principal observes the agents' self-assessments. The only difference between the two treatments is that in one treatment (*Info*) the principal additionally observes the agents' true ranks, i.e., he can infer whether the agents overestimate (or underestimate) themselves. In the other treatment (*NoInfo*), the principal cannot infer the accuracy of the agents' self-assessments. Note that if the agents state a lower rank in *Info* than in *NoInfo* (given equal performance in both treatments), the only obvious explanation is that the agents try to avoid shame. Social preferences, overconfidence per se, risk aversion or preferences for competition cannot explain a treatment difference in guessed ranks as we only vary the observability of the accuracy of the agents' self-assessment.

In our experiment, shame can arise due to different types of accountability: people adjust their actions (in our case their self-assessment) when they expect that others (i) observe these actions, (ii) evaluate their actions with respect to a norm, and (iii) may suffer from a negative externality due to their actions. While the first and third type may matter in both treatments, *Info* and *NoInfo*, the second type matters primarily in *Info*.[6]

In our experiment, we find neither a gender difference in performance, nor a performance difference between treatments. But we observe that women in *Info* rank themselves significantly lower than women in *NoInfo*. For men, we observe no significant treatment effect; if anything, the effect is in the opposite direction. Thus, shame aversion might explain the different behavior of women and men in settings in which others observe, or learn over time, the accuracy of their self-assessment. In addition, shame aversion may strengthen the frequently observed gender difference in self-assessment.[7] While we also find that women rank themselves significantly lower than men in treatment *Info*, the gender difference in guessed ranks is no longer observed in *NoInfo*.

To complement our analysis, we conduct two further tests for robustness and relevance of shame aversion. In a first extension of the main experiment (*Noise* experiment), we create a setting where the accuracy of self-assessments can only be inferred with imprecision. In this case, a feeling of shame might be attenuated because principals in *Info* only learn a noisy signal about agents' relative performance in addition to agents' self-assessment.[8] Actually, we find that instead of downgrading their self-assessment in *Info*, women as well as men upgrade their self-assessment.

In a second extension (*Competition* experiment), we investigate self-assessments in a competitive setting, where beliefs are formed about tournament performance. Like in the main experiment, we observe that women display a lower self-assessment when its accuracy is observable.

What causes the shame of overestimating rather than underestimating oneself? In a postexperimental questionnaire almost 90% of the subjects indicate that overestimating oneself is deemed negative by society. In contrast, only about 20% indicate that underestimating oneself is deemed negative by society.[9] However, we find no gender difference in these statements. But we do find that subjects expect men, but not women, to overestimate their performance in the real effort task. Given these expectations, women in comparison to men may (believe they) harm their social standing to a greater extent when overestimating themselves, and others observe it. This may imply that only women downgrade their self-assessment in *Info* due to a stronger (anticipated) social disapproval of their overconfidence.[10]

Regardless of the root cause for the shame of overestimating oneself, we find that women react more strongly to it than men. The

[4] In questionnaire studies, psychologists analyze which emotions individuals classify as shame. A consistent definition of shame, however, does not exist, and the distinction between shame and related emotions, such as guilt and embarrassment, is difficult. A long-standing notion is that shame is related to situations involving public exposure and disapproval of one's failing, while guilt does not depend on public exposure (for a discussion, see Tangney (2002)). The distinction between shame and embarrassment is even less clear and strongly debated. For an overview, see Sabini et al. (2001).

[5] Thus, an agent's self-assessment may impose a negative externality on the principal's payoff.

[6] We are not aware of any analysis of gender differences occurring in these types of accountability. However, recent studies by Brandts and Garofalo (2012) and Vieider (2011) analyze another type of accountability where subjects have to justify their decisions in front of an audience, providing evidence for gender differences concerning this type of accountability.

[7] For gender differences in self-assessment, see, e.g., Balafoutas et al. (2012), Beyer (1990), Beyer and Bowden (1997), Möbius et al. (2011), Niederle et al. (2013), Reuben et al. (2012). It is, however, difficult to compare the size of the gender difference in self-assessment between studies and whether shame, or its absence, drive differences between studies since experimental conditions vary, in particular, as to how self-assessment is elicited.

[8] In both treatments of the *Noise* experiment, the potential negative externality of agents' self-assessment on the principal's payoff is blurred.

[9] In an experimental study, Thoma (2013) provides evidence that people prefer underconfident over overconfident subjects.

[10] Evidence from the psychological literature suggests that society evaluates the same behavior differently for men and women. Bowles et al. (2007) find that women are penalized when trying to negotiate a higher wage, while men are not. Eagly (1987) and Rudman (1998) show that self-promoting women are evaluated worse than modest women, while there is no such difference for men.