



Gender differences in reactions to feedback and willingness to compete[☆]



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ABSTRACT

In Western societies, it is generally known that men have a greater taste for competition than women. However, the determinants of the decision to enter competitions are still not fully understood. The aim of this paper is twofold. We first evaluate how participants update their beliefs after receiving feedback informing them of whether their performance is below or above the median performance. Second, we are interested in how men and women react to this information in terms of competitive entry. Our first result is that participants, and women in particular, react more strongly to the feedback they receive than would a Bayesian agent. As far as entry into competition is concerned, below-median participants adjust their entry decision according to the competition they expect to face, while above-median participants do not. However, the behaviour behind these results is quite different for men and women: women mainly react to information on their own performance, while men seem to respond more to their beliefs over the competition they will face. Moreover, most of the effect of feedback and the information regarding the level of the competition on the decision to compete seems to operate via beliefs.

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1. Introduction

There are many possible explanations for the continuing gender differences in labour market outcomes. Differences in preferences are frequently cited to explain this phenomenon (Croson and Gneezy, 2009). A rapidly growing literature studies more specifically gender differences in competitiveness (starting with Gneezy et al., 2003; Niederle and Vesterlund, 2007). Understanding beliefs and the way information about relative performance is processed is crucial to explain the surprisingly robust gender gap in self-selection in competitions. Indeed, we base our decisions to enter competitive environment to a great extent on our beliefs about our relative performance and we update these beliefs as we get, mostly noisy, feedback about how we perform in comparison to others. Not only is the belief-updating process worthy of being carefully looked at, the consistency between beliefs and actions is also decisive.

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The goal of this experimental paper is twofold. First, we study how men and women update their beliefs following the reception of relative performance feedback. Second, we look at how men and women react in terms of tournament entry decisions to both this feedback and information about the level of competition.

In our set-up, subjects decide in two rounds whether to enter a tournament or to be paid according to a piece rate. We focus on a rather stereotypical-male task for which men are known to self-select into competition more often than women do. In the first decision round, the subject knows the opponent will be randomly-selected amongst all other participants and will therefore be of totally unknown ability. After the participants have made this first decision and performed the task, they receive a binary feedback telling them whether a past performance also based on a tournament was above or below the median in their session.¹ We have two treatments allowing us to manipulate the degree of competition our subjects face. In the *Ability Group* treatment, the second decision round requires subject to decide whether to enter a competition knowing that their opponent will be randomly selected among participants belonging to the same performance group as their own. In the *Repetition* treatment, the second round requires subjects to decide once again whether to enter a competition with an opponent of a totally unknown performance level. We elicit beliefs both before and after subjects receive their performance feedback. We can then study how beliefs are updated. We also look at how beliefs and the way they are updated affect the tournament entry decision. While the literature studied the effect of performance feedback on competitive entry (Cason et al., 2010; Wozniak et al., 2011), our paper is, to our knowledge, the first attempt to directly manipulate the level of competition participants are involved in. It allows us to study the combined effect of feedback and information on competition level while carefully monitoring beliefs about relative performance.

Our first result is that subjects update their beliefs following performance feedback more drastically than a Bayesian agent would. Both men and women are more pessimistic than a Bayesian agent following a below-median feedback; we find the opposite effect after an above-median feedback. Below-median women update even more pessimistically than their male counterparts when controlling for their actual performance level. We also show that below-median participants adapt their tournament entry decision to the ability level of the competition, while above-median participants do not.

However, men and women do not react to the feedback in terms of competitive entry in the same way. While women are especially sensitive to information on their own performance, men react stronger to the level of their competitors. Below-median men seem to take into account the possibility that their performance will improve over time, in the *Repetition* treatment, that is when they receive the feedback but there is no change in the level of competition. This is not the case for women. In other words, below-median women consider their performance level per se while below-median men think there is room for improvement.

Regarding the efficiency of choices in terms of expected payoffs maximization, men and women do not make the same kind of mistakes. Men enter the tournament too often when they should not while women do not enter enough when they should. Men and women make as many mistakes to start with. After a below-median feedback, men depart slightly more from the payoff-maximizing situation than women. When our participants both receive a below-median feedback and face an ability group tournament, men made much smaller mistakes than women. Men, furthermore, improve the quality of their decisions in this last situation.

This paper contributes to the literature studying the gender wage gap and the extreme overrepresentation of men in positions perceived as 'prestigious'. Men have often been found to have a greater taste for competition than women (Gneezy et al., 2003; Niederle and Vesterlund, 2007, 2011; Datta Gupta et al., 2013), regardless of whether this taste is measured based on the decision to enter competitions or based on the performance in a competition imposed on all subjects.²

A number of papers tackle how subjects update their beliefs about their relative performance following the reception of performance feedback. Wozniak et al. (2011) provide experiment participants with precise ratings on how other participants performed in the piece rate. While there is a significant gender gap in tournament entry without feedback, it disappears when feedback is provided. Indeed, high-ability women choose more competitive compensation schemes and low-ability men choose less competitive compensation schemes with feedback than without it. Möbius et al. (2013) provide their subjects with noisy feedback via a simple binary signal for a performance in the top 50% and look at the belief updating. They find that subjects update their beliefs about their IQ being in the top 50% to a lesser degree than Bayesian agents would in response to both positive and negative signals, and women update less severely than men do. They also show that subjects react more to positive than to negative information (and there is no gender difference in this respect). Kuhnen et al. (2012) show that in competitive settings productivity and beliefs are influenced by privately observed information about relative rank. A number of papers (Möbius et al., 2013; Ertac, 2011; Grossman and Owens, 2011) find that individuals deviate from Bayesian beliefs more in self-relevant contexts (i.e., when they have to evaluate their own relative performance) than in self-irrelevant contexts (i.e., when they have to evaluate somebody else's relative performance or update their beliefs about a neutral event). In our case, we differ from these papers in that our feedback is not noisy (contrary to Möbius et al., 2013; Grossman and Owens, 2011) and is based on tournament performance, and subjects are asked to assess their beliefs on their

¹ Contrary to Wozniak et al. (2011), who provide an exact performance feedback based on piece rate, we provide a binary performance feedback based on the tournament.

² However, in matrilineal societies the gender gap in tournament selection is inverted (i.e., women select the tournament more often than do men Gneezy et al., 2008). It is also affected by whether the task is stereotypical-male or stereotypical-female, and the level of pressure under which it is performed (Shurchkov, 2012; Gunther et al., 2010).

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