Compensation packages based on performance pay, such as bonuses, commissions, and piece-rate payments, have risen in popularity relative to hourly/salaried pay, especially among workers in the highest tiers of occupations [@Hall1998; @Murphy1999; @Cunat2005; @Lemiuex2009]. There is evidence that the increasing use of performance pay lends itself to wage inequality. @Lemiuex2009 showed that an increased dependence on performance pay during the late 1970’s and early 1990’s accounted for 21% of the observed growth in variance of male wages. Bonuses and commissions, arguably the most competitive compensation schemes, may be especially important in driving the large disparity between the highest and lowest percentile earners within organizations [@Bell2010; @Bell2014; @Benabou2016]. Importantly, performance pay may contribute to the gender wage gap too. Using data from the National Longitudinal Surveys of Youth, @McGee2015 show that women are less likely to be employed in occupations that receive bonuses, and simultaneously are more likely to receive piece-rate pay – the least competitive of all forms of performance pay, where workers are paid based on their absolute output.

Since competition is relevant to labor market outcomes, researchers began to focus on how a person’s gender affects their response to competition, both in terms of willingness to compete and performance (see Chapter 1 introduction for an overview of the literature on gender differences in willingness to compete). While competitions are generally motivating and designed to improve performance through increased effort [@Connelly2014a; @Murayama2012; @Miller2019a], some research suggests that men perform better under competitive payment schemes relative to non-competitive payment schemes, while women’s performance does not respond to competitions [@Gneezy2003; @Gneezy2004; @Gunther2010; @Samak2013]. @Gneezy2003 show that there is no gender difference in performance when participants are solving mazes following a piece-rate payment scheme, but a significant gender difference in performance arises under a tournament payment scheme, with males performing better. @Gunther2010 replicate the effect of competition on gender differences in performance for a male-typed task, but find no gender differences in performance during competition for female-typed or gender-neutral tasks. Relatedly, during repeated competition, women tend to perform worse in subsequent performance rounds after losing, even if the monetary prize they lost was relatively meager, while men only perform worse in subsequent rounds if they lost the chance to win a large monetary prize [@Gill2014]. Other research suggests women stop competing altogether after losing if given the choice. @Buser2019, who examine the effects of losing while competing in the Dutch Math Olympiad on the choice to compete in subsequent years, show that men are just as likely to compete even if they lost the previous year, while women are less likely to compete again if they lost before. This body of literature suggests that competitions may differentially impact women and men.

To date, most of the research on gender differences in competitions has focused on either i) explaining the sources of the gender difference [e.g., @Veldhuizen2017] or ii) designing interventions to encourage women to compete more [@Balafoutas2012; @Sutter2016; @Cassar2016; @Brandts2015; @Niederle2013; @Brandts2015; @Healy2011; @Alan2018]. Less consideration has been paid to how competitions differentially, and negatively, impact women. However, as the research on gender differences in performance during competition suggests [@Gneezy2003; @Gneezy2004; @Gunther2010; @Gill2014; @Buser2019; @Samak2013; @Miller2019a], it is also important to consider potential downstream consequences of women’s entry into competitions.

Chapter 2 of this dissertation builds on prior research by examining how competitions affect gender differences in the amount of time spent preparing for competitions. We hypothesize that women will spend more time preparing than men, especially before competitions, in part because they are, on average, less risk-seeking [@Croson2009; @Dohmen2011b; @Eckel2008; @Bertrand2010a] and confident [@Bertrand2010; @Lundeberg1994; @Mobius2011; @Barber2001; @Croson2009] than men. Indeed, both confidence and risk attitude have been implicated in driving the gender gap in willingness to compete [@Niederle2011; @Veldhuizen2017] (see Chapter 1 introduction for a more detailed review of the previous literature on gender differences in risk and confidence).

Since competitions, by definition, compare the performance among two or more individuals, they naturally lead to self-evaluation and comparative judgments of self with others - processes that are intimately linked to confidence. To the extent that confidence influences how much individuals think they need to prepare in order to win, we may expect to see women preparing more than men, particularly in competitive contexts, which naturally invoke self-other assessments. Thus, less confident individuals may prepare more. Moreover, they may prepare more in order to reduce the negative feelings caused by low confidence independent of any ambitions to win, since mastery is an important driver of confidence [@Gist1992; @Usher2008]. There is no theoretical or empirical reason to suspect that women would be less concerned with mastery than men. In fact, research suggests that women are just as likely as men to compete when competing against their own past performance, suggesting, at minimum, an equal desire for self-improvement [@Apicella2017a].

The current Chapter examines gender differences in preparation in competitive contexts. Because women tend to be more risk-averse [@Croson2009; @Dohmen2011b; @Eckel2008; @Bertrand2010a], less confident [@Bertrand2010; @Lundeberg1994; @Mobius2011; @Barber2001; @Croson2009] and prefer to opt out of competitions [@Niederle2011], they may engage in more coping strategies, such as preparation, before entering competitions. In fact, in Chapter 1 of this dissertation, we find evidence of a sizable gender difference in effort, where women were more likely than men to choose to prepare before completing a multiplication task. To be clear, there was no interaction between gender and choice to compete on the choice to prepare in any of the previous studies. That is, women prepared more than men regardless of which payment scheme they had chosen. However, it is not possible to draw conclusions from this because i) we did not manipulate the payment scheme, so there could have been selection effects on one’s choice to prepare across payment schemes, such that those who were more likely to choose to compete may have been less likely to prepare, and ii) there was little power to detect any possible interaction effects. For instance, in the first study, only 11% [DOUBLE CHECK] of women chose to compete, and in the second, INSERT% of women made this decision. Through the proposed experiments, we intend to address these limitations by directly manipulating participants’ payment scheme and recruiting a large sample to provide power to detect small effects.

In the study included in this chapter, we tested whether competition exacerbates previously established gender differences in preparation by manipulating participants’ assigned payment scheme (i.e., competitive or non-competitive). We also explored whether gender predicts participants’ perceptions of their relative amount of preparation, given our hypothesis based on Study 3 of Chapter 1 that women may be especially susceptible to feelings of underpreparation relative to others when they have unlimited time to prepare. The research design, hypotheses, measures and analyses for this chapter were pre-registered on [OSF](INSERT%20LINK) and all analyses were conducted in R statistical software (version 4.0.4).