

## 6.2 GENDER DIFFERENCES IN PREFERENCES IN THE LITERATURE

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The innate and learned characteristics of women and men may profoundly determine their educational and labour market choices. This chapter focuses on gender differences in a group of non-cognitive skills:<sup>1</sup> risk preferences, competitive preferences, and social preferences.<sup>2</sup> These preferences may have an impact on labour market performance. For example, risk-averse individuals are more likely to choose professions with secure pay, while more competitive individuals tend to perform better in professions where they are under daily pressure. The chapter strongly relies on relevant summary papers of *Bertrand* (2011), *Croson–Gneezy* (2009), and *Niederle* (2015).

### Risk preferences

Risk aversion is measured by experiments involving various tasks in economics. One of the most famous lab experiments was conducted by *Holt–Laury* (2002). In this experiment, participants had to choose between two options (*A* and *B*). In option *A*, participants had a chance to win 2 dollars with probability  $p$ , and 1.6 dollars with probability  $1 - p$ . In option *B*, the probabilities were the same but the amounts were 3.85 dollars and 0.1 dollars. Participants made ten consecutive choices between *A* and *B*, across which the probability ( $p$ ) changed from 0.1 to 1, in 0.1 increments. Obviously, when  $p = 1$ , option *B* is more attractive, as one will surely get 3.85 dollars instead of 2 dollars. However, when  $p = 0.1$ , the expected value of *A* is 1.17 dollars higher than that of *B*, therefore participants will be more likely to choose *A*. The question is, when does a person switch between *A* and *B*. The switching point is regarded as the measure of risk-taking. Risk-lovers tend to prefer higher rewards (3.58 dollars) already at low values of  $p$ , while risk-averse people switch only when there is a fairly high probability of winning the larger reward. There are other types of tasks, as well. For example, *Eckel–Grossman* (2002) alter rewards instead of probabilities in the consecutive choices, while several other studies rely on the investment game introduced by *Gneezy–Potters* (1997), or the bomb risk elicitation task invented by *Crosetto–Filippin* (2013).

Most papers either find that women are more risk-averse or do not find gender differences in risk preferences. *Holt–Laury* (2002) report that women are slightly more risk-averse over small stakes (with no significant difference with larger stakes), while *Eckel–Grossman* (2002) find that women are considerably more risk-averse. *Charness–Gneezy* (2012) review studies using the investment game of *Gneezy–Potters* (1997) and report that in most studies (14 out of 15)

1 The stability of non-cognitive skills over time is discussed in Subchapter 6.1 and Box K6.1.

2 One of the most researched preferences is time preference; however, gender differences in this preference do not receive much attention in the literature, therefore we did not include it in this paper (for example *Dittrich–Leipold* [2014] found men less patient but *Wang et al.* [2016] did not find gender differences).

women are more risk-averse than men. However, *Crosetto–Filippin* (2016) do not find gender differences when using the bomb risk elicitation task.

The results obviously raise the question whether it is possible to assess attitudes to risk in a simple experiment or risk preferences are more complex. This is the idea behind domain-specific risk-taking. *Weber et al.* (2002) evaluate risk-taking in five domains (ethics, finances, health/ safety, social relations, recreation) by voluntarily completed questionnaires. The findings indicate that the magnitude of risk-taking does depend on the domain. The findings are consistent with *Dohmen et al.* (2011), who find that women are more risk-averse than men in all domains.

Overall, the majority of surveys and studies suggest that women are more risk-averse. However, we agree with *Niederle's* (2015) warning that the size of gender differences (if one finds any) in risk preferences depends on the way of measuring them, and that these differences are mostly small, even if statistically significant. The results of the experiments and surveys show that risk taking is a complex matter and is impossible to evaluate it with a single indicator, therefore we must give due consideration to whether the indicator used in a given study is generalizable.

As for the labour market consequences, *Bonin et al.* (2007), using German data, find that more risk-averse individuals tend to choose a profession with a more stable pay. Additionally, *Dohmen–Falk* (2011) reveal that more risk-tolerant people are more likely to choose a job with a performance-based pay, and women are less willing to work for a flexible pay. The results of *Le et al.* (2011), relying on Australian data, are also consistent with the above: women are more risk-averse than men. The authors also report that higher risk tolerance is associated with higher pay and therefore the gender difference in risk preferences contribute to the gender pay gap. This effect is not significant, and it explains a maximum of 3 per cent of the pay gap.

### Competitiveness

Psychology literature generally accepts the observation that boys spend more time playing games involving competition, while girls tend to prefer games without winners and losers. They also find that boys are more likely to consider themselves competitive than girls (*Campbell*, 2013). As several important and highly paid professions have a competitive environment, it is not surprising that women are underrepresented in them. Experimental economics has provided numerous useful insights over the past 15 years into what is behind gender differences in attitudes towards competition.

The first experiment about competition was conducted by *Gneezy et al.* (2003). At one of the most prestigious technical universities of Israel (where there is strong competition for admission), students faced a computer-based task: they had to solve as many mazes as possible in fifteen minutes. When in

the first round students got a reward for each solved maze (piece-rate pay), there was no significant difference between the performance of boys and girls. In the next round there was a competition-based pay scheme. There were three boys and three girls in a group. Only the best-performing group member was rewarded, but the reward was six times as much as the piece-rate in the first round.<sup>3</sup> This time the performance of boys significantly improved compared to the round with piece-rate pay, while the performance of girls did not change. Thus boys performed considerably better than girls in a competitive environment.

However, there are two important differences between piece-rate pay and competitive pay. On the one hand, when competing, reward is partly dependent on the performance of others, on the other hand, reward is less secure compared to piece-rate pay – and, as mentioned before, women may be more risk averse. In the third round (random pay), based on the number of solved mazes, a randomly selected participant received a reward of similar size as in the competitive round, in order to eliminate the effect of risk aversion. In this way the insecurity of payment remained but there was no competition. Now, boys and girls performed similarly as in the piece-rate round. Therefore, the gender difference in average performance is probably due to attitudes towards competition.

The authors also explored whether gender composition of the groups has an impact on performance. They repeated the competitive round with same-gender groups. Boys performed equally well as in the earlier competition with mixed-gender groups. By contrast, the performance of girls significantly improved when they had to compete against girls. Several other studies reported similar findings (*Günther et al.* 2010, *Shurchkov*, 2012).

It should be noted though that boys usually only performed better in ‘boyish’ tasks when competing but in more ‘girlish’ tasks (such as reading comprehension) the studies did not find such differences. Moreover, *Cárdenas et al.* (2012) found that when the task was rope jumping, girls performed better when they had to compete. In conclusion, the performance of girls either does not improve or improves less than that of boys in a competitive situation.

*Niederle–Vesterlund* (2007) and later research revealed that women are more likely to avoid competition than men. For example, even though there is no difference between genders in the likelihood of successfully completing a task, girls tend to choose piece-rate pay instead of a potentially higher but competition-based pay.<sup>4</sup> This results in relative losses for girls, as they do not participate in competition, which could allow them to make greater profit.

Gender differences in preferences for competition already emerge in kindergarten (*Sutter, Glätzle–Rützler*, 2014). They persist throughout the entire career (*Mayr et al.* 2012), although they change with age and follow a reverse U-shaped curve. Social background also influences preferences for competition: the higher his or her socio-economic background, the more competitive one is. Nevertheless, while there is no difference in competitiveness between

<sup>3</sup> Different students participated in the different rounds, thus it is not the impact of competitive or non-competitive settings on an individual that results reveal, but how the performance of boys and girls changes in such cases on average.

<sup>4</sup> This statement remains true when risk preferences are also taken into account.

boys and girls of low socio-economic background, with high socioeconomic background, boys are more willing to compete than girls (*Bartling et al.* 2012).

In addition to identifying individual characteristics influencing competitiveness, it is also important to identify institutional changes that could reduce the gender gap in competitiveness. Large gender gap in competitiveness may result in a significant loss in social welfare if good-performing women do not dare to enter competition and therefore do not enrol in schools or enter occupations where their performance could realise. Since we saw that women are more willing to compete against women but less willing to compete against men, competition could be distorted in a way to promote women's interest in it. For example, if not only the best performance but also the best female performance was rewarded, women might be more inclined to compete. *Bala-foutas–Sutter* (2012) and *Niederle et al.* (2012) reported that these ideas actually work in experiments and more good-performer women are willing to engage in competition. Obviously, more research is needed into the topic.

Preferences for competition may significantly affect how one performs in education and at work. For example, they may have an impact on school admission results (*Ors et al.* 2013), on achievement in vocational competitions (*Iriberry–Rey–Biel*, 2018), or on study choices (*Buser et al.* 2014). Attitudes to competition also play a role in choosing a workplace. Relying on British and American data, *Manning–Saidi* (2010) and *Flory et al.* (2015) report that women are less likely to choose a competitive job. Also, according to *Reuben et al.* (2017), gender differences in competitiveness and self-confidence explain nearly four-fifth of gender differences in wage expectations.

In summary, the gender difference in preferences for competition is one of the most robust observations of experimental economics, and this difference partly explains later gender gaps in education and at work.

### **Social preferences**

The simplest definition of social preferences is that the utility of an individual does not only depend on her own payoff but also on the payoff of others. Thus, altruism, envy, attitudes towards inequality, and reciprocity may all be manifestations of social preferences. Women are usually considered to be more social (less selfish, more cooperative etc.), because there are significantly more women in occupations requiring cooperation with others (e.g. nursing and teaching). But is this really the case?

Researchers usually study social preferences with incentivized tasks. Redistributive preferences can be analysed most easily with dictator games. Here, one of the parties divides a sum of money between herself and the other party. Since the experiment is usually anonymous and participants do not know each other, absent social preferences (such as generosity) we expect the 'dictator' not to give anything to the other party. We can interpret the amount

allocated to the other party as the manifestation of altruism.<sup>5</sup> When only considering the amount of money given to the other party, there are no conclusive results on whether women are more generous (*Croson–Gneezy*, 2009, *Engel*, 2011, *Niederle*, 2015).

There is another classic game, called the ultimatum game, which is different from the dictator game in that here the other party is not passive. If the other party accepts the amount offered, the proposed allocation is realized, if she rejects, both parties leave empty-handed. The interpretation of the ultimatum game is not as straightforward as that of the dictator game. In the ultimatum game, the decision of the proposer is also defined by risk aversion in addition to altruism, since she wishes to avoid the other party rejecting her offer. Accordingly, there are mixed results concerning gender differences: sometimes women, sometimes men offer higher amounts.

Results vary similarly concerning the trust game, the third classic game, where the first party can send any fraction of a given amount to the second party. The sent amount increases (most often triples), and then the second party decides how much of this increased amount she sends back to the first party. *Croson–Gneezy* (2009) reported that women's decisions varied more in these experiments: apparently, they are more responsive to the details of the experiment than men.

Social preferences also include cooperation skills, which are typically assessed by the prisoners' dilemma game, or its generalisation, the public goods game, as well as by other social dilemma games. One of the most important characteristics of these games is that from the individual point of view, the dominant strategy is to be selfish, however, total payoff is maximised by unselfish behaviour. Studies usually conclude that there is no profound difference between genders in the amounts offered if the gender of the other party is unknown. In mixed pairs, women are more cooperative than men but when comparing single-sex male or female pairs, men cooperate more (*Balliet et al.* 2011).

Gender differences in bargaining and negotiation are also related to social preferences. Women tend to be less competitive during bargaining: they ask for less money and are less likely to engage in bargaining at all (*Säve–Söderbergh*, 2007, *Small et al.* 2007). *Bowles et al.* (2005) observe that women are better at bargaining when they do it for others than when they do it for themselves, while as for men there is no such difference. It may be because women are more caring with others than with themselves, or because they are afraid of the negative reactions they get if they stand up too strongly for themselves. *Bowles et al.* (2007) claim the latter is a real fear: the participants of the experiment tended to be more critical towards women fighting for higher wages.

In summary, although there are no significant gender differences in social preferences in lab experiments, there may be substantial differences in characteristics such as bargaining skills.

<sup>5</sup> *List* (2007) and *Bardsley* (2008) showed that minor changes to the experiment easily make participants less altruistic, therefore the generosity seen in the dictator game may be also due to the design of the experiment in addition to altruism.

## Conclusion

How important are gender differences in preferences? *Niederle* (2015) notes that she sees two camps of researchers studying gender differences. One of these camps emphasise the differences between the genders, while the other the similarities. Based on the findings we reported, the situation concerning preferences is not so simple: the given context defines whether one finds differences or similarities between the genders. Considering competition, studies largely agree that men are more competitive. As for risk preferences and social preferences, the situation is not that clear-cut. Women may be more risk-averse than men but it also depends on the domain, the situation, and the assessment method, while in the case of social preferences the picture is even less clear. It is important to note that although the advantage of lab experiments is that effects may be better separated, and in this way the presence of gender differences may be confirmed with more certainty, the statistically significant differences found in lab experiments are not necessarily significant in real life – their impact in everyday life may be negligible. Furthermore, it is well-researched that non-cognitive factors have a great impact in school, in the labour market and in other segments of life (for example *Borghans et al.* 2008, *Manning–Swaffield*, 2008); however, we have less information on how important are gender differences in preferences in differences in real-life outcomes.

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