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Gender differences in lying: The role of stakes

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Abstract
Using an amended Gneezy's cheap-talk game with multiple decisions, we test whether gender differences in lying depend on the magnitude of gains, as hypothesized in the literature. We find that women may have a greater aversion to lying for small monetary gains; this effect disappears with increased gains.

Highlights
- In an amended cheap-talk game, we find that women's aversion to lying is context dependent.
- Women have a greater aversion to lying for small monetary gains.
- The personality trait Honesty-Humility is negatively associated with lying.

1. Introduction

Deviations from the theoretical assumption that people are entirely self-interested are ample (e.g. Fehr & Gachter, 2000; Fehr et al, 2002). For example, a substantial proportion of people prefer not to lie, even when lying might lead to higher payoffs and there are no consequences or retaliation (Gneezy, 2005). Nevertheless, some people do lie. The determinants of lying are, however, still not fully understood.

In studying when and why people lie, some researchers have focused on the effects of social preferences (e.g. Biziou-van-Pol et al, 2015) or the role of incentives (e.g. Gneezy, 2005). Others have searched for patterns in lying, for example across genders (e.g. Capraro, 2018). Gender differences have been observed in many behaviors (see Niederle (2016) for an overview). For example, women have been found to offer more than men in dictator games and public-good games (Eckel & Grossman, 1998). Perhaps more relevant for this study, women have generally been found to be more trustworthy than men (e.g. Abeler et al., 2019; Buchan et al., 2008; Dreber & Johannesson, 2008; Grosch & Rau, 2017; Kleinknecht, 2019). However, this observation is not without exceptions (e.g. Charness et al., 2019; Childs, 2012; Ezquerra et al., 2018; Gylfason et al., 2013; Vranceanu & Dubart, 2019).

Given these mixed findings, Kleinknecht (2019) suggests that gender differences in lying might be contextual and Erat and Gneezy (2012) conclude that "women are less likely to lie when it is costly to the other side." (p. 723). If women are less likely than men to lie when it is costly to their opponents, the same might hold true for increased payoff to themselves and decreased payoff to their opponents (see Gneezy (2005) for e.g. relevance for contract theory). Additionally, Childs (2012) hypothesized that women have a greater aversion to lying for small monetary gains that disappears with increased gain.

We investigate the relationship between women's inclination to lie and stakes, using an amended version of Gneezy's (2005) cheap-talk game. Specifically, we use a within-subject design that includes multiple decisions per participant, with varying stakes. We find women to have a greater aversion to lying for small monetary gains that disappears when the stakes are raised.

2. Experimental design

The standard Gneezy's (2005) cheap-talk game has two anonymously paired players, a sender and a receiver. The receiver chooses between two options, A and B, that determine payoffs for both players. Only the sender knows the payoffs related to A and B. Before the receiver decides the sender is asked to send the receiver either of two messages: "Option A will earn you more money than option B" or "Option B will earn you more money than option A."

In our implementation senders were undergraduate students and informed that they would be paired anonymously with a receiver recruited in one of Reykjavik's shopping centers; neither would know the identity of the other. We chose to have the receivers from a different subject pool, as complete strangers, to increase the likelihood of senders lying (DePaulo & Kashy, 1998). In the amended version of the game senders were shown a decision sheet which contained a menu of 10 decisions, numbered from 1 to 10 (see Appendix A). Each decision had two options A and B; the sender's own earnings from A were 500 ISK in all decisions, while her earnings from B varied from 600 to 5000 ISK (ISK 500 ≈ USD 4.40). For the receiver, the earnings were mirrored, that is, her earnings from A varied from 600 to 5000 ISK while her earnings from B are always 500. We measured the 'stakes' of a decision as the earnings difference between the sender and receiver. This varied from 100 ISK in the first

decision to 4500 ISK in the tenth (if the receiver's favor for option A and the sender's favor for option B).

For each decision, senders choose one of the two messages described above to send to the receiver. Senders were informed that at the end of the experiment we would randomly draw a number between 1 and 10 and send the message chosen for that decision to an actual receiver, after which the receiver's choice would determine the payoff for both players.

We stressed to senders that only one of the ten decisions would count, but that they would not know which one. Therefore, they should treat each decision as if it were the only one that was going to count in the end. Following the receivers' decision, the senders were paid. To secure full anonymity for senders and still have full knowledge of every sender's behavior, senders used a private identification number made only available to them. One week later, after we had collected receivers' decisions, senders could use these id numbers to collect their earnings.

At the end of each session, senders provided demographic information and completed the Icelandic version of the 60-item HEXACO Personality Inventory-Revised (Ashton & Lee, 2009), where the answers ranged from 1 (totally disagree) to 5 (totally agree) and were averaged to create a summary measure, with satisfactory internal consistency (Cronbach's alfa = .69). This allows us to analyze whether senders' behavior can be attributed to individual personality attributes (Ellingsen & Johannesson, 2004). Specifically, we are interested whether the attribute Honesty-Humility predicts dishonest behavior (Ashton & Lee, 2005; for more about personality attributes and unethical behavior, see Lee et al., 2005) because in Gneezy's (2005) cheap-talk game, the behavior of senders has been interpreted as dishonest without empirical evidence (e.g., Capraro, 2018; Fischbacher & Föllmi-Heusi, 2013; Mazar & Ariely, 2006).

3. Results

51 male and 71 female senders participated in the study, and one who did not report their gender. As can be seen in Fig. 1, 53% of the male senders lied in an attempt to secure the preferred option when the stakes were lowest; the same holds for 37% of female senders.[1] We ran a repeated measures analysis of variance (ANOVA) and examined the interaction between the within-subjects factor stakes, with gender as the independent factor. A main effect for stakes was found, $F(7.15, 858.25) = 6.44$, $p < .001$, indicating that senders were more likely to lie for larger stakes than smaller. Additionally, we found a significant stakes × gender interaction, $F(7.15, 858.25) = 2.29$, $p = .025$, with women appearing less likely than men to lie for smaller stakes, while the gender difference is nor observed for higher stakes, supporting Childs' (2012) hypothesis[2]. It seems that the first decision is driving the gender difference, $t(119) = 1.91$, $p = .058$, although we note that we are underpowered to detect small to modest differences.[3]

Gender did not correlate with 'number of lies', a summary measure of how often for the ten decisions senders sent a deceptive message, $r_p = .005$, $p = .96$. The Honesty-Humility measure correlates with 'number of lies', $r_p = -.336$, $p < .001$.

Majority of receivers were trusting, with 58% of the receivers following their sender's suggestion. This is lower than in previous studies, with 73%-78% of receivers following their

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[1] Sutter (2009) raises the point that telling the truth should count as an act of "sophisticated" deception when the sender anticipates that the receiver will not follow his message. This suggests that we might be underestimating the amount of deception in our sample.

[2] In Appendix B we report results of a probit regression of lying as a function of gender, stakes and its interaction. The coefficient of the interaction between stakes and gender is negative, supporting Childs' (2012) hypothesis, implying that women appear less likely than men to lie for smaller stakes.

[3] We have sufficient power to test for our main effects and interaction effects. A post hoc power analysis using GPower (Faul, Erdfelder, Buchner, & Lang, 2009) with effect size at f = .14, α = .05, and total sample size as 122, gives us a power (1-β) of .99. However, we are not sufficiently powered to test for gender differences for all ten decisions. To test for differences for all ten decision (power (1-β) = .80, α = .005 (two-tailed), and d = .30) the sample size would have to increase to 596 participants.

sender's suggestion (e.g. Childs, 2012; Dreber & Johannesson, 2008; Gneezy, 2005; Gylfason & Olafsdottir, 2017), probably due to different settings (shoppers versus students).
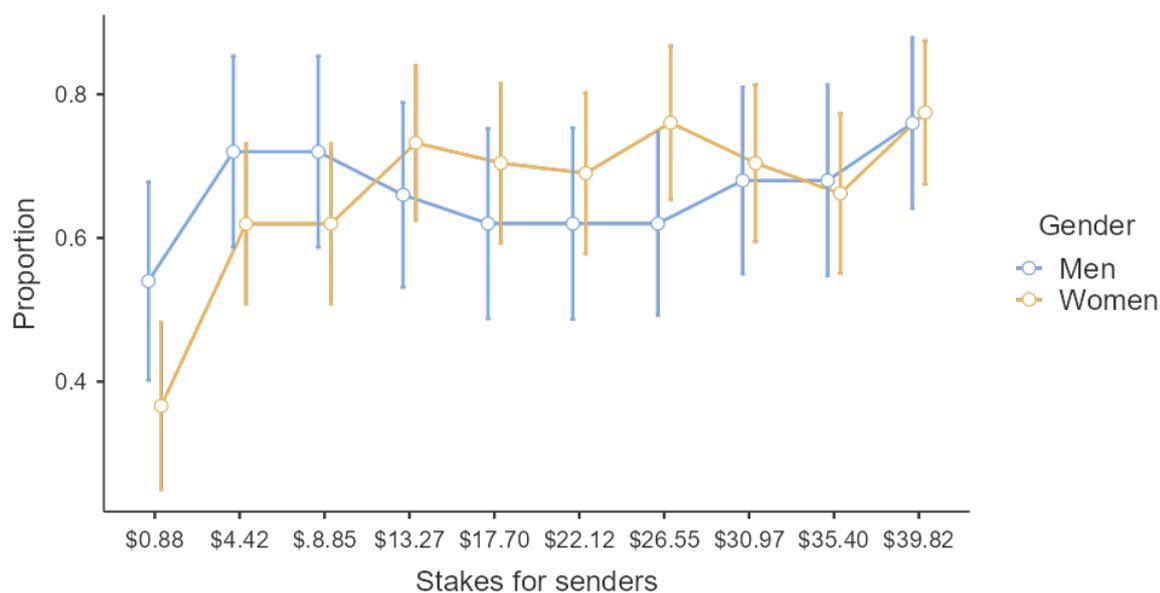

Fig. 1. Proportion of all senders lying with increased stakes. Error bars represent the 95% confidence interval.

4. Conclusion

Similar to previous studies on deception our results indicate that senders are more likely to lie for larger stakes than smaller (e.g., Dreber & Johannesson, 2008; Erat & Gneezy, 2012; Gneezy, 2005; Sutter, 2009; Leibbrandt et al., 2018). Kajackaite and Gneezy (2017) summarize that for deception games "senders are more likely to lie when the incentives to do so are increased" (p. 434). Our results with respect to gender differences are in accordance with Childs' (2012) suggestion that women may have a greater aversion to lying than men do for small stakes, but that this difference disappears with increasing stakes. We consider this result a first step towards a better understanding of gender differences in lying (as propagated by Kajackaite & Gneezy, 2017). It has been observed, for example, that women are more

honest than men where dishonesty benefits the liar at someone else's cost (e.g., Abeler et al., 2019; Capraro, 2018; Grosch & Rau, 2017), but this observation is not without exceptions (e.g., Childs, 2012; Gylfason et al., 2013; Vranceanu & Dubart, 2019). We believe that our results provide new insights in this discussion, but further studies on the relationship between stakes and gender would certainly be beneficial.

Although sensitivity to stakes seemed to drive decisions to some extent, about 11% of senders never lied. Such lack of willingness to lie could be associated with guilt (Erat & Gneezy, 2012), which resonates well with our results seeing as guilt is associated with Honesty-Humility (Fang et al., 2019) and Honesty-Humility is associated with lying in our study. Erat and Gneezy (2012) argue that people might experience guilt when lying because they would be violating a social norm. More specifically, that the amount of guilt people experience could be contingent on a descriptive norm – "their beliefs about adherence to the norm in their peer group." (p. 730). Future research should address descriptive norms by e.g., assessing the relationship between conformity and deceptive behavior.

Acknowledgements

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