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The promise (and peril) in approaching gender parity: Preregistered survey experiments addressing gender inequality in negotiations☆

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ABSTRACT

Despite repeated calls to reduce gender inequalities arising in negotiations, few solutions have emerged that effectively address the fact that women often ask—and even intend to ask—for less than men in negotiations. In this paper, we focus on intentions prior to a negotiation. We explore how a simple reminder of women's inferior position in salary negotiations—showing either a stable or closing gender gap in salary requests—can help combat gender inequality by tapping into psychological motivations inherent to status competition. In two preregistered survey experiments of business school students and gig workers (n=4337), we show that any reminder of the gender gap in requested salaries leads women to intend to request more compared to the control groups in both samples. Showing a stable gap without female progress caused men in a business school, but not gig workers, to request less than men in a control condition. Yet, men in the same context request relatively more when shown a closing gap compared to the stable gap condition. Our work thus points both to the promise of simple interventions designed to reduce gender gaps in intended salary requests, as well as the perils arising from competitive dynamics as women actually approach parity.

1. Introduction

Consistent across a large body of work on negotiations is the finding that men and women differ in their behavioural outcomes. Specifically, women often ask for less than men do in salary negotiations (see e.g., Dittrich et al., 2014; Dreber et al., 2022; Hernandez-Arenaz and Iriberri, 2018; Roussille, 2022; Säve-Söderbergh, 2019). This gender gap in negotiation behaviour has been shown to arise as early as childhood (Arnold and McAuliffe, 2021) and has a pernicious effect as it compounds over the course of women's careers (Babcock and Laschevar, 2003). Because asking for less is likely to result in less—when outcomes are conditional on requests—this gender gap in negotiation behaviour is one potential mechanism behind the persistent gender gap in labour market outcomes (Bertrand and Duflo, 2017). Moreover, related research finds that women have lower earnings expectations than men, even before embarking on their careers (e.g., Filippin and Ichino, 2005; Kiessling et al., 2019; Wiswall and Zafar, 2018). One implication of this may be that women enter negotiations with the expectation to earn less, and these expectations lead women to request less, ultimately affecting the negotiation outcome. Recent research also highlights this link between expectations, beliefs and women requesting less in negotiations than men (Dreber et al., 2022; Kiessling et al., 2019; Roussille, 2022).

In light of these findings, we explore if a simple intervention prior to a negotiation can reduce this gap, focusing on the salary requests that women—and men—intend to make. We test potential interventions using a pre and post design in a survey experiment with a simple reminder of the relatively disadvantaged position of women in negotiation outcomes compared to men over the prior five year period.

In designing our intervention, we turn to work examining differences in women's and men's attention to pay levels. Compared to men, women have been found to have a higher number of life goals (Gino et al., 2015),

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often sacrificing opportunities to earn a higher salary to support other goals, such as being closer to their family (Le Barbanchon et al., 2020). This research characterises gender inequality in salaries as a function of this division in attention, where women spend relatively less time and attention on their careers than men do (Diekman et al., 2010; Gino et al., 2015). Because all humans face limits in terms of the amount of information that they can process at any one time (Simon, 1955), the broader set of women's life goals when compared to men suggest that small but repeated attentional gaps lead women to miss relevant information, such as their relative progress towards equality (Lee and Kray, 2021). Thus, our research tests whether a simple intervention may help overcome this attentional deficit brought about by holding a broader set of life goals.

Our research also leverages the growing literature examining the effects of status competition (Edelman and Larkin, 2015; Garcia et al., 2006), where individuals compete regarding their relative social position. We do so because salary remains a widely acknowledged signal of one's relative status, suggesting that highlighting one's relative position may tap into the common psychological motivation to seek status (Anderson et al., 2015). According to the status competition hypothesis, individuals place significant value not just on occupying higher positions, but their upward drive is motivated when in proximity to meaningful standards of rank (Garcia et al., 2006; 2013).

We argue that status competition is important for two reasons. First, it explains motivation within hierarchies, such as specifically avoiding being ranked at the bottom of social hierarchies (last place aversion: Buell, 2021; Kuziemko et al., 2014). Although women may be aware that they are not compensated at the same level as men in certain contexts or situations, we posit that presenting them information prior to a negotiation—reminding them that they rank at the bottom of the gender hierarchy—would motivate them to intend to request higher salaries.[1]

Second, we suggest that status momentum is an additional driver of the motivation to improve one's relative status. Status momentum describes a phenomenon whereby individuals are motivated by historical changes in status position, beyond their current position (Pettit and Marr, 2020; Pettit et al., 2013). Though some studies have been successful in helping women perform better relative to men (see Kray et al., 2002), historical perceptions of women's stereotypical role continue to negatively impact women's performance (Bordalo et al., 2019) particularly in negotiation contexts (Amanatullah and Morris, 2010; Bowles et al., 2007; Kray et al., 2014). In other words, while women may find themselves in an inferior position in terms of negotiated salaries, any progress towards reducing this gap may be motivating as women begin to extrapolate about unrealised, but implied, futures.

Though woman may be motivated by changes in actual or potential position, so too may men. Thus, we take care to note that status momentum may have an adverse effect on achieving equity in certain contexts, especially those where women's status momentum may motivate men to adopt avoidance strategies to prevent status loss (Kakkar et al., 2019), highlighting the dynamics inherent to progress towards gender parity. We therefore use different experimental interventions which increase attention to information regarding a gender gap—making the meaningful standard of gender parity salient—suggesting that this will motivate women to request higher salaries.

We explore our intervention in two subsequent preregistered studies (osf.io/3jh54) that build on each other. In Study 1, we use a difference-in-differences (DID) experimental design on a sample of business school students (n=991) to explore two types of status-based interventions. Between subjects, we show information of (a) a stable gap (11%) or (b) a closing gap (11% to 4%) in historical intended salary requests from similar individuals (i.e., from the same business school) and compared these interventions to (c) a control condition. Displaying the gender gap in itself is aimed to tap into psychological motivations of last place aversion while the difference in the gap being stable or closing was designed to motivate additional sentiments regarding one's status momentum.[2] To further test what Study 1 found, we proceeded with Study 2 using the same, or deliberately altered, reminders as in Study 1—again in a DID design, but on a sample of gig workers (n=3346). This was motivated to provide complementary evidence and address alternative explanations to the effects found in Study 1, thus outlining the robustness of our effects in a different context.

Across all interventions and samples, our research shows that reminding women of their relatively disadvantageous position in salary negotiations leads to statistically significant and economically meaningfully increases in women's intended salary requests. For women, just being informed of a gender gap was enough to increase intended requests, lending support to the idea that women are influenced by status motivation, particularly that based on last place aversion. On the other hand, male business students lowered their intended requests when being reminded of women's disadvantageous position in salary negotiations. However, when the reminder showed that women were making progress in reducing the gap, male business students increased their intended salary requests compared to those reminded of a stable gap, suggesting that any help men might offer in reducing the gap wanes as women approach parity in outcomes. Thus, we find suggestive evidence that women's status momentum (Pettit et al., 2013)—the appearance that women may surpass men in future negotiations—could have an adverse effect on the salary gap as male business students respond by requesting higher salaries compared to if there is no status momentum. Neither of these effects were found among gig workers.

Our findings relate to a larger literature on gender gaps both in negotiation and in earnings expectations (e.g., Briel et al., 2021; Dittrich et al., 2014; Dreber et al., 2022; Fernandes et al., 2021; Filippin and Ichino, 2005; Hernandez-Arenaz and Iriberri, 2018; Kiessling et al., 2019; Manzi et al., 2021; Reuben et al., 2015; Roussille, 2022; Säve-Söderbergh, 2019). We contribute to this literature by showing a sensitivity among women to information on their status may ultimately contribute to reducing gender inequalities in negotiations. However, we note that it would be important to follow up on subsequent behaviour in any setting outside of our surveys to understand how this increase in intended requests map on to outcomes. Moreover, since our work is exploratory—aimed at testing if and how we could trigger women to change their intentions before entering a negotiation—we relied on various historical differences in salary outcomes. As only one scenario can be factually correct and this may vary over contexts, it is important to note that our experimental design is limited in this regard. We therefore debriefed all participants regarding the historical differences we sampled and that the information we provided was partially fictitious. Nevertheless, our intervention may show a fruitful avenue for future research.

The remainder of the paper is organised as follows. Section 1 describes the experimental design and data of Study 1 and Study 2. Section 2 outlines the results. Finally, Section 3 provides a discussion of our findings and concluding remarks.

2. Experimental design and data

Below we describe our method and data from our two studies separately. We provide additional details in the Supplemental materials. Both studies were preregistered (osf.io/3jh54) and we follow these protocols unless explicitly mentioned.

[1] While both scholarly and practitioner work refers to the existence of a gender hierarchy, we note that much of this work refers to relative status effects or specific rank order effects. We readily acknowledge that a two-position hierarchy is a unique case when considering that other types of social hierarchies have (or are organised by) a multitude of positional ranks, yet believe it nonetheless motivates and explains our effects.

[2] A key aspect of our intervention design was that we highlighted relative intended salary requests, thus we never anchored in any actual salary levels, only the relative standing.

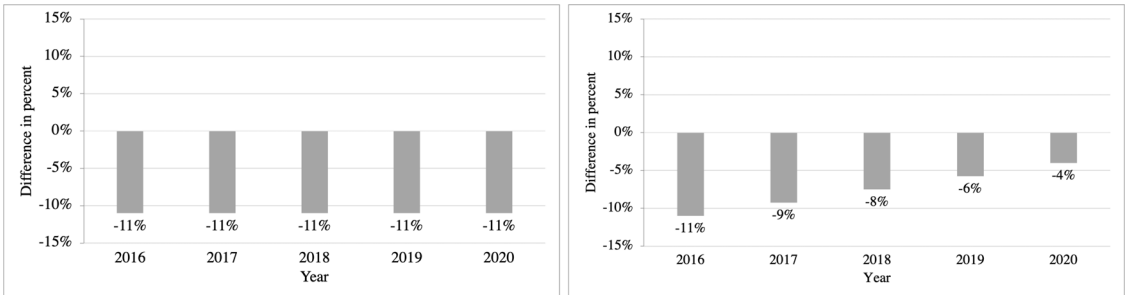

Fig. 1. Stimuli used in the treatment conditions: *stable* (Left) and *closing* (Right) gaps, Study 1.

2.1. Study 1

2.1.1. Experimental intervention

To test our interventions, we exploited an annual student survey that has been conducted at a European business school that already included questions on students' beliefs about future employers, pay, and preferences. Using this survey, we first asked all participants to report their intended salary request before our intervention (*Pre*). Namely, we asked: "When interviewed for your first job after having completed your [Degree] and then asked what full-time salary before taxes you request, what will your answer be (i.e., what full-time salary will you ask for, in today's monetary value)?". This is the same question that has been asked in the same survey for many years previously.

We randomly assigned participants to one of three conditions that manipulated women's relative position and progress on status hierarchies (note, the exact wording can be found in the Supplemental materials):

- **Stable**—Participants were shown that the gap in intended requested salaries between men and women, from the same business school as the participants, had been stable at 11% over the last 5 years (see Fig. 1, left).
- **Closing**—Participants were shown that the historical gap in intended requested salaries between men and women from the same business school was closing from 11% to 4% over the last 5 years (see Fig. 1, right).
- **Control**—Participants were not given any information.

In designing these experiments, we hypothesised that being shown any information—either a stable or a closing gap—would tap into a psychological motivation of last place aversion among women. However, being shown a closing gap relative to a stable gap, would tap into additional psychological motivations regarding status momentum, as well as test for effects of highlighting the actual progress women are making in many domains (Lee and Kray, 2021).

Though we used fictitious stimuli, we relied on historical information from students attending the same business school to increase the likelihood of personal relevance to participants. We note that the gap values (11%, 4%) were taken from historical intended requests from students and actual reported salary data from graduates at the business school, which differed based on industry.

Following the experimental intervention, we again asked participants to report their intended salary request (*Post*), to measure the effectiveness of our intervention on this intention.

2.1.2. Participants

In total, all 2007 students enrolled in the BSc and MSc programs were invited, of which 1015 responded to the survey (50.6% response rate). We removed extreme values (1^{st} and 99^{th} percentiles) outlined in our preregistration, leaving 991 (393 female and 598 male) participants.

2.2. Study 2

2.2.1. Experimental intervention

As we limited Study 1 to three conditions based on concerns about participation and the power to detect our effects, our manipulations had some limitations. Our goal in Study 2 was to try to both replicate the effects found in Study 1 using a different and complementary setting,[3] while also exploring alternate explanations that may plausibly have explained our effects in Study 1. Specifically, we sought to explore three alternate explanations beyond status competition brought about by last place aversion. First, it was unclear whether effects would be motivated simply by last place aversion, or whether they were contingent on being in relative proximity to a point of pay equity (i.e., being within 4–11% of equity), thus potentially making our effect influenced or driven by goal setting rather than status competition. Thus, we picked a significantly higher pay gap (32%) as a baseline, and test effects based on a stable gap (Stable 32%), and a closing gap keeping the same absolute change as the closing gap condition in Study 1 (Closing 32% to 25%). Second, we sought to understand whether the effect observed in the closing condition of Study 1—where men requested higher pay when women appeared to be closing or potentially inverting the pay gap in the future compared to when a lack of progress was shown—were driven not by the closing of the gap (where men envisioned a future where women earn more than they do), but by being close to a point of inversion (i.e., at 4%). In other words, was it truly the momentum, or instead being close to the point of inversion (a meaningful standard: Garcia et al., 2013) that motivated the effect. Thus, we included conditions with a stable 4% gap and a closing gap between 32 to 4% to understand how momentum and proximity to the point of inversion motivated the effect. Also, we included a momentum condition that is removed from the point of inversion, 32 to 25%, helping us compare identical momentum (change in percentage) both close, 11 to 4%, and far from the point of inversion, 32 to 25%. Finally, to understand whether the slope of the closing gap had an influence on the emergence of men's responses to women's progress, we manipulated the slope of the closing pay gap by increasing the amount reduced by 3x (declining from 32% to 4% versus 11% to 4%). To compare with the design of Study 1, we outline all new conditions included in Study 2 with asterisks "*":

- **Stable**—at 4%*
- **Stable**—at 11%
- **Stable**—at 32%*
- **Closing**—from 11 to 4%

[3] In Study 2 we explored our interventions using an online platform for gig work. We acknowledge that this context may not be perceived as a traditional negotiation, especially as it appears that workers have no other choice but to accept the task (or not). Yet, it follows the conceptualisation of negotiation by (Thompson and Hastie, 1990, p. 99), where: "Negotiation is a fundamental form of social interaction in which people mutually allocate scarce resources." This definition encompasses the idea that negotiation can happen in many contexts, such as on platforms, as long as there is a mutual exchange of resources.

- **Closing**—from 32 to 4%*
- **Closing**—from 32 to 25%*
- **Control**—no information.

We take care to note that the choice of stimuli represented a trade-off between experimental control and deception (e.g., Charness et al., 2022; Croson, 2005; Hertwig and Ortmann, 2008). Admittedly, we used fictitious stimuli aiming for high experimental control, but we carefully based our numbers on factual information on online platform/gig workers (cf. Fuster and Zafar, 2023): 32%, was found from gig work platform work in sales and marketing, 25% for web, mobile and software development (Renan Barzilay and Ben-David, 2017, p. 409); 11% from online microtask platform work of research-related tasks, and 4% after adding several controls (Litman et al., 2020). Since the experiment could be considered grey-area deception (Charness et al., 2022), we also debriefed the participants about the factual accuracy of the conditions: "The information you got about the gap between female and male participants as to the intended accepted pay per minute is part of a research experiment. There is such a general gap in pay levels. However, the size of the gap differs depending on many factors. The information you might have been presented was therefore just one of many differing possible results, not any specific actual results."

For consistency, we use the same notation for the dependent variable as in Study 1 (i.e., $SalaryAsk$). Following Study 1, we also asked the participants Pre and $Post$ the intervention, but adjusted the question accordingly: "When accepting a future task at Prolific, what pay per hour do you intend to accept? State the pay in € (GBP) per hour."

2.2.2. Participants

For Study 2, we sampled gig workers based in the United Kingdom who were hired for online work (surveys, proof reading, analysing pictures) on the online survey platform Prolific. We chose Prolific specifically as past research indicates that they are more reliable than other survey platforms (Peer et al., 2017).

It is noteworthy that task descriptions on Prolific include information on pay per hour, pay per task, and time to complete the task; pay information is transparent from the onset. Nevertheless, recent research identifies a gender pay gap even in that setting (see e.g., Litman et al., 2020; Manzi et al., 2021). Additionally, participants accept the work and amount offered, limiting concerns that any gender gap in accepting tasks would be driven by women's beliefs of potentially being penalised for requesting higher salaries (i.e., backlash: Rudman, 1998). However, we acknowledge that such a setting restricts the richness of many negotiations to a simple take it or leave it offer.

We sought to recruit at least 3500 workers. To improve data quality, we invited only participants who had completed at least 50 tasks and had a 95% approval rate (cf. Peer et al., 2014) to complete our task, that paid € 10 (GBP) per hour, € 1.6 (GBP) for an estimated nine minutes study.[4] Ultimately, 3641 gig workers completed the study. As pre-registered, we removed extreme values (1^{st} and 99^{th} percentiles) and limited the analysis to those participants that identified as male or female and provided intended level of pay pre- and post-intervention, leaving 3346 (1619 female and 1675 male) participants in the final sample.

3. Results

Below we report our results based on the analysis plan outlined in our preregistrations. We present the hypotheses and the 95% Confidence Interval (CI) for the relevant effect size in the Supplemental materials in Table C1 and Table C2. Both studies incorporated balance tests, attention checks, and measures of the perceived realism.[5]

3.1. Study 1

Before assessing the impact of our intervention, we test if women actually intend to ask for lower salaries than men also in our sample, employing the following regression:

$$ln(SalaryAsk)_{i,t=Pre} = \alpha + \beta_1 Female_i + \beta_2 X_i + \epsilon, \quad (1)$$

where i denotes the participant, $ln(SalaryAsk)_{i,t=Pre}$ is the natural logarithm of the intended salary request before treatments, $Female_i$ is a dummy that takes the value of 1 for female participants and 0 for male participants, and X_i is a set of control variables including age, education, preferred industry, citizenship, and employer-specific choices. The coefficient β_1 indicates the percentage difference between what female participants intend to ask for in terms of salary relative to male participants. Thus, we tested the statistical significance of the female coefficient in a standard OLS model for the intended salary request, including participant characteristics. The results of the regression indicate that women intend to ask for 7.5% lower salaries than men do, $p < .001$, 95% CI = [−0.106, −0.043], holding several characteristics constant.[6] This is also similar to results found in a previous research using older cohorts of the same student population (Fröberg et al., 2023). Consequently, finding remedies for intervening the gender gap in intended salary requests is relevant in our sample of business school students.

Turning to the findings following our intervention, we secondly test between group effects. Consistent with our hypothesis, we observe a positive and significant difference for women in the treatment groups when comparing their pre-intervention to their post-intervention intended salary requests, Table 1. Compared to women in the control group, women in the treatment conditions (stable or closing) stated higher post-intervention intended salary requests. However, we do not find a similar difference between the treatment and control groups among men. Moreover, in line with past work, our results show a raw pre-intervention gender gap of 11% in intended salary requests between men and women. This matches the level indicated in our manipulation.

To formally test for a causal effect of our experimental intervention on participants' intended salary requests, we employed a DID-design following our measures of the intended salary requests before (Pre) and after ($Post$) the intervention. This design allowed us to both manipulate progress in relative position on status hierarchies, and also test and control for potential differences arising due to violations of the random assignment into conditions. We employed the following regressions to test the causal effects of our treatments either in separate regressions (Eq. 2) or by including gender interactions with the effects (Eq. 3):[7]

$$ln(SalaryAsk)_{it} = \alpha + \beta_1 Post_t + \beta_2 (Post \times TreatInfo)_{it} + \beta_3 (Post \times TreatClosing)_{it} + \xi_i + \epsilon, \quad (2)$$

[4] We paid significantly more than the minimum of € 5.0 and the average of € 7.5 according to the pricing information on Prolific to ensure that levels of acceptable pay did not influence self-selection into the study. Actual participation was about 3.5 minutes.

[5] In essence, the balance tests largely show that the randomisation worked. For Study 1, there are no mean differences across the groups in terms of age, preferred industry, citizenship, and choice of the most preferred company, with a few exceptions where the magnitudes of the differences across groups are small, see Table C3. For Study 2, we note that even though we randomly assigned participants to the seven different conditions, there is a difference between the pre-level pay of the control condition and the "Stable (4)"-condition among female participants at a statistical significance level of < 0.05, see Table 3. A benefit of our DID-design is that we account for this difference in our estimations. We show the DID-analysis results of the regressions on those that passed the attention checks in Tables C4 and C5. We illustrate the perceived realism of our interventions the in Figs. C1 and C2.

[6] In Table C6 we report all coefficients and we also also show that women, compared to men, systematically expect to earn a lower salary.

[7] To make the exposition of our results easier to follow, we alter the order of appearance of the equations from that specified in the preregistration.

Table 1
Study 1: Test of mean differences in intended salary request between conditions.

Panel A: Male Participants					
	Control	Stable	Closing	Diff Control-Stable	Diff Control-Closing
	Mean/sd	Mean/sd	Mean/sd	p value	p value
PreSalaryAsk	43,825	44,906	44,172	0.38	0.78
	(12,262)	(12,231)	(12,121)		
PostSalaryAsk	44,489	44,907	44,667	0.73	0.88
	(12,230)	(12,147)	(12,135)		
N	201	198	199	399	400
Panel B: Female Participants					
	Control	Stable	Closing	Diff Control-Stable	Diff Control-Closing
	Mean/sd	Mean/sd	Mean/sd	p value	p value
PreSalaryAsk	38,770	39,735	39,357	0.45	0.63
	(10,684)	(9,610)	(9,374)		
PostSalaryAsk	39,355	42,668	42,323	0.01	0.02
	(10,775)	(10,298)	(10,124)		
N	131	121	141	252	272

Note. Panel A reports the mean differences in intended salary requests of male participants. Panel B reports the mean difference in intended salary requests of female participants. Both panels present the means and the standard deviations in parentheses, by *Pre* vs. *Post* and by *Treatment*. The last two columns show the p values of two-sided t tests that there is no difference between the *Treatment*-groups and the *Control*-group. The intended salary requests are reported in SEK per month. N denotes the number of participants.

$$\begin{aligned} ln(SalaryAsk)_{it} &= \alpha + \beta_1 Post_t + \beta_2(Post \times TreatInfo)_{it} \\ &+\beta_3(Post \times TreatClosing)_{it} + \beta_4(Post \times Female)_{it} \\ &+\beta_5(Post \times Female \times TreatInfo)_{it} \\ &+\beta_6(Post \times Female \times TreatClosing)_{it} + \xi_i + \epsilon \end{aligned} \quad (3)$$

where i denotes the participant, t denotes Pre or $Post$, $ln(SalaryAsk)_{i,t}$ is the natural logarithm of the intended salary request either before ($t = Pre$) or after ($t = Post$) the intervention, $Post_t$ is a dummy that takes the value of 0 before and 1 after the intervention, $TreatInfo_i$ is a dummy that takes the value of 1 for treatment conditions (closing or stable gap) and 0 for the control condition (thus capturing the last place aversion motivation), $TreatClosing_i$ is a dummy that takes the value of 1 for the closing treatment condition and 0 for the stable gap or control condition (thus capturing the status momentum motivation), and $Female_i$ is a dummy that takes the value of 1 for female and 0 for male participants. ξ_i denotes participant fixed effects, and ϵ is the error term. Note that the effect of having to repeat the intended salary request is captured in β_1 in Eq. 2, and β_1 and β_4 in Eq. 3.

The main findings of our experimental intervention are shown in Table 2.[8] Column 1 shows our main results where we take gender interaction effects into account (Table C4, Column 1, shows the results without interaction effects). Results show that the experimental interventions—displaying any reminder of the gender gap—based on the last place aversion motivation specifically have positive effects on women's intended salary requests (see β_5). We note that the potential economic effect of our findings is substantial; the gender gap is reduced by 7 percentage points when comparing men and women receiving the same information, $p < .001$, 95% CI = [0.048, 0.092]. In separate regressions by gender, in Column 2, we find a substantial effect, where women increase their intended requests by 5.4%, $p < .001$, 95% CI = [0.035, 0.074], compared to the control condition.

Interestingly, while we find no support for a general effect of status momentum as motivation across both genders, in Column 1 in Table C4, $\beta_3 = 0.009$, $p = .102$, 95% CI = [−0.002, 0.021], we do find an effect within gender. In Columns 2 and 3 in Table 2 when each gender is assessed separately in fixed effects models, our findings suggest that the status momentum motivation has a positive effect on the intended salary requests of men, Column 3, $\beta_3 = 0.011$, $p = .037$, 95% CI = [0.001, 0.022], but not of women, Column 2, $\beta_3 = 0.001$, $p = .912$, 95% CI = [−0.019, 0.022]. The estimated effect on men at 1.1%, conditional on the other variables, corresponds to about 700 USD per year. Thus, in contrast to women who increase their intended salary requests when presented with any information regarding a gap, men actually lower their intended salary request when being reminded of women's worse position in negotiations compared to the control condition. Yet, they increase their intended salary requests when shown that women have been historically closing the gender salary gap relative to when informed of a stable gap.[9,10]

3.2. Study 2

As reported above, Study 2 was motivated by the importance to provide replication evidence for the effects found in Study 1, but also to rule out alternative explanations for our results. While a true replication with the same sample was not attainable, we sought out a complementary sample for which our intervention could be tested with some alternations. We therefore tried to follow our protocol of Study 1 as much as applicable, altered mainly to apply to a sample of gig-platform workers and by deliberate changes in the design of the intervention to test alternative explanations.

Before assessing any effect of our intervention, we confirmed the need to intervene the gender gap in intended pay acceptance also for the sample of gig workers. We employed the following equation to test if female gig workers systematically intend to accept lower pay than male gig workers:[11]

$$ln(SalaryAsk)_{i,t=Pre} = \alpha + \beta_1 Female_i + \beta_2 Age_i + \epsilon, \quad (4)$$

[8] Consistent with our preregistration, we describe the results to be significant or suggestive if they correspond to a significance level of < 0.005 or < 0.05, respectively.

[9] We note that all participants intend to ask for 1.6% higher salaries when asked to state their intended salary request again (i.e., the post-effect). Male participants informed of the stable gender gap intend, on average, to request the same salary as before treatment, that is they lower their requests when taking the effect of repetition into account. Male participants that instead are informed of female progress make higher requests (the average cumulative effect is 1.1%) compared to being informed of the gender gap in salary requests.

[10] Table C4 in the Supplemental material reports main effects model and the robustness regressions based on attention checks. Table C7 reports the results using no exclusions.

[11] We also preregistered including a citizenship-dummy, but all participants lived in the United Kingdom.

Table 2
Study 1: Regression analysis of the survey intervention effects for all participants.

	ln SalaryAsk	ln SalaryAsk (Female)	ln SalaryAsk (Male)
Post	0.016***	0.016*	0.016***
	(0.004)	(0.007)	(0.004)
Post x TreatInfo	-0.016**	0.054***	-0.016**
	(0.005)	(0.010)	(0.005)
Post x TreatClosing	0.011*	0.001	0.011*
	(0.005)	(0.010)	(0.005)
Post x Female	-0.000		
	(0.008)		
Post x Female x TreatInfo	0.070***		
	(0.011)		
Post x Female x TreatClosing	-0.010		
	(0.012)		
Constant	10.618***	10.549***	10.664***
	(0.001)	(0.002)	(0.001)
Obs.	1982	786	1196
Individuals	991	393	598
R Squared	0.248	0.342	0.045
Adj. R Squared	0.246	0.339	0.042

Note. This table shows the main findings of our experimental intervention. Column 1 includes the gender interactions, and Columns 2–3 show the main effects by gender. Regression models are specified in Eqs. 2–3. $Post_t$ is a dummy that takes the value of 0 before and 1 after the intervention, $TreatInfo_i$ is a dummy that takes the value of 1 for treatment conditions (closing or stable gap) and 0 for the control condition (thus capturing the last place aversion motivation), $TreatClosing_i$ is a dummy that takes the value of 1 for the closing treatment condition and 0 for the stable gap or control condition (thus capturing the status momentum motivation), and $Female_i$ is a dummy that takes the value of 1 for female and 0 for male participants. Clustered standard errors (at the individual level) are in parentheses, the regression model is estimated using fixed effects (individuals and pre vs. post). The sample of participants has been truncated (1st and 99th percentile). Table C4 in the Supplemental materials shows the main effects (Column 1) and includes only participants in the treatment conditions who responded correctly to the attention check questions (Columns 2-4). Table C7 in the Supplemental materials presents results without exclusions. * p<0.05, ** p<0.01, *** p<0.001

where i denotes the participant, $ln(SalaryAsk)_{i,t=Pre}$ is the natural logarithm of the intended accepted pay per hour before treatments, $Female_i$ is a dummy that takes the value of 1 for female participants and 0 for male participants, and age_i is the age of the participant. The coefficient β_1 thus indicates the percentage difference between what female participants intend to accept in hourly pay relative to male participants, holding age constant.

We found a gender gap as women intended to accept 4.1% lower hourly pay than men do, $p = .010$, 95% CI = [−0.073; −0.010], again confirming a need to intervene the gender gap. The gender gap is smaller than in Study 1, but still both statistically and economically significant.

Between tests are presented in Table 3. We find similar overall patterns as in Study 1, female participants overall intend to accept higher level of pay in the treatment groups compared to the control group (with the "Stable 4"-condition as a notable exception), and compared to pre-intervention levels of intended accepted pay.

3.2.1. Main findings

We employed the following regressions to test the causal effects of our treatments, either in separate regressions (Eq. 5) or by including gender interactions (Eq. 6):

$$\begin{aligned} ln(SalaryAsk)_{it} &= \alpha + \beta_1 Post_t + \beta_2(Post \times TreatInfo)_{it} \\ &+\beta_3(Post \times TreatClosing)_{it} + \beta_4(Post \times TreatMS)_{it} \\ &+\beta_5(Post \times TreatFastClosing)_{it} + \xi_i + \epsilon \end{aligned} \quad (5)$$

$$\begin{aligned} ln(SalaryAsk)_{it} &= \alpha + \beta_1 Post_t + \beta_2(Post \times TreatInfo)_{it} \\ &+\beta_3(Post \times TreatClosing)_{it} + \beta_4(Post \times TreatMS)_{it} \\ &+\beta_5(Post \times TreatFastClosing)_{it} + \beta_6(Post \times Female)_{it} \\ &+\beta_7(Post \times Female \times TreatInfo)_{it} \\ &+\beta_8(Post \times Female \times TreatClosing)_{it} \\ &+\beta_9(Post \times Female \times TreatMS)_{it} \\ &+\beta_{10}(Post \times Female \times TreatFastClosing)_{it} + \xi_i + \epsilon \end{aligned} \quad (6)$$

where i, t, $Post_t$, $Female_i$, ξ_i and ϵ are defined as in Study 1, $ln(SalaryAsk)_{i,t}$ is the natural logarithm of the intended accepted hourly pay level either before ($t = Pre$) or after ($t = Post$) the intervention, $TreatInfo_i$ is a dummy that takes the value of 1 for all treatment conditions (4%, 11%, 32%, 11% to 4%, 32% to 4%, and 32% to 25%) and 0 for the control condition, $TreatClosing_i$ is a dummy that takes the value of 1 for the closing treatment conditions (11% to 4%, 32% to 4%, and 32% to 25%) and 0 for the stable gap or control condition, $TreatMS_i$ is a dummy that takes the value of 1 for the treatment conditions where the level is close to a meaningful standard (4%, 11%, 11% to 4%, and 32% to 4%) and 0 for the other conditions, and $TreatFastClosing_i$ is a dummy that takes the value of 1 for the fast closing condition (32% to 4%) and 0 for the other conditions.

The main findings of our experimental intervention are shown in Table 4 (a replication based on Eqs 2-3 of Study 1 is reported in Table C8).[12] Just like in Study 1, we find a positive effect following our experimental intervention on what female gig workers intend to accept as pay level for future tasks. This effect also holds across all treatments. This means that the effect found among women is not sensitive to how the gender gap is displayed—neither to the level of the gender gap, nor to the slope of the change in the gender gap—thus addressing potential alternative explanations to the findings of Study 1. Similarly, there is a positive effect on men's pay levels of future intended accepted tasks but it is not statistically significant and does not differ depending on the motivation.

3.2.2. Additional exploratory tests

To better understand whether female participants indeed are motivated by a desire to improve their outcomes after learning of their inferior position—an outcome consistent with holding a meaningful standard of status attainment (Garcia et al., 2006)—we conducted a series of exploratory analyses on questions participants answered related to their feelings concerning gender equality in Study 2. Fig. 2 reports the results for these questions, that were asked post the intervention. We note that women report significantly greater anger than men regarding their

[12] Table C5 reports the main effect model and robustness regressions based on attention checks. Table C9 reports the results using no exclusions.

Table 3
Study 2: Test of mean differences in intended accepted pay between conditions.

Panel A: Male Participants Stable Conditions							
	Control (C)	Stable (S4)	Stable (S11)	Stable (S32)	Diff C-S4	Diff C-S11	Diff C-S32
	Mean/sd	Mean/sd	Mean/sd	Mean/sd	p value	p value	p value
Pre SalaryAsk	8.09	8.15	8.05	8.07	0.87	0.91	0.97
	(4.14)	(3.94)	(3.70)	(4.14)			
Post SalaryAsk	8.80	8.17	8.01	8.11	0.23	0.14	0.19
	(7.41)	(3.65)	(3.03)	(3.66)			
N	247	240	218	242	487	465	489
Panel B: Female Participants Stable Conditions							
	Control (C)	Stable (S4)	Stable (S11)	Stable (S32)	Diff C-S4	Diff C-S11	Diff C-S32
	Mean/sd	Mean/sd	Mean/sd	Mean/sd	p value	p value	p value
Pre SalaryAsk	8.30	7.28	7.82	8.28	0.01	0.24	0.97
	(4.66)	(4.27)	(3.91)	(4.88)			
Post SalaryAsk	8.57	7.87	8.65	9.42	0.11	0.85	0.08
	(4.90)	(4.40)	(4.34)	(5.58)			
N	230	240	222	230	470	452	460
Panel C: Male Participants Closing Conditions							
	Control (C)	Closing (C11to4)	Closing (C32to4)	Closing (C32to25)	Diff C-C11to4	Diff C-C32to4	Diff C-C32to25
	Mean/sd	Mean/sd	Mean/sd	Mean/sd	p value	p value	p value
Pre SalaryAsk	8.09	7.66	7.66	7.89	0.17	0.19	0.57
	(4.14)	(2.79)	(2.94)	(3.43)			
Post SalaryAsk	8.80	7.75	7.98	7.95	0.03	0.11	0.11
	(7.41)	(2.83)	(3.34)	(3.34)			
N	247	256	242	230	503	489	477
Panel D: Female Participants Closing Conditions							
	Control (C)	Closing (C11to4)	Closing (C32to4)	Closing (C32to25)	Diff C-C11to4	Diff C-C32to4	Diff C-C32to25
	Mean/sd	Mean/sd	Mean/sd	Mean/sd	p value	p value	p value
Pre SalaryAsk	8.30	7.79	7.66	8.13	0.19	0.14	0.69
	(4.66)	(3.88)	(4.28)	(4.12)			
Post SalaryAsk	8.57	9.13	8.79	9.09	0.43	0.64	0.25
	(4.90)	(9.66)	(4.90)	(4.82)			
N	230	261	206	230	491	436	460

Note. Panel A reports the mean differences in intended accepted hourly pay of male participants in the control and stable conditions. Panel B reports the mean differences in intended accepted hourly pay of female participants in the control and stable conditions. Panel C reports the mean differences in intended accepted hourly pay of male participants in the control and closing conditions. Panel D reports the mean differences in intended accepted hourly pay of female participants in the control and closing conditions. All four panels present the means and the standard deviations in parentheses, by *Pre* vs. *Post* and by *Treatment*. The last three columns show the p values of two-sided t tests that there is no difference between the *Treatment*-groups and the *Control*-group. The following abbreviations are used: C—Control, no information; S4—Stable at 4%; S11—Stable at 11%; S32—Stable at 32%; C11to4—Closing from 11 to 4%; C32to4—Closing from 32 to 4%; and C32to25—Closing from 32 to 25%. The intended accepted hourly pay are reported in GBP per hour. N denotes the number of participants.

inferior position, consistent with the idea that recognising their lower position in a social hierarchy motivates efforts to improve that position. Women also indicate that gender equality seems less likely in the future, perhaps indicative of the social headwinds that women recognise when compared to men.

To test if these beliefs are related to having increased their intended demands for pay following our intervention, Table 5 reports correlations between the difference in post- and pre-intervention intended accepted pay and the six statements, by gender. While we find that almost all statements are associated with a positive change in the intended accepted pay levels for female gig workers, there is no evidence for an association among male gig workers. We highlight especially that the more a female gig worker agrees that the difference in pay motivates her to demand more, the larger is the change in her post intervention intended accepted pay level. Finally, the more progress female participants perceive, the larger the effect of the intervention.

4. Discussion and concluding remarks

Using two complementary preregistered studies, we find that women intend to negotiate and accept higher salaries when receiving information regarding women's inferior position in hierarchies outlining intended negotiated salary. Our findings emphasise how simple status-based interventions may effectively reduce gender inequalities. Remarkably, the experimental interventions cause an increase in intended negotiated salary and accepted pay among women, regardless if they are business school students intending to request salaries above 4700 USD per month at their first job interview, or if they are gig workers intending to accept job tasks that pay less than 10 USD per hour.

The experimental interventions based on status appear helpful for two reasons. First, they focus attention on the salaries of women. If women have a broader set of life goals as found in (Gino et al., 2015), this may have negative consequences in terms of attention they can devote to each goal, thus indirectly reducing the importance of salaries and thereby also on intended salary requests or intended acceptance level of pay. We show that one solution is tapping into a ubiquitous desire for status, and that this does not coerce either women or men into reevaluating their life goals or ambitions.

Second, our interventions highlight the motivational power of actual and assumed rank in status hierarchies, particularly when women perceived themselves to be in proximity to a meaningful standard that activates status based competition (Garcia et al., 2006). Regardless of

Table 4
Study 2: Regression analysis of the survey intervention effects for all participants.

	ln SalaryAsk	ln SalaryAsk (Female)	ln SalaryAsk (Male)
Post	0.048*	0.031*	0.045*
	(0.021)	(0.013)	(0.022)
Post x TreatInfo	-0.031	0.086***	-0.028
	(0.024)	(0.019)	(0.024)
Post x TreatClosing	-0.006	-0.002	-0.009
	(0.012)	(0.018)	(0.012)
Post x TreatMS	-0.001	-0.015	-0.001
	(0.012)	(0.016)	(0.012)
Post x TreatFastClosing	0.030	0.053	0.033
	(0.018)	(0.027)	(0.018)
Post x Female	-0.017		
	(0.025)		
Post x Female x TreatInfo	0.117***		
	(0.031)		
Post x Female x TreatClosing	0.004		
	(0.022)		
Post x Female x TreatMS	-0.014		
	(0.020)		
Post x Female x TreatFastClosing	0.023		
	(0.033)		
Constant	1.966***	1.948***	1.986***
	(0.002)	(0.003)	(0.003)
Obs.	6692	3238	3350
Individuals	3346	1619	1675
R Squared	0.087	0.140	0.012
Adj. R Squared	0.085	0.139	0.010

Note. This table shows the main findings of our experimental intervention. Column 1 includes the gender interactions, and Columns 2–3 show the main effects by gender. Regression models are specified in Eqs. 5–6. $Post_t$ is a dummy that takes the value of 0 before and 1 after the intervention, $TreatInfo_i$ is a dummy that takes the value of 1 for treatment conditions (closing or stable gap) and 0 for the control condition (thus capturing the last place aversion motivation), $TreatClosing_i$ is a dummy that takes the value of 1 for the closing treatment conditions and 0 for the stable gap or control conditions (thus capturing the status momentum motivation), $TreatMS_i$ is a dummy that takes the value of 1 for the treatment conditions where the level is close to a meaningful standard (4%, 11%, 11% to 4%, and 32% to 4%) and 0 for the other conditions, and $TreatFastClosing_i$ is a dummy that takes the value of 1 for the fast closing condition (32% to 4%) and 0 for the other conditions, and $Female_i$ is a dummy that takes the value of 1 for female and 0 for male participants. Clustered standard errors (on the individual) are in parentheses, the regression model is estimated using fixed effects (individuals and pre vs. post). The sample of participants has been truncated by removing the 1^{st} and 99^{th} percentiles based on $ln(SalaryAsk)_{i,t=Pre}$. Table C5 in the Supplemental materials includes shows the main effects (Column 1) and only participants in the treatment conditions who responded correctly to the attention check questions. Table C9 in the Supplemental materials presents results without exclusions. * p<0.05, ** p<0.01, *** p<0.001

Table 5
Pairwise correlation between difference in intended accepted pay (ln Diff SalaryAsk) and meaningful standard comments, by gender.

	ln Diff SalaryAsk	
	Female	Male
I believe that women will be paid the same as men in 5 years.	0.123**	-0.0310
Women are making progress in achieving gender equality.	0.153***	-0.0119
The gender gap in pay will be eliminated in the near future.	0.116**	0.0388
I am angry about the difference between what women and men get paid for the same	0.0775*	0.0447
The difference in pay motivates me to demand more for my effort.	0.130***	0.0492
It is worth fighting over pay.	0.0929*	0.00856

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

the experimental condition, women intended to ask for—or accept offers of—higher salaries when presented with information highlighting their relatively inferior rank in the existing gender-salary hierarchy. This main effect of status position is consistent with work suggesting that being reminded of one's inferior position at the bottom of the social hierarchy and trying to avoid it is particularly motivating (Buell, 2021; Kuziemko et al., 2014). We note that we find these effects even despite the fact that past research suggests gender-incongruent domains, such as agentic negotiations, negatively effect women's information processing (Coffman, 2014). Thus, our effects might be even stronger in gender-congruent domains.

Interestingly, we find suggestive evidence that women's status momentum (Pettit et al., 2013)—the appearance that women may surpass men in future negotiations—has an adverse effect on the salary gap as male business students respond by requesting higher salaries compared to being informed of a stable better position. Past work has focused on how relative changes in rank can affect impressions regarding the (in)stability of positions even when higher-ranked individuals maintain objectively better positions over their advancing opponents (Kakkar et al., 2019). Our work builds on these findings, suggesting that highlighting changes to the underlying characteristics of actors (e.g., the amount requested in salary negotiations) might lead men to engage in efforts to protect their position. In other words, highlighting the progress women are making in reducing existing gender gaps in various domains (Eagly et al., 2020) might reinforce social disparities. This echoes recent findings that show how women's progress in certain do-

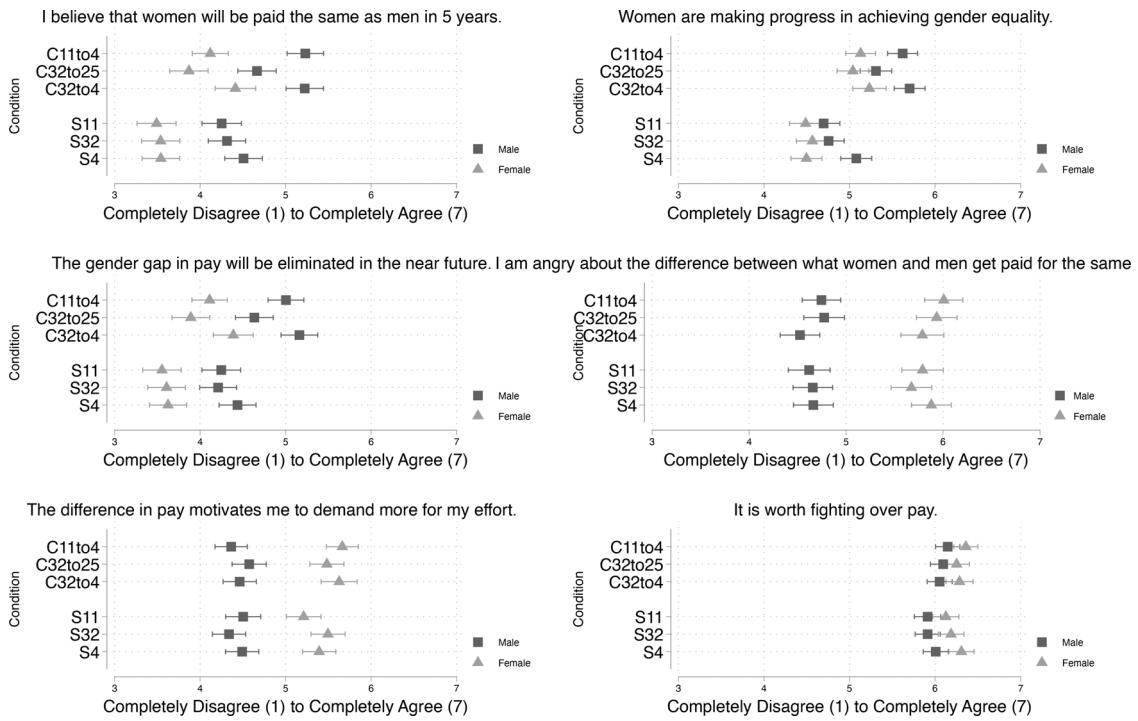

Fig. 2. Exploratory summary statistics: 95% CI of meaningful standard statements by gender and condition. This figure shows the means and 95% CIs for six statements about gender equality, measured on a scale 1–7 (completely disagree to completely agree) post the intervention. The statements were, going left to right from the top: (a) I believe that women will be paid the same as men in 5 years; (b) Women are making progress in achieving gender equality; (c) The gender gap in pay will be eliminated in the near future; (d) I am angry about the difference between what women and men get paid for the same work; (e) The difference in pay motivates me to demand more for my effort; and (f) It is worth fighting over pay. The male (female) gig workers' responses have square-(triangle-)symbols.

mains undermines efforts to reduce inequality in others (Georgeac and Rattan, 2019), or that women empowerment messages may ironically increase attributions that women (and not men) are alone responsible to solve existing disparities (Kim et al., 2018). We do not find a similar effects for male gig workers. Future research could explore how socioeconomic status might motivate or attenuate the reactions of men we notice in Study 1, but which we do not see in Study 2 with workers who expect to earn considerably less. Still, our findings add to the various unforeseen consequences of women's progress, providing some evidence that men may "push back" and request more when learning that women are reducing the gap in negotiated salaries in ways that might undermine their dominant position.

Future research should also address the limitations that exist in our research. Our empirical results support the notion of an attentional gap where women attend to more life goals and thus spend less time and give less importance to salary outcomes (Gino et al., 2015), although not directly measured, that is in line with other recent empirical evidence (see e.g., Baker et al., 2019; Kessel et al., 2021; Manzi et al., 2021). Similarly, while our empirical results support that status concerns are the motivating factor, empirical evidence of whether women have less of an upward drive for status is mixed (Schram et al., 2019). While the interventions cause a reduction of the gender gap in intended salary requests, it is unclear if women might lose motivation in certain situations. For example, would women be less motivated once they were to learn that they actually receive higher salaries than men and achieved parity. Alternatively, it would be interesting to understand whether reminders of the lack of progress in achieving gender equality (static inequality) might also undermine women's motivation as the potential goal of equality appears too difficult to reach. In our preregistration, we outlined two-sided tests to account for this contravening effect, and although we do not see it, we anticipate that certain women might feel a degree of learned helplessness that undermines their motivation to ask for higher salaries.

We take care to outline limitations in the design of our particular studies. First, while our DID-design helps us account for violations of random assignment, it potentially introduces experimenter demand effects. Participants may change their intended salary request not because of our intervention, but because participants perceive, by the experimental design, that they are expected to provide a different number the second time the question is asked. Second, participants may change their intended requests because acting socially desirably in a survey experiment is without any consequence as no tangible outcome is at stake. This introduces the possibility that the results capture subjects' perceptions of expected behaviour rather than a causal effect. Future research should thus study actual behaviour in the field to improve the external validity of our findings.

Moreover, while Study 2 allowed us to gather data where supply side issues (e.g., backlash: Rudman, 1998) should not be an issue, one might reasonably argue that this context does not represent a traditional negotiation as workers only have the option of accepting offers. Future work could thus address this methodological concern by examining these effects in context were negotiation is more dynamic.

Future research may also explore other concerns motivated by this research. For example, it is important to understand how the dynamics that we identify might contribute to potential regressions in other domains that inhibit efforts to achieve equality (Georgeac and Rattan, 2019; Kim et al., 2018). Although we address demand-side issues, future research could explore supply-side factors, such as the agentic backlash faced by women in various domains (e.g., negotiation, public speaking, and leadership: Rudman, 1998). Yet, we do not expect such backlash among gig workers who are accepting supply-side offers. Finally, while we find that there is a gap between what women and men intend to request, or accept, in both our samples even before our interventions, it is possible this is because we examine negotiators who are relative inexperienced. Research shows that the expertise of negotiators may help attenuate the gap (Mazei et al., 2015). Thus, it would

be interesting to understand if our effects would hold for experienced negotiators.

5. Open practices

Our data, analysis code, materials, and preregistrations are openly available on the Open Science Framework (osf.io/3jh54). The research meets relevant ethical guidelines.

Data availability

The links to the shared datasets are available in the do-files on https://osf.io/3jh54/.

Supplementary material

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.labeco.2023.102401.

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