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Gender differences in the self-promotion of prosocial behaviour: exploring the female modesty constraint

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Abstract

Individuals often need to self-promote for social and professional recognition. In this paper, we investigate the existence of a gender gap in self-promotion of a prosocial action and explore its link with modesty norms. Using a novel experiment that combines both lab and field elements, we show that women are up to five times less likely to self-promote than men. We find suggestive evidence that the difference in behaviour across gender is determined by women's social image concerns of being perceived as immodest. We find that the provision of a justification to self-promote has two important consequences: (i) it leads to an increase in self-promotion by women and (ii) contributes to the elimination of the gender gap in self-promotion behaviour.

Keywords: Gender inequality; observability; Self-promotion; Social image; Social norms

JEL Codes: C9; D9; J1

1. Introduction

A common way to achieve high social and professional recognition is to be observed displaying desirable qualities such as fairness, success, competence, and prosociality (Andreoni & Bernheim, 2009; Besley & Ghatak, 2008; Bursztyn & Jensen, 2017; Harbaugh, 1998a; 1998b). When an individual *actively chooses* to make their good actions and achievements visible to others, this behaviour is termed self-promotion. Effective self-promotion can positively influence how others, including colleagues and peers, rate one's personal and professional traits, which increases the chances of achieving successful outcomes across many domains. For example, in salary negotiations, campaigning for public office, establishing professional networks, finding mentors, scholarship and grant applications, and finding romantic partners, self-promotion can be a useful tool.

At the same time, self-promotion can be negatively perceived by others as a violation of social modesty norms. As a result, individuals face intrinsic costs when they self-promote, leading to a lower prevalence of such behaviour. While the social norm of being modest applies to all individuals, the literature in psychology theorizes that it imposes higher overall intrinsic costs on women. A lower rate of female self-promotion can create situations where women are less effective than men at communicating their true qualities, leading to an underestimation of their good traits and abilities and subsequent inefficiencies in the labour and marriage markets, as well as in elections in social

and political arenas. Hence, women are placed at a disadvantage relative to men in their capacity to achieve social and professional recognition (Budworth & Mann, 2010; Wade, 2001).

In this study, we conduct a novel experiment to analyse self-promotion of prosocial behaviour across gender. Participants are asked to simultaneously decide on making a charitable donation and whether to self-promote by communicating this action to their friends, colleagues and relatives using predesigned messages. Using variations in the predesigned message and the ability to donate without self-promotion, we investigate (i) the existence of a gender gap in self-promotion of prosocial actions, (ii) possible explanations, and (iii) the efficacy of strategies to eliminate this gender gap.

We focus on a prosocial trait because having such traits has been shown to positively influence many areas of life. For example, a recent study uses a sample of 80,000 individuals across 76 countries to show that prosociality has significant predictive power for labour market success (Kosse & Tincani, 2020). Further, a large body of research in psychology and management has consistently shown that the ability to demonstrate good Organisational Citizenship Behaviour has a positive influence on job entry outcomes, performance evaluations and career progression (Allen & Rush, 2001; Motowidlo & Van Scotter, 1994; Podsakoff et al., 2009). Finally, being viewed as prosocial has positive returns in the marriage market (Li et al., 2002) and being elected to (and remain in) leadership positions (Hamman et al., 2011).

In our design, self-promotion entails participants donating and then posting it publicly on their social media. Participants are also allowed to keep their donation decisions private without negatively influencing their payoffs or the amount of money the charity receives. In the Baseline (BL) treatment, the predesigned message communicates the participant's prosocial action without offering any justification for the self-promotion. Thus, we argue that self-promotion entails bearing the full social image cost of violating the social modesty norm. In this treatment, men are five times more likely to engage in self-promotion than women.

To investigate whether the gender gap in self-promotion in the BL treatment is driven by social image concerns to appear modest, we manipulate the predesigned message. In our Modest (MO) treatment, the message includes a *social image* justification, which we argue provides a valid justification for deviating from the social modesty norm. Thus, this allows participants to self-promote without incurring the full social image costs associated with violating the norm.¹ In this treatment, women increase self-promotion by almost three times compared to the BL treatment. This leads to a significant reduction in the gender gap in self-promotion.

To test whether our message manipulation effectively captures the intended variation in perceived modesty across treatments, we conduct a follow-up survey of non-experimental participants. We find that survey respondents believe the MO message to be more modest than the BL message. The survey responses also show that when asked which of the two messages they were more likely to use, female respondents were less likely to use the BL message relative to male respondents. Additionally, relative to men, women believe the MO message is more modest than the BL message. We study this mechanism further by investigating whether the same sample of survey respondents expect gender differences in self-promotion in the BL and MO treatments. We observed discrepancies between participants' beliefs about self-promotion and their actual behaviour in the experiment. Survey respondents did not anticipate a gender disparity in self-promotion in the BL treatment. However, aligning with our conceptual framework, they anticipated increased self-promotion for both genders between the BL and MO treatments. These findings imply that while the MO treatment promotes modesty, respondents do not accurately anticipate gender-specific differences in self-promotion to

¹Being modest, by slightly under-representing one's positive qualities and actions, could be an explicit tactic used by individuals in communicating such traits, as it reduces the negative impact on one's social image relative to situations where such strategy is not used (see Cialdini & De Nicholas, 1989 for a discussion). In our case, the provision of a social image justification allows participants to downplay their self-promotion intentions. As a result, others view the message containing the justification as more modest.

arise. Consequently, this result casts doubt on the idea that people anticipate a gendered impact of modesty on self-promotion behaviour. We discuss the belief results in detail in Sections 4.1 and 4.2.

To further investigate the impact of justifications on women's self-promotion behaviour, we introduce a treatment where *avoiding* self-promotion is made costly. In this treatment, participants can only act prosocially if they also self-promote using the BL message. This provides a *prosocial* self-justification for self-promoting. We find that relative to the BL treatment, female self-promotion increases by 10 times, while men's self-promotion rates remain largely unaffected. This leads to the elimination of the initial gender gap in self-promotion behaviour observed in the BL treatment.

Our study makes key contributions to the literature investigating gender differences in self-promotion. The early papers from psychology show that when women present themselves in public, they are likely to undersell their achievements relative to men (Daubman et al., 1992; Gould & Slone, 1982). Subsequent studies (Moss-Racusin & Rudman, 2010; Rudman, 1998; Smith & Huntoon, 2014) explore causes of this behaviour: Women feel uncomfortable when self-promoting, and they are less socially liked when violating gender-specific prescriptions. To the best of our knowledge, the only economics study on this issue is Exley and Kessler (2022), who study self-promotion across gender by comparing self-evaluations of MTurkers' performance when facing different audiences. Our contributions are as follows: First, we study self-promotion in the context of prosocial behaviour, an important setting with potential implications across various domains (e.g., see Kosse & Tincani, 2020). Second, we explore the role of modesty concerns in determining the gender gap in this self-promotion behaviour.

We also contribute to related literature in economics on the role of social image and observability on individual decisions, particularly in the prosocial domain. The social image literature (see Bursztyn & Jensen, 2017, for a review) argues that reputational concerns are important in explaining behaviour in prosocial settings (see, for example, Andreoni & Bernheim, 2009; Ariely et al., 2009; Bénabou & Tirole, 2006; Bursztyn et al., 2017; Castillo et al., 2014; Della Vigna et al., 2012; Ellingsen & Johannesson, 2008, 2011; Harbaugh, 1998a, 1998b; Milinski et al., 2001; Samek & Sheremeta, 2014; Vogt et al., 2015). This relates to the literature on making participants' decisions (and in some cases their identity) observable, which leads to higher prosociality. This is evident in increased contributions to public goods, higher donations to charities, and greater willingness to volunteer effort (Andreoni & Petrie, 2004; Bohnet & Frey, 1999; Butera & Horn, 2020; Butera et al., 2022; Castillo et al., 2015; Dufwenberg & Muren, 2006; Exley, 2018; Gerber et al., 2010; Karlan & McConnell, 2014; Rege & Telle, 2004; Soetevent, 2005). However, if prosocial behaviour leads to reputational costs, then such behaviour may decline. For example, when prosocial actions signal both generosity and income status, visibility either does not impact prosociality or decreases it (Bracha et al., 2009; Bracha & Vesterlund, 2017). Jones and Linardi (2014) explicitly model and test the link between reputation, observability, and prosocial actions. They show that some individuals (including women) may alter their prosocial actions to avoid the reputational costs associated with appearing different from others. For these people, observability could positively (negatively) affect donation behaviour if they expect others' donations to be high (low). Our paper extends these studies in the following ways. First, unlike the observability literature, which investigates the impact of being observed (or not) on economic decisions, we explicitly focus on examining individuals' choice to make themselves observable through self-promotion.² Second, we investigate whether social image concerns are associated with individuals' self-promotion decisions. In doing so, we extend this literature by providing suggestive evidence that modesty constraints limit individuals' ability, especially women's, to build a reputation through self-promotion.³

²Klinowski (2021) studies the choice to enter a setting where donations are possible or a setting where they are not. Unlike our paper, the author does not examine observability or self-promotion (i.e., the donation decisions are always kept private).

³In the literature that investigates gender differences in negative image concerns, there are no studies that compare stark environments where there is no veil to reduce social image costs (like our BL treatment) to a context where such costs can be reduced with, for example, a social image justification (like in our MO treatment). In the existing literature, each of these

2. Method

2.1. Experimental task

The experiment consists of a charitable dictator game, where participants received an endowment of \$15 (AUD) and had to decide on an amount to donate to a charity of their choice from a list of five charity options. Any donation made (at \$1 intervals) was deducted from this endowment and the remaining amount was paid in private along with a participation fee. Prior to making their decisions, participants were informed that every \$1 donation made would receive a \$.5 matching from the experimenter, leading to a total donation of \$1.5 for the charity. This was conditional on them doing one of the following, (i) posting a predesigned message on their Facebook wall (*public*) or (ii) sending the same message to themselves on Facebook (*private*).⁴ Participants who decided not to use the predesigned message were allowed to donate but had to forego the donation matching. Participants who chose not to donate did not have the option to post any message. To ensure compliance, the experimenter checked that the messages had been posted during the session. In our setting, self-promotion entails choosing option (i). Individuals are deemed not to be self-promoting if they (a) donate and send a private message, (b) donate and do nothing in terms of posting choice, or (c) do not donate.

Our choice of design acknowledges that for participants, the decision to self-promote and donate may be interdependent. Delinking this interdependence via a sequential design (where a participant makes the donation decision first followed by a self-promotion decision) can pose constraints in terms of what information the participant has about self-promotion (the second decision) when the donation decision (the first decision) is being made. Making the donation and self-promotion decisions simultaneous ensures that no such informational constraints are imposed on the donation decision. As a robustness exercise, in [Section 4.3](#) and [Appendix A3](#), we discuss and test an alternative version of the design where the details of the self-promotion message are disclosed after the donation decision is made.

It is important to highlight the key features of the design. First, our study is based on an experiment consisting of laboratory and field components. Since we want to have control over the intrinsic costs of self-promotion, we need to ensure that (i) the language of the messages is controlled and (ii) the recipients of the messages are individuals the participants know. Using Facebook (the field component) allows us to achieve these objectives in a non-artificial way.⁵ Second, the communication of the donation matching in one of the self-promotion messages allows us to credibly vary the intrinsic cost of self-promotion across treatments (mechanism discussed in detail in [Section 2.2.](#)). Third, given the possibility of donation matching, it is important to provide participants with an avenue through which they can acquire matching without self-promoting. Not having such an option would lead to a confound between self-promotion choice and the effect of donation matching (stemming from efficiency concerns). We achieve this by allowing subjects to send a private message to receive a donation matching. Finally, the design focuses on behaviour in the prosocial domain – that is, subjects can self-promote their prosocial behaviour.

contexts is studied separately. By comparing gender behaviour across the two contexts, our study contributes to unifying these related streams in the literature.

⁴This has the same flavour as Castillo et al. (2014), who study the network effects on donation.

⁵Our interpretation of the results would not be accurate if there were differences across gender regarding the privacy settings to determine who can view their public posts on Facebook. However, Boyd and Hargittai (2010) show that there is no systematic evidence of a gender difference in this regard among university students. We also collected information on Facebook usage from the participants. We find that 67.2% of male participants reported using Facebook daily. This was similar to the 64% usage rate for women ($p = .61, n = 233$). Additionally, we find that women had more Facebook friends than men (573.8 vs. 605.7, $p = .06, n = 233$).

2.2. Treatments

In our BL treatment, participants are given the option to self-promote using a predesigned message that does not allow them to justify breaking the modesty norm. Any gender gap driven by modesty concerns in this treatment would represent an upper bound since the predesigned message used is quite boastful.

We define modesty by adopting a behavioural account, which describes modesty as a careful avoidance of bragging (Driver, 1989). Based on this definition, self-promotion (the immodest action) requires a relevant audience to which a personal quality, accomplishment, or in our case a good deed is made visible. In our MO treatment, we aim to reduce the intrinsic costs associated with self-promotion by modifying the BL messages to provide a *social image* justification for self-promotion (via a reduction in modesty concerns). The BL and MO messages are presented below. Using a separate survey, we find supporting evidence that the message in the MO treatment is indeed perceived as more modest than the BL message. The results of this survey are discussed in Section 4.1.

Baseline treatment (BL): *'Just donated to {Charity Name} from my participation fee of 15 dollars in a research activity at uni.'*

Modest treatment (MO): *'Just donated to {Charity Name} from my participation fee of 15 dollars in a research activity at uni. The organizers offered to match my donation if I posted this exact message on my Facebook wall.'*

The justification for posting publicly embedded in the MO message may allow participants to self-promote at a lower social image cost. This is because the justification is made public, affecting how others perceive the self-promotion action. In the survey presented in Section 4.1, we find that the MO message (i) is perceived as more modest and (ii) provides a better justification for self-promotion. However, it is also possible that other justifications that remain private – that is, that are only known by the participant – may also affect self-promotion behaviour. To explore this further we conduct an additional treatment where we condition the participants' ability to donate on self-promotion. In this treatment, which we label Self-Justification (SJ) treatment, participants are informed that to donate and that they must self-promote using the BL message. This implies that relative to the BL treatment, (i) the private option is removed, (ii) donations cannot be made without self-promoting, and (iii) the condition to donate is only known to the participant. Thus, this treatment provides a *prosocial* justification for self-promotion that remains private; namely, social image costs are not affected, but the cost of not self-promoting is higher.

In appendix A1, we provide a conceptual framework and predictions on how these treatments impact gender difference in self-promotion.

2.3. Procedure

For our experiment, we recruited 342 participants (172 men and 170 women) from the subject pool of the RMIT University Behavioural Business Lab and Monash University Laboratory for Experimental Economics using ORSEE (Greiner, 2015) and SONA.⁶ Table 1 provides the sample breakdown across treatments. All treatments were conducted at both Monash and RMIT, Australia. Participants were informed about the general procedures of the experiment at the time of recruitment, and they were specifically informed of the Facebook requirement. During the session, detailed instructions (described in Appendix A7) on the task were provided, along with comprehension

⁶This number is for the BL, MO, and SJ treatments. For all these treatments, we also run analogous treatments where donation amounts are reported. We present self-promotion choices across gender from these treatments in Appendix A4 and discuss the robustness of our main results to the inclusion of reporting in Section 3.4. We also conduct an additional treatment where the message is provided after donation choice, see Section 4.4. The overall sample size across all variants of the experiment was 623. Unless otherwise stated, we focus on the non-reporting sample of 342 participants.

Table 1 Treatment descriptions

Treatment	Social image justification ^a	Prosocial justification ^b	Experimental sample (n)			
			Male	Female	Total	# of Sessions
	(1)	(2)	(3)	(4)	(5)	(6)
Baseline (BL)	No	No	53	55	108	8
Modest (MO)	Yes	No	77	69	146	9
Self-Justification (SJ)	No	Yes	42	46	88	7

Notes: ^aThe message used to self-promote in the MO treatment provides a social image justification for behaviour against the norm of social modesty.

^bWhen the private message option is not provided (SJ treatment), individuals cannot make donations without making their donation decision public. This provides participants with a prosocial justification for self-promotion.

checks. Information on decisions was collected using the Qualtrics software. After decisions were completed, we asked participants about their beliefs on (i) average donation of other participants and (ii) the number of participants who chose to self-promote in their session. The two belief elicitation were incentivized separately by providing up to \$1 if subjects' beliefs were within plus or minus one of the (i) actual average donation and (ii) number of participants of self-promotion in their session. We also collected information on demographics. Subjects were not allowed to participate in more than one treatment. Treatment allocation was randomized at the session level.

3. Results and discussion

3.1. Summary of behaviour

We begin with summary statistics of both self-promotion and donation behaviour in the experiment. Unless otherwise stated, all p -values are based on nonparametric tests: Chi-squared (χ^2) for dichotomous variables and Wilcoxon rank-sum for continuous variables.

The overall rate of self-promotion was 32.1%, including participants who did and did not donate. When we only consider participants who donated, the self-promotion rate was 40.9% (Table A6.1 in Appendix A6). Across treatments, the overall rate of self-promotion was 22.2% in the BL treatment, 21.2% in the MO treatment and 62.5% in the SJ treatment (Table 2). Overall, self-promotion was not different across gender ($p = .54$), but it varied significantly across treatments (discussed below). Participants who donate could also choose *not* to post the message on their Facebook wall (i.e., send a private message to themselves or choose not to post anything, privately or publicly). Across treatments, the rate at which participants send a private message was 59.3% in the BL treatment and 54.8% in the MO treatment (Table 2). The rate at which participants choose to do nothing was 4.6% in the BL and 6.9% in MO (Table 2).⁷

In terms of the overall donation behaviour, the donation rate was 78.7%, and the average amount donated was \$4.8 (~1/3 of the endowment). Donation behaviour was significantly different in the SJ treatment compared with the other two treatments. However, there were no significant differences between the BL and MO treatments. The donation rate was the lowest in the SJ treatment (62.5%), compared to the BL (86.1%, $p < .01$) and the MO (82.8%, $p < .01$) treatments. Similarly, the amount donated was also significantly lower in the SJ (\$4.1) treatment relative to the BL (\$5 $p < .01$) and the MO (\$5 $p < .01$) treatments.

In Subsections 3.2–3.4, we analyse the effect of our treatments on self-promotion and donation **within and across gender**. Note that in our main design, the choice to self-promote and donate was

⁷In the SJ treatment, it is not possible to separate the difference between sending private messages and doing nothing because one must self-promote to donate.

Table 2 Overall self-promotion and donation behaviour across treatments

	Donation behaviour			Posting choice ^a		
	<i>n</i>	Donation rate (%)	Amount (\$)	Nothing (%)	Private message (%)	Self-promotion (%)
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Behaviour within treatments						
Baseline (BL)	108	86.1	5	4.6	59.3	22.2
Modest (MO)	146	82.9	5	6.9	54.8	21.2
Self-Justification (SJ)	88	62.5	4.1			62.5
Panel B: Differences across treatments						
BL-MO		3.2 (.48)	0 (.90)	-2.2 (.46)	4.5 (.48)	1 (.85)
BL-SJ		23.6 (<i><.01</i>)	.9 (.04)			-40.3 (<i><.01</i>)

Notes: *p*-values presented in parentheses. *p*-values based on 2-sided test (or Wilcoxon rank-sum for the donation amount) on the difference in outcome across relevant treatments.

^aPosting choice is after donation. Therefore, the sum of the rates across posting choices equals the donation rate. The remaining fraction of participants (to reach 100%) corresponds to participants who choose not to donate.

made simultaneously. Therefore, some participants may choose to donate *only* to acquire the right to self-promote. These participants may choose not to donate if the social image costs associated with self-promotion are high. In this regard, our treatment manipulations may affect self-promotion by (i) directly impacting posting choices and (ii) indirectly through donation decisions. In Section 4.4, we explore how much of the observed gender difference in self-promotion behaviour can be explained by gender differences in donation decisions. This includes results from an additional design where the self-promotion and donation decisions are not made simultaneously. For completeness, we report conditional (on donating) self-promotion results in Appendix A6. Overall, our main results are robust in relation to donation behaviour.

3.2. The BL and MO treatments

From Table 3 and Fig. 1, we find that the self-promotion rate for men in the BL treatment was over five times higher than that of women’s (37.7% vs. 7.3%, *p* < .01). We also observe that women, compared to men, opted to (i) send private messages at a higher rate (49.1% vs. 69.1%, *p* = .03) and (ii) donate at a lower rate (92.5% vs. 80%, *p* = .06). Additionally, we find the rate of doing nothing in terms of posting choice was similar across gender (5.7% vs. 3.6%, *p* = .62). These results are consistent with the conjecture that when no justification is provided, women face a greater intrinsic cost to self-promote relative to men. Thus, this gives rise to a gender gap in self-promotion in the BL treatment.

Result 1: Men were more likely to self-promote a prosocial action than women in the BL treatment.

In the MO treatment, women responded with a three-fold increase in their self-promotion rate (from 7.3% to 23.2%, *p* = .02, Table 4). The higher self-promotion in the MO treatment, relative to the BL treatment, coincides with (i) a decrease, although not statistically significant, in the rate at which private messages are used (69.1% vs. 59.4%, *p* = .27) and (ii) an increase in the donation rate (80% vs. 91.3%, *p* = .07). We find a non-statistically significant increase in the rate of doing nothing (3.6% vs. 8.7%, *p* = .26) between the BL and MO treatments. These results suggest that the MO message may have motivated some women – who would choose not to donate in the BL treatment – to donate in

Table 3 Self-promotion and donation behaviour by treatment across gender

	n	Donation behaviour			Posting choice ^a		
		Donation rate (%)	Amount (\$)	Nothing (%)	Private message (%)	Self-promotion (%)	
	(1)	(2)	(3)	(4)	(5)	(7)	
Panel A: Behaviour within gender							
Male experimental subsample (n = 172)							
Baseline (BL)	53	92.5	5.8	5.7	49.1	37.7	
Modest (MO)	77	75.3	4.2	5.2	50.6	19.5	
Self-Justification (SJ)	42	54.8	4			54.8	
Female experimental subsample (n = 170)							
Baseline (BL)	55	80	4.3	3.6	69.1	7.3	
Modest (MO)	69	91.3	5.8	8.7	59.4	23.2	
Self-Justification (SJ)	46	69.6	4.2			69.6	
Panel B: Differences across gender							
Male vs. female							
Male-female in BL		12.5 (.06)	1.5 (.04)	2.1 (.62)	-20 (.03)	30.4 (<i><.01</i>)	
Male-female in MO		-16 (.01)	-1.6 (.01)	-3.5 (.40)	-8.8 (.29)	-3.7 (.58)	
Male-female in SJ		-14.8 (.15)	-2 (.39)			-14.8 (.15)	

Notes: p-value presented in parentheses. p-values are based on 2-sided $\chi^2/2$ or Wilcoxon rank-sum for the donation amount) on the difference in the outcome variable across gender for a specific treatment.

^aPosting choice is after donation. Therefore, the sum of the rates across posting choices equals the donation rate. The remaining fraction of participants (to reach 100%) corresponds to participants who choose not to donate.

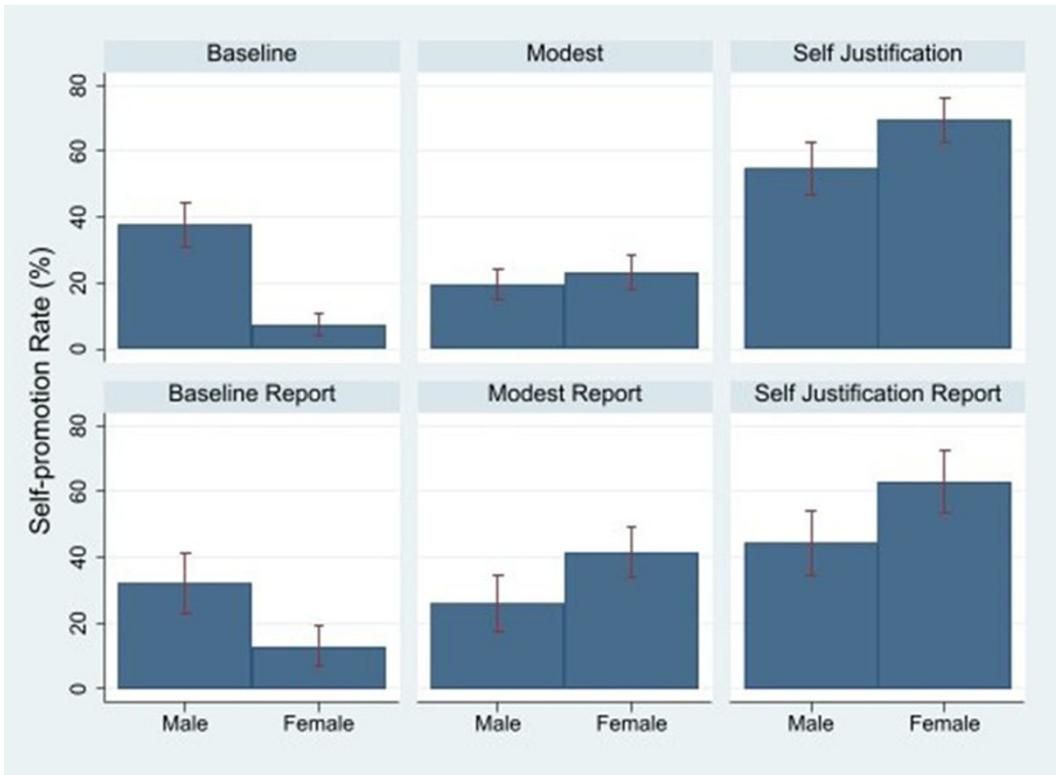


Fig. 1 Self-promotion rates across treatments
 Notes: The bars denote mean self-promotion rates. The whiskers denote the standard errors around the mean.

the MO treatment with the intention of engaging in self-promotion. Indeed, we find that, conditional on donating, a greater proportion of female participants choose to self-promote in the MO treatment relative to the BL treatment (9.1% vs. 25.4%, $p = .03$, Table A6.1).

For men, the self-promotion rate decreases by 18.2% (37.7% vs. 19.5%, $p = .02$, Table 4). As reported in Table 4, this coincides with (i) donation rate decreasing by 17.2% in the MO (92.5% vs. 75.3%, $p = .01$), (ii) no difference in the rate at which private messages are sent (49.1% vs. 50.6%, $p = .86$) and (iii) no difference in the rate of doing nothing in terms of posting choice (5.7% vs 5.2%, $p = .91$). These results suggest that the MO message affected men’s behaviour in a way that was counter to the expectations from our conceptual framework. We explore several possible explanations for this result in Section 4.3.

Result 2: In the MO treatment, relative to the BL treatment, the self-promotion rate increases for women and decreases for men.

The gender difference in the rate of self-promotion in the BL treatment is no longer evident in the MO treatment (19.5% vs. 23.2%, $p = .59$). However, given that we observe a decrease in self-promotion for men between the BL and MO treatments, it is important to examine whether the increase in self-promotion for women is independently large enough to eliminate the gender gap. To test this, we compare self-promotion rates for women in the MO treatment to self-promotion rates for men in the BL treatment. The adjusted gender gap in self-promotion is 14.5% (men BL: 37.7% vs. women MO: 23.2%, $p = .08$). The original gender gap in the BL treatment of 30.4% is halved in the MO treatment independent of men’s change in behaviour.

Result 3: In the MO treatment, the gender gap in self-promotion is eliminated.

Table 4 Self-promotion and donation behaviour by gender across treatments

	Male experimental subsample (n = 172)					Female experimental subsample (n = 170)						
	Donation behaviour			Posting choice ^a		Donation behaviour			Posting choice ^a			
	n	Donation rate (%)	Amount (\$)	Nothing (%)	Private message (%)	n	Donation rate (%)	Amount (\$)	Nothing (%)	Private message (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Behaviour within treatments												
Baseline (BL)	53	92.5	5.8	5.7	49.1	37.7	55	80	4.3	3.6	69.1	7.3
Modest (MO)	77	75.3	4.2	5.2	50.6	19.5	69	91.3	5.8	8.7	59.4	23.2
Self-Justification (SJ)	42	54.8	4			54.8	46	69.6	4.2			69.6
Panel B: Differences across treatments												
BL-MO		17.2 (.01)	1.6 (.02)	0.5 (.91)	-1.6 (.86)	18.3 (.02)		-11.3 (.07)	-1.5 (.02)	-5.1 (.26)	9.7 (.27)	-15.9 (.02)
BL-SJ		37.7 ($<.01$)	1.8 ($<.01$)			-17 (.10)		10.4 (.23)	.1 (.88)			-62.3 ($<.01$)

Notes: p-values presented in parentheses. p-values based on 2-sided test (or Wilcoxon rank-sum for the donation amount) on the difference in the outcome variable across relevant treatments for each gender.
^aPosting choice is after donation. Therefore, the sum of the rates across posting choices equals the donation rate. The remaining fraction of participants (to reach 100%) corresponds to participants who choose not to donate.

In Sections 4.1 and 4.2, we explore to what extent social image concerns explain gender differences in self-promotion behaviour.

Finally, for completeness, we present results on donation amounts. When donation amounts are calculated, including the participants who choose not to donate, we find men donate higher amounts than women (\$5.8 vs. \$4.3, $p = .03$, Table 3). In the MO treatment, this pattern is reversed: Women donate higher amounts than men (\$4.2 vs. \$5.8, $p = .01$). When we exclude the participants who do not donate, no significant differences across gender are observed in the BL (\$6.3 vs. \$5.3, $p = .25$) and the MO (\$5.6 vs. \$6.4, $p = .31$) treatments.⁸

3.3. BL vs. SJ treatments

In the SJ treatment, 62.5% of participants chose to self-promote (Table 2 and Fig. 1). This is 2.8 times higher than the self-promotion rate in the BL treatment (22.2% vs. 62.5%, $p < .01$). However, behaviour varies across gender. For women, the rate of self-promotion increased approximately 10 times (7.3% vs. 69.6%, $p < .01$). For men, the self-promotion rate increased only marginally (37.7% vs. 54.8%, $p = .10$). These results imply that a significant proportion of women, who would choose *not* to self-promote in the BL treatment, would be willing to self-promote to obtain the benefits associated with donating in the SJ treatment.⁹ In terms of donation, male participants reduced the rate ($p < .01$) and the amount ($p < .01$) between the BL and SJ treatments (Table 4). For female participants, neither the donation rate nor the donation amount changes significantly between the BL and SJ treatments ($p > .1$ for both).

Result 4: Relative to the BL treatment, in the SJ treatment, women increase their self-promotion rate. Men's self-promotion rate increases only marginally. There is no gender gap in self-promotion.

3.4. Robustness of the self-promotion results

How others perceive the prosocial value of donations may depend on the amounts given to charity. Therefore, it is possible that in our experiment, the willingness to self-promote may change if the donation amount is reported in the predesigned message. For instance, some participants with a preference to donate small amounts may only choose to self-promote when the amount donated is not reported. This is because, despite the low donation, keeping the amount donated undisclosed would allow them to get the full social image benefit of being viewed as prosocial. If donation amounts are reported, making small donations and self-promoting may not provide the same social image benefit (e.g., reporting \$1 out of \$15 would have a lower social image benefit than \$15 out of \$15). To examine whether self-promotion rates, in particular across gender, are sensitive to the reporting of the amounts donated, we ran three additional treatments. In these treatments, the donation amount was included in the self-promotion message. We label them as Baseline Reporting (BL-R), Modest Reporting (MO-R), and Self-Justification Reporting (SJ-R) treatments.

Overall, the self-promotion rate (32.1 vs. 36.5, $p = .32$) and the donation amounts (4.77 vs. 4.70, $p = .60$) were not significantly different across report and no-report treatments. With regards to self-promotion behaviour across gender, we present results for each treatment in Appendix A4, Tables A4.1–A4.3 and Fig. 1. We find that (i) men self-promote at a higher rate than women in the BL-R treatment, (ii) women increase their self-promotion between the BL-R and MO-R treatments, while men's self-promotion remains unchanged, (iii) the gender gap in self-promotion is eliminated in the MO-R

⁸In appendix A5, we explore the difference in donation behaviour across self-promoters and non-self-promoters. We find that both male and female self-promoters donated more than non-self-promoters, irrespective of the treatment.

⁹The impact of justifications on self-promotion behaviour may be related to the literature on motivated reasoning (see Gino et al., 2016, for an excellent review). In general terms, motivated reasoning refers to situations where individuals manipulate how they process information to find justifications to act egoistically, while feeling moral. The prior literature is often about self-generated justifications to, for example, avoid acting prosocially; in our context, the justifications are exogenously facilitated to affect self-promotion behaviour.

treatment, and (iv) women increase their self-promotion rate between the BL-R and SJ-R treatment, while men's self-promotion rate is unchanged. Therefore, our results in the no-reporting treatments are robust (identical in sign and significance) to the inclusion of the amount donated in the self-promotion message. The only difference is that men's self-promotion behaviour across treatments, which changed in the no-report treatments, remained invariant in the report treatments.

4. Explanations for behaviour

In this section, we examine possible explanations for the results of our experiment.

4.1. To what extent are our experimental results explained by modesty concerns?

Our preferred interpretation for the patterns of self-promotion observed in the experiment is that the MO message provides a better social image justification to self-promote than the BL message. This, in-turn, allows participants to self-promote at a lower social image cost relative to using the BL message. Based on this explanation, self-promotion using the MO message would be perceived as more modest than that using the BL message. To test these two assertions, we ran an additional survey of 101 respondents (51 male and 50 female) from the same subject pool from which the experimental subjects were recruited (Appendix A2 provides the full instructions and survey questions). These individuals were presented with a hypothetical situation where one of their Facebook friends posted the BL message and another friend posted the MO message on their respective Facebook walls. Respondents were subsequently asked (i) which friend had a better justification for posting the message on their wall, (ii) to identify the message which was more modest, and (iii) which of the two messages they would choose to make their charitable donations public in the hypothetical scenario provided. For each of these questions, the respondents were asked to choose either the BL or the MO message. By asking about which of the two messages provides a better justification, we try to establish, in general terms, which of the two messages is perceived to be more socially acceptable for self-promotion. The second question allows us to explore whether modesty is a possible mechanism for the difference in the social acceptability of the messages. Finally, the third question elicits how these perceptions translate to intentions of self-promotion behaviour in the hypothetical situation presented.

The results, along with differences across gender, are presented in Table 5 (Panel A).

Consistent across these survey measures and in line with our interpretation of the results, we find that the majority of respondents consider the MO message to (i) provide a better justification to self-promote (82.2%, $p < .01$, 2-sided binomial test) and (ii) be more modest (70.3%, $p < .01$, 2-sided binomial test). Further, most of the respondents indicated that they would be more likely to self-promote (75.2%, $p < .01$, 2-sided binomial test) using the MO message in the hypothetical scenario provided.¹⁰

To further explore how each of the two messages were perceived, the survey respondents were also asked to rate the BL and the MO message on a 0 to 100 scale in terms of modesty (higher number indicates higher level of modesty). Results and differences across gender are presented in Table 5 (Panel B). Similar to the survey findings presented above, respondents' answers provide some suggestive evidence that the difference in modesty between the two messages can be a mechanism behind

¹⁰From Table 5 (Panel A), we also observe that a majority of both female and male respondents found the MO message provided a better justification for self-promotion ($p < .01$ for both subsamples, 2-sided binomial test). In terms of modesty of the messages, 80% of female respondents found the MO message to be more modest than the BL message ($p < .01$, 2-sided binomial test), while only 60.8% of male respondents found the MO message to be more modest ($p = .16$, 2-sided binomial test). This difference across gender of 19.2% is statistically significant ($p = .04$, 2-sided test). Finally, in terms of the hypothetical self-promotion choice, a majority of both male and female respondents indicated a preference for the MO message ($p < .01$ for both subsamples, 2-sided binomial test). However, a significantly larger proportion of women (84%) was more likely to report this preference relative to that of men (66.7%, $p = .04$, 2-sided test).

Table 5 Survey respondents' opinions on the baseline (BL) and modest (MO) messages

	Full survey sample (n = 101)	Male respondents (n = 51)	Female respondents (n = 50)	Difference between respondent types (Columns 2–3)
	(1)	(2)	(3)	(4)
Panel A				
% of respondents who found the use of the Modest (MO) message to be better justified than the Baseline (BL) message	82.2 (<i><.01</i>) ^b	76.5 (<i><.01</i>) ^b	88 (<i><.01</i>) ^b	-11.5 (.13) ^a
% of respondents who found the Modest (MO) message to be more modest than the Baseline (BL) message	70.3 (<i><.01</i>) ^b	60.8 (.16) ^b	80 (<i><.01</i>) ^b	-19.2 (.04) ^a
% of respondents who would use the Modest (MO) message over the Baseline (BL) message to publicize if they were in the position to self-promote	75.2 (<i><.01</i>) ^b	66.7 (.02) ^b	84 (<i><.01</i>) ^b	-17.3 (.04) ^a
Panel B: Perception of message modesty				
Baseline (BL) message (0 to 100, with 100 being the highest modesty)	42.9	43.8	42.1	1.7 (.84) ^c
Modest (MO) message (0 to 100, with 100 being the highest modesty)	60.3	53.2	67.5	-14.3 (<i><.01</i>) ^c
Difference across BL and MO	-17.4 (<i><.01</i>) ^d	-9.4 (.07) ^d	-25.4 (<i><.01</i>) ^d	16 (.05) ^c

Notes: p-value presented in parentheses.

^ap-value based on a 2-sided test on the difference in outcome variable across gender subsamples.

^bp-values based on a 2-sided binomial test, testing whether the choice in outcome variable is different from random chance (50%).

^cp-values based on a 2-sided Wilcoxon rank-sum test on the difference in outcome variable across gender.

^dp-values based on a 2-sided Wilcoxon signed-rank test on the difference of opinion of modesty rating of the two messages.

the behaviour we observe in the experiment. First, the MO message received a higher score than the BL message in the modesty scale (60.3 vs. 42.9, $p < .01$). Second, this perceived difference in modesty between the two messages is more pronounced for women (25.4 vs. 9.4, $p = .05$). Finally, we find that participants who reported a larger rating disparity between the MO and the BL messages, were more likely to self-promote with the MO message. Specifically, a 10-point greater belief that the MO message is more modest than the BL message, increases the probability of choosing the MO message for self-promotion by 6.9% ($p < .01$, univariate ordinary least squares (OLS)).¹¹

4.2. Are beliefs about self-promotion consistent with observed behaviour in the experiment?

As a part of the survey conducted (described in Section 4.1), we also elicited beliefs about self-promotion behaviour in the experiment. Respondents were incentivized (\$2) for accurately predicted self-promotion behaviour. These belief results are reported in Table 6.¹²

Overall, the level of self-promotion predicted by survey respondents was significantly higher than that observed in the experiment (21.6 vs. 61.1, $p < .01$). One possible explanation for this result is the presence of a perception behaviour gap in this context – namely, self-promotion behaviour is perceived to be more acceptable than actual behaviour. Even though individuals understand that self-promotion can be viewed as immodest (see Section 4.1), they underestimate (overestimate) the costs (benefits) associated with self-promotion, particularly when evaluating the behaviour of others.

Turning to beliefs about self-promotion behaviour across gender and treatment, first, we find that the respondents predict no self-promotion differences across gender in the BL treatment (3.0%, $p > .1$) – that is, result 1 is not anticipated by the respondents. Second, respondents predict both male and female experimental participants to increase their self-promotion in the MO treatment (5.9%, $p < .05$ for men and 13.4%, $p < .01$ for women) relative to the BL treatment. Unlike the predictions of the survey respondents, male participants in the experiment did not increase their self-promotion in the MO treatment; the direction of behaviour of only female participants was accurately predicted. Third, respondents predict that an increase in self-promotion between the BL and MO treatments is higher for women than men (7.5%, $p < .01$). In line with the prediction of the respondents, there was a larger treatment effect on self-promotion for women in the experiment. Finally, the survey respondents' believed that women self-promote at a higher rate than men in the MO treatment (4.5%, $p < .05$). This prediction is inconsistent with the observed behaviour in the MO treatment, where no gender difference in self-promotion was observed.

Overall, we find the belief results to be *not* fully consistent with those observed in the experiment. Specifically, respondents believe that there would be no gender difference in self-promotion in the BL treatment but predict a higher self-promotion rate for women in the MO treatment. In the experiment, we find men self-promote at a higher rate than women in the BL treatment, and this gender gap becomes eliminated in the MO treatment. One possible explanation for these inconsistencies could be that respondents misperceived the differential social image costs (benefits) associated with self-promoting across gender. For example, if the relative social image costs (benefits) for women was underestimated (overestimated), anticipating no gender gap in self-promotion in the BL treatment is plausible. This also suggests that expectations about how others will behave (often termed descriptive norms) in the BL treatment may not play a significant role as a mechanism.¹³

¹¹We ran a univariate regression where the dependent variable was the hypothetical choice to self-promote with the MO message (=1) over the BL message (=0), and the independent variable was the difference between the modesty rating provided for the BL and the MO message. The coefficient estimate was .0069 ($p < .01$).

¹²We also elicited beliefs from experimental participants. We prefer the elicitation method conducted via survey because (i) beliefs by the experimental participants may be influenced by their behaviour in the experiment and (ii) for the experimental sample, we did not ask participants to predict the behaviour of both men and women. For completeness, we present these results in Appendix A2.

¹³There could be at least two potential factors at play here. Women may expect that other women will exhibit less self-promotion in the BL condition than men. This expectation might lead them to engage in less self-promotion themselves (i.e.,

Table 6 Survey respondents' beliefs on messages and self-promotion behaviour in the experiment

	Full survey sample	Male respondents	Female respondents	Differences across respondent types (Columns 2-3)	
	(n = 101) (1)	(n = 51) (2)	(n = 50) (3)		(4)
Panel A: Beliefs about self-promotion of female and male participants in each treatment					
Baseline (BL)	Female	54.8	57.6	51.9	5.7 (.33) ^a
	Male	57.8	59.4	56.2	3.2 (.51) ^a
Modest (MO)	Female	68.2	67.4	68.9	-1.5 (.53) ^a
	Male	63.6	60.5	66.8	-6.2 (.16) ^a
Panel B: Differences^b					
	(Male-Female) BL	3	1.8	4.3	
	(Male-Female) MO	-4.5**	-6.9**	2.1	
	(BL-MO) Male	-5.9**	-1.2	-10.6***	
	(BL-MO) Female	-13.4***	-9.8***	-17***	
	(BL-MO) Male-(BL-MO) Female	-7.5***	-8.7***	-6.4*	

Notes: Survey respondents were asked to guess how many of the participants in the experiment posted the message on their Facebook wall. Their responses were converted to percentages and are presented here in Panel A.

^ap-value presented in parentheses.

^bp-values based on a 2-sided Wilcoxon rank-sum test on the difference in beliefs across the gender of the survey respondents.

^cFor each sample, differences are calculated for each individual for the relevant comparison and then aggregated across individuals. For example, (Male-Female)|BL implies first calculating differences in beliefs about self-promotion across gender in the BL treatment and then aggregating across individuals. To test if the numbers are statistically different from 0, we use a 2-sided Wilcoxon signed-rank test.

***p < .01.

**p < .05.

*p < .1.

4.3. Why does male self-promotion decrease between the BL and MO treatments?

Contrary to our predictions, we find a decrease in self-promotion rates between the BL and MO treatments for men. In this Subsection, we first examine the robustness of this finding (using our reporting treatments) and then explore possible explanations for the observed behaviour.

The self-promotion rate for men in the BL-R and MO-R treatments is 32.1% and 25.9%, respectively (Table A4.1). This difference is not statistically significant ($p = .61$, $n = 55$), and the effect size is very small (.13, Hedges's g). This result suggests that the reduction in self-promotion observed in the no-report treatments for men is not robust.

But why does self-promotion *not increase* for men between the BL and MO treatments? We use the results from our survey (described in Section 4.1) to explore potential explanations. From Panel A in Table 5, we observe that, unlike their female counterparts, male respondents did not find the MO message to be more modest ($p = .16$) than the BL message. This is further corroborated by their rating of the MO message, which was only rated as marginally ($p = .07$) more modest (Panel B, Table 5). Turning to expectations of behaviour in the experiment (Table 6), we observe that only female respondents expected an increase in self-promotion for all participants ($p < .01$ for both expectations across gender) in the experiment. Male respondents only expected female participants ($p < .01$) to increase their self-promotion between the BL and MO treatment. Taken together, these results imply that (i) our assumption of higher modesty of the MO message is not as strong for men as it is for women and (ii) the treatment manipulation may not have translated to a lower perceived social image cost for men. Therefore, the MO treatment did not lead to higher self-promotion for men. As an alternative explanation, it is also conceivable that some men prefer being immodest and therefore were more likely to self-promote in the BL treatment. Unfortunately, our survey is unable to distinguish between these possible explanations.

4.4. To what extent do gender differences in donation behaviour explain gender differences in self-promotion?

In Section 3.2, we reported that there were significant differences in donation behaviour across gender in the BL and MO treatments. Given that both the donation and self-promotion choice were simultaneously made, it is plausible that gender differences in donation behaviour, both within and across treatments, can explain part of the changes in self-promotion. We use a regression framework to investigate this possibility. We follow our baseline specification but also include the amount donated and its interaction with the female dummy variable. All our regression estimates are obtained using OLS with standard errors clustered at the session level. Difference estimates within and across treatment and gender are presented in Panels B–D of Table 7.

From columns 1 and 3, we observe that the main results related to self-promotion are replicated. From Panel A in column 2, we also find that for men (women), a \$1 increase in donation is associated with an increase in self-promotion by 2% (2.5%). Next, we investigate the relationship between gender differences in donation and self-promotion behaviour. In all the comparisons (Panels B, C, and D), the treatment indicators are fairly stable to adding the donations amount as a covariate. The coefficient estimates of the gender difference in the BL treatment (Panel B) decreases from .305 to .297 between columns 1 and 2. This implies that only 2.6% of the self-promotion gender difference in this treatment is explained by gender differences in donation behaviour. Similarly, accounting for changes

they follow the descriptive norm). We do not find evidence for this. Alternatively, they may perceive that while other women may opt out of self-promotion in the BL treatment, they may personally consider it socially appropriate to do so (the injunctive norm). Unfortunately, we do not measure this latter aspect, which prevents us from fully understanding the impact of beliefs and the influence of social image concerns as an explanation in more detail.

Table 7 Regression estimates of self-promotion choice across gender and treatments

Self-promote (Choice 1 × 0)	Baseline (BL) vs. Modest (MO)		Baseline (BL) vs. Self-Justification (SJ)
	(1)	(2)	(3)
Panel A: Coefficient estimates			
Modest (MO) (=1)	-.174* (.090)	-.148 (.094)	
Female (=1)	-.305*** (.071)	-.297** (.105)	-.306*** (.073)
MO*female	.344*** (.081)	.272*** (.091)	
Self-Justification (SJ) (=1)			.18 (.104)
SJ*female			.456*** (.108)
Amount donated		.02** (.008)	
Amount Donated*female		.005 (.011)	
Monash Sessions (=1)	-.073 (.048)	-.024 (.055)	-.135*** (.04)
Constant	.391*** (.087)	.265** (.112)	.403*** (.087)
Panel B: Gender difference within treatment			
(Male-Female) MO	-.039	.025	
(Male-Female) BL	.305***	.297**	.306***
(Male-Female) SJ			-.151*
Panel C: Treatment difference within gender			
(BL-MO) Female	-.17***	-.124*	
(BL-MO) Male	.174*	.148	
(BL-SJ) Female			-.637***
(BL-SJ) Male			-.18
Panel D: Additional treatment difference across gender			
{(BL-MO) Male} - {(BL-MO) Female}	.354***	.272***	
{(BL-SJ) Male} - {(BL-SJ) Female}			.456***
Observations	254	254	196
R-squared	.065	.115	.243

Notes: Coefficient estimates from OLS regressions are presented in Panel A. Standard errors, clustered at the session level, are presented in parentheses. The dependent variable is the choice to self-promote. The independent variables correspond to the categorical variables shown in the left column. MO and SJ are treatment indicator variables, Female and Monash sessions are an indicator variable to denote a participant is female and participated in a session conducted at Monash University, respectively. Amount donated refers to amount donated in the experimental task. Amount donated*female is the interaction term of the two variables. Difference estimates presented in Panel B-D are based on coefficient estimates reported in Panel A. Columns 1 and 2 pertain to comparison between BL and MO treatments, and Column 3 pertains to comparisons between BL and SJ treatments.

***p < .01.

**p < .05.

*p < .1.

in donation behaviour across BL and MO treatments (Panel C) changes the coefficient from .170 to .124 for women and .174 to .148 for men. Finally, accounting for changes in donation behaviour marginally reduces the impact of our treatment on the gender gap. Before controlling for the donation

amount, the coefficient is .354, which changes to .272 after donation amounts are controlled for (Panel D). To summarize, we find evidence that changes in donation behaviour that arise due to our treatment can only explain a relatively small part of the change in overall self-promotion behaviour in our experiment.

Given our experimental design, it is conceivable that the message manipulation could have affected donation behaviour due to reasons other than modesty. This is because participants are aware of the content of the message (and the consequences of posting or privately sending it) before they make the donation decision. To examine this explanation, we conducted an additional treatment that is identical to the original variants in the experiment, except that participants are only told that 'for you to acquire donation matching you have to copy the predesigned message we will provide...' when making their self-promotion choice. Therefore, the exact content of the predesigned message was only revealed to the participants if they chose to donate. We label this treatment the delayed message treatment. This allows us to investigate if behaviour changes when subjects are unaware of the content of the message.

We collected 98 observations in total; we discuss details of the procedure and report the results in Appendix A3. In this new variant, we used the predesigned message from the MO treatment. First, we find little difference in rates of donation and self-promotion across gender between the delayed message treatment and the original MO variant. In the delayed message treatment, the gender difference in donation rate is 22.6%, which is comparable to that in the original treatment – 16% (difference-in-difference, $p = .52$). In terms of self-promotion, we find that in the delayed message treatment, 15.7% of women and 14.9% of men self-promote. Compared to the original design, self-promotion rates are not statistically different for women (15.7% vs. 23.2%, $p = .31$) and men (14.9% vs. 16.3%, $p = .52$). Further, estimates for the difference-in-difference is 2.9% and is not statistically significant ($p = .77$). These results suggest that the timing of the disclosure of the content of the predesigned message had no impact on either the donation or the self-promotion rate for both men and women.

In summary, these results suggest that the gender differences in self-promotion are only marginally explained by gender differences in donation behaviour both within and across treatments. Further, the gender differences in self-promotion observed in the original experiment are largely similar to the case when the self-promotion and donation decisions are decoupled.

5. Conclusion

Eliminating gender inequality is a top priority for most international organisations, such as the United Nations and the International Labor Organisation, as well as global non-governmental organisations and virtually all regional organisations and governments in the world. This collective effort has resulted in significant achievements in recent years, including improvements in women's access to education and healthcare. However, gender ratios in many spheres of life, including organisations and governments, are still skewed. One plausible factor contributing to the gender gap is women's reluctance to self-promote relative to men. This would place them at a disadvantage in situations where self-promotion is essential for acquiring professional and social success.

In this study, we show that when self-promotion of a prosocial action is undertaken using a stark immodest message, women self-promote significantly less than men. We view this result as an upper bound in the self-promotion gender gap. When we facilitate self-promotion by providing a social image justification or a self-justification, this gender gap disappears. From our results, we can draw important lessons. First, our results suggest that women face higher intrinsic costs than men to self-promote a prosocial action. Second, subtle changes to the language used to self-promote (adding a social image justification), or the provision of a self-justification (by changing the cost of the self-promotion choice), have a significant positive impact on women's behaviour. Since it is possible that some of these justifications could be exogenously facilitated, institutions and organisations may be

able to play a more active role in the design of policies to provide such justifications. Organisations could also take an indirect approach to addressing this gender gap. This can be achieved by making individuals aware of communication strategies to tackle the constraints posed by social modesty norms as part of training and professional development programmes.

Finally, since the research on the choice to self-promote is still relatively new, more studies are needed to improve our understanding of the female deficit in this regard. For example, in many settings, individuals can choose their own communication strategies for self-promotion. This implies that the size of the gender gap in self-promotion would depend on the willingness and capacity of individuals across gender to find and craft believable justifications for self-promoting. This is an avenue that future research can explore. Future studies may also investigate the self-promotion choice across gender when the underlying actions to self-promote are not based on prosociality, such as the self-promotion of personal traits or professional achievements. Further, researchers can investigate whether the female self-promotion deficit varies across different environments, for example, settings where the self-promotion audience is predominantly male or female.

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