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Gender priming in solidarity games

The Philippine context

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Abstract: What is the effect of gender priming on solidarity behaviour? We explore a two-player solidarity game where players can insure each other against the risk of losses. In the utility function, priming is represented as the 'change in weight' given to the other player's payoff. We test this experimentally in a developing country setting, the Philippines. We consider a treatment that involves reminding subjects of their gender. We found that, without priming, there were no statistically different gender differences in the solidarity game. With priming, however, there was an increased willingness in women to provide insurance.

Key words: gender, priming, solidarity, gender differences, Philippines

JEL classification: C91; C93; J16; O16

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1 Introduction

Each individual has a social identity, be it gender, ethnic, religious, corporate, or national, among others. Research has shown that once any of these identities are made more salient, individuals tend to behave similarly to what is expected of this identity. This self-categorization theory which goes back to James (1890) and Turner (1982) asserts that each individual has multiple identities, each with its own set of norms and beliefs about how a person should behave in each category. However, if a prime makes one of these identities salient, an individual may behave according to the norms of the salient category (Benjamin et al. 2010). Priming can activate social motives, thereby affecting individual behaviour (Hogg and Abrams 1988; Tajfel and Turner 1979; Turner 1982; Turner and Onorato 1999).

The purpose of this paper is to examine how gender priming impacts the ability of individuals to insure others. We aim to address three questions. First, are there significant gender differences in behaviour in solidarity games? Second, how does priming one's gender identity affect willingness to insure others? Third, does priming affect behaviour in solidarity games differently depending on gender?

We study these through a two-player solidarity game with priming. In our two-player experiment, players can provide full unconditional insurance to each other against the risk of losses, which is a modified version of the three-player solidarity game by Selten and Ockenfels (1998). Subjects submitted to the priming treatment had another task. Before playing the solidarity game, they were asked to indicate their gender. They also wrote down the differences and/or stereotypes they perceived between men and women. This priming task, hence, enabled us to pinpoint and explain the observed gender differences, which is often disregarded in many experimental studies (Sent and van Staveren 2019). Moreover, the game's design highlights the moral motive which is made salient by gender priming. For example, communal behavioural attitudes are stereotyped as feminine, while agentic behavioural attitudes are linked with masculinity (Sent and van Staveren 2019). Overall, our theoretical predictions conjecture that gender priming may lead to gender differences in the willingness to insure others. We model this by proposing a parameter measuring the weight a player gives to the payoff of another player. Our experimental observations provide further support. We find that without priming, there are no statistically different gender differences in the amount of insurance allocated in the solidarity game. With gender priming, significant experimental evidence implies a greater tendency of women to insure others. Female subjects were also found to be more inequality-averse when they were reminded of their gender.

Our findings contribute to the literature in various ways. First, we are the first to study gender priming in solidarity games. In our research, we try to understand how gender priming affects the amount of unconditional insurance given to another player in the case of loss. Dictator games only investigate one-way generous behaviour (i.e. how much will you give to charity?), while our two-player solidarity game involves dyadic insurance decisions under the risk of loss. Decisions taken in solidarity games range from expressions of unconditional giving to self-regard. Furthermore, past dictator game experiments merely focus on gender differences in altruism. They show that women are more likely to volunteer time and donate money. They tend to show empathy and value generosity compared to men (Andreoni and Vesterlund 2001; Beutel and Marini 1995; Eckel and Grossman 1996, 1998; Einolf 2011; Eisenberg et al. 1989; Leslie et al. 2013; Mesch et al. 2011; Mesch et al. 2006; Piper and Schnepf 2008; Rooney et al. 2005; Simmons and Emanuele 2007). Moreover, Dufwenberg and Muren (2006), and Kamas et al. (2008) find that women are more likely to donate to charity anonymously and feel more responsible for those in need, while men's actions tend to be more calculated depending on their potential monetary and non-monetary gains.

The returns to charitable giving which tend to be attractive to men include tax incentives, income, and reputational gain (Andreoni et al. 2003; Böhm and Regner 2013). Our work is similar to the dictator game study of Boschini et al. (2012) where they asked subjects to indicate their gender prior to the experiment. They showed that, regardless of the lack of pronounced differences between men and women, gender priming drives men and women to behave similarly to what the norm dictates their behaviour should be in terms of generosity. Their findings indicate that gender priming results in observed gender differences in terms of generosity, but only in mixed gender environments. They contradict the study by Croson and Gneezy (2009) which showed that women are more sensitive to cues in experiments than men. The study by Andersen et al. (2013) also found that men are more responsive to social cues.

Second, we conduct the solidarity experiment in a developing country setting, the Philippines. Women in the Philippines are traditionally perceived as homemakers whose responsibilities include prioritizing family and household management over other commitments (Gonzalez 1977; Miralao 1992; Sobritchea 1990). For children at all socio-economic levels, girls are subjected to more restrictions, being kept closer to home because of the stereotypical reason that their place is in the home (Liwag et al. 1998; Porio 1994) to help their mothers run the household (Mendez and Jocano 1979), while boys enjoy greater freedom (see Liwag et al. (1998) for a more complete description of child rearing and gender socialization in the Philippines). The 1950 Civil Code of the Philippines supported this dichotomy. Some gender biases in the legal system were later corrected through the implementation of the Family Code of the Philippines, which aimed, among other things, to promote greater equality in men's and women's rights. With improvements in women's education and employment, the Filipino family system has become more egalitarian (Banzon-Bautista 1977), owing partly to its bilateral kinship system (Fox 1963). Wives take an active role in decision making and jointly take decisions with their husband about household financial matters and children's schooling (IRRI 1988; Porio et al. 1978).

Intergenerational transfer mechanisms which determine the opportunities available to sons and daughters and which may shape gender roles and identities have also evolved. In their inheritance surveys of five rice-growing villages, which include Ilocanos or people from the Northern Philippines (as in our study), Estudillo et al. (2001) found that, compared with the older generation, the 'same-gender' principle has disappeared for the younger generation.[1] Their results also indicate that parents tend to maximize the lifetime wealth of both children depending on their relative advantage. More specifically, sons are preferred in terms of land inheritance while parents invest more in daughters' schooling. IFPRI (1998) explains that this finding is motivated by the relative abundance of work opportunities for men compared to women in the rural setting and that personality differences across genders shaped by culture, such as women being more patient and interested in studies, favour women doing well in school. Previous studies also note that Filipino parents have weak to no preference for the sex of their children (Concepcion 1986; Jocano 1976) compared with other Asian countries, such as China, South Korea, Pakistan, and Bangladesh, which prefer having sons over daughters (Castillo 1993). This suggests that Filipinos generally follow a tradition of egalitarian child preference (Bautista 1988). Some studies even highlight the value of having daughters in the family because of their dependable characteristic whereby they are able to provide more support and care than sons when their parents get older (De Guzman 1976).

Gender systems are varied and complex. As each individual belongs to a certain social collectivity that subscribes to certain normative systems, their decisions are largely influenced by shared social

[1] The 'same-gender' principle is the parental intergenerational transfer where more endowed and better educated fathers (mothers) tend to favour investment in schooling or bequeathing land to sons (daughters).

norms, values, and culture (Mason and Smith 2003). Norms which dictate what is considered to be the appropriate behaviour of men and women often depend on social concepts of self-regard and familial altruism, respectively (Badgett and Folbre 1999). Deviations from these norms, notably by women becoming more self-oriented, may result in women being branded as not being 'feminine' (Chant 2006). While norms and values are hard to change, the role of women in society has evolved through their increased participation in the labour force, strong involvement in household decision-making, and the assumption of important roles in society (e.g. becoming a country's president). Seguino (2007) provided evidence of a shift towards more equitable gender norms and stereotypes caused by women having an increased share of employment.

As gender differences vary across countries, and sometimes within countries, it is important to increase the existing knowledge of gender differences using country-specific or region-specific information to avoid generalizing narratives that may prove inefficient, especially when prescribing appropriate gender intervention frameworks (Peterman et al. 2014). Bezu and Holden (2015), for example, performed dictator game experiments in poor rural villages in the patriarchal African society of Ethiopia. Examining whether there were gender-based differences in terms of generosity, they found that women were not more generous than their male counterparts towards anonymous villagers. Their results further showed that women tend to share their resources with their family less than men. Moreover, Salgado (2018) studied the altruistic behaviour of female and male adolescents in Chile using a dictator game. In this country, characterized by high levels of development, education, and institutional quality, but with a low level of female labour force participation and strong *machista* cultural traits, he found gender-biased expectations in altruism. Some studies show no significant variations in terms of giving in male and female respondents (Ben-Ner et al. 2004; Bolton and Katok 1995).

Finally, we also control for various individual characteristics which may affect how much one is willing to insure others that have not been tackled in the literature. These include financial literacy, general trust, and religion.

2 Theoretical framework

We consider a one-shot, ***symmetric*** insurance game with two players. Each player, Player i and Player j, initially receives a fixed endowment $E_i = E_j = E$ at their disposal. They can keep up to E with probability p_A. Losses up to E have a probability equal to p_B. Player i can decide to insure the other Player j, and vice-versa. The insurance will only be given to Player j if he/she loses. For simplicity in the computations and experimental design, assume $p_A = p > p_B = (1-p)$.

Therefore, each player can divide their endowment into two accounts, Account A_i and Account B_i, and Account A_j and Account B_j. Account A is what each player receives if he/she wins. Account B is the insurance given to the other player. If he/she loses, Player i receives Account B_j from the other player, Player j, as insurance. If giving is unconditional and Player i wins, then Account B_j will not be returned to Player j (i.e. in the experiment, this means it is withheld by the experimenter). The expected payoffs for Player i and Player j are respectively:

$W_i = p_A A_i + p_B B_j$ and,

$W_j = p_A A_j + p_B B_i$,

where $A_i + B_i = E = A_j + B_j$

To decide how much insurance B_i Player i will give Player j, he/she thus maximizes total utility. Total utility is defined as the sum of his/her payoff and the weighted payoff of the other player. We maximize player i's utility with respect to B_i, the amount of insurance he/she gives to player j:

$$U_i = W_i + a(B_i) W_j$$

or

$$U_i = p_A A_i + p_B B_j + a(B_i) p_A A_j + a(Bi) p_B B_i$$

In the above equation, we roughly define priming as something that implicitly influences decisions in the solidarity game. Assume that priming enters the utility function via the weight given to the other player's payoff. Denote this as $a(B_i)$ where $a'(B_i) > 0$ and $a''(B_i) < 0$. This coefficient may represent the sensitivity of the giving behaviour to passive priming, e.g. exposure to the gender writing task, as in the experiment. There is a closed-form solution, B, to this symmetric game if: [2]

$$a'(B_i) pE + a(B_i) - 2p[a(B_i)+1] + 1 > 0$$

That is, a positive amount of insurance is allocated to the other player when $a'(B_i)$ is sufficiently positive. We have the following predictions :

- *PREDICTION 1*: The amount of insurance given to another player, B, is NON-ZERO if their initial endowment and their propensity to transfer insurance to another player is high. If $a(B)$ is zero, i.e. the player only maximizes his/her own payoff, then the insurance transferred is zero.

- *PREDICTION 2*: The amount of insurance transferred increases if $a(B)$ increases, i.e. if a player becomes more sensitive to the payoff of the other player.

If experimental results show that those in the priming treatment increase giving insurance, then we can hypothesize that priming may have shifted $a(Bi)$ to higher values than in the control group. If there is no significant difference, then the counterhypothesis is that priming does not cause behavioural shifts.

3 The experiment

Ninety-six participants took part in hand-run experiments in four different sessions conducted in an IT college (STI College Vigan) and an agricultural studies college (Ilocos Sur Polytechnic College, Main Campus, Sta. Maria) in the province of Ilocos Sur, Northern Philippines. In addition to the money they earned from the games, participants were given a participation fee of P50 (US$1). We provided information about our study prior to the experiment and both institutions gave their consent and were informed about our research. At the end of the experiment, we collected socio-demographic information, as well as data pertaining to their financial literacy, level of trust, and emotions about the experiment. Of the 96 participants, 46 (or 48 per cent) were female. The participants' ages ranged from 17 to 31. The majority were locals or had been born in the province (73 per cent) where the experiments were conducted, and 53 per cent of the

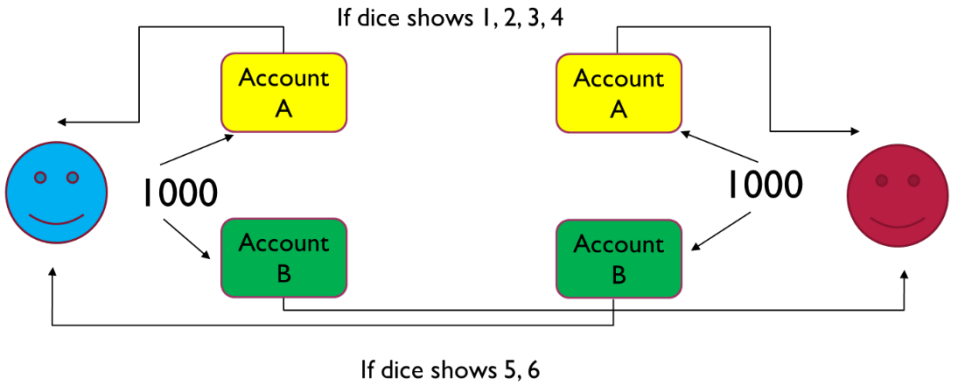
[2] Closed-form solution available from the authors on request.

participants earned some monthly income, though only eight earned at least the minimum wage in the Ilocos Region. Three-quarters of the participants were Roman Catholic.

We randomly assigned participants to one of two groups: a control group, where students were asked to write down the letters of the English alphabet (neutral priming), and a treatment group, where participants were asked to state their gender and write down the differences they perceived between males and females (gender priming). They were asked to do this immediately before they performed the two-player solidarity game. This is an interpersonal decision-making game where both partners, anonymous to each other and with the same initial amount of financial resources, assume symmetric roles in determining how much to give their partner if the partner loses in a dice game with a 2/3 chance of winning and a 1/3 chance of losing. As in Selten and Ockenfels's (1998) classic solidarity game, this two-player modified version, first introduced in Brodbeck et al. (2013), is a one-shot game.[3] Solidarity is defined as a gift that is not necessarily reciprocated. Gift-giving in this game is completely unconditional, unlike in the classic solidarity game. In our experiment, when the player's anonymous partner wins, the insurance allocated by the player is returned to the experimenter.

In the instructions (available in the Appendix), participants were told that each player was randomly paired with another subject in the room. Everyone received an initial endowment of P1,000 (US$20). They were told that their partner also had separate access to another P1,000. They were given the following allocation tasks. Each player had to divide their P1,000 into two accounts: Account A and Account B. Account A was the amount the player would receive if he/she won (i.e. if the dice showed 1, 2, 3, or 4). Account B was the amount the player would give to his/her anonymous partner if the latter lost (if the dice showed 5 or 6). Each subject was informed that if they won, they would receive the amount they allocated to Account A. If they lost, they would receive their anonymous partner's allocation in Account B. To check their comprehension, the subjects were given examples and test questionnaires. A graphical illustration of the game was also utilized (see Figures 1 and 2).

Figure 1: One-shot, two-player solidarity game



Source: authors' illustrations.

[3] There are two forms of risk in this game: a probabilistic risk and a relational risk. The former calls for rational computation as the participant maximizes his/her own expected utility, while the latter (or moral hazard) constitutes alleviating the risk of the anonymous partner's total loss without any assurance or information about how the partner will decide his/her willingness to mitigate the other partner's risk of total loss. Brodbeck et al. (2013) noted that this type of game targets relational risk considerations, while holding probabilistic risk constant, hence making more moral motives more salient.

Figure 2: Potential earnings of the player and anonymous partner

	Win (Dice = 1, 2, 3, 4)	Lose (Dice = 5, 6)
You	Money in your ACCOUNT A	Money in your partner's ACCOUNT B
Partner	Money in your partner's ACCOUNT A	Money in your ACCOUNT B

Source: authors' illustrations.

4 Results

In this section, we discuss the observations from our experimental data.

On average, how does gender priming affect the amount allocated to Account B, i.e. the amount of insurance given to the anonymous partner if the partner loses? Table 1 reports the average amount allocated to Account B and the standard deviations in the control group and the gender priming treatment group. The allocations of participants to Account B (or to their anonymous partner if he/she loses) are significantly higher for the treatment group than the control group using both the Mann-Whitney (Wilcoxon rank-sum) and Kruskal-Wallis tests. Moreover, we note that there is a 62.1 per cent probability that the Account B allocation of the treatment group is greater than the control group. This means that when participants are reminded of their gender, they tend to give more (unconditionally) to or insure their anonymous partner against the risk of losing. This is summarized in Result 1.

RESULT 1: Allocations to Account B are significantly higher for the treatment group (with gender priming) than the control group.

Table 1: Average amount allocated to Account B (amount given to anonymous partner if the partner loses)

Control	Treatment: gender priming	Mann-Whitney z	Kruskal-Wallis χ^2
403.125 (146.74)	453.125 (139.68)	-2.347 [0.0189]	4.150 [0.0416] 5.507 [0.0189] with ties

Note: # obs. = 48 for control and 48 for treatment: gender priming. Standard deviations are in parentheses. Significance levels (p-values) are in parentheses.

Source: authors' calculations.

What drives higher allocations in Account B in the treatment group vis-à-vis the control group? Do men and women both significantly increase their allocations in Account B when they are primed? In order to examine whether there is a differential gender impact in the priming treatment on the amount allocated to Account B (insurance amount to the anonymous partner), we estimate the following four nested models using ordinary least squares (OLS) with robust standard errors:

Model A:

$$Insurance_i = \alpha_0 + \alpha_1 Pr\,i\,min\,g_i + \alpha_2 Male_i + \alpha_3 (Pr\,i\,min\,g * Male)_i + \alpha_4 Age_i + \varepsilon_i$$

Model B:

$$Insurance_i = \alpha_0 + \alpha_1 Pr\,i\,min\,g_i + \alpha_2 Male_i + \alpha_3 (Pr\,i\,min\,g * Male)_i + \alpha_4 Age_i + \alpha_5 LogIncome_i + \alpha_6 NativeBorn_i + \varepsilon_i$$

Model C:

$$Insurance_i = \alpha_0 + \alpha_1 Pr\,i\,min\,g_i + \alpha_2 Male_i + \alpha_3 (Pr\,i\,min\,g * Male)_i + \alpha_4 Age_i + \alpha_5 LogIncome_i + \alpha_6 NativeBorn_i + \alpha_7 Trust_i + \alpha_8 FinLiteracy_i + \varepsilon_i$$

Model D:

$$Insurance_i = \alpha_0 + \alpha_1 Pr\,i\,min\,g_i + \alpha_2 Male_i + \alpha_3 (Pr\,i\,min\,g * Male)_i + \alpha_4 Age_i + \alpha_5 LogIncome_i + \alpha_6 NativeBorn_i + \alpha_7 Trust_i + \alpha_8 FinLiteracy_i + \alpha_9 IT + \varepsilon_i$$

Model E:

$$Insurance_i = \alpha_0 + \alpha_1 Pr\,i\,min\,g_i + \alpha_2 Male_i + \alpha_3 (Pr\,i\,min\,g * Male)_i + \alpha_4 Age_i + \alpha_5 LogIncome_i + \alpha_6 NativeBorn_i + \alpha_7 Trust_i + \alpha_8 FinLiteracy_i + \alpha_9 IT_i + \alpha_{10} Roman\_Catholic_i + \varepsilon_i$$

Where $Insurance_i$ is the amount allocated by participant i to his/her anonymous partner if his/her partner loses the game. $Priming_i$ is a dummy variable that is equal to one if the participant received gender priming treatment, and zero otherwise. $Male_i$ indicates the gender of the participant and is equal to one if the participant is male and zero if female. $(Priming*Male)_1$ is the interaction term between the gender priming treatment and gender. The coefficient estimate of this interaction term indicates the gender difference in the impact of the priming treatment on the amount allocated (insurance) to the participant's anonymous partner. Age_i is the participant's age. $LogIncome_i$ is the natural logarithm of the participant's monthly income. $NativeBorn_i$ is a dummy variable equal to one which indicates whether the participant was born in the Ilocos province, and zero otherwise. $Trust_i$ is a dummy variable which measures general trust. More specifically, it is the participant's response to the question: 'Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?'. $Trust_i$ is equal to one if the participant responded that 'Most people can be trusted' and zero if the participant responded that 'You can't be too careful in dealing with people'. $FinLiteracy_i$ is a measure of the participant's level of financial literacy. It is equal to one if the participant is financially literate, which means that the participant scored at least 5 out of 8 from the questions posed pertaining to three components of financial literacy: financial knowledge (2 questions), financial behaviour (3 questions), and financial attitude (3 questions), and zero otherwise. Moreover, in order to be qualified as financially literate, the participant must score at least one from each of the three components. IT_i is a dummy variable that is equal to one if the participant was from the STI College Vigan (IT school) and zero if the participant was studying at an agricultural college (ISCC Santa Maria). $Roman\_Catholic_i$ is a dummy variable that is equal to one if the participant was a Roman Catholic and zero otherwise. We report the regression results in Table 2A and the average marginal effects of the priming treatment according to gender and linear predictive margins of the male and female respondents with and without the gender priming treatment in Table 2B.

Our results indicate that there is a gender difference in the effect of priming on the insurance amount (solidarity) given to the anonymous partner. This means that female participants tend to give more (unconditionally) to an anonymous partner or care more about others without expecting anything in return when reminded of their gender. However, there are no differences in the insurance amounts or allocations to anonymous partners by male and female participants in the absence of the gender priming treatment. Our findings indicate that women tend to increase their insurance of others' losses, on average, by between 8.08 per cent and 9.84 per cent of their initial

endowment or resource to an anonymous partner when reminded of their gender. Gender priming does not affect men's insurance amount to their anonymous partner although we observe a slight (not significant) decrease of this amount when they are reminded of their gender. These findings are summarized in Result 2.

RESULT 2: Only women significantly increase their allocation to Account B when they are primed for their gender identity. Male participants' average allocation to Account B does not differ in the control and treatment groups.

Table 2A: OLS regressions with robust standard errors of the impact of gender priming on gender differences in terms of solidarity

	A	B	C	D	E
	Amount allocated to Account B: Insurance				
Priming	98.38***	93.83**	82.20**	85.76**	80.81**
	(30.29)	(35.77)	(37.58)	(37.87)	(40.18)
Male	27.72	29.83	20.89	36.24	34.85
	(37.42)	(37.47)	(36.45)	(35.50)	(34.84)
Priming*Male	-112.7**	-117.1**	-102.6*	-108.9*	-104.8*
	(55.09)	(54.44)	(56.63)	(55.78)	(55.41)
Age	-9.971	-11.29*	-11.64**	-12.45**	-12.11**
	(6.324)	(6.206)	(5.828)	(5.698)	(5.601)
LogIncome		4.435	3.611	3.916	3.843
		(4.141)	(3.986)	(3.884)	(3.892)
NativeBorn		73.35*	71.40*	77.27*	74.18*
		(41.09)	(40.13)	(40.51)	(40.51)
Trust			54.75*	53.95*	53.07*
			(28.99)	(28.35)	(28.04)
FinLiteracy			-4.085	3.323	-4.724
			(35.10)	(34.64)	(38.21)
IT				-41.95	-39.60
				(29.83)	(30.03)
Roman_Catholic					-22.26
					(33.61)
Constant	594.0***	550.4***	547.0***	570.0***	585.1***
	(127.8)	(115.7)	(104.7)	(103.7)	(110.6)
Obs	96	94	94	94	94
R^2	0.111	0.163	0.196	0.215	0.218
Adj. R^2	0.072	0.105	0.121	0.130	0.124
F-stat	3.773***	2.913**	2.680**	2.447**	2.201**

Note: standard errors in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01.

Source: authors' calculations.

Table 2B: Average marginal effects of the gender priming treatment according to gender and linear predictive margins of male and female respondents with and without the gender priming treatment

	(A)	(B)	(C)	(D)	(E)
Average marginal effect of the Priming treatment on:					
Male	-14.35	-23.30	-20.37	-23.15	-23.96
	(46.49)	(43.25)	(43.46)	(42.58)	(43.29)
Female	98.38***	93.83***	82.20**	85.76**	80.81**
	(30.28)	(35.77)	(37.58)	(37.87)	(40.18)
Predictive margins (amounts in Philippine pesos):					
a) Female, no priming	396.50	398.54	404.36	402.57	405.05
b) Female, with priming	494.88	492.37	486.55	488.336	485.86
c) Male, no priming	416.89	421.18	419.78	421.113	421.50
d) Male, with priming	402.54	397.88	399.41	397.96	397.54
F-test: no priming, female vs male	0.28	0.38	0.19	0.27	0.22
F-test: with priming, female vs male	5.25**	5.23**	4.02**	4.44**	4.20**

Note: standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01.

Source: authors' calculations.

After choosing the amount by which they are willing to insure others against loss, the respondents wrote their primary motive behind their allocation to Account B (insurance amount). In general, the respondents either identified fairness or maximizing their own payoffs (Account A) because the probability of winning was higher. Table 2C reports the percentage of respondents mainly driven by the fairness motive in their Account B allocations. We observe different patterns across gender depending on whether a respondent was subject to the gender priming treatment or not. Though the majority of respondents were mainly motivated by fairness in all scenarios, women thought more about fairness than maximizing their own payoff when reminded of their gender. We observe the opposite for men.

Table 2C: Percentage of respondents who identify fairness as the primary motive/reason behind the amount of fully unconditional insurance or solidarity extended to anonymous partner

	Percentage of respondents with fairness motive
Male, no gender priming	71.43%
Male, gender priming	54.55%
Female, no gender priming	67%
Female, gender priming	91.67%

Source: authors' calculations.

Table 2D: Respondents' (who received the priming treatment) answer to the question: What do you think are the major differences between men and women?

Cited difference between men and women	Percentage of respondents (who received the priming treatment)
Men are stronger than women	43.75%
Men are more mature than women	10.42%
Cited physical attributes differences	31.25%
Women are emotional, sensitive	18.75%
Women are lovable, caring, patient	10.42%
Women are responsible, disciplined	20.83%

Source: authors' calculations.

As mentioned earlier, gender priming enables the study of the influence of gender stereotypes on individual behaviour. We therefore ask: Which stereotypes and gender roles were activated when respondents received the gender priming treatment? Table 2D provides details of the 'gender-primed' respondents' non-mutually exclusive answers to the question: What do you think are the major differences between men and women? Respondents cited strength and maturity as characteristics associated with men while responsibility, discipline, emotion, sensitivity, affection, and patience were adjectives associated with women.

Finally, does gender priming affect male and female subjects' perceptions of equal sharing? We provide supplementary analysis on the effect of gender priming on inequality aversion. We run additional regressions where the dependent variable is the difference in a subject's allocations to Accounts A and B, i.e. Account A – Account B (*DiffAlloc*). In the control group, we find that there are no gender differences in terms of perception of equal sharing. Gender differences in inequality aversion are only observed in the treatment groups. Under gender identity priming, women divide their endowment almost equally: approximately P500 for Account A (for them to keep when they wins) and P500 for Account B (for their partner to get when the partner loses). When primed for their gender, men tend to allocate unequally between Account A and Account B: Account A is approximately P200 greater than the amount in Account B. Our findings are summarized in Result 3 and are supported by Tables 3A and 3B.

RESULT 3: When reminded of their gender, women become inequality-averse in the solidarity game. Male subjects tend to allocate more unequal insurance levels.

Table 3A: OLS regressions with robust standard errors of the impact of gender priming on gender differences in terms of perception of equal sharing

	(A)	(B)	(C)	(D)	(E)
	DiffAlloc: (Account A-Account B)				
Priming	-196.8***	-187.7**	-164.4**	-171.5**	-161.6**
	(60.57)	(71.53)	(75.15)	(75.73)	(80.36)
Male	-55.45	-59.66	-41.77	-72.47	-69.70
	(74.85)	(74.94)	(72.89)	(71.00)	(69.68)
Priming#Male	225.4**	234.3**	205.1*	217.8*	209.5*
	(110.2)	(108.9)	(113.3)	(111.6)	(110.8)
Age	19.94	22.58*	23.27**	24.90**	24.23**
	(12.65)	(12.41)	(11.66)	(11.40)	(11.20)
LogIncome		-8.870	-7.222	-7.832	-7.687
		(8.283)	(7.971)	(7.767)	(7.784)
NativeBorn		-146.7*	-142.8*	-154.5*	-148.4*
		(82.19)	(80.27)	(81.01)	(81.01)
Trust			-109.5*	-107.9*	-106.1*

			(57.98)	(56.70)	(56.09)
FinLiteracy			8.170	-6.646	9.449
			(70.21)	(69.28)	(76.43)
IT				83.91	79.19
				(59.66)	(60.07)
Roman_Catholic					44.52
					(67.22)
Constant	-187.9	-100.7	-94.00	-140.0	-170.2
	(255.5)	(231.5)	(209.5)	(207.4)	(221.2)
Obs	96	94	94	94	94
R^2	0.111	0.163	0.196	0.215	0.218
Adj. R^2	0.072	0.105	0.121	0.130	0.124
F-stat	3.773***	2.913**	2.680**	2.447**	2.201**

Note: standard errors in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01.

Source: authors' calculations.

Table 3B: Average marginal effects of the gender priming treatment according to gender and linear predictive margins of male and female respondents with and without the gender priming treatment, in terms of perception of equal sharing

	(A)	(B)	(C)	(D)	(E)
Average marginal effect of the priming treatment on:					
Male	28.69	46.60	40.73	46.30	47.92
	(92.97)	(86.50)	(86.93)	(85.15)	(86.58)
Female	-196.75***	-187.65***	-164.40**	-171.53**	-161.63**
	(60.57)	(71.53)	(75.15)	(75.73)	(80.36)
Predictive margins (amounts in Philippine pesos):					
a) Female, no priming	207.00	202.92	191.29	194.85	189.90
b) Female, with priming	10.25	15.26	26.89	23.33	28.28
c) Male, no priming	166.23	157.63	160.45	157.77	157.00
d) Male, with priming	194.92	204.23	201.18	204.08	204.92
F-test: no priming, female vs male	0.28	0.38	0.19	0.27	0.22
F-test: with priming, female vs male	5.25**	5.23**	4.02**	4.44**	4.20**

Note: * p < 0.10, ** p < 0.05, *** p < 0.01.

Source: authors' calculations.

5 Conclusion

This paper examined the impact of gender priming, a technique which identifies the influence of gender roles and stereotypes on other-regarding behaviour of men and women, using a two-player solidarity experiment in the Philippines. Our results indicate gender differences in terms of solidarity behaviour only when respondents are reminded of their gender. Moreover, we find that gender priming does not affect men's willingness to provide insurance. This is in contrast to our findings on women respondents who are sensitive to gender identity priming, which enabled them to offer a higher insurance amount to an anonymous partner. Women also become more inequality-averse than men when they are primed. Our findings imply the power of stereotypes, gender norms, and roles in influencing, in particular, the behaviour of women who are held to

higher standards especially in terms of communal behavioural attitudes. Moreover, we emphasize the ability of women, to the same extent as men, to think more about themselves than others in their decisions in the absence of societal pressure which tends to highlight distinctions between men and women. Indeed, priming may enable women, in particular, to think that they have to be more altruistic than they already are and fair. Our experimental evidence shows an 8–10 per cent increase in (fully unconditional) insurance against others from of the initial endowment, driving (almost) equal allocation to themselves and their anonymous partner. Although these results suggest that the activation of gender roles and stereotypes promotes fairness and more giving in women, they also accentuate women's orientation toward participating in collective actions, which is linked to their sense of duty and responsibility to their familial duties (Brickell and Chant 2010), community, and the wider nation, which may hold them back from making decisions in their own interest. In the future, we hope to extend our study by incorporating knowledge about the gender of a subject's partner and repeated play.

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Appendix: Instructions, solidarity game with priming

GENERAL EXPLANATION FOR PARTICIPANTS

Welcome! As part of today's experiment, we will be performing some tasks. The funding for this research has been provided by the University of Limoges in France and any money that you end up with will be yours to take home. You will be paid for only one of the tasks. The one task you will be paid for will be randomly chosen.

In addition to any earnings you might have in this task, you will be given P50 as a participation reward. Depending on your answers and the task chosen to be paid, you may earn up to an additional P3000. The more you earn in each task, the higher the likelihood that you will get more take-home money. We do not know yet which task will be paid, so give your honest and best answers in all of the tasks.

We are about to begin the first task. Please listen carefully. It is important that you understand the rules of each task properly. If you do not understand well, you will not be able to participate effectively. We will explain the instructions for each task and will do some examples together. Do not speak with your seatmate / schoolmate. If you have questions or if you did not understand the instructions, ask Prof. XX.

During this experiment, please wait at your seat and do not do anything unless instructed by the experimenter. Also do not look at others' responses at any time during this experiment. Because you are all automatically given 50 PESOS as participation reward, you are expected to stay for the whole experiment and finish all the tasks.

After we have completed all the tasks, I would like you to answer some questions about yourself. Please take your time and answer as honestly and as accurately as possible. You will not be identified and your survey answers will only be used for this experiment and will only be used by the researchers involved in this project.

Finally, stapled behind this page is a slip of paper with your ID# on it. Please keep this page with the stapled ID# with you at all times. Do not show this ID# to anyone or allow it to be visible to anyone during or after this experiment. You will need to present this page with the stapled ID# to the cashier at the end of the experiment in order to receive your payment.

If you are ready, then we will proceed. Please turn the page and follow along with the experimenter.

TASK

Before the start of Task, answer the questions below. Let us read them aloud.

Are you male or female? _____

What do you think are the major differences between men and women?

_____

_____

_____

_____

_____

We shall now read aloud the instructions. For Task 4, each of you will be paired with a different person. One person will be from Group 1, while the other is from Group 2. You will not be told who your partner is, and he or she will not be told who you are either during or after the experiment. Your decisions will be strictly anonymous.

For this task, you have access to P1000. Your partner also has separate access to another P1000. If a dice shows 1, 2, 3 or 4 (with a 66.66% probability), you win. However, if a dice shows 5 or 6 (with a 33.33% probability), you lose.

Before the dice is tossed, you will decide how much money you will give your partner in case he lost

You must divide the P1000 into two accounts: Account A and Account B.

Account A is the amount you will receive if you win (which means the dice showed 1, 2, 3 or 4)

Account B is the amount you will give your partner if he/she loses (if his/her dice showed 5 or 6).

Account A + Account B = 1000

Your Partner's Account A + Your Partner's Account B = 1000

So if you won, you will receive what you decided to put in your Account A BUT if you lost, you will receive instead your partner's Account B.

If you and your partner will both win, you will keep what each of you put in your Account A. Prof. XX will keep the money you allotted in Account B.

Whatever you will earn depends on the amount you AND your partner put in Account A and Account B, and of course depends on whether you won or you lost in the dice game.

EARNINGS:

	Win (Dice= 1, 2, 3 or 4)	Lose (Dice = 5 or 6)
You	Money in your ACCOUNT A	Money in your Partner's ACCOUNT B
Partner	Money in your Partner's ACCOUNT A	Money in your ACCOUNT B

Here is an example: Assume You divided P1000 into P400 for Account A and P600 for Account B. Assume too that your partner divided his P1000 into P700 for Account A and P300 for Account B.

Here are the potential payoffs of you and your partner:

EARNINGS:

	Win (Dice= 1, 2, 3 or 4)	Lose (Dice = 5 or 6)
You	400	300
Partner	700	600

Note that the above is only an example. You do not need to follow it. Decide with the best of your ability. Before we start the task, please complete the question below.

Assume you divided P1000 into P800 for Account A and P200 for Account B. Assume too that your partner divided his P1000 into P500 for Account A and P500 for Account B. How much money will you and your partner earn in each of the following cases?

If your dice is 1, 2, 3, or 4, you will get: P_____

If your dice is 5 or 6, you will get: P_____

If your partner's dice is 1, 2, 3, or 4, he will get: P_____

IF your partner's dice is 5 or 6, he will get: P_____

Now, finish this task by giving your response below.

YOUR ANSWER:

You have access to P1000.

How much of this P1000 will you put in Account B?

Again, what you put in Account B will be given to you partner in case he loses. Whatever is not put in Account B will be automatically kept in your Account A.

Choose an amount from P0 to P1000.

Write your answer here: _____

Why is this your answer? _____

FOR THE EXPERIMENTER (PROF. XX & ASSISTANTS) TO FILL:

Outcome of dice (1, 2, 3, 4, 5, 6): _____

Subject's investment in Amount B: _____

Total earnings: _____