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## Abstract

Households in the Philippines are characterized by durable unions and a relatively high status of women who are entrusted with the management of household finances, a context conducive to intra-household cooperation. We run experimental games with couples in the rural Philippines. We first find the prevalence of a strong sharing norm whereby women secure about two thirds of the total payoffs, in line with their prominent role in the family. Despite a favourable setting, couples incur large efficiency losses of about 46% of potential gains. We interpret this finding as revealing a strong, latent demand for agency by women who express a strong preference for hidden money over (larger) transfers from their husband as the latter involve an implicit control over their use. These findings challenge a naive view of female empowerment that solely focuses on the apparent control over household resources.

**JEL Classification:** D13, C90, O12, N35

**Keywords:** Household efficiency, Female empowerment, Lab-in-the-field, Philippines

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# 1 Introduction

Classical models of household decisions such as the Unitary and the Collective Models assume efficiency (Alderman et al., 1995). A growing empirical literature has called this assumption into question, in particular in the context of developing countries (see for instance Udry (1996), Duflo and Udry (2004), Goldstein (2004), Jakiela and Ozier (2016), Kazianga and Wahhaj (2017), and Rossi (2019)). Baland and Ziparo (2017) summarize the various mechanisms that may undermine household efficiency in poor countries and point in particular to the instability of marital relationships and the low level of female bargaining power. Marital instability pushes individuals to take actions to secure themselves in case of marital breakdown, while low bargaining power may prompt women to adopt passive and non-cooperative behaviors as the potential gains from cooperation are fully captured by husbands.

In this context, the Philippines provide an interesting setting to investigate cooperation in the household as (i) households are overwhelmingly nuclear and couples are remarkably stable (divorce is illegal) and (ii) women enjoy a high relative status, including a prominent role in household finances. In this paper, we present a series of lab-in-the-field experimental games conducted with rural households in the Philippines. Spouses played with each other a standard Dictator game, a Dictator game with multiplier and a Trust game. Our first result highlights large inefficiencies within couples which goes against a cooperative approach of the household. On average, households forego 46% of their potential gains in the games. Similar levels of inefficiency have been observed in similar games in several settings such as India (Castilla, 2015) or Kenya (Hoel, 2015); see in particular the review by Munro (2018).<sup>1</sup> Our second result highlights a pattern of transfers revealing the prevalence of a surprisingly strong sharing norm, whereby women secure about 60% of the pay-offs, regardless of the game played. This is consistent with their traditional role as financial managers of the household.

Finally, we explore possible mechanisms underlying household inefficiency. We interpret our main findings as a demand for agency, whereby women in particular express a preference for money under their direct control. For instance, given the return behavior of the spouse in the trust games, wives forego 1.74 dollars and husbands 1.14 dollars for every dollar they decide to keep. This suggests that transfers from husbands appear as less valuable than money wives keep for themselves, as if transfers carry “strings attached”. This is in line with a recent experimental literature highlighting a demand for secrecy within couples (see for instance, Ashraf (2009); Boltz et al. (2019); Hoel (2015); Jakiela and Ozier (2016); Kebede et al. (2014)). What our evidence highlights is that, in the Filipino context, entrusting women with the nominal charge of household finance does not confer them a full control over its use. This suggests a more nuanced view of female empowerment than a self-declared participation to household financial decisions.

The rest of the paper is structured as follows. Section 2 describes the context of marital relationships

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<sup>1</sup>Moreover, as shown by Hoel (2015), couple behaviors in experiments have strong predictive power for real life decisions (see also Munro (2018)).

in the Philippines, Section 3 discusses the data and the design of our experiment. Section 4 presents the results of the games, highlighting the prevalence of a sharing norm and large levels of inefficiency. Section 5 discusses the mechanisms underlying these inefficiencies. Section 6 concludes.

## 2 Institutional Context

Households in the Philippines feature two characteristics that should further cooperation and promote efficiency: (i) the permanence of the couple and (ii) the apparent gender equality. In addition, women play a prominent role in household finances. We discuss these three points below.

First, divorce remains illegal in the Philippines and Filipinos strongly believe that marriages are permanent (Abalos, 2017; Medina, 2001). Given a strong stigma on separation, the society expects women to keep the relationship intact through “her submission, patience and virtues” (Alcantara, 1994). She would typically be the one to be blamed or publicly shamed for letting the relationship break down (Angeles and Hill, 2009).

Nevertheless, compared to other developing countries, Filipina women are more empowered and experience better living conditions. The Philippines receives a score of 0.784 (17th rank) on the gender equality index of the Human Development Report and outranks by far its neighbors of the East Asia and Pacific Region (0.688)<sup>2</sup>. Husband and wife are said to have equal roles in making decisions involving property, income, agricultural decisions or the education of children (Gerpacio et al., 2004; Ramirez, 1984). In rural areas, farming couples work side by side, with the woman typically responsible for transplanting, weeding, fertilization, harvesting and threshing (Illo and Lee, 1991; Pineda, 1981). We observe this in our sample where about 85% of households have both husband and wife working on the household plot in the most recent cropping season.

Despite this apparent equality, gender roles are highly differentiated: “In the ideology of the Filipino family, [...] the wife/mother [is] cast as manager, nurturer and moral pillar, and husband as resource provider and titular head” (Chen, 2005: 70, cited by Chant (2007)). Filipina women play a central role in domestic affairs, “often being referred to as [...] the light of the home, or even as [...] the ‘commander’ ” (Angeles, 2001). They are typically entrusted with financial responsibilities on household expenditures and are given control over household spending from the pooled income of household members (Stoodley (1957); Ramirez (1971) as cited in Church (1986); Illo (1989); Eder (2006); Alcantara (1994); Vancio (1980)). Thus, in our sample, wives declare that they are in charge of the household’s money in 92% of the households<sup>3</sup>.

Filipinos generally believe that men are incompetent in managing money. Husbands are supposed to

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<sup>2</sup>The index is computed based on four dimensions: educational attainment, health and survival, political empowerment, and economic participation and opportunity (WEF, 2020).

<sup>3</sup>On the other hand, only 36% of husbands claimed to be in charge of the money. The question was part of the post-game questionnaire where each participating member of the couple was asked independently “Are you in charge of the household’s money?”.

turn over their earning to their wives who, in turn, provide them with a daily allowance or pocket money to spend on their vices (Angeles and Hill, 2009; Eder, 2006). “Men often spend a disproportionate amount of time and money (including that of their wives) on extra-domestic activities, including socializing with their [...] gang, and/or engaging in [...] vices such as betting on cockfights, drinking and taking [...] mistresses” (Chant, 2007). In a study of Ifugao women, Kwiatkowski (2019) reports that “men tended to spend money on themselves more often than women spent money on themselves”.

While on the surface women have high status, some scholars argue that family relationships remain highly hierarchical with men keeping a leadership role in the household: Wives relations to economic assets are typically “indirect and mediated through her husband” (Eder, 2006). Women’s active management of money signifies women’s responsibility for managing family finances rather than control over how the cash is spent (Aguilar, 1988; Errington, 1990). As pointed out by Kwiatkowski (2019), this form of delegation introduces a critical difference between the money a wife receives from her husband and the money she earns herself: “Within the household, although Ifugao women usually managed all of their family’s cash resources, women were highly conscious of the money they themselves had earned versus the money earned by their husbands. Some did not always feel they could freely spend the money that their husband had earned. [...] One woman stated that she was often reticent to ask her husband for money that he had earned for items or services that she felt she needed, or that she would have liked to give to her relatives in crisis.”

In addition, even if a woman has control, the money she manages may just cover basic household needs and it is not clear that the husband turns over all his earnings, taking advantage of her ignorance of how much he actually earns. Ashraf (2009) highlights that husbands may be tempted to withhold money and not turn all of it over to their wives. As she writes, “this behavior is so widespread that there is a word in the Tagalog language that is applied to men not handing over all of their income to their wives: *kupit*. *Kupit* literally means to pilfer, to filch, to steal in small quantities”.

The combination of low divorce rate and high gender equality makes Filipino context a particular and relevant place to investigate cooperation in the household. Yet, power relations underlying stereotyped gender roles and a culture of secrecy and separate budgets for personal spending poses obvious challenges to collective efficiency.

### **3 Experimental Design and Data**

#### **Sample selection and survey**

The data was collected from April to August 2018 from a sample of farming households living in the uplands of Bukidnon in Northern Mindanao. As this research was part of a larger research project on smallholder corn farmers, respondent households were selected based on the following criteria:

they farmed corn at least once in the last 10 years, and cultivate less than 10 hectares of land.<sup>4</sup> Each household spent about three hours answering the household survey and participating in the experiment. Overall, we were able to gather information from 212 farming households from 14 villages<sup>5</sup>.

We collected detailed information on the household, spousal trust, and household decision making, through separate interviews with each spouse. We asked which spouse takes decisions when it comes to household expenditures, agricultural credit, or crop choice. We also included questions about the level of trust the participant has in her spouse when it comes to handling household finances. Table 1 reports some descriptive statistics. About half of the respondents belong to an indigenous community, the others originate from migrant communities in the region or other islands. On average, women are slightly more educated than their husbands and have been married to each other for more than 20 years. A third of the couples are matrilocal as the couple lived, at some point after marriage, close to the bride’s family. Within households the level of trust is generally high even though 25% of the wives declare that they do not fully trust their husband for financial decisions. In terms of decision making, about half of household decisions are taken jointly. According to both members of the couple, husbands take slightly more individual decisions than their wife.

## Experimental games

The lab-in-the-field experiment involved both spouses who played with each other a series of games derived from the standard literature, namely two variants of the Dictator Game and a Trust game in which all respondents played both roles. Although players made decisions that influenced the payoffs of their spouse, the game set-up prevented the spouse to infer how much money the player kept for herself. At the beginning of each session, the enumerator grouped together the husbands (wives) and placed them in a location away from the view of their spouse’s group in order to ensure privacy. We also provided each player a makeshift booth to conceal her decisions.

To avoid systematic biases, games were played in one of four pre-determined orders<sup>6</sup>. The games were incentivized and the compensations were determined by the payoffs resulting from one randomly chosen game. We made sure that players could not infer the decisions made by their spouse from this compensations. In practice, participants received either individual vouchers, handed out individually, or a couple voucher.<sup>7</sup> Vouchers could be exchanged for a variety of household and personal items in a small shop run by the enumerating team directly after the session.

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<sup>4</sup>Information about the survey and the experiment was given to the villagers one day in advance by one of our enumerators.

<sup>5</sup>Data collection and the experiment were conducted in the native languages of the area, Pulangiyan and Bisayan in particular

<sup>6</sup>We have prepared four scenarios that changes the sequence in which the games are played. These are available in Appendix C

<sup>7</sup>The value of the couple voucher was based on a separate section of the interview, not presented in this paper. The choice between individual and couple voucher was randomized at the session level and unknown to the participants before the end of the games.

Table 1: Descriptive statistics

Variable	N	Male Mean/SD	Female Mean/SD
Age (self)	212	43.571 (12.337)	39.500 (12.419)
Education (self)	212	5.052 (3.107)	5.995 (3.448)
Indigenous (self)	212	0.547 (0.499)	0.585 (0.494)
No trust	212	0.075 (0.265)	0.250 (0.434)
Reported joint decision share	212	0.490 (0.332)	0.518 (0.348)
Decision share (self)	212	0.302 (0.248)	0.223 (0.238)
Decision share (spouse)	212	0.208 (0.208)	0.260 (0.232)
Years of marriage	212	20.528 (12.810)	
Matrilocality	212	0.358 (0.481)	
HH owns land	212	0.774 (0.420)	
Wife owns land	212	0.217 (0.413)	

In the standard Dictator Game, each participant received two envelopes, one of which contained 200 pesos<sup>8</sup> as endowment. Players had to decide how to share the received endowment with their spouse by filling in the second envelope. The physical manipulation of the bills and envelopes was meant to help participant visualise the stakes. In the “multiplier” version of the Dictator Game, the money given to the spouse was tripled before reaching her. After explaining the game, the enumerators always provided examples to clearly illustrate the multiplication of the money sent.

The Trust Game used the same set-up as the Dictator Game with multiplier, but allowed the receiving spouse to send back part of what she received. To capture the return strategy while ensuring privacy, we asked, for each possible amount sent, the amount they were willing to send back.<sup>9</sup> To create a single measure of return behaviour from the return strategy, we compute the average amount returned

<sup>8</sup>This is equivalent to a day’s wage in this area. The exchange rate is roughly 50 PhP  $\approx$  1 USD.

<sup>9</sup>In order to avoid redundancy, we asked the amount returned in case the amount sent was 50, 100, 150 and 200. The response sheet showed both the amount sent and the amount received after tripling.

for each dollar received (after tripling the amount)<sup>10</sup>. This is the main measure of trust game return that is used in the rest of the paper. A limitation to this approach is that it is based on hypothetical returns which are not equally plausible as participants have expectations on the amounts likely to be sent by their spouse. In appendix B, we present our main results using as an alternative measure the return amount corresponding to the transfer actually sent by the spouse (instead of the average over all possible transfers). Results are left unchanged by this alternative definition.

Two features of our games mitigate the "undoing problem", whereby spouses make ex-post transfers unknown to the experimenter (Munro, 2018). First, we chose to distribute vouchers to be exchanged against goods by the recipient, immediately after the experiment, thereby discouraging post-game transfers. Second, the compensations, when individuals, were kept private.

To provide a benchmark for intrahousehold cooperation, we revisited two months later some of the villages and asked former participants to play the same set of games with an anonymous player from their community. Overall 185 individuals participated in these additional games.

## 4 Norm and Efficiency in the Household

We first present the behaviors of husbands and wives when they played with an anonymous recipient in the relevant subsample of players. Figure 1 reports the cumulative distributions of the share sent for each decision taken. As can be seen, men and women behave in a surprisingly similar manner, as the distribution are almost identical across gender. On average the amount sent is about 25% and never exceeds 50% of their endowment. Unsurprisingly, when return transfers are allowed, the amount sent is slightly larger as the cumulative distribution of the share sent in the trust game dominates the share sent in the dictator game with multiplier.

As expected, when playing with their spouse, the amounts sent in each decision are larger. However, husbands and wives play very differently, as husbands transfer systematically larger amounts. For instance, in the dictator game, husbands send 65% of their endowment while wives send only 42% (see Table 2). A similar differential is observed for each of the four decisions presented in Table 2. In addition, for decisions that involve a pure transfer (DG and TG Return), the shares sent by husbands and wives approximately sum to 1.<sup>11</sup> In other words, in those games, the share of the initial endowment that accrues to women (men) is independent of the gender of the sender. Interestingly, the same pattern obtains in the distribution of the final payoffs of the trust game: the wife secures the same share of the final payoff whether she or her husband makes the first transfer. Figure 2 plots the cumulative distributions of the wife's payoff share when husbands or wives play first (and the difference in these payoffs), illustrating the irrelevance of the identity of the first player. Overall, these two findings suggest the existence of a strong sharing norm that systematically favors women in intra-household

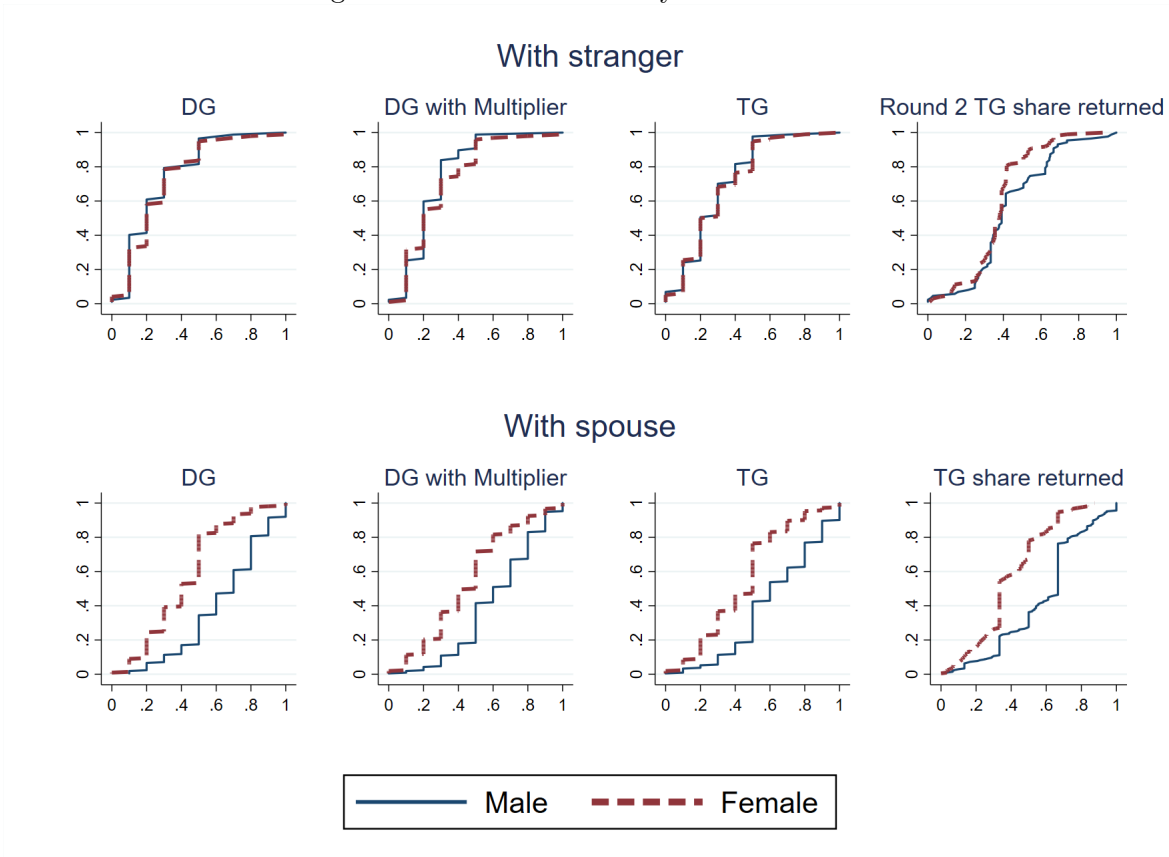
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<sup>10</sup>In practice, we compute the ratio of the total amount returned divided by the sum of all possible transfers received.

<sup>11</sup>The average of the sum of husband and wife transfers is 1.058, which, while statistically different, is very close to one.



Figure 1: Cumulative density of amounts sent



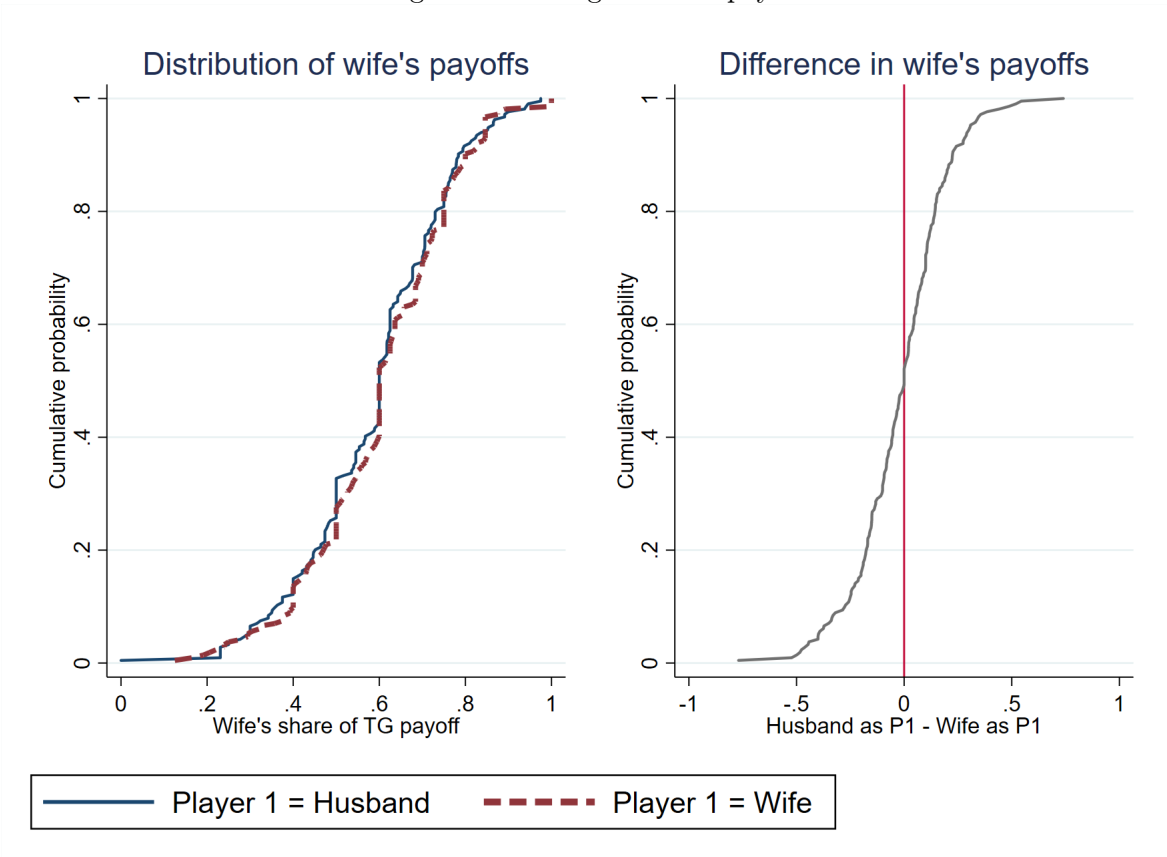
transfers, in line with the anthropological evidence.

Table 2: Endowment share sent in the games

Variable	N	(1)	(2)	T-test Difference (1)-(2)
		Male Mean/SE	Female Mean/SE	
Dictator Game	212	0.649 (0.016)	212 0.415 (0.014)	0.234***
Dictator Game with Multiplier	212	0.627 (0.015)	212 0.451 (0.016)	0.176***
Trust Game - Player 1	212	0.636 (0.016)	212 0.442 (0.015)	0.194***
Trust Game - Player 2	212	0.581 (0.017)	212 0.383 (0.012)	0.198***

We now analyze whether this gender differential holds once we control for various household and individual characteristics in the dictator game. The latter corresponds to a simple cake sharing between

Figure 2: Trust game final payoff



spouses and may thus be the most direct evidence of a sharing agreement.

Table 3: Endowment share sent in Dictator Game

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.241*** (0.033)	-0.240*** (0.032)	-0.243*** (0.033)	-0.248*** (0.039)
No trust	0.011 (0.029)		0.012 (0.030)	0.032 (0.033)
Decision share (self)		0.005 (0.046)	0.003 (0.046)	-0.054 (0.063)
Decision share (spouse)		0.025 (0.046)	0.027 (0.047)	0.026 (0.073)
Observations	424	424	424	420
R-squared	0.249	0.249	0.250	0.632
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES

Table 3 reports the results of various alternative specifications of OLS estimations for the amount sent in the Dictator Game (as measured by the share of the initial endowment). We control in particular for bargaining power and trust. Indeed, bargaining power, as measured by the share of household decisions taken by each partner, may be critical for the allocation of household resources and mutual trust is typically considered as necessary for successful cooperation. Column 4 includes household fixed effects. All regressions are clustered at the session level, where a session is defined by the group of (same gender) individuals who played the games at the same time and place.

The results confirm a strong and stable gender differential in the amount sent. Across all specifications, women send 24 percentage points less than their husband and this coefficient is very precisely estimated. A F-test of the joint significance of all the other control variables fails to reject the null hypothesis at standard levels of significance. In particular, the structure of the household decision making appears irrelevant. In Appendix A, we further probe into the role of female bargaining power by investigating two alternative measures of women empowerment: matrilocality and individual land ownership. The corresponding coefficients are small and insignificant while the coefficient on “Female” remains unaffected.

This systematic gender differential supports the hypothesis of a sharing norm in favor of women who end up with a larger share of household resources. This norm should in principle allow spouses to maximize their collective gains, since they have clear expectations of their respective payoffs. We designed a dictator game with multiplier to investigate this conjecture. This game departs from a pure cake sharing structure by allowing the household to secure large payoffs, as the amount sent is multiplied by three. Household efficiency requires the first player to send her/his full endowment.

As shown in Table 2, this is not what we observe: on average, men send 63% and women only 45% of their endowment. This implies large losses for the households who forgo, on average, 46% of the potential gains. We report the estimation results in Table 4, following the specifications presented in Table 3. The female coefficient is again large and very stable around 17 percentage points. This indicates that households are inefficient, as if spouses would not pool their resources but keep separate budgets.

A major difference with the results of the dictator game is the role of trust. Trust towards one’s spouse matters for collective efficiency, as mistrustful spouses send 11 percentage points less, regardless of the specification chosen (Table 4). In a way, the amount sent can be viewed as an investment, the returns of which are in the hands of the spouse. The trust variable can thus be interpreted as indicating to what extent the recipient will use the augmented transfers in a way that suits the sender’s purpose, through some joint decision-making process (this dimension is arguably less relevant in a zero-sum game, such as the dictator game.) Finally, as above, none of the other controls is significant.

Table 4: Endowment share sent in Dictator Game with multiplier

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.164*** (0.037)	-0.186*** (0.037)	-0.164*** (0.038)	-0.162*** (0.044)
No trust	-0.110*** (0.029)		-0.111*** (0.028)	-0.117*** (0.036)
Decision share (self)		-0.058 (0.046)	-0.044 (0.044)	-0.041 (0.083)
Decision share (spouse)		-0.037 (0.050)	-0.055 (0.046)	-0.033 (0.063)
Observations	424	424	424	420
R-squared	0.176	0.156	0.181	0.562
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES

## 5 Interpreting household inefficiency

Given the stability of the average transfers across games, one may question the level of understanding of the games by the players. We took great care in ensuring that participants saw the differences between the different games and the critical role of the multiplier. They systematically played mock games with a detailed analysis of the payoffs by enumerators recruited locally and extensively trained by the research team which accompanied them in all the research sites. Second, decisions systematically differ when playing with a stranger rather than with the spouse. Third, when playing with a stranger, the amounts sent in the trust game are larger than in the dictator game with multiplier, indicating an understanding of a possible reciprocation. Moreover, in line with our expectation, trust in one's spouse does not play a role in simple transfer game but becomes critical in games involving a multiplier. Finally, as we show below, the amount sent in the trust game does depend on the expected return strategy of the partner, again revealing some comprehension of the most complex of the three games played.

### 5.1 Collective inefficiency, ex post transfers and trust

The large inefficiencies highlighted in the dictator game with multiplier may result from the inability of the spouses to share their gains ex post.<sup>12</sup> One expects therefore that explicitly allowing for return transfers would help restore efficiency: couples could increase their collective gains and share these gains ex post according to the sharing norm. To investigate this conjecture, we implement a standard trust game, by adding the possibility of return transfers to the dictator game with multiplier.

<sup>12</sup>With respect to the undoing problem in intra-household games, these inefficiencies reveal the difficulties in sharing ex-post across spouses. The Trust Game can be viewed as a way to elicit the importance of these ex-post transfers.

We start by investigating the determinants of return transfers in the last stage of the game. We elicited the amount each player would send back for various possible transfer received. We compute the average amount returned for each dollar received (after tripling the amount)<sup>13</sup>. The decision to return part of the amount received is essentially equivalent to a simple dictator game. On average, husbands send back 0.58 while wives send back 0.38 of each dollar received (Table 2). Table 5 presents the results of our estimations. As in the analysis of the simple dictator game, the only significant coefficient is the one attached to female. Wives send back about 20 percentage points less than their husbands. The sharing norm therefore also applies to return transfers.

Table 5: Endowment share returned in Trust Game

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.193*** (0.029)	-0.199*** (0.029)	-0.193*** (0.029)	-0.185*** (0.030)
No trust	-0.032 (0.029)		-0.033 (0.029)	-0.055 (0.044)
Decision share (self)		-0.024 (0.044)	-0.020 (0.044)	-0.016 (0.057)
Decision share (spouse)		-0.025 (0.043)	-0.031 (0.042)	-0.061 (0.058)
Observations	424	424	424	420
R-squared	0.208	0.206	0.209	0.657
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES

We now turn to the first decision of the trust game. As shown in Table 2, the possibility of return transfer does not change substantially players' behavior. The average amounts sent are essentially identical to those of the dictator game with multiplier: men send on average 63% and women 44% of their endowment. Allowing return transfers does not reduce inefficiency. The latter does not therefore result from the spouses' inability to make transfers ex post. On average households still loose 46% of their potential gains.

Table 6 reports regression results for the amount sent in the first stage of the game, using the same specifications as above. Again two coefficients stand out. Female players systematically send 20 percentage points less than male players and the lack of trust towards the partner reduces the amount sent by 7 to 9 percentage points. These effects are of a similar magnitude as those reported for the dictator game with multiplier.

As discussed above, the lack of trust may imply that the spouse limits as much as s/he can the budget available to his or her partner. The lack of trust may also imply that one systematically underestimates

<sup>13</sup>In practice, we compute the ratio of the total amount returned divided by the sum of all possible transfers received.

Table 6: Endowment share sent in Trust Game

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.197*** (0.037)	-0.212*** (0.036)	-0.197*** (0.037)	-0.194*** (0.041)
No trust	-0.073** (0.029)		-0.074** (0.029)	-0.087** (0.037)
Decision share (self)		-0.074 (0.052)	-0.065 (0.052)	-0.032 (0.054)
Decision share (spouse)		-0.063 (0.048)	-0.075 (0.047)	-0.019 (0.076)
Observations	424	424	424	420
R-squared	0.182	0.180	0.191	0.631
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES

Table 7: Share sent in Trust Game and spouse's return behavior

VARIABLES	(1)	(2)	(3)	
Female		-0.228*** (0.038)	-0.216*** (0.039)	-0.222*** (0.040)
Spouse's TG return (average)		0.091 (0.056)	0.096* (0.055)	0.133** (0.062)
No trust			-0.075** (0.030)	0.014 (0.070)
Spouse's TG return (average) * No trust				-0.166 (0.117)
Observations		424	424	424
R-squared		0.177	0.188	0.192
Controls		YES	YES	YES
HH FE		NO	NO	NO

the return transfer of her partner. Using our measure of return transfers, we investigate whether senders anticipate and react to the reciprocity intentions of their spouse, depending on the latter trustworthiness. Table 7 presents the same estimations as Table 6, including the average share returned by the spouse as an explanatory variable. The estimations are to be taken with caution because of obvious endogeneity concerns, which also prevent us from including household fixed effects<sup>14</sup>.

<sup>14</sup>With household fixed effects, we compare the amount sent by the first player to that of his/her partner using the difference between what the same player and his/her partner sent back when they are second players as an explanatory variable. To the extent that a player's first move is strongly correlated to his second move, this creates serious issues of reverse causality. Moreover, the strong correlation between gender and the average amount sent (or returned) implies that within a couple, wives always send and return less than their husband. With a fixed effect, one obtains a negative

Table 8: Household inefficiency: Share of total payoff foregone

	(1)	(2)	(3)	(4)
<hr/>				
VARIABLES				
<hr/>				
Female	0.181*** (0.034)	0.199*** (0.033)	0.180*** (0.034)	0.178*** (0.040)
No trust	0.092*** (0.026)		0.092*** (0.025)	0.102*** (0.032)
Decision share (self)		0.066 (0.042)	0.055 (0.041)	0.037 (0.055)
Decision share (spouse)		0.050 (0.043)	0.065 (0.040)	0.026 (0.057)
Observations	424	424	424	420
R-squared	0.220	0.206	0.229	0.619
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES
<hr/>				

The sender’s strategy seems to depend on the intended returns of the recipient, illustrating the incentives provided by return transfers. The coefficients on trust and female remain remarkably stable (column 2). As expected, the results reported in column (3) suggest that the spouse’s return strategy only matters when the latter is trustworthy: the sum of the coefficient on the return strategy and its interaction with “no trust” is zero, even though the interaction is barely significant at the 12% level.

We summarize the above findings by providing an overall measure of household inefficiency. Efficiency matters for two of the decisions described above: the dictator game with multiplier and the trust game. Merging these two decisions, we define total household inefficiency as the share of the maximum possible payoff foregone from not sending the full amounts. Inefficiency when husbands play is equal to 37%. When wives play, it rises up to 56%. In other words, more than half of potential gains are left on the table when wives play. In Table 8, we investigate the determinants of household inefficiency, replicating the specifications used in Tables 5 and 7. Confirming the results presented in the previous section, female and lack of trust significantly increase inefficiency. Yet, trust plays a minor role: 16 percent of players do not trust their partner which implies, with an estimated coefficient of 0.10 that the lack of trust reduces on average efficiency by only 1.6 percentage points. By contrast, the female dummy by itself explains an efficiency loss of 18 percentage points.

## 5.2 Collective Inefficiency and Individual Optimization

One possibility is that, in the trust game, players anticipate the return strategy of their partner and maximize their individual payoff at the expense of household efficiency. The above estimations suggest that this is not the case. The size of the coefficient attached to the return transfer is small at around 0.1 (Table 7): for each dollar returned, a player increases the amount sent by only 0.1 dollar. More

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correlation between the difference in the amount sent by the spouses and the difference in the amount they return.

generally, with a multiplier of three and husbands returning 58% of their gains, wives appear to prefer keeping one dollar than receiving an average of 1.74 dollars ( $\$1 \times 3 \times 0.58$ ). In contrast, as wives return 38% of their gains, husbands renounce to only 1.14 dollar when keeping one dollar. Each partner would obviously gain individually by transferring more in the first move. To explore further this possibility, we measure individual inefficiency as the share of the maximum individual payoff foregone in the trust game, assuming players correctly anticipate the return strategy of their partner. On average, men lose 18% and women 27% of these potential gains.<sup>15</sup> Women thus incur substantial losses. (These, however, remain lower than total losses under collective efficiency.) Men, on the other hand, are relatively close to their private optimum, suggesting that their behavior is much more consistent with an individual than with a household payoff maximization objective.

Table 9: Individual inefficiency: Share of maximum individual payoff forgone

VARIABLES	(1)	(2)	(3)	(4)
Female	0.083*** (0.029)	0.081*** (0.029)	0.069** (0.029)	0.067** (0.031)
No trust	0.051* (0.031)		0.061** (0.029)	0.059 (0.039)
Decision share (self)		-0.063 (0.039)	-0.070* (0.037)	-0.085* (0.050)
Decision share (spouse)		0.106** (0.042)	0.116*** (0.041)	0.058 (0.056)
Observations	422	422	422	416
R-squared	0.076	0.086	0.097	0.551
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES

Table 9 reports the estimations of individual inefficiency. We again find that trust and female matter, even though the coefficient attached to female is now sensibly smaller than in the previous estimations. Interestingly, the structure of household decision making matters, as inefficiency is larger when the player's spouse takes more decisions on her/his own, and lower when the player has more decision power. In other words, giving up on expected return transfers is more prevalent when one has less decision power relative to the partner.

### 5.3 Demand for Agency

These results indicate among women a strict preference for one dollar directly received over one dollar sent by the spouse, particularly when the latter concentrates decision power. In line with the anthropological evidence presented above, we interpret these preferences as a demand for exclusive, unshared,

<sup>15</sup>75% of the women could have increased their individual gains by sending more to their husband in the first stage.



decision power. This follows from the idea that, by giving money, the husband ensures some say on its use. This pressure need not be explicit and may well be fully internalized by the woman. When receiving a transfer from the husband, she takes the role of the household manager and spends this money according to the expected behavior attached to this role. The greater control over the amount privately kept is facilitated by secrecy, since the partner will never be informed about its existence and use (as explained above, players never learn about the amounts actually kept by their partner.) This interpretation is in line with the recent economic literature on the measure of female empowerment that insists on the difference between declared participation to decisions and effective control of household resources (Bernard et al., 2020; Donald et al., 2020). By contrast, the fact that men are close to their private optimum implies that they are almost indifferent between money kept or received. This suggests more freedom in the use of the money they were given by their wives.

Table 10: Spending patterns by type of voucher

Variable	(1) Individual		(2) Couple		T-test Difference
	N	Mean/SE	N	Mean/SE	(1)-(2)
Amount spent on female item	106	31.132 (4.148)	105	26.952 (3.736)	4.180
Amount spent on male item	106	43.585 (8.254)	105	79.810 (10.658)	-36.225***
Amount spent on household item	106	346.698 (12.808)	105	463.810 (12.976)	-117.111***
Coupon value	106	412.075 (11.320)	105	586.857 (9.682)	-174.782***

We find some support for this interpretation in the analysis of the spending patterns associated with the vouchers that were distributed after the games to compensate players for their participation<sup>16</sup>. The items available in the shop were chosen so as to be easily categorized between female (perfume, hairbrush...), male (male head cap, sunglasses...) and household items (food, children items...). Table 10 reports the average total amounts spent in each category by households who received individual (column 1) or couple vouchers (column 2). Couple vouchers are on average of a higher value (simply because they were determined by the outcome of a different game) than the sum of the individual vouchers (last row of Table 10). We thus expect expenditure on all types of items to be larger under a couple voucher. Surprisingly, while the amounts spent on male and household items are significantly larger, the amount spent on female items remains unchanged. This suggests that under joint decision,

<sup>16</sup>Unfortunately, as the coupon values are determined by the decisions made during the games, they also depend on the degree of cooperation between spouses which has a direct impact on their expenditure pattern. We cannot therefore provide a more detailed analysis of these data and we simply compare average expenditures across couple versus individual voucher categories.

female preferences are not fully expressed or accounted for<sup>17</sup>.

## 6 Conclusion

Our experiment highlights the prevalence of a general sharing norm whereby women manage two-thirds of household resources. This behavior reflects the typical organization of Philippine households described in the literature, where women enjoy a favorable status and are in charge of the household finances while men keep an allowance for their own private expenses. The norm seems to be fully internalized as reflected by the amounts sent by husbands and wives across all games. One would expect that such a norm, by clearly shaping expectations, would allow households to maximize their joint payoffs.

In this context, it is surprising to find levels of inefficiencies similar to those highlighted in the experimental literature in settings that are apparently more conflictual and less favorable to women. In our experimental games, women are willing to give up substantial gains when those are handed in by their husbands, revealing a strong, latent, demand for agency. This demand for agency expresses itself through a strong preference for money unknown to their spouse over (larger) transfers as the latter involve an implicit control over their use. This calls into question classical measures of female empowerment that rely on women nominal command over household resources.

The recent empirical literature highlights the prevalence of a demand for secrecy within households. Our interpretation introduces a subtle distinction between this demand for secrecy and a demand for agency. While a preference for secrecy typically signals a demand for agency, the latter may manifest itself even under complete information. As we tentatively showed, the value of income at one's disposal differs depending on the identity of the person who generated it. This suggests a promising avenue for further research.

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<sup>17</sup>It is striking to note that the expenditure pattern under a couple voucher remains unchanged even when the wife comes alone to redeem the coupon.

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## Appendix A Additional tables

Table A.1: Share sent in Dictator Game

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.243*** (0.033)	-0.242*** (0.033)	-0.242*** (0.034)	-0.242*** (0.034)
No trust	0.012 (0.030)	0.011 (0.030)	0.012 (0.030)	0.011 (0.030)
Decision share (self)	0.003 (0.046)	0.002 (0.046)	0.004 (0.047)	0.003 (0.047)
Decision share (spouse)	0.027 (0.047)	0.025 (0.047)	0.028 (0.047)	0.026 (0.047)
Wife owns land		-0.011 (0.027)		-0.011 (0.027)
Matrilocality			0.011 (0.033)	0.011 (0.033)
Female * Matrilocality			-0.001 (0.040)	-0.001 (0.040)
Observations	424	424	424	424
R-squared	0.250	0.250	0.250	0.250
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	NO

Table A.2: Share sent in Dictator Game with multiplier

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.164*** (0.038)	-0.164*** (0.038)	-0.161*** (0.038)	-0.161*** (0.039)
No trust	-0.111*** (0.028)	-0.112*** (0.028)	-0.111*** (0.028)	-0.112*** (0.028)
Decision share (self)	-0.044 (0.044)	-0.047 (0.043)	-0.045 (0.045)	-0.048 (0.044)
Decision share (spouse)	-0.055 (0.046)	-0.060 (0.046)	-0.055 (0.046)	-0.060 (0.046)
Wife owns land		-0.021 (0.031)		-0.021 (0.031)
Matrilocality			0.003 (0.028)	0.004 (0.028)
Female * Matrilocality			-0.009 (0.037)	-0.010 (0.038)
Observations	424	424	424	424
R-squared	0.181	0.182	0.181	0.182
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	NO

Table A.3: Share sent in Trust Game

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.197*** (0.037)	-0.197*** (0.037)	-0.200*** (0.037)	-0.199*** (0.037)
No trust	-0.074** (0.029)	-0.075** (0.029)	-0.074** (0.029)	-0.075** (0.029)
Decision share (self)	-0.065 (0.052)	-0.067 (0.051)	-0.061 (0.052)	-0.063 (0.051)
Decision share (spouse)	-0.075 (0.047)	-0.077* (0.045)	-0.071 (0.047)	-0.073 (0.045)
Wife owns land		-0.012 (0.031)		-0.012 (0.031)
Matrilocality			0.032 (0.030)	0.032 (0.030)
Female * Matrilocality			0.008 (0.040)	0.008 (0.040)
Observations	424	424	424	424
R-squared	0.191	0.191	0.195	0.196
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	NO

Table A.4: Share returned in Trust Game

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.193*** (0.029)	-0.192*** (0.029)	-0.160*** (0.032)	-0.159*** (0.031)
No trust	-0.033 (0.029)	-0.035 (0.029)	-0.034 (0.028)	-0.036 (0.028)
Decision share (self)	-0.020 (0.044)	-0.025 (0.045)	-0.023 (0.044)	-0.028 (0.045)
Decision share (spouse)	-0.031 (0.042)	-0.038 (0.042)	-0.027 (0.042)	-0.035 (0.042)
Wife owns land		-0.035 (0.030)		-0.036 (0.030)
Matrilocality			0.063* (0.037)	0.063* (0.037)
Female * Matrilocality			-0.105** (0.042)	-0.105** (0.042)
Observations	424	424	424	424
R-squared	0.209	0.212	0.220	0.224
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	NO



## Appendix B Alternative Trust Game return

Table B.1: Share returned in Trust Game

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	-0.195*** (0.028)	-0.198*** (0.028)	-0.192*** (0.028)	-0.186*** (0.032)	-0.192*** (0.028)	-0.191*** (0.028)	-0.162*** (0.032)	-0.162*** (0.032)
No trust	-0.027 (0.031)		-0.031 (0.030)	-0.035 (0.042)	-0.031 (0.030)	-0.032 (0.030)	-0.031 (0.030)	-0.033 (0.030)
Decision share (self)		0.005 (0.044)	0.009 (0.043)	0.019 (0.056)	0.009 (0.043)	0.004 (0.044)	0.006 (0.043)	0.001 (0.044)
Decision share (spouse)		-0.038 (0.047)	-0.044 (0.046)	-0.062 (0.073)	-0.044 (0.046)	-0.049 (0.046)	-0.043 (0.045)	-0.048 (0.046)
Wife owns land						-0.029 (0.027)		-0.030 (0.027)
Matrilocality							0.043 (0.038)	0.044 (0.039)
Female * Matrilocality							-0.092* (0.047)	-0.092* (0.048)
Observations	417	417	417	406	417	417	417	417
R-squared	0.202	0.201	0.204	0.631	0.204	0.206	0.212	0.215
Controls	YES	YES	YES	YES	YES	YES	YES	YES
HH FE	NO	NO	NO	YES	NO	NO	NO	NO

Table B.2: Share sent in Trust Game and spouse's return behavior

VARIABLES	(1)	(2)	(3)
Female	-0.212*** (0.038)	-0.198*** (0.039)	-0.202*** (0.040)
Spouse's TG return	0.027 (0.053)	0.025 (0.052)	0.043 (0.056)
No trust		-0.075** (0.029)	-0.032 (0.065)
Spouse's TG return * No trust			-0.081 (0.102)
Observations	417	417	417
R-squared	0.167	0.179	0.179
Controls	YES	YES	YES
HH FE	NO	NO	NO

## Appendix C Script and scenarios

Table C.1: Game Scenarios

Scenario 1	Scenario 2
Dictator Game	Dictator Game with Multiplier
Dictator Game with Multiplier	Trust Game (sender)
Trust Game (sender)	Trust Game (receiver)
Trust Game (receiver)	Dictator Game
Scenario 3	Scenario 4
Trust Game (sender)	Trust Game (sender)
Trust Game (receiver)	Trust Game (receiver)
Dictator Game	Dictator Game with Multiplier
Dictator Game with Multiplier	Dictator Game

Figure C.1: Sample Game Script

#### **INTRODUCTION**

- You are going to perform a series of activities to help us better understand how households make decisions. In those activities, you will use fake bank notes but we ask you to act as if it was real money.
- To thank you and encourage you to play seriously, you will receive a gift voucher with a value between 0 and 400 pesos, proportional to your result in one chosen activity. We will only reveal which activity has been chosen at the very end.
- So you will only be paid for one activity, there is no link at all between the different activities and between the different decisions you are going to make. Since it is possible that some of you will get unlucky and will receive a voucher of 0 peso, you will also receive another voucher of 200 pesos to share between both of you no matter what happens during the activities. You will also receive it at the very end of the session.
- You will be able to exchange the gift voucher you will receive tomorrow/this afternoon for a series of goods that we brought with us that include food, clothes, school supplies etc.
- The value of your voucher will be known by you only and we will not tell anyone else about it, not even your spouse. You will be able to exchange it in private, without anyone else knowing what you choose, not even your spouse.
- Men and women will be separated for most activities. These activities are individual and we will not reveal any of your decision to anyone. There is no right or wrong answer. Each one may choose what s/he prefers.
- The session should take one hour and a half and will be followed by a small individual questionnaire. We will then go back to your house to ask more detailed questions to the head of the household about your agricultural practices.
- You are allowed to leave this session at any point but, in order to exchange your gift voucher, you need to participate to all activities, answer the small individual questionnaire and the detailed household questionnaire.
- If you have a question at any point, do not ask it out loud but please raise your hands and we will come to answer it in private.
- Please do not communicate with the other participants or try to look at what they are doing.

#### **[IF THIS IS NOT THE LAST SESSION]**

- Similarly, please do not talk about those activities with other people in this community as we will have several sessions with different households. Once you have exchanged your gift voucher, you will be able to talk about it to whomever you want.

#### **[IF THIS IS NOT THE FIRST SESSION]**

- If someone who has already gone through this session has told you about his/her experience, please try to abstract from it as this might make you misunderstand the instructions and you might make decisions that are not right for you.
- Is there anyone who wishes not to continue with the activities? If so, you can leave now. Otherwise, we will now separate men from women.

#### **DIKTATOR GAME, with MULTIPLIER, and TRUST GAME**

- You have received two envelopes. In the BLUE envelope, there are 200 pesos in notes of 20 pesos. The RED envelope is empty.

- You can decide how to divide the 200 pesos between yourself and your spouse. The notes you leave in the BLUE envelope will be for you, the ones you put in the RED envelope will be for your spouse.
- You can give any amount you want to your spouse, between 0 and 200 pesos.
- For example, if I put 2 notes in my RED envelope, that's 40 pesos so my spouse will receive 40 pesos and I will keep 160 pesos.
- If I put 5 notes in my RED envelope, that's 100 pesos so my spouse will receive 100 and I will keep 100.
- If I put 9 notes in my RED envelope, how much will my spouse receive? (180). How much will I keep for me? (20).
- If this is the activity that we select to determine your earnings, you will receive a gift voucher with a value of the money you put in the BLUE envelope and your spouse will receive a gift voucher with a value of the money you put in the RED envelope.
- Please put in the RED envelope the amount of money you want to give to your spouse and in the BLUE envelope the amount you want to keep for yourself.

**[DECISION]**

- We will now collect the envelopes and distribute you two other ones. Again, the BLUE envelope will contain 200 pesos in fake 20-peso notes and the RED envelope will be empty.

**[COLLECT ENVELOPES AND DISTRIBUTE NEW ONES]**

- You are now going to repeat almost exactly the same task: decide how much to send to your spouse by putting money in the RED envelope.
- This time, however, your spouse will receive triple the amount that you send.
- The money that you leave in the BLUE envelope will be for you but will not be tripled.
- For example, if I put 5 notes in my RED envelope, that's 100 pesos so my spouse will receive 300 and I will keep 100 (the 5 notes that stay in my BLUE envelope).
- If I put 8 notes in my RED envelope, that's 160 pesos so my spouse will receive 480 and I will keep 40 (the 2 notes that stay in my BLUE envelope).
- If I put 3 notes in my RED envelope, how much will my spouse receive? (180). How much will I keep? (140). Again, you can give any amount you want to your spouse, between 0 and 200 pesos. It can be the same as in the previous activity or a different amount.
- Please put in the RED envelope the amount of money you want to give to your spouse and in the BLUE envelope the amount you want to keep for yourself.
- Once again, your spouse will receive triple the amount you put in the RED envelope.

**[DECISION]**

- We will now collect the envelopes and distribute you two other ones. Again, the BLUE envelope will contain 200 pesos in fake 20-peso notes and the RED envelope will be empty.

**[COLLECT ENVELOPES AND DISTRIBUTE NEW ONES]**

- You are now going to repeat the same task as before: decide how much money to send to your spouse by putting that money in the RED envelope. This time again, your spouse will receive triple the amount you decided to give him/her.
- This time, however, your spouse will then have an opportunity to send back some of the money s/he received. You will then receive the amount sent back by your spouse, which will not be tripled.

- So in the end, you will have the amount of money left in the BLUE envelope and the amount sent back by your spouse. And your spouse will have triple the amount you put in the RED envelope minus what s/he decided to send back to you.
- For example, if I put 5 notes in my RED envelope, that's 100 pesos so my spouse will receive 300. Out of those 300 pesos, she then decides how much to send back, between 0 and 300. Let's say she decides to send back 80. So in the end, I have the 100 pesos I kept in my BLUE envelope plus the 80 sent back by my spouse, so 180 pesos. She has the 300 pesos she received minus the 80 she sent back, so 220 pesos.
- Here is another example. If I put 8 notes in my RED envelope, that's 160 pesos so my spouse will receive 480. Out of those 480, let's say she sends back 200. In the end, I have the 160 pesos I kept in my BLUE envelope and the 200 my spouse sent me, so 360 pesos. She has the 480 she received minus the 200 she sent back, so 280 pesos.
- One last example. If I put 2 notes in my RED envelope, that's 40 pesos, so my spouse will receive 120. If she decides not to send me anything, how much will I have in the end? (160) and how much will she have? (120).
- Please put in the RED envelope the amount of money you want to give to your spouse and in the BLUE envelope the amount you want to keep for yourself.
- Once again, your spouse will receive triple the amount you put in the RED envelope and will then have the opportunity to send you back some money.

**[DECISION]**

- Imagine now that your spouse has played the same activity, has decided to give you some amount of money out of 200 pesos and that you receive triple that amount.
- You can then decide how much of the money you received to give back to him/her.
- To keep things simple, let's assume that your spouse could have sent you only 5 amounts: 0, 50, 100, 150 and 200 pesos. Which means that you can receive 0, 150, 300, 450 or 600 pesos.

**[DISTRIBUTE LIST]**

- Here is a list of all the amounts that you can receive. Next to each amount, you will write how much you would like to give back to your spouse.
- For example, the first row shows 150, which means that my spouse decided to send me 50 and that I received the triple, 150 pesos. I can then write any number between 0 and 150 which is the amount I would like to send back to her. If I write 40, this means that I will give her back 40 and keep 110 for myself.
- The second row shows 300, which means that my spouse sent me 100 and that I received the triple, 300 pesos. I can then write any number between 0 and 300, which is the amount I would like to send back to her. If I write 200, this means that I will give her back 200 and keep 100 for myself.
- The last row shows 600, which means that my spouses sent me how much? (200). If I write 100 next to it, how much will I give her back? (100). How much will I keep for myself? (500).
- You can send back any amount you want, between 0 and the amount you received.
- Please write next to each amount how much you would like to send back to your spouse.
- Once again, the amount you write cannot be bigger than the amount you received and your spouse will receive exactly that amount, it will not be tripled.

**[DECISION AND COLLECT LIST]**