

# Strategy and Coordination in Risky Household Decisions

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## Abstract

Do spouses successfully coordinate risk-taking decisions in the household? This paper uses a lab-in-field experiment between married couples in Bangladesh to show that most people hold mistaken beliefs about their spouse's risk-taking behavior. In a sequential lottery-choice game husbands and wives each selected a lottery while sharing the total winnings from both. Under imperfect information about their spouse's choice, only about one in four subjects successfully coordinate their choice with their spouse's choice so as to achieve their intended risk exposure level for the household. Biased beliefs about the spouse's choice, led 23% of subjects to accept excessively risky lotteries and 24% to sacrifice profitable opportunities. Coordination failures are particularly pronounced when one spouse actively attempts to counter or ignore the other's choice, a behavior typically shown by men. Variation in non-cognitive skills helps explain this pattern: personality traits systematically predict whether spouses accommodate or counter their partner's decisions. Moreover, when one spouse exhibits countering behavior, the other often mirrors it, amplifying coordination failure within the household. Linking experimental behavior to real-world outcomes, I document evidence of asymmetric information between spouses regarding household savings, physical assets, and outstanding loans. Coordination errors in the experiment predict biased beliefs about a spouse's savings for different purposes, like investment into children and emergency needs. Crucially, larger coordination errors significantly increase the likelihood that households were unable to cope with adverse shocks in the past twelve months using available resources, forcing them to sell productive assets or resort to migration.

*Keywords:* Risk preferences, intrahousehold decision-making, gender, spousal cooperation, lab-in-field experiment, rural households, Bangladesh

*JEL Codes:* C93, D13, D81, J16, O12

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# 1 Introduction

Household risk exposure is shaped by individual decisions made by household members within their respective domains of decision-making. Most standard models of household decision-making still assume a unitary decision-maker following Becker’s framework (Becker, 1981), or assume Pareto-efficient outcomes arising from intrahousehold bargaining (Chiappori, 1992, 1997). But in reality, divergent priorities and imperfect information about each other’s decisions can lead to coordination failures. Poor coordination between spouses can expose a household to excessive risk—if a household member makes risky decisions under the false impression that their spouse has sufficient assets to cover for them in case of a crisis. Or, it can cause households to sacrifice legitimate investment opportunities because both spouses are overly conservative.

This study applies an experimental lens to understand how married couples coordinate risk taking decisions. Unlike most group decision-making settings, intimate relationships are uniquely characterized by repeated interactions, high interdependence, and a high degree of self-disclosure (Sillars and Scott, 1983). Thus in cooperative households with perfect information, the identity of the decision-maker should not affect how far the chosen outcome deviates from each partner’s individual preference. However, recent evidence challenges the assumption of frictionless information exchange within households (Ashraf et al., 2014; Conlon et al., 2021; Buchmann et al., 2025). In practice, asymmetric information, misaligned priorities, and divergent preferences can prompt partners to deviate from shared plans when doing so better serves their individual interests.

To examine these dynamics, married couples from agricultural households in rural Bangladesh were recruited to participate in a sequential investment game.<sup>1</sup> The game artificially creates asymmetric information between couples to mimic real-life situations where one spouse is not fully informed about the other’s decisions, even though both derive utility from the joint outcome. Such situations commonly arise from delegation in household decision-making and, in more patriarchal settings, can take the more extreme form of gender-based task specialization. For example, a woman may know her husband plans to purchase seeds for the next agricultural season but not whether he chooses a traditional variety or a higher-yield one with unproven resilience in local conditions. Similarly, a husband may know his wife participates in a credit group (*Samiti*) but remain unaware of her actual savings level or the group’s stability.

In the experiment, each spouse chooses one lottery from a common set. The first mover makes their choice without knowing how their spouse, the second mover, will respond. But the second mover is allowed to state their choice conditional on the first mover’s choice. This creates asymmetry in the information available to each partner. The second mover’s choice is elicited using the strategy method so that they state their preferred choice for every possible choice of the first mover. This also allows me to characterize people by how they react to their partner’s lottery choices. First movers predict their spouse’s conditional choices, allowing measurement of belief biases and deviations between the expected and realized household

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<sup>1</sup>This experiment was pre-registered in the AEA RCT Registry (AEARCTR-0014589).

portfolios. Finally, individual risk preferences are elicited separately to quantify how far the realized household risk exposure diverges from each partner’s preferred level.

The findings are striking. Only 27% of male and 22% of female first movers correctly predicted their spouse’s choice. In about half of the sample, belief biases led to household portfolios that substantially deviated from expectations—analogue to confusing a spouse saving in a guaranteed savings account with an investment in a mutual fund. Comparing achieved household exposure with first movers’ preferred risk levels reveals similarly large discrepancies.

Substantial heterogeneity also emerges, both across and within households. Women were 5.5% more likely than men to hold large belief biases about their spouse’s choice. These gender differences are unlikely to arise from differences in comprehension—women scored similarly on understanding checks and were, on average, as educated as their husbands. Instead, larger biases tend to occur when the second mover actively counters or ignores the first mover’s preference, a behavior more common among men. As a result, household portfolios more often reflect men’s risk preferences, whereas women tend to accommodate their spouse’s preferences as second movers.

Across couples, the tendency to counter or ignore a spouse’s choice is positively correlated between partners: when one spouse exhibits a stronger inclination to counter, the other is more likely to do so as well. While the data do not allow me to distinguish whether this correlation reflects pre-existing traits or behavioral adaptation through cohabitation, the resulting pattern is consistent with the *separate spheres* bargaining model (Lundberg and Pollak, 1993), in which spouses retreat to their own decision-making domains when cooperation breaks down.

Heterogeneity in personality traits (*Non-cognitive skills*) helps explain the prevalence of this behavior. Among men, greater *openness to new experiences* is associated with greater incorporation of a spouse’s choice, while among women, higher *conscientiousness* predicts greater alignment with their partner’s decision. In contrast, women scoring higher on *extraversion* are more likely to counter their spouse’s choice rather than accommodate it.

In order to tie experimental findings to actual household outcomes, a rich dataset on household investment, savings, assets, and borrowing behavior is leveraged to measure informational asymmetries between spouses. Nearly 40% of the women and 35% of the men in the sample held mistaken beliefs about whether their spouse had made any savings in the past year. These mistakes even extended to people’s beliefs about the purpose for which their spouse maintained savings. The magnitude of the coordination errors made by people in the experiment is used to predict the likelihood of holding mistaken beliefs about their spouse’s savings. After controlling for household composition, individual risk preferences and women’s decision-making powers, coordination errors in the game predict the likelihood of men holding biased beliefs about their wife saving for investments into children. Similarly coordination errors predict the likelihood of women holding biased belief’s about their husband saving for emergencies, for paying off loans or migration needs. Similar information asymmetry between spouses is documented with respect to outstanding loans in the household and physical assets like livestock which are used as of informal saving (Pica-Ciamarra

et al., 2011).

Errors in coordinating risk-taking behavior and mistaken beliefs about a partner’s exposure to risk increases the vulnerability of both members’ ventures and assets during crises. To observe this directly, the women in the sample were asked to report on the coping measures used in the event of an adverse shock during the past year. Adverse shocks included weather-based shocks such as droughts, natural disasters, major illness or death in the household, loss of job and the July-August political revolution in Bangladesh. The most common coping measures reported were using available savings (57% of reported events), obtaining loans (26%), reducing expenditure on food (13%), getting financial help from others (11%), getting additional work (10%) and selling household assets or land (7%). In the most extreme cases families even resorted to migration (<1%). The size of the coordination made by a men and women predicts how likely it is that a household had to resort to unplanned sale of productive assets or migrate in the event of a crisis. The likelihood of asset sale, migration and emergency loans goes up with the magnitude of the belief errors in the experiment while the likelihood of using available savings goes down. These associations are robust to controlling for household wealth level, women’s decision powers, household composition, occupation status of both partners and education.

While these insights into risk-sharing between couples were derived from a sample of Bangladeshi households, they are relevant to most cultural contexts where individuals make decisions with imperfect knowledge about their spouse’s choices. Especially in patriarchal societies, social norms that exclude women from specific domains of decision-making could exaggerate information barriers between spouses and amplify coordination errors between spouses. Well-designed policies and government support for NGOs that promote women’s engagement in decision-making are therefore essential to enhance women’s empowerment and improve household welfare.

This study contributes to the literature on risk sharing, strategic interactions in household decision-making, and information frictions. While early studies on risk sharing test efficiency using observational data on household savings patterns (Mazzocco, 2004, 2007), I use an artefactual experiment to directly examine coordination in risk-taking decisions between spouses. The experimental findings show how common biased beliefs about spouse’s risk taking behavior are and how they lead to errors in coordinating risk-taking decisions. In line with the existing literature, I find that increasing preference disparity between couples is associated with greater coordination errors in joint decisions (Schaner, 2015). Further comparing strategy in joint decisions, I find that women have a harder task of coordinating with their husband’s risky choices as men themselves are less likely to try to align with their spouse’s choices and more likely to ignore their wife’s choice. Using actual household outcomes and behavior under stress, I tie the experimentally elicited belief errors to the likelihood of financial insolvency in time of crises. Under complete risk sharing, stochastic shocks to the household shouldn’t affect consumption levels which are determined by permanent levels of income (Mazzocco, 2004). Through the present work I explore the behavioral foundations of inefficient risk-sharing between couples.

This study also builds on recent work on information frictions and allocative efficiency in households (Abbink et al., 2020; Buchmann et al., 2025; Conlon et al., 2021; Afzal et al.,

2022; Tagat et al., 2024). Tagat et al. (2024) in the context of a lab-in-the-field experiment conducted among Indian married couples shows that men have imperfect knowledge about their spouse’s consumption preferences for common household goods. Our work extends this finding by observing intra-spouse coordination in decisions involving risk. I refrain from contextualizing the game in order to make the findings generalizable to a wide variety of household decisions which involve uncertainty—financial or otherwise. Our findings reveal that coordination errors are made by both spouses, but unlike the earlier work, the women in our sample had less accurate knowledge of their spouse’s preferences than men. Tagat et al. (2024) also find that correcting people’s beliefs about their spouse’s consumption preferences does not change their final choices. While I could not reveal spouse’s actual choices to players in case of unfavourable interactions post-game play, the second-mover was allowed to state their choice of lottery conditional on the first-mover’s potential choice. Based on the findings, it appears that men on average do not condition their choice of lottery on their spouse’s potential choice, whereas women tend to try to align with their husband’s choice as the first-mover. Similar gender differences in responsiveness to a spouse’s actions in household decisions have been recorded in recent literature; such as men placing less trust on information discovered by their spouses than women (Conlon et al., 2021) and women showing a greater tendency to defer to their spouses than men (Abbink et al., 2020). Our findings show that in information constrained environments men have more accurate beliefs about their spouse’s risk preferences than women but when information about the spouse’s choice is available, women are more likely to condition their choice on their spouse’s choice than men.

## 2 Setting and Sample Characteristics

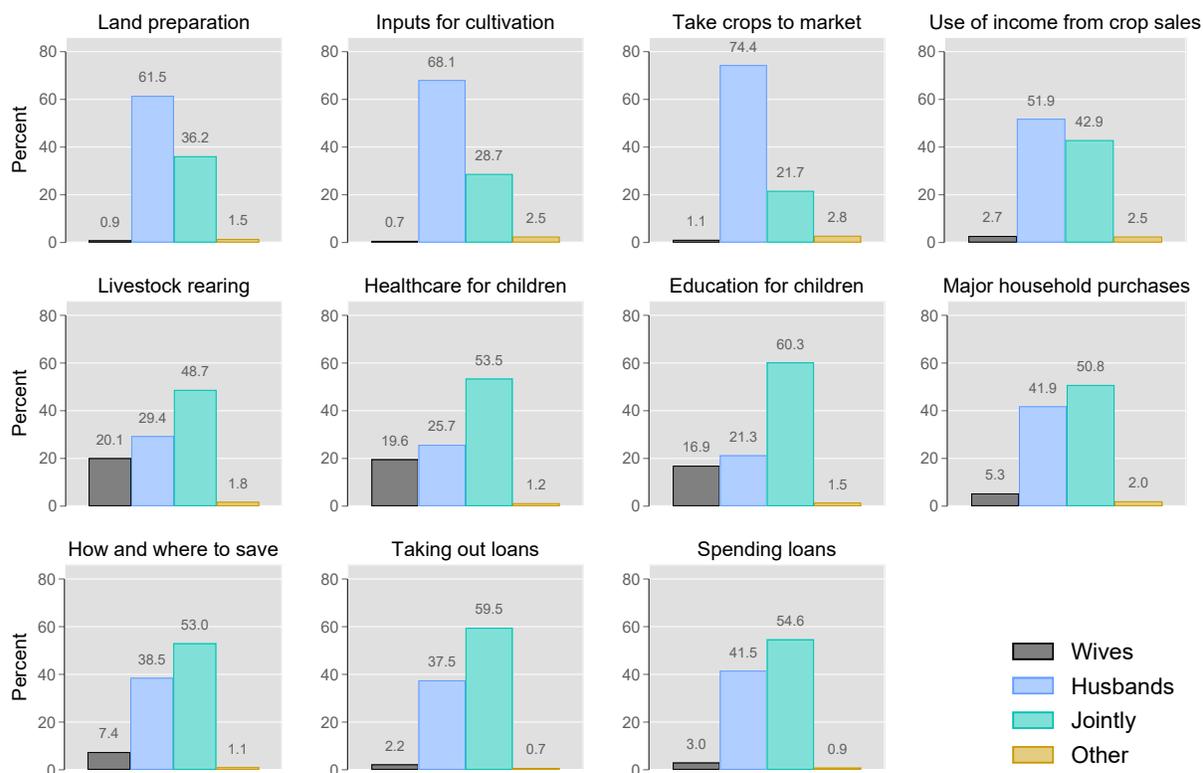
The experiment was conducted using married couples recruited from forty-six villages in the Bogura district of Bangladesh. These households were recruited as part of a larger study examining the demand for cold storage facilities among fruit and vegetable growers in Bangladesh. For a household to be eligible to participate, it had to be a fruits and vegetables grower. The experiment was conducted by enumerators at the participant’s homes during the baseline survey for the larger study. The baseline survey was conducted in November and December of 2024. 1059 households from 46 villages in two upazillas (Shibgonj and Kahalu) of Bogura district were surveyed as part of the baseline, while the experiment was conducted for 1774 individuals from 887 of the households. The experiment was not conducted if either respondent refused to participate or if an eligible household member was not present when the enumerators went to visit. Out of the households where the experiment was conducted, data on women’s savings in the household was missing for two. I exclude these two households from the final sample which is composed of 1770 individuals or 885 couples<sup>2</sup>. The non-response rates are well within the bounds expected during power calculations. Power calculations were based on figures obtained from earlier related studies<sup>3</sup>.

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<sup>2</sup>Non-participant men had a higher proportion of individuals with less than primary education, which could indicate more traditional-minded individuals compared to participants (Appendix Table B.1).

<sup>3</sup>I relied on Chowdhury et al. (2022) for sample characteristics such as standard deviations in the outcome and probable effect size. The design allows detection of a 0.2 standard deviation size effect with at least 0.8 power.

Figure 1: Distribution of decision-making powers in sample households as reported by women.



Bangladesh offers an interesting backdrop in which to test cooperation between spouses in household decisions. Most unions are long-lasting since divorce is not very common <sup>4</sup>. Thus unions may persist despite growing dissonance between partners. Within the household, tasks are assigned to husband and wife based on existing gender norms (Choudhury, 2019). The patriarchal nature of Bangladeshi society means that most decision-making powers are invested in the husband. Since the resulting resource distribution may be very unequal, women have an incentive to engage in non-cooperative behavior (Baland and Ziparo, 2018). The exclusion of women from important spheres of household decision-making also increases the likelihood of the existence of asymmetric information between spouses. There are also several spheres of household decision-making where women play a significant role. In our sample women were most empowered to make decisions regarding education and health care of children and livestock rearing in the household. Figure 1 shows how decision making powers are divided in households between men and women. While most men have sole decision-making powers in spheres of household activity which take place outside the household (farming decisions like cultivation decisions and when to take crops to the market), most women have sole or joint decision-making powers in the spheres of household activity which take place inside it (decisions about children’s health care, education and purchases

<sup>4</sup>The divorce rate in Bangladesh was 1.1% in 2023 as per figures released by the Bangladesh Bureau of Statistics (The Business Standard, 2024).

for the household). Importantly in decisions regarding household savings and credit, most women reported having either sole or joint say.

Within Bangladesh, the choice of Bogura district was motivated by the needs of the larger study conducted to assess the need for cold storage for fruits and vegetables. Bogura is one of the major vegetable producing regions in Bangladesh (Mou et al., 2019). It has a largely rural population with a literacy rate slightly below the national average (Bangladesh Bureau of Statistics, 2024). Our sample is representative of agricultural communities in Bangladesh and similar to samples used in earlier studies on related topics (Abbink et al., 2020; Chowdhury et al., 2022).

Table 1: Demographic characteristics

	Households		Men		Women	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	(1)		(2)		(3)	
Muslim (%)	97.30	(16.25)				
Dependency ratio <sup>a</sup>	0.25	(0.19)				
<i>Number of assets<sup>b</sup></i>						
Mobile phone	2.42	(1.10)				
Television	0.78	(0.55)				
Cow/Buffalo	1.22	(1.53)				
Poultry	15.63	(14.50)				
<i>Lives in household:</i>						
Child under 5 years (%)	37.51	(48.44)				
Husband's mother (%)	20.00	(40.02)				
Husband's father (%)	11.98	(32.49)				
Wife's mother (%)	2.82	(16.58)				
Wife's father (%)	0.45	(6.71)				
Age (years)			42.69	(10.93)	35.39	(10.33)
Household head (%)			95.48	(20.79)	0.00	(0.00)
Spouse of household head (%)			0.00	(0.00)	95.48	(20.79)
<i>Education:</i>						
Less than primary (%)			15.03	(35.76)	19.32	(39.50)
Primary (%)			32.54	(46.88)	28.25	(45.05)
Secondary (%)			34.12	(47.44)	41.47	(49.30)
Higher-secondary or more (%)			18.30	(38.69)	10.96	(31.26)
<i>Main occupation:</i>						
Ag. self-employed (%)			78.53	(41.08)	4.07	(19.76)
Non-ag. self-employed (%)			11.19	(31.54)	1.13	(10.58)
Ag. wage labor (%)			1.58	(12.48)	0.68	(8.21)
Non-ag. wage labor (%)			6.78	(25.15)	1.36	(11.57)
Livestock rearing (%)			0.00	(0.00)	7.68	(26.65)
At home (%)			0.00	(0.00)	84.29	(36.41)
Other (%)			1.92	(13.73)	0.79	(8.86)
Observations	885		885		885	

*Notes:* Standard deviation in parentheses for mean outcomes.

<sup>a</sup> Dependency ratio was calculated as the ratio between the number of household members not of working age (below 15 and above 65 years) and the number of household members of working age (15 to 65 years).

<sup>b</sup> These numbers are as reported by the adult male member. There were minor differences between the numbers reported by men and women.

Table 1 presents summary statistics of some household and individual demographic characteristics. Our sample was primarily composed of low-income Muslim households. Around 40% of the households had a young child. The average man was around 40 years of age and the average women 35. In nearly all of the cases the adult male in the couples recruited headed their own household. Due to patrilocal marital arrangements, it is more common

for the husband’s parents to be co-living them than the wife’s parents. 85% of men and 81% of women had completed at least primary education. Most men worked on own their farms (78%) while most women were homemakers (84%). The institution of *purdah* which is still practiced in Bangladesh enforces women’s exclusion from public spaces restricting their choice of occupation. Still, the second-most common primary occupation for women was livestock rearing (8%).

### 3 The Experiment

#### 3.1 Design

A male and a female enumerator went to each household with the male recruiter interviewing the primary male adult and the female enumerator attending to his wife. Both household members were interviewed at the same time but in different locations of the household to minimize interactions between couples during game play. The male and female household members were given the game after answering some questions about socioeconomic condition. The male household member was additionally asked questions about fruits and vegetables production and storage methods in the household. Enumerators used tablet computers with survey instruments developed using the *SurveyCTO* platform.

Each husband and wife pair participated in four different games. While each of the games were incentivized, players were paid for their performance in one randomly selected game to avoid hedging between games. The decision to use a within-subject design was motivated by both the need for internal validity and the need to maximize statistical power given existing constraints (Charness et al., 2012). Since different teams of enumerators visited different households to conduct the experiment, relying on a within subject design offers greater robustness to bias concerns due to differences in ability between enumerators than a between-subject design.

Table 2: Set of alternative lotteries presented to players, with corresponding risk levels.

Lottery Number (1)	Payoffs (2)	Gamma ( $\gamma$ ) Range (3)	Gamma ( $\gamma$ ) Midpoint (4)	Risk Aversion (5)
1	125 and 125	$[3.03, +\infty)$	3.03	Extremely averse
2	190 and 100	$[1.99, 3.03)$	2.51	Very averse
3	240 and 90	$[0.60, 1.99)$	1.30	Moderately averse
4	350 and 45	$[0.20, 0.60)$	0.40	Slightly averse
5	400 and 15	$[0.12, 0.20)$	0.16	Risk-neutral
6	450 and 0	$(-\infty, 0.12)$	0.12	Risk-seeking

#### Solo Game

This was the first game that each subject played it is based on the risk elicitation exercise employed by Binswanger (1981). Under this treatment, the player had to choose one out

of a set of six risky lotteries. Each lottery had two equally likely non-negative outcomes. Table 2 lists the set of lotteries presented to each player, both men and women, to choose from. Players were handed a sheet of paper with visual representations of the six options. Figure B.1 reproduces the sheet of paper handed to players with the visual representations. A lottery was depicted using a horizontal bar graph with an orange bar representing the payout in case of the “high” outcome and a white bar representing the payout in case of the “low” outcome. All six lotteries were represented in this fashion, so that individuals with limited literacy were not at a disadvantage. Enumerators also explained each of the lotteries while pointing them out in the sheet of paper. Based on the player’s choice of lottery, the risk preference of the individual is calculated assuming constant relative risk aversion (CRRA) utility. Any winnings from the *Solo* treatment was intended for the player alone.

### Shared Game

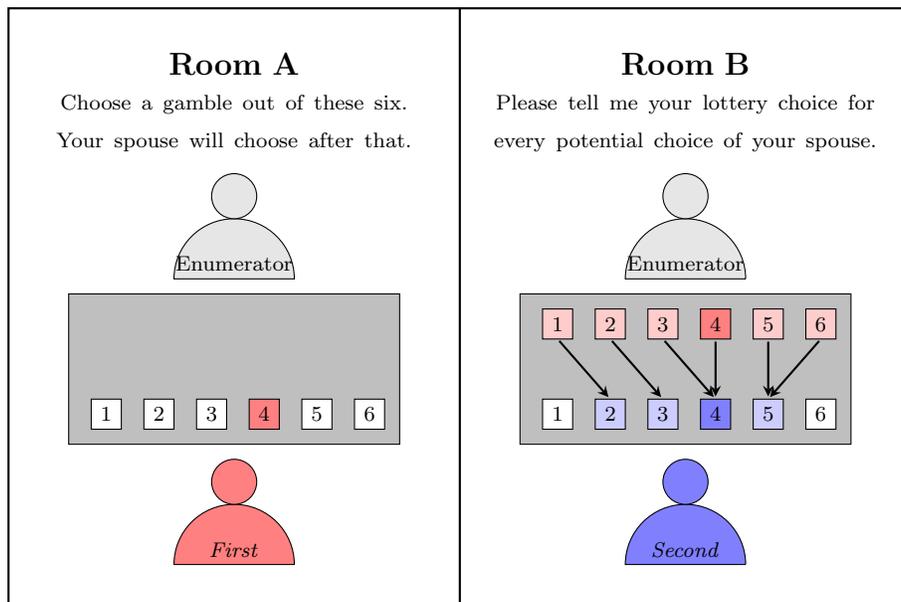
The second game is called the *Shared* game. It is identical to that in the *Solo* treatment except in the incentive structure. Any winnings from this game is equally divided between the player and their spouse. It is used to model individual decision-making for the household.

### Joint Game

The third and fourth games are variations on a sequential lottery choice game. The player and spouse each select a lottery from the list in table 2 and each is paid half of the combined winnings. Figure 2 illustrates the game design for this round.

Figure 2: Design of the Joint game.

In the next question, you and your spouse will each choose a gamble from a list of six. The combined earnings from both gambles will be *equally divided* between the two of you.



The two stages of the game are:

1. The player in Room A, the *first-mover*, chooses a lottery from the set of six without any information about their spouse's choice.
2. The player in Room B, the *second-mover*, then makes their choice *conditional* on the first-mover's choice.

The combined winnings from the two chosen lotteries is equally divided between the pair. The sequential decisions create asymmetric information between partners because *only* the second-mover can make their choice conditional on what the first-mover chose. And having to share the combined winnings makes each person's welfare dependent on their spouse's choices.

The second-mover is informed of the first-mover's actual choice rather their response is recorded using the strategy method. This saves me from having to divulge the first-mover's actual choice to their spouse, which could potentially lead to unfavorable interactions between spouses post-game play. Having players think over all the possible choices of their spouse also helps ensure that individuals make a well-thought out decision (Charness et al., 2012). The second-mover's strategy so elicited, is used to characterize the responsiveness of their choice to their spouse's choice. First-movers are also incentivized to predict their spouse's strategy as second-mover <sup>5</sup>.

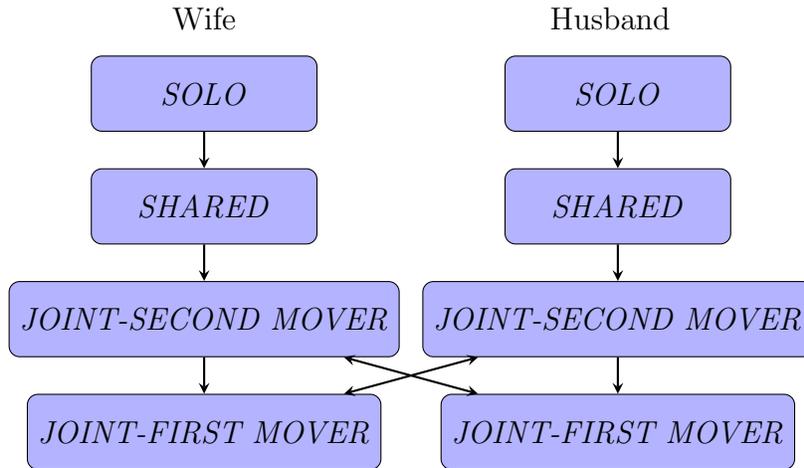
Each player first plays this game as the second mover with their spouse as the first mover under the *Joint-Second* treatment. After that the player records their responses as the first mover with their spouse as the second-mover under the *Joint-First* treatment. I match the husband's responses in his *Joint-First* game with his wife's responses in her *Joint-Second* game to get the pair of lotteries chosen when the husband is the first mover. Similarly by matching the wife's choice under the *Joint-First* with her husband's choice under the *Joint-Second* treatment gives the pair of lotteries chosen when the wife is the first mover. Having participants first record their answers as the second-mover before playing as the first-mover helped ensure that they were familiar with the entire structure of the joint-decision, specifically how the second-mover would be making their lottery choice conditional on the choice of the first-mover. These games are used to model decision making in households. Unlike most papers examining allocative efficiency in the household where players make unilateral decisions, second-movers are allowed to react to their partner's decision. The second-mover's strategy is used to measure their willingness to cooperate with their spouse.

Figure 3 illustrates the order in which the participants played the games.

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<sup>5</sup>First-movers were paid an additional 150 Taka if they could correctly predict their spouse's strategy, 100 Taka if they got only one lottery choice wrong or 50 Taka if they got two lottery choices wrong. This additional amount is paid out only in the instance that that specific game is selected for payment.

Figure 3: Sequence of games faced by men and women.



The players in a household were each paid either for their performance in the *Solo* game or the *Shared* game or the *Joint* game in which the wife was the first mover or the *Joint* game in which the husband was the first mover. Which game was to be paid was randomly decided with each of the four scenarios being equally likely.<sup>6</sup>

At the end of all of the games, the enumerator first revealed to their player the outcome of each of the lotteries chosen by them in each of the four games. This was done by making four successive draws from a bag containing two balls of different colors each. An orange ball implied a high outcome for the chosen lottery and a white ball implied a low outcome. Once the round to be paid for was randomly determined, each enumerator handed their player their winnings without revealing which round they were being paid for or what their spouse won.

### 3.2 Strategy of second-mover

The second-mover states their strategy in the *Joint* game as the lottery they would play:

- (a) if the first-mover choose lottery 1,
- (b) if the first-mover choose lottery 2,
- (c) if the first-mover choose lottery 3,
- (d) if the first-mover choose lottery 4,
- (e) if the first-mover choose lottery 5,
- (f) and if the first-mover choose lottery 6.

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<sup>6</sup>There was a 20% chance of each of four scenarios being selected for payment and additional 20% chance of the player and their spouse receiving 250 Taka each instead. This was done to prevent players from deducing their own or their spouse's performance based on the payments received.

Table 3: Example strategy of second-mover in *Joint* game.

First-mover's potential choice	Second-mover's stated choice
1	2
2	3
3	4
4	5
5	6
6	1

If we represent each lottery by its number (Table 2), then a person's answers to the questions (a) to (b) which characterizes their strategy can be condensed into the correlation coefficient between the lottery number representing the first-mover's potential choice and the second-mover's stated choice in response to it. Table 3 lists an example strategy, the second-mover in this case is playing riskier lotteries as their spouse chooses riskier options. The correlation coefficient calculated between the first-mover's potential choice (Column (1)) and the second-mover's stated choice (Column (2)) in this case is equal to 0.143. If the second-mover had tried to counter the first-mover by choosing safer lotteries as they chose riskier ones, the correlation would have been negative. In the cases where the second-mover does not condition their response on the first-mover's choice the correlation will equal zero.

Thus each second-mover's strategy is represented by the *Strategy* variable which is equal to the correlation between the first-mover's potential choice and their own stated choice as shown above.

### 3.3 Risk measurement

I use two main measures to represent risk preferences and the risk exposure level—the Risk Aversion Parameter ( $\gamma$ ) and the Lottery Number Index (*LNI*).

#### 3.3.1 Risk Aversion Parameter (RAP) for *Solo* ( $\gamma_{Solo}$ ) and *Shared* ( $\gamma_{Shared}$ ) Games:

I measure a player's risk preferences using their observed lottery choice in the *Solo* and *Shared* game. Risk preferences are expressed in terms of the risk aversion parameter which for a constant relative risk aversion (CRRA) utility function. CRRA utility functions are a special case of the harmonic absolute risk aversion (HARA) class of utility functions which also includes constant absolute risk aversion (CARA) functions. CRRA utility functions are commonly used to describe risk preferences derived in lab experiments (Chakravarty et al., 2011; Holt and Laury, 2002; Harrison et al., 2005; Collier and Williams, 1999; Holt and Laury, 2014; Harrison and Rutström, 2008).

$$U(x) = \frac{x^\gamma}{1-\gamma} \quad \text{where } \gamma \neq 1 \quad (1)$$

An individual's risk preference for the couple (or household) is measured based on their choice of lottery in the *Shared* game. I compare the expected utility from their revealed choice to the possible expected utilities from the other lotteries to find the values of  $\gamma$  consistent with their choice.

For example, if an individual chooses lottery 2 from Table 2, it means that for that individual:

$$\begin{aligned} EU(L_2) &\geq EU(L_1) \\ \implies 0.5 * \frac{190^\gamma}{1-\gamma} + 0.5 * \frac{100^\gamma}{1-\gamma} &\geq 0.5 * \frac{125^\gamma}{1-\gamma} + 0.5 * \frac{125^\gamma}{1-\gamma} \\ \implies \gamma &\leq 3.03 \end{aligned} \quad (2)$$

And,

$$\begin{aligned} EU(L_2) &\geq EU(L_3) \\ \implies 0.5 * \frac{190^\gamma}{1-\gamma} + 0.5 * \frac{100^\gamma}{1-\gamma} &\geq 0.5 * \frac{240^\gamma}{1-\gamma} + 0.5 * \frac{90^\gamma}{1-\gamma} \\ \implies \gamma &\geq 1.99 \end{aligned} \quad (3)$$

Thus, their revealed risk aversion parameter ( $\gamma$ ) value exists in the interval [1.99, 3.03]. For simplicity, a person's revealed risk preference level is characterized by the mid-point of the range of  $\gamma$  consistent with their observed choice. Higher values of the risk aversion parameter ( $\gamma$ ) indicate greater aversion to risk. The risk aversion parameter calculated based on a player's choice in the *Solo* game is denoted as  $\gamma_{Solo}$ . The parameter calculated based on a player's choice in the *Shared* game is denoted as  $\gamma_{Shared}$ .

In case a person chooses either lottery number 1 or 6, it isn't possible to calculate a mid-point value of  $\gamma$ , so either the upper- or lower-limit of the relevant interval of values is used, based on whichever is finite. This design upper-codes  $\gamma$  values at 3.03 and lower-codes them at 0.12. To achieve greater precision in calculated  $\gamma$  values would have required greater number of choices to be presented to players either in the same set or across sets. This was not possible due to constraints set by the field and observed tendency of fatigue among players when faced with too many choice during piloting.

I have to make three assumptions to be able to characterize risk preferences based on the observed choices in the *Solo/Shared* games in this way:

1. Individual utilities satisfy constant relative risk aversion (CRRA).
2. Implicit in the above assumption is the condition that people are not altruistic about

their spouse's income or risk preference.

3. Individuals do not make mistakes when choosing lotteries.

### 3.3.2 Risk Aversion Parameter (RAP) for *Joint* ( $\gamma_{Joint}$ ) Game:

To measure the risk exposure level achieved in the *Joint* game in a way that allows comparisons with the risk aversion parameter, I employ an intellectual abstraction. In the *Joint* game, the first mover makes their choice from among the six options given the knowledge that their spouse as the second-mover will choose a lottery conditional on their choice as first-mover. The first-mover's choice will thus be influenced by their belief about their spouse's lottery choice. Incorrect beliefs can cause the first-mover to stray from their preferred risk level. I assume a central planner with perfect knowledge of the second-mover's strategy and calculate the risk parameter which would have led them to make the same lottery choice as the first-mover.

Say, that the second-mover's strategy is as follows:

- lottery 5 if the first-mover chooses 1,
- lottery 5 if the first-mover chooses 2,
- lottery 4 if the first-mover chooses 3,
- lottery 3 if the first-mover chooses 4,
- lottery 2 if the first-mover chooses 5,
- and lottery 1 if the first-mover chooses 6,

and the first-mover's choice is lottery 2. A central planner who knows the second-mover's strategy would know that choosing lottery 2 is tantamount to choosing the lottery combination (2, 5) out of the six alternative combinations created by the second-mover's strategy. Comparing the expected utilities calculated for each of the lottery combinations produces the range of  $\gamma$  values consistent with the central planner's choice. One of the comparisons for this case would be:

$$\begin{aligned}
 EU(L_2, L_5) &\geq EU(L_1, L_5) \\
 \implies 0.25 * \frac{(190 + 15)^\gamma}{1 - \gamma} + 0.25 * \frac{(190 + 400)^\gamma}{1 - \gamma} + 0.25 * \frac{(100 + 15)^\gamma}{1 - \gamma} + 0.25 * \frac{(100 + 400)^\gamma}{1 - \gamma} \\
 &\geq 0.25 * \frac{(125 + 0)^\gamma}{1 - \gamma} + 0.25 * \frac{(125 + 450)^\gamma}{1 - \gamma} + 0.25 * \frac{(125 + 0)^\gamma}{1 - \gamma} + 0.25 * \frac{(125 + 450)^\gamma}{1 - \gamma} \\
 &\implies \gamma \in [0.01, 5.0]
 \end{aligned} \tag{4}$$

The intersection of the  $\gamma$  ranges obtained by pairwise comparisons of each of the expected combinations is used to calculate the risk exposure level achieved by the first-mover and

second-mover. This parameter is denoted as  $\gamma_{Joint}$ . The values of  $\gamma$  consistent with each pairwise comparison of the entire set of possible combinations of lotteries in Table 2 were calculated using the numpy package in *Python* and using codes created with the assistance of ChatGPT.

The obtained  $\gamma$  values are discretized into the intervals presented in Table 2. This is done to make the risk levels obtained from the *Joint* game comparable to the risk preference values in the *Solo* and *Shared* games.

**Addendum: Household Utility Function** I plan to use a household utility function adapted from Chiappori (1997) to characterize the outcome obtained in the *Joint* game. I will use a household utility function of the following type:

$$U^h(x_A, x_B) = \mu \frac{x_A^{\gamma_A}}{1 - \gamma_B} + (1 - \mu) \frac{x_B^{\gamma_B}}{1 - \gamma_B} \quad (5)$$

where  $\gamma_A, \gamma_B \neq 1$  are the risk preference parameter of the first-mover ( $\gamma_A$ ) and second-mover ( $\gamma_B$ ) calculated on the basis of their lottery choice in the *Shared* game,  $x_A$  and  $x_B$  are expenditure by first-mover (*A*) and second-mover (*B*), and  $\mu \in [0, 1]$  is constant which measures bargaining power of the first-mover. This analysis is meant to complement the findings from the comparisons between the risk exposure level in the *Joint* game with the risk preference of the first mover.

### 3.3.3 Lottery Number Index (LNI)

The lottery number index (LNI) is given by the lottery number (Column (1)) that indexes the lotteries listed in Table 2. It takes integer values going from 1 to 6. Higher values of the *LNI* are associated with more risky lottery choices. This measure makes fewer assumptions about the underlying preferences of individuals. The ranking of the lotteries in Table 2 was based on risk aversion parameters calculated assuming constant relative risk aversion. So, the underlying assumption is that individual preferences share the same cardinal properties as preferences characterized by constant relative risk aversion.

## 4 Results and Discussion

### 4.1 Coordination Errors

Table 4 shows difference between the expected lottery choice of the second-mover as elicited from the first-mover and the second-mover’s actual choice. This is the error in the first-mover’s prediction about the second-mover’s choice.

Table 4: Prediction error by male and female first-movers in the *Joint* game.

	Husbands		Wives		(2) - (1)	
	Mean	Std. Dev.	Mean	Std. Dev.	Difference	Std. Err.
	(1)		(2)		(3)	
<b>Lottery Number Index (<i>LNI</i>):</b>						
<i>Error</i>	-0.037	(2.095)	0.029	(2.274)	0.066	(0.110)
<i>Abs. error</i>	1.568***	(1.389)	1.743***	(1.460)	0.175***	(0.064)
Number of men	887		887			
Number of women	887		887			

Notes: *Error* takes integer values in  $[-5, 5]$ . Positive values indicate that the degree of risk aversion of the player was underestimated by their spouse, and negative values indicate overestimation. *Abs. error* takes integer values in  $[0, 5]$  with higher values indicating greater deviation of spouse’s predictions from actual choice. Heteroskedasticity robust standard errors in parentheses for differences in outcomes. Differences between husbands and wives and associated significance levels are based on OLS regression with household-level fixed effects. The statistical significance associated with the mean values of the variables are produced using t-test. \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

The variable *Error* in Table 4 is calculated as the difference between the expected lottery choice of the second-mover as elicited from the first-mover and the second-mover’s actual choice. Lottery choices are expressed in terms of the *LNI*.

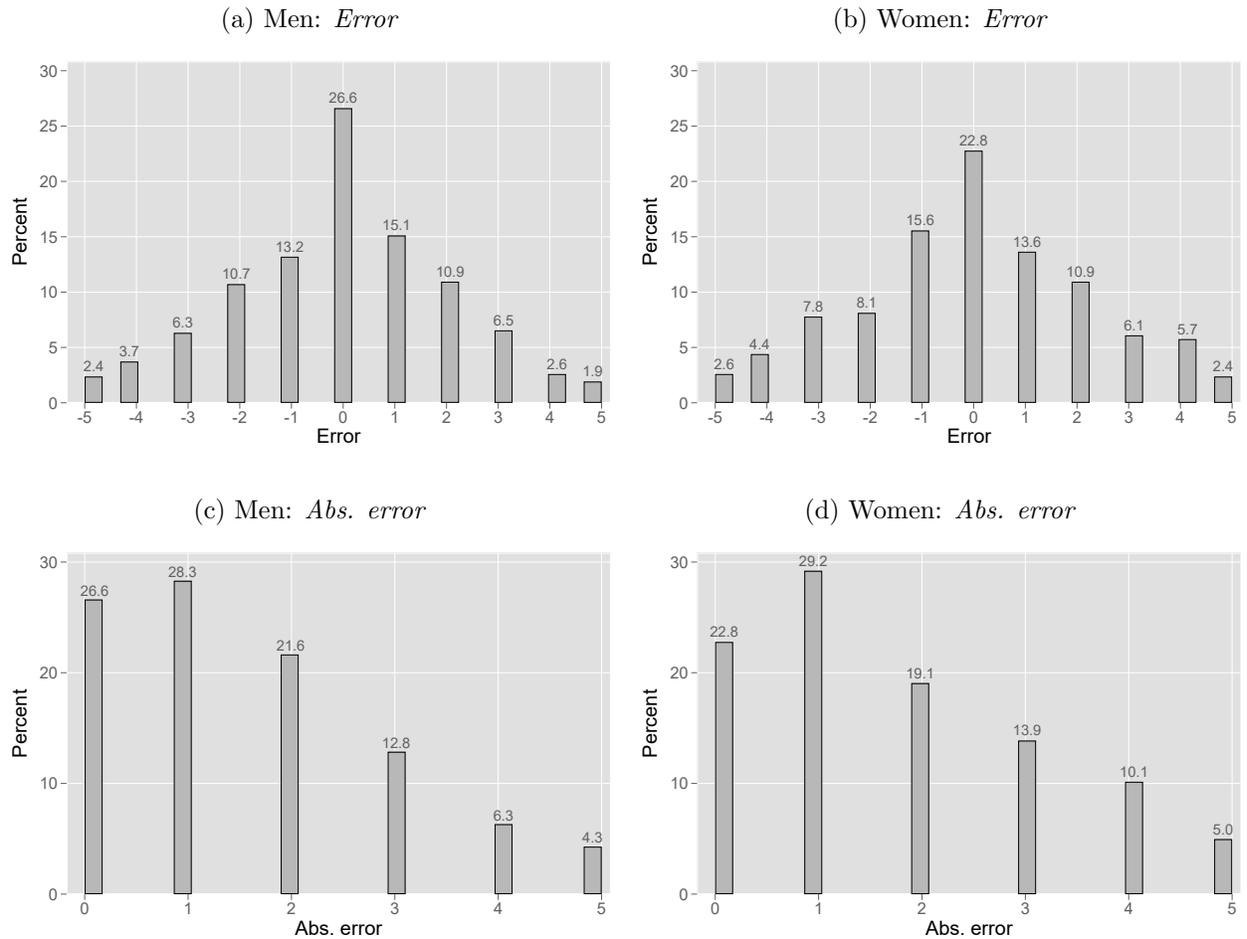
$$Error = E_1(L_2) - L_2 \quad (6)$$

where  $L_2$  is the *LNI* for the second-mover’s chosen lottery given the first mover’s actual choice of lottery ( $L_1$ ), and  $E_1(L_2)$  is the first-mover’s belief about the second-mover’s choice. This variable is zero if the first-mover has correct beliefs, negative if the first-mover overestimates how risk averse the second-mover’s choice is, and positive if the first-mover underestimates how risk averse the second-mover’s choice is. It can take integer values in the interval  $[-5, 5]$ . *Abs. error* is constructed as the absolute value of *Error*. It takes integer values in the interval  $[0, 5]$ . Non-zero values of *Abs. error* indicate that the second mover’s choice deviated from the first-mover’s expectation.

The mean *Abs. error* is statistically different from zero for both the samples of men and women first movers, indicating that first mover’s on average failed to correctly anticipate their spouse’s choice. Additionally, on average women first-movers make larger coordination errors than men. The *Error* variable is not statistically different from zero for either men or women first-movers. However, for women the average of the *Error* variable is positive suggesting a tendency to underestimate the risk aversion of their second-mover and for men

it is negative suggesting a tendency to overestimate the risk aversion of their second-mover. These findings indicate that the average first-mover had mistaken beliefs about their spouse's choice which then caused the the overall risk exposure level for the couple to deviate from the intended or anticipated level.

Figure 4: Distributions of the *Error* and *Abs. error* variables for men and women first movers.

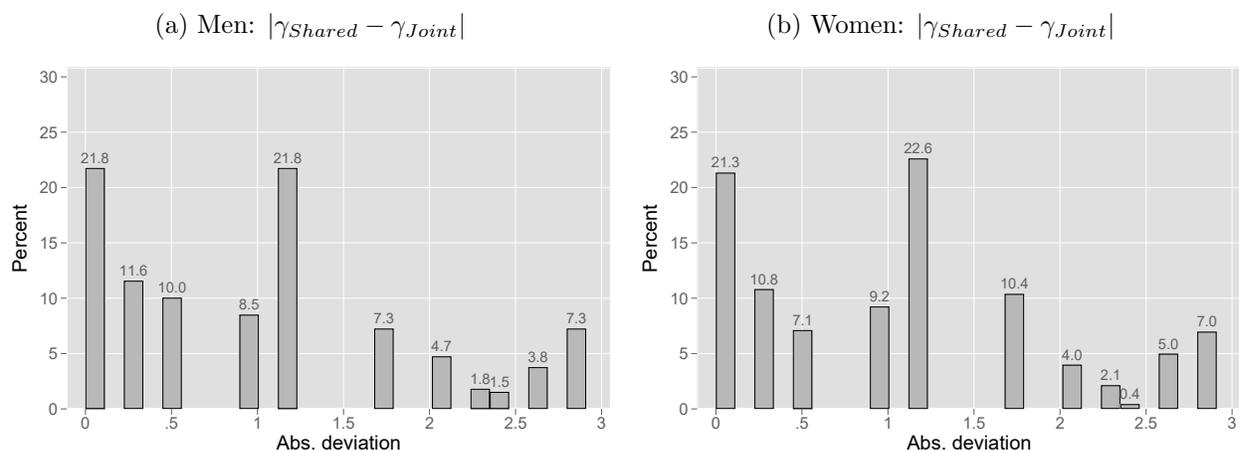


Notes: *Error* takes integer values in  $[-5, 5]$ . Positive values indicate that the degree of risk aversion of the player was underestimated by their spouse, and negative values indicate overestimation. *Abs. error* takes integer values in  $[0, 5]$  with higher values indicating greater deviation in predictions from spouse's actual choice.

Figure 4 presents the distribution of the (a) *Error* for men first-movers, (b) *Error* for women first-movers, (c) *Abs. error* for men first-movers, and (d) *Abs. error* for women first-movers. Only 27% of men first-movers correctly anticipate about their wife's choice of lottery and even fewer women first-movers, 23%, correctly anticipate their husband's choice. Majority of first-movers misjudge how much risk their spouse is taking. In order to understand how serious the problem is at an individual or household level, it is useful to understand that a person who expects their spouse to be "Slightly risk averse" when they are actually "Risk

seeking” would have an *Abs. error* equal to 2. So, first-movers with *Abs. error* greater than or equal to 2, around 45% of all men first-movers and 48% of all women first-movers, are making serious coordination errors, causing them to deviate from their intended risk-exposure level for the household.

Figure 5: Distribution of the absolute deviation of the risk exposure level achieved by first-movers in the *Joint* game ( $\gamma_{Joint}$ ) from their preferred level revealed in the *Shared* game ( $\gamma_{Shared}$ ).



Notes:  $\gamma_{Shared}$  is the risk aversion parameter calculated on the basis of a player’s lottery choice in the *Shared* game.  $\gamma_{Joint}$  represent the risk exposure level achieved by a first-mover in the *Joint* game. Section 3.3.2 details how these variables are constructed.  $\gamma_{Joint}$  could be constructed from 717 (81%) of male first-movers and 703 (79%) of female first-movers.

To estimate the effect of the coordination error made by the first-mover on overall household risk exposure, I compare the risk aversion parameter calculated based on a player’s behavior in the *Shared* game with the risk aversion parameter which characterizes the final lottery combination which arises in the *Joint* game with the player as first-mover. In the *Shared* game a player chooses a lottery whose winnings are shared between them and their spouse. I assume that this choice reveals a person preferred risk exposure level for the household or the couple. The calculation of the risk exposure level ( $\gamma_{Joint}$  and  $\gamma_{Joint}^{appr.}$ ) attained in the *Joint* game is explained in section 3.3.2. The absolute deviation in the risk exposure level achieved by the first-mover in the *Joint* game from their revealed risk preference in the *Shared* game ( $|\gamma_{Shared} - \gamma_{Joint}|$ ) captures how far the achieved exposure level was from their preferred level. Figure 5 presents the distribution of the absolute deviations of achieved level from preferred level for male and female first-movers. Using  $\gamma_{Joint}$  to measure risk exposure level, only 22% of men first-movers (Sub-figure 5a) and 21% of women first-movers (Sub-figure 5b) are able to achieve their preferred risk exposure level<sup>7</sup>.

26% of men and 23% of women in our sample had correct beliefs about their spouse’s choice

<sup>7</sup> $\gamma_{Joint}$  could be calculated for 717 (81%) out of the sample of 887 male first-movers and for 703 (79%) out of the sample of 887 female first-movers. This value could not be calculated if the choice of lottery combination in the *Joint* game did not follow CRRA utility function predictions.

as second-mover. Comparing risk exposure levels across the *Shared* and *Joint* games, reveals that the failure to coordinate means that only 22-29% of men and 21-26% of women are able to achieve their preferred risk exposure level in the presence of imperfect information about their spouse's choices. The average  $\gamma_{Shared}$  for both women and men was around 1.3 (Table 5), indicating that most individuals in our sample were moderately risk averse (Table 2). A positive deviation of one unit from 1.3, produces a risk exposure level that could be characterized as "very risk averse" and a negative deviation by one unit would mean a risk level which would be chosen by "slightly averse" individuals. Using this as a threshold, I find 48-49% of men and 52-54% of women achieve a risk exposure level in the *Joint* game which deviates from the preferred level by an amount greater than this threshold.

Table 5: Risk preferences (*RAP*) of men and women as elicited in the *Solo* and *Shared* Games

	<i>Solo</i> ( $\gamma_{Solo}$ )		<i>Shared</i> ( $\gamma_{Shared}$ )		(2) - (1)	
	Mean	Std. Dev.	Mean	Std. Dev.	Difference	Std. Err. <sup>a</sup>
	(1)		(2)		(3)	
Women	1.387	(1.215)	1.313	(1.148)	-0.074*	(0.044)
Men	1.416	(1.222)	1.289	(1.136)	-0.126***	(0.045)
	Mean	Std. Err. <sup>b</sup>				
<i>Intrahousehold pref. divergence:</i>						
$\left  \gamma_{Solo}^{wife} - \gamma_{Solo}^{husband} \right $	1.203***	(0.037)				
$\left  \gamma_{Shared}^{wife} - \gamma_{Shared}^{husband} \right $	1.184***	(0.034)				
Number of women	887					
Number of men	887					

*Notes:*  $\gamma$  is the risk aversion parameter associated with a CRRA utility function, higher values indicate greater risk aversion.  $\gamma_{Solo}^{wife}$  ( $\gamma_{Shared}^{wife}$ ) denotes the risk aversion parameter that characterizes the wife's choice in the *Solo* (*/Shared*) game.  $\gamma_{Solo}^{husband}$  ( $\gamma_{Shared}^{husband}$ ) denotes the risk aversion parameter that characterizes the husband's choice in the *Solo* (*/Shared*) game. Standard deviation in parentheses for mean outcomes. \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

<sup>a</sup> Differences between games and associated significance levels are based on OLS regression with individual-level fixed effects. Heteroskedasticity robust standard errors reported in parentheses.

<sup>b</sup> Reported mean and standard error are from one-sample t-test.

## 4.2 Intrahousehold Preference Heterogeneity

Table 5 shows the average risk preferences of participants as elicited in the *Solo* and *Shared* games. Risk preferences are expressed in terms of the *risk aversion parameter* ( $\gamma$ ).

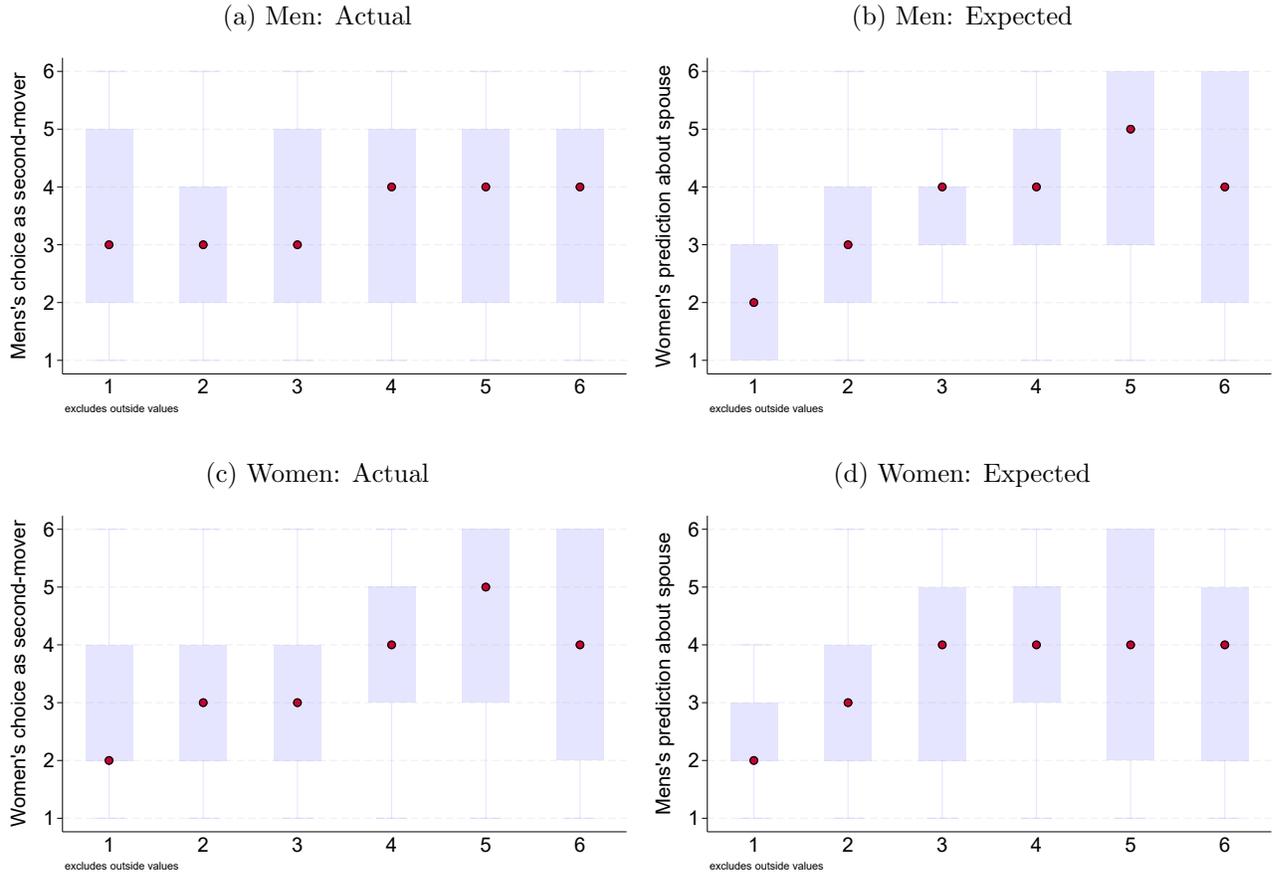
On average the choice patterns of both men and women indicated moderate risk aversion. Men were more risk-taking in their choices in the *Shared* game than in the *Solo* game. There is weak evidence of a similar tendency among women to accept more risk when the risks are shared with their spouse. This finding is especially interesting in light of earlier findings that strangers are more risk averse when playing with another's money (Chakravarty et al., 2011).

The absolute divergence in risk preferences between spouses is statistically different from zero. The difference in spousal risk preferences is equal to 1.2 and slightly smaller in magnitude based on the choices in the *Shared* game than in the *Solo* game. 54% of the couples in the *Shared* game and 51% of the couples in the *Solo* game have an absolute difference greater than unity between each other's risk preference parameters ( $\gamma$ ).

## 4.3 Strategy in *Joint* Game

The second-mover's choice in the *Joint* game was elicited using the strategy method whereby they were asked to state their preferred lottery choice for every possible lottery choice of the first-mover. The first mover's beliefs about the second-mover's strategy was also elicited

Figure 6: Actual and expected choices of second-movers in the *Joint* game.



*Notes:* Box and whisker plots of the stated or predicted strategies of second-movers. The median is represented by the red markers and outliers were excluded. The horizontal axis plots the potential lottery choice of the first-mover. The vertical axis plots the chosen lottery of the second-mover as stated by themselves (Panels (a) and (c)) or as predicted by their spouse (Panels (b) and (d)).

allowing me to observe how people expect their spouse's to play. Figure 6 panel (a) is a set of box plots representing the distribution of lottery choices of male second movers for every potential choice of the first mover and panel (c) presents similar box plots for female second-movers. Panel (b) shows the distribution of expected lottery choices for men second-movers and panel (d) shows the analogous distribution for women second-movers. The horizontal axis of each of the figures plots the potential choice of the first-mover in terms of the *LNI*. The vertical axis plots either the second-mover's stated lottery of choice (Panels (a) and (c)) or their expected choice (Panels (b) and (d)). Visual inspection of panels (a) and (c) suggests that both men and women as second-movers show some tendency to co-move with the first-mover's choice, choosing riskier lotteries in response to riskier choices by the first-mover. This can be expected among married couples and could indicate mutual trust in one another's choices. However, this tendency is much more pronounced among women. Panels (b) and (d) show the distribution of expected lottery choices of men and women second-movers as elicited from their spouses. Comparing actual to expected choices, reveals that

women expect their spouse to align with their choice as the first-mover but in reality men’s choices as the second-mover are not sensitive to the first mover’s choice (Panels (a) and (b)). Even though as second-movers men make choice which are independent of their wife’s choice (Panel (a)), in their role as the first-mover they correctly predict that their wife will align with their choices (Panel (d)).

Table 6: *Strategy* variable: Actual and expected.

	Actual		Expected		(2) - (1)	
	Mean	Std. Dev.	Mean	Std. Dev.	Difference	Std. Err.
	(1)		(2)		(3)	
Men	0.184	(0.530)	0.355	(0.488)	0.171***	(0.023)
Women	0.321	(0.500)	0.267	(0.511)	-0.054**	(0.023)
Difference	-0.137***		0.088***			
Std. Err.	(0.024)		(0.024)			
Number of men	887		887			
Number of women	887		887			

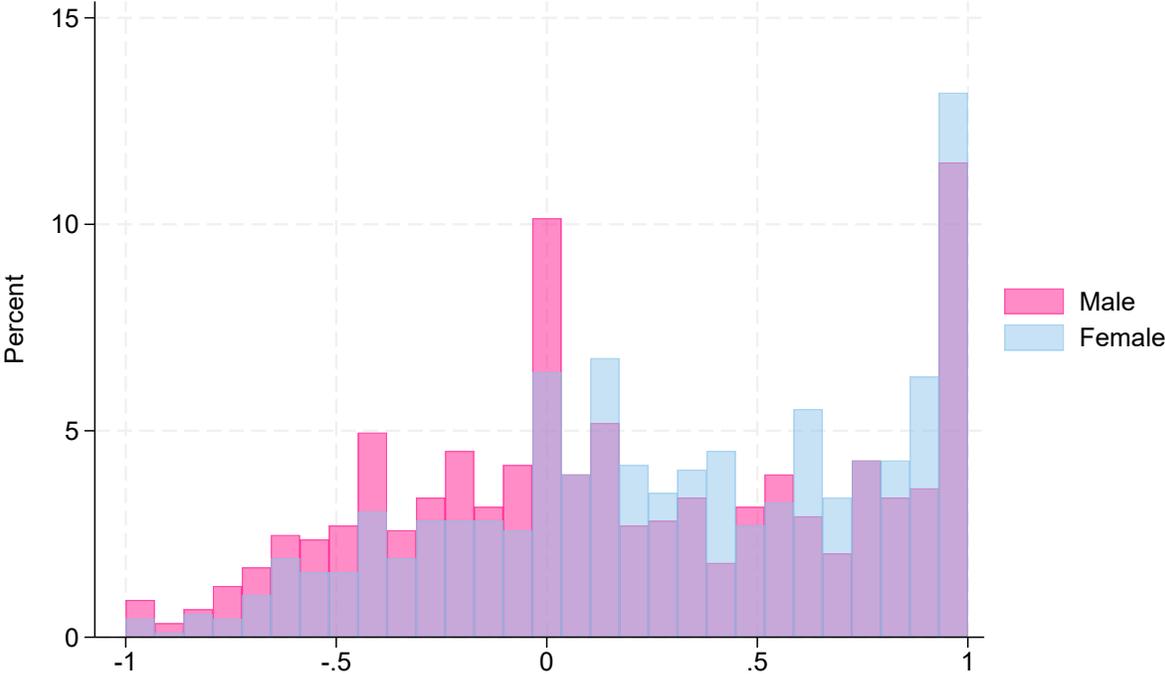
Notes: The *Strategy* variable takes values in  $[-1, 1]$ . Positive values indicate that the riskiness of second mover’s choices co-move with the first mover’s and negative values indicate that a second mover who tries to counter their spouse’s choice. Standard errors and significance levels are based on t-tests. \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

The second-mover’s *Strategy* variable is constructed on the basis of their stated lottery choices for every potential choice of the first-mover. Sub-section 3.2 describes how the *Strategy* variable is constructed. A positive value of the *Strategy* variable would arise if the second-mover is trying to align their choice with the first-mover’s choices while a negative value would indicate that the second-mover is trying to counter the first-mover’s choice, choosing progressively safer lotteries as the first-mover chooses riskier lotteries. If a second-mover does not condition their choice on the first-mover’s choice the *Strategy* variable should be zero. Column (1) of Table 6 lists the actual and expected values of the *Strategy* variable for the men and women in our sample. They paint a similar picture to that in Figure 6. The average value of the *Strategy* variable for male second-movers is equal to 0.184 and for female second-movers it is equal to 0.321. The difference in mean outcomes is statistically significant at the 1% level indicating that women on average are more likely to try to align with the first mover’s choices. Men’s choices as second movers on the other hand appear not to be very sensitive to the first-mover’s choice. This finding could be driven by a higher tendency among women to defer to their partners in decisions than men (Abbink et al., 2020) or by men not wanting to appear to be “overly dependent” on their wives. Thus, there appear to be gendered differences in how much weight a person places on their spouse’s opinion or choice. Similar tendencies have been documented in relation to information discovered by a person’s spouse as opposed to self-discovered information (Conlon et al., 2021). Column (2) of the same table lists the average expected *Strategy* variable values for men and women. Men expect their wives to align with their choices as first-movers even though they underestimate

the degree to which this happens. However, women expect their husband’s choices as second mover to try to align with them similar to their own strategy as second movers causing the predicted *Strategy* variable value for men to deviate significantly from the actual value.

Beyond the picture painted by Table 6 and Figure 6 there is still considerable heterogeneity. Figure 7 shows the distribution of the *Strategy* variable among the sample of men and women second-movers. While the majority of second movers have positive *Strategy* values, there is still considerable number of people who try to counter the first-mover’s choices with values on the left-side of the origin. For women there is a mass-point at 1 representing the women whose choices perfectly co-move with the first-mover’s choice. For men there are two mass-points, a mass-point at 1, similar to but smaller than the one for women, and a mass-point at 0 representing the men who did not condition their choice as second-mover on their wife’s choice at all.

Figure 7: Distribution of the *Strategy* variable among sample of women and men second-movers.



Notes: The *Strategy* variable takes values in  $[-1, 1]$ . Positive values indicate that the riskiness of second mover’s choices co-move with the first mover’s and negative values indicate that a second mover who tries to counter their spouse’s choice.

## 4.4 Mechanisms

I have shown evidence to support the motivating hypothesis that coordination errors between couples in risk-taking decisions so exist. I have also shown evidence to support the secondary hypotheses that there is disparity in risk preferences within couples and that some people, especially women, try to coordinate with their spouse when making interrelated decisions. In this section, I use simple regression techniques to investigate how intrahousehold preference disparity and the second-mover's strategy contribute to the prediction error committed by the first-mover.

Table 7: Results from regression of coordination error (*Error*) by first-movers in the *Joint* game on risk preference disparity in household and strategy of members.

	Husbands				Wives			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Error</i> ( $= E_1(L_2) - L_2$ )								
$LNI_{Shared}^{self} - LNI_{Shared}^{spouse}$	0.141*** (0.032)	0.139*** (0.032)	0.181*** (0.045)	0.181*** (0.045)	0.185*** (0.035)	0.186*** (0.035)	0.210*** (0.047)	0.210*** (0.047)
$LNI_{Shared}^{self}$			-0.083 (0.060)	-0.083 (0.060)			-0.050 (0.065)	-0.050 (0.065)
Spouse <i>Strategy</i>		0.092 (0.148)	0.065 (0.150)	0.065 (0.150)		0.037 (0.153)	0.034 (0.153)	0.034 (0.153)
<i>Strategy</i>		0.003 (0.138)	-0.001 (0.138)	-0.001 (0.138)		0.012 (0.159)	-0.004 (0.160)	-0.004 (0.160)
Constant	-0.039 (0.070)	-0.069 (0.095)	0.226 (0.220)	0.226 (0.220)	0.031 (0.075)	0.021 (0.102)	0.199 (0.250)	0.199 (0.250)
Controls	No	No	No	Yes	No	No	No	Yes
Village FEs	Yes							
R-squared	0.061	0.061	0.063	0.063	0.086	0.086	0.087	0.087
Observations	885	885	885	885	885	885	885	885

Notes: *Error* takes integer values in  $[-5, 5]$ . Positive values indicate that the degree of risk aversion of the player was underestimated by their spouse, and negative values indicate overestimation. Controls include age, education, and occupation of player and spouse, dependency ratio, number of children under 5 in household, the presence of in-laws in household and a wealth index created as mean response of wife to questions about assets owned by household. The full table is presented in the appendix Table (B.2). Heteroskedasticity robust standard errors in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

Tables 7 and 8 report the results of regressions of the *Error* variable and the *Abs. error* variable on the *Strategy* variable of the second-mover and preference disparity between spouses in the *Shared* game. All lottery choice variables are expressed in terms of the *LNI*.

Table 7 shows that the intrahousehold preference disparity ( $LNI_{Shared}^{self} - LNI_{Shared}^{spouse}$ ) can predict the prediction error made by the first-mover. Individuals who are more risk-loving (/risk-averse) than their spouse overestimate how risk-loving (/risk-averse) their spouse's choice is in the joint decision. This could happen because people faced with imperfect information base their assumption about the spouse's choice on their own preferences. The finding is robust to controls for household and player-specific socioeconomic characteristics such as age, education, and occupation. Comparisons between people's own strategies and their predictions about their spouse's strategy presented in Section (4.3) also supported this finding about belief formation in households, especially for women. Table 8 shows that both a player's spouse's *Strategy* and their own *Strategy* predict the absolute magnitude of the

Table 8: Results from regression of absolute value of coordination error (*Abs. error*) by first-movers in the *Joint* game on risk preference disparity in household and strategy of members.

	Husbands				Wives			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Abs. error =  E_1(L_2) - L_2 $								
$ LNI_{Shared}^{self} - LNI_{Shared}^{spouse} $	0.073**	0.061*	0.057*	0.045	0.057	0.038	0.040	0.046
	(0.034)	(0.034)	(0.034)	(0.034)	(0.036)	(0.035)	(0.035)	(0.035)
$LNI_{Shared}^{self}$			0.049*	0.046			-0.063**	-0.052
			(0.029)	(0.029)			(0.031)	(0.032)
<i>Spouse Strategy</i>		-0.434***	-0.427***	-0.428***		-0.692***	-0.692***	-0.666***
		(0.096)	(0.096)	(0.096)		(0.093)	(0.092)	(0.096)
<i>Strategy</i>		-0.235***	-0.231**	-0.215**		-0.250**	-0.280***	-0.272***
		(0.091)	(0.091)	(0.092)		(0.098)	(0.098)	(0.101)
Constant	1.437***	1.642***	1.478***	1.515***	1.643***	1.884***	2.105***	1.895***
	(0.075)	(0.088)	(0.124)	(0.468)	(0.081)	(0.089)	(0.140)	(0.484)
Controls	No	No	No	Yes	No	No	No	Yes
Village FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.047	0.080	0.083	0.120	0.064	0.134	0.138	0.165
Observations	885	885	885	885	885	885	885	885

Notes: *Abs. error* takes integer values in  $[0, 5]$  with higher values indicating greater deviation of spouse's predictions from actual choice. Controls include age, education, and occupation of player and spouse, dependency ratio, number of children under 5 in household, the presence of in-laws in household and a wealth index created as mean response of wife to questions about assets owned by household. The full table is presented in the appendix Table (B.3). Heteroskedasticity robust standard errors in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

prediction error made by them. The negative correlation between spouse's *Strategy* and *Abs. error* means that first-movers expect their spouse to try to align with them. The negative correlation between a player's own *Strategy* as second-mover and their *Abs. error* as a first-mover is less intuitive, as this variable does not directly affect the player's decision as the first mover. One possible explanation is that players use their own behavior as a reference when predicting their spouse's choices. Players whose second-movers strategy is oppositional or unresponsive to the first-movers may be worse at predicting their spouse's actions if second-movers on average are more likely to align. Figure 6 and Table 6 supports this trend, showing that the average second mover's choices co-move with the first mover's potential choices. Another potential explanation for the negative relationship between *Abs. error* and *Strategy* is that players who try to counter the first mover as a second mover are more likely to have spouses who themselves try to counter the player as a second mover rather than aligning with them.

Employment status also predicts *Abs. error* made by men and women (Table B.3). Men who are either students or stay at home have better knowledge of their spouse's choices in the joint game maybe because they spend more time at home with their spouse and have greater knowledge of their choices. Women first movers with husbands who stay at home also make smaller coordination errors when they play as first movers indicating perhaps that time spent in each other's company increases information transfer between spouses. Men with spouses who have independent sources of income make larger coordination errors perhaps because these women are less likely to align with their husband's choice.

Table 9 reports the results of regressions of a player's *Strategy* variable on their spouse's

Table 9: Results from regression of individual's *Strategy* as second-mover on own and spouse characteristics.

	Husbands		Wives	
	(1)	(2)	(3)	(4)
<i>Strategy</i>				
Spouse <i>Strategy</i>	0.090** (0.037)	0.074* (0.039)	0.081** (0.033)	0.068** (0.034)
$\left  LNI_{Shared}^{self} - LNI_{Shared}^{spouse} \right $	-0.018 (0.013)	-0.020 (0.013)	-0.013 (0.012)	-0.012 (0.012)
$LNI_{Shared}^{self}$	-0.009 (0.011)	-0.009 (0.011)	-0.043*** (0.010)	-0.049*** (0.011)
Conscientious	0.019 (0.019)	0.016 (0.020)	0.064*** (0.018)	0.064*** (0.018)
Extraverted	-0.001 (0.023)	0.006 (0.023)	-0.067*** (0.020)	-0.059*** (0.021)
Agreeable	-0.007 (0.019)	-0.003 (0.020)	-0.003 (0.020)	-0.001 (0.020)
Open to new	0.042*** (0.014)	0.041*** (0.015)	-0.008 (0.013)	-0.015 (0.014)
Neuroticism	-0.002 (0.017)	-0.003 (0.017)	0.003 (0.014)	0.008 (0.014)
Constant	-0.047 (0.186)	0.194 (0.267)	0.448*** (0.163)	0.439* (0.235)
Village FEs	Yes	Yes	Yes	Yes
R-squared	0.091	0.122	0.109	0.143
Observations	885	885	885	885

Notes: The *Strategy* variable takes values in  $[-1, 1]$ . Positive values indicate that the riskiness of second mover's choices co-move with the first mover's and negative values indicate that a second mover who tries to counter their spouse's choice. Additional controls were added for age and education of player and spouse, and presence of in-laws in household but are not displayed. The full table is presented in the appendix Table B.4. Heteroskedasticity robust standard errors in parentheses.  
\*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

*Strategy* variable. A player's *Strategy* variable is positively associated with their spouse's *Strategy* confirming that players who counter the first-mover's choice are have spouses who also do the same (and vice versa). The more risk averse a woman ( $LN I_{Shared}^{self}$  in columns (3) and (4)) is, the less positive her *strategy* is because to balance the risk exposure level, she would have to select safer lottery choices in response to riskier choices by the first mover. Non-cognitive skill measures are constructed using responses to a Big 5 personality test adapted from Chowdhury et al. (2022) to explore if certain personality types made people more or less likely to try to align with their spouses when making joint decisions. Extroversion among women is negatively associated with *Strategy* while conscientiousness is positively associated with *Strategy*. Among men, those who reported being more open to new experiences were more likely to try to align with their spouse's decisions in the joint game. Women with access to independent income sources like wage laborer are less likely to align with their spouse in the joint decisions and their husbands as second mover are also more like to counter them.

The next subsection explores whether people's behavior in the game can predict actual household behavior.

## 4.5 Risk preferences as predictors of household assets and investments

## 4.6 Predicting asymmetric information in the household

### 4.6.1 Pecuniary Savings

Husbands and wives were asked if either “you or your husband made any savings in the past 12 months?” Individuals reported on both whether they themselves or their spouse had made any savings. Figures 8a and 8b report the percentage of men and women who were correct about their spouse’s savings behavior, overestimated their spouse’s savings behavior, or underestimated it.

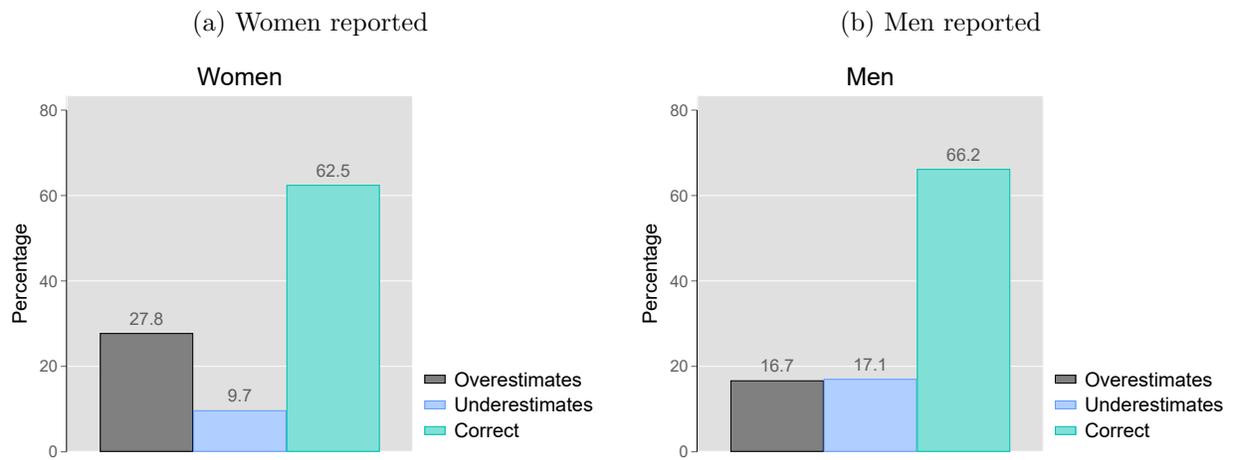
38% of women and 34% of men were mistaken about whether their spouse made any savings during the past twelve months. Interestingly the women in the sample were far more likely to overestimate than underestimate their husband’s savings behavior.

Even looking at the reasons why people make savings, reveals widespread disagreement between spouses. Figure 9 plots the distribution of the reported purposes for maintaining savings. Men and women who reported making savings, either themselves or their spouse, were asked the two top reasons for maintaining the savings.

Figure 9a and 9c plot the distributions of women and men’s self-reported reasons for maintaining savings. Figure 9b and 9d plot the distributions of reasons for women and men maintaining savings as reported by their spouses. Comparing the reasons that people give for themselves to what their spouse reports, reveals that men overestimate how much their wife is saving for purposes such as investment on farming technology by almost 20 percentage points. They underestimate women’s savings for household emergencies and children’s education related purposes by 14% and 17% respectively. Women overestimate how much their husbands are saving for household emergencies and for their children’s education.

Clearly a large fraction of couples hold mistaken beliefs about the household’s assets and can not agree on the purpose of the stored funds. In times of need, this can lead to either spouse expecting non-existent funds from their spouse. A husband expecting their wife to have funds for an investment on the farm may find that she had to spend it on their child’s school fees. In the event of a educational need of her child, a wife may find her husband unwilling to part with funds earmarked for farm investments.

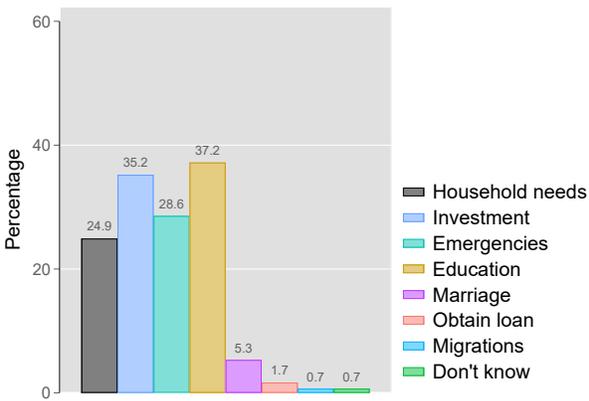
Figure 8: Reported savings behavior of men and women.



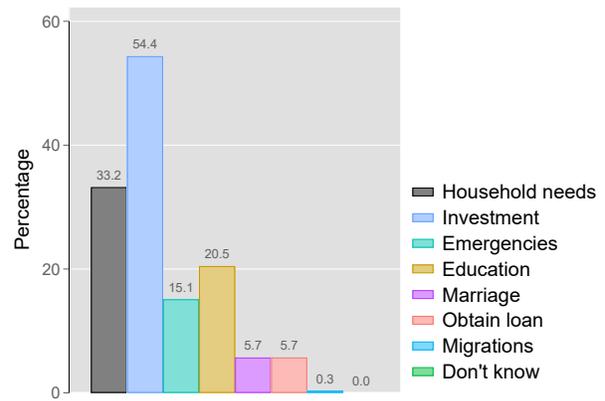
Notes: Husbands and wives were asked if either “you or your husband made any savings in the past 12 months?” If a person reported their spouse as having savings when their spouse reported not it was taken to be an overestimation, and if a person reported their spouse as not having savings when their spouse reported having savings it was taken to be an overestimation.

Figure 9: Reported purpose for maintaining savings of men and women.

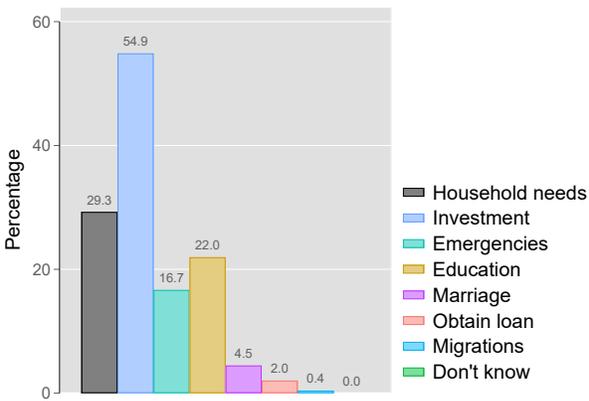
(a) Women's savings: Self reported



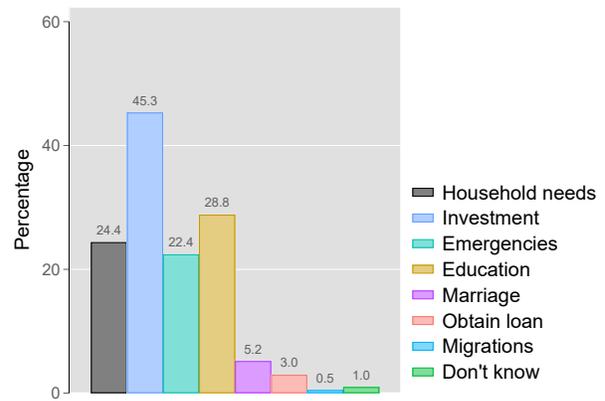
(b) Women's savings: Spouse reported



(c) Men's savings: Self reported



(d) Men's savings: Spouse reported



Notes: If a person reported either themselves or their spouse as having made savings in the past 12 months, they were asked the top two reasons for maintaining the savings.

Table 10: Results from regression of mistaken beliefs about wife’s savings for various purposes in the past twelve months on prediction errors (*Abs. error*) in the *Joint* game.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Household	Investment	Emergencies	Education	Marriage	Loan	Migration
<i>Abs. error</i>	0.014 (0.020)	-0.014 (0.020)	-0.008 (0.019)	-0.040** (0.017)	-0.031* (0.017)	-0.002 (0.018)	-0.005 (0.015)
Constant	0.205 (0.187)	0.220 (0.191)	0.245 (0.165)	0.114 (0.163)	0.264 (0.161)	0.117 (0.168)	0.261* (0.155)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.136	0.077	0.298	0.309	0.335	0.339	0.422
Observations	678	678	678	678	678	678	678

*Notes:* The dependent variables are indicator variables for whether a husband is able to correctly predict the reason for their wife maintaining savings. Column 1 to 7 respectively are for savings to meet household needs, for agricultural or non-agricultural investments, for emergencies, for children’s education, for their marriage, for loans and for migration. *Abs. error* is standardized to aid interpretation of estimates. Controls include individual risk preferences, age, education, and occupation of player and spouse, household composition, decision-making powers of wife and wealth index. Sample excludes couples who both stated that no one in the household made any savings in the past twelve months. Robust standard errors reported in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

In Table 10 the dependent variable are indicators whether a husband is correct about the purpose of the savings maintained by their wife. The size of the prediction error made by men in the *Joint* game is a good predictor of whether they hold mistaken beliefs about whether their wife has made savings for investments into their children: education and for their marriage. One standard deviation increase in the size of prediction error made by husbands in the game is associated with a 4 percentage point increase ( $p < 0.05$ ) in the likelihood of them being wrong about their wife’s saving for education purposes and a 3 percentage point increase ( $p < 0.1$ ) for savings made for marriage funds. Both decision-making powers (Figure 1) and reasons for maintaining savings (Figure 9a) as reported by women reveal that women play a vital role in these spheres of household decisions.

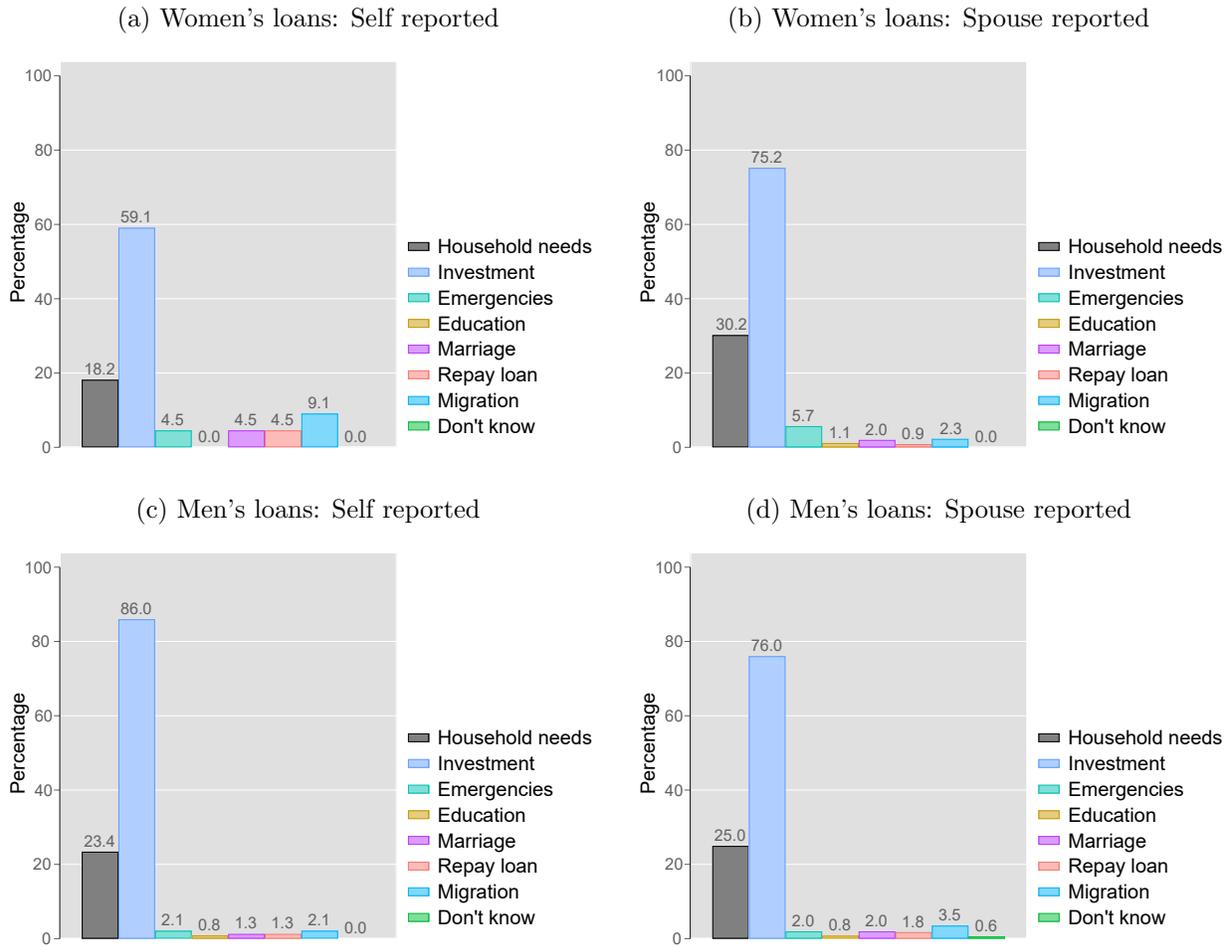
Table 10 reports the results for analogous regressions for women’s ability to predict the reasons for their husband maintaining savings. Women’s prediction errors in the game predicts mistaken beliefs about husbands savings for investment reasons, for emergencies, for paying off loans and migration needs ( $p < 0.05$ ).

Table 11: Results from regression of mistaken beliefs about husband’s savings for various purposes in the past twelve months on prediction errors (*Abs. error*) in the *Joint* game.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Household	Investment	Emergencies	Education	Marriage	Loan	Migration
<i>Abs. error</i>	0.006 (0.017)	-0.042** (0.018)	-0.041*** (0.016)	-0.003 (0.017)	-0.022 (0.013)	-0.029** (0.012)	-0.025** (0.011)
Constant	0.277 (0.177)	0.370** (0.183)	0.438*** (0.161)	0.337* (0.172)	0.349*** (0.134)	0.331** (0.132)	0.398*** (0.113)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.238	0.195	0.341	0.278	0.500	0.554	0.591
Observations	678	678	678	678	678	678	678

*Notes:* The dependent variables are indicator variables for whether a wife is able to correctly predict the reason for their wife maintaining savings. Column 1 to 7 respectively are for savings to meet household needs, for agricultural or non-agricultural investments, for emergencies, for children’s education, for their marriage, for loans and for migration. *Abs. error* is standardized to aid interpretation of estimates. Controls include individual risk preferences, age, education, and occupation of player and spouse, household composition, decision-making powers of wife and wealth index. Sample excludes couples who both stated that no one in the household made any savings in the past twelve months. Robust standard errors reported in parentheses. \* p<0.1, \*\* p<0.05, and \*\*\* p<0.01.

Figure 10: Reported purpose for obtaining loan of men and women.



Notes: Respondents were asked to report how many active loans the household had in the past 12 months, the primary decision-maker for each loan, the purpose for each loan, and the source from which they were obtained. If a person reported the household having any, they were asked the top two reasons for taking the loan.

#### 4.6.2 Credit Decisions

Respondents were asked to report how many active loans the household had in the past 12 months, the primary decision-maker for each loan, the purpose for each loan, and the source from which they were obtained.

Similar to the observed asymmetry in information about savings, out of the 604 couples where at least one member reported having taken a loan in the past twelve months, 365 couples (60%) did not agree on the number of loans taken out or still outstanding.

Figure 10 shows the distribution of reasons for which men and women took out loans as reported by themselves or their spouse. The decision to take a loan could have been made jointly or solely by either the husband or the wife. For the distributions in figure 10 I used

the reasons stated by respondents for loans that were taken out solely by either themselves or their spouse.

Panel (a) shows the distribution of women’s reasons as reported by themselves, (b) shows the distribution of women’s reasons as reported by their husbands, (c) shows the distribution of men’s reasons as reported by themselves, and (d) shows the distribution of men’s reasons as reported by their wives. Investment into the farm or other household business is the most common reason for taking loans. However, men place greater importance on investment than women. As reported by themselves, around 86% of all loans that men took were for agricultural or non-agricultural investment purposes (Panel (c)). The second most common reason was to meet household needs. Women stated investment as a reason for 59% of the loans they took, and household needs as a reason for 18.2% of the loans (Panel (a)). Women are more likely than men to take loans for emergencies such as shocks to the household or to repay other loans.

Men overestimate how many loans taken out by their wife is earmarked for investments whereas women underestimate how many of their husband’s loans are taken for investment purposes.

Table 12: Results from regression of the difference in number of livestock assets reported by women from their husband’s report on the errors made by men and women in *Joint* game.

	(1)	(2)
Wife: <i>Livestock</i> - Husband: <i>Livestock</i>		
Wife <i>Error</i>	0.466** (0.185)	0.439** (0.183)
Husband <i>Error</i>	0.077 (0.200)	0.107 (0.198)
Constant	-2.331*** (0.768)	-2.565 (3.926)
Controls	No	Yes
R-squared	0.008	0.082
Observations	849	849

Notes: Husbands and wives were each asked to report the number of cow/buffalo, goat/sheep, and poultry owned by the household. The dependent variable is created by differencing the number reported by the husband from the number reported by his wife. Controls include risk preferences, age, education, and occupation of player and spouse, family composition, women’s decision-making powers and wealth index. Sample excludes households where both partners reported not having any livestock. Standard errors reported in parentheses. \* p<0.1, \*\* p<0.05, and \*\*\* p<0.01.

### 4.6.3 Physical Assets

South Asian rural households often hold livestock assets such as poultry to meet one-off expenditures, as a source of informal savings and insurance (Pica-Ciamarra et al., 2011). The rearing of livestock is an activity that both partners in most of the households surveyed play a important role (Figure 1). There is still considerable disagreement between partners as to the actual stock of animals owned by the household. On average, women tended to report fewer cow/buffalo, goat/sheep and poultry than their husbands<sup>8</sup>.

Coordination errors made by women in the *Joint* game are able to predict difference in the numbers of livestock reported by the wife and the number reported by the husband (Table 12). This relationship is robust to the inclusion of controls for household demographics, individual risk preferences and women's decision making powers.

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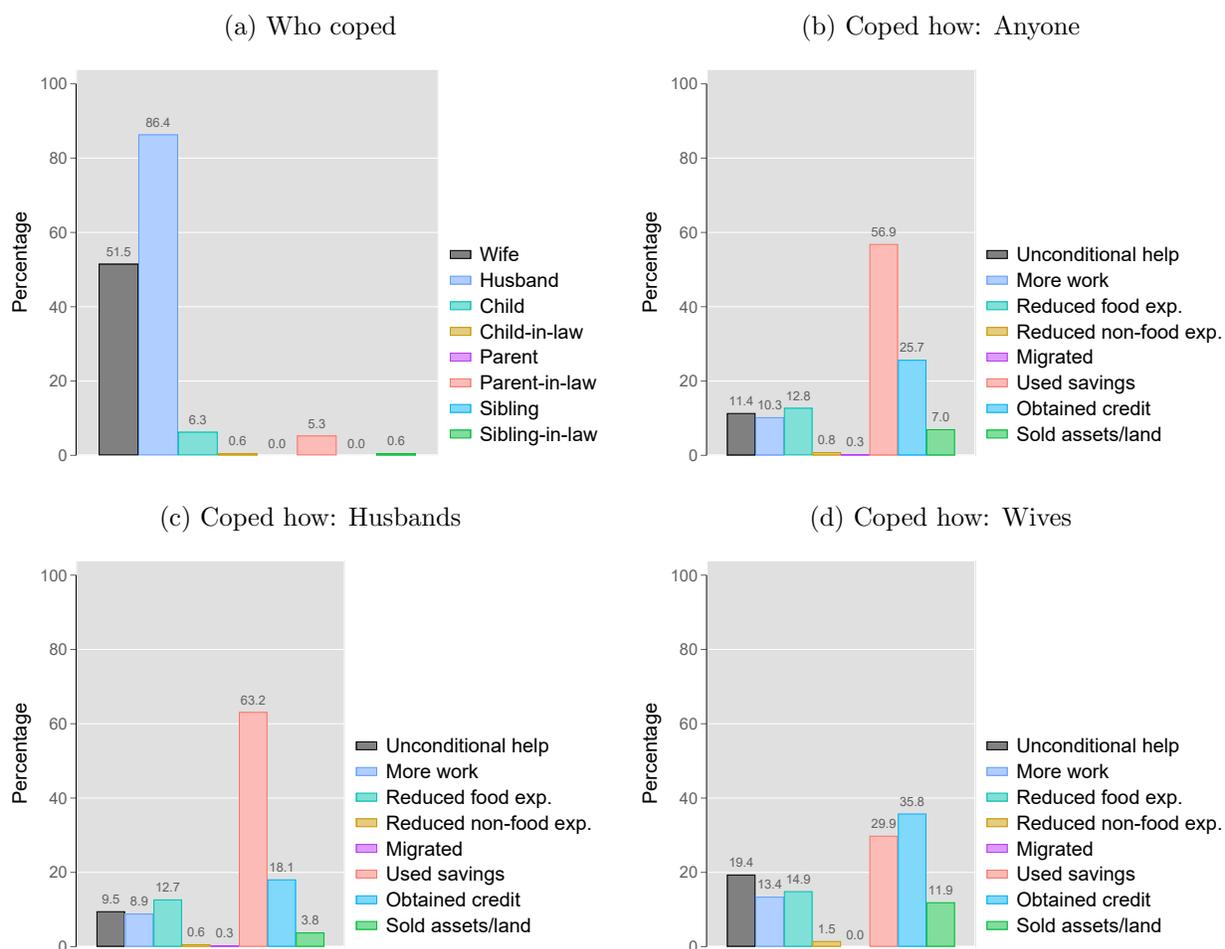
<sup>8</sup>Based on household fixed effect regressions of number of assets reported on the identity of the respondent. The difference between the reported numbers of cow/buffalo, goat/sheep and poultry by each spouse is significant at  $p < 0.1$ ,  $p < 0.1$  and  $p < 0.01$  respectively.

## 4.7 How does failure to coordinate affect households?

Women were asked to report if the household had been adversely affected by any of the following categories of shocks in the past twelve months: (1) weather events like a drought or irregular rain; (2) natural disasters like cyclones; (3) an earning member losing their job; (4) a serious illness or death of an earning member; (5) a serious illness or death of a non-earning member and (6) the July-August political revolution which took place in 2024. A household could have faced multiple shocks in the reference period. For each event, women reported which household members were primarily responsible for taking coping measures and which measures were taken. Based on the responses, the most common shocks faced are weather events (26.4% of households), serious illness or death of an earning members (17.3%), serious illness or death of a non-earning member (11.0%), and the July-August revolution (10.7%).

Figure 11 panel (a) is the distribution of times that different households members were one of those primarily responsible for taking coping measures. Both men and women play an important role in allowing the household to recover after an adverse event. In nearly all of the reported events, husbands are one of the primary household members responsible for taking coping measures but women also reported being a primary decision-maker in at least half of the events.

Figure 11: Shocks to the household: who coped and how.



*Notes:* Women were asked to report if in the past 12 months the household had been adversely affected any of the following shocks: weather events, natural disasters, serious illness or death of an earning member, serious illness or death of other, or the July-August political revolution. Panel a shows the distribution of household members who primarily helped cope with the shock across all shocks. Panel b shows the distribution of the measures used to cope across all shocks. Panel c shows the same distribution but only for the shocks where the husband was one of the members who primarily helped cope but not the wife. 315 out of 712 shocks reported fit this description. Panel d shows the the same distribution but for the shocks where the wife was one of the members who primarily helped cope but not the husband. 67 out of 712 reported shocks that fit this description. A household may have multiple shocks during the past 12 months.

Coping measures differ between the genders. Panel (b) shows that for the sample as a whole, the most commonly resorted to measure was using savings (60% of the time) followed by loans either from formal or informal sources (30% of the time). Panel (c) reports the coping measures used in events where men responded to the shock without their wife’s help (44%) out of the 712 events. and panel (d) reports the coping measures used when women responded without help from their husbands<sup>9</sup>. Women rely on savings far less than men and

<sup>9</sup>67 (9%) out of 712 events.

men rely on credit far less than women. Women are also more likely than men to rely on help from others or obtain additional work or sell assets.

Table 13 reports the associations between the likelihood of a household relying on a specific coping measure and the absolute value of prediction errors (*Abs. error*) from the *Joint* game and individual risk preferences. The Couples who hold more biased beliefs about their spouse's actions in the game, are less likely to rely on savings and more likely to have to sell household assets or have to obtain loans or even migrate following an adverse event.

The measures of behavior in the experiment are expressed in standardized units to aid interpretation. For a unit standard deviation increase in the size of the bias in women's belief about their husband's lottery choice number, the likelihood of the household having to sell assets following an adverse event increases by 2.5 percentage points. More disturbing than the sale of productive assets, is the association between belief errors and the likelihood of migration as a coping strategy. For a standard deviation increase in women's bias about husband's lottery number, the likelihood of migration increases by 0.3 percentage points. For men's biased beliefs about their wife's lottery number, the corresponding figure is 0.4 percentage points. Greater information friction between spouses also increases the likelihood of not having sufficient savings available to cope with during crises.

This clearly shows that the couples worse at coordinating risk-taking decisions and therefore sharing risk between them, are likelier to face insolvency in times of crisis, which in the extreme may even lead to migrating from their current place of residence. In fact these figures likely understate the issue, because these only consider the coping measures known to women. It does not account for hidden action by husbands. I have shown that there is considerable asymmetry in knowledge of partner's assets in the household.

Households with more risk averse women are more likely to rely on credit and less likely to use savings to tide themselves over. The majority of loans made out by microcredit organizations in Bangladesh are targeted at women whereas men are more likely to have access to ready cash. More cautious women may appear more trustworthy to trust-worthy to lenders and make it more likely for them to be able to procure a loan in times of distress. It may also be preferred over spending household savings and assets.

Table 13: Results from regression of type of coping measures used as reported by women on the absolute value of mistaken beliefs and individual risk preferences.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Help	Get work	Reduce food	Reduce non-food	Migrate	Use savings	Credit	Sell assets
Wife <i>Abs. error</i>	0.949 (1.334)	0.879 (1.270)	-1.191 (1.257)	0.155 (0.447)	0.327** (0.155)	1.057 (2.220)	-2.413 (1.975)	2.514** (1.148)
Husband <i>Abs. error</i>	0.656 (1.234)	0.156 (1.104)	-0.011 (1.626)	-0.061 (0.479)	0.410*** (0.154)	-6.495*** (2.163)	3.589* (1.915)	0.276 (1.149)
<i>Shared</i> : Wife pref. ( $\gamma$ )	-1.218 (1.362)	2.003 (1.359)	-1.576 (1.370)	-0.385 (0.295)	-0.083 (0.160)	-4.750** (2.319)	5.344** (2.300)	-0.933 (1.099)
<i>Shared</i> : Husband pref. ( $\gamma$ )	-1.537 (1.300)	-0.770 (1.263)	0.789 (1.436)	0.669 (0.422)	0.276* (0.154)	0.037 (2.179)	-1.261 (1.960)	0.833 (0.988)
<i>Shock type (Ref.: July-August '24):</i>								
Weather shock	-1.876 (3.271)	2.491 (3.683)	-12.606*** (4.708)	-0.872 (1.745)	-1.302*** (0.481)	4.174 (5.629)	-7.394 (5.127)	0.740 (2.919)
Natural disaster	-1.301 (4.078)	-4.257 (3.900)	-18.415*** (5.588)	-2.064 (1.800)	-1.181* (0.622)	3.262 (7.508)	2.139 (6.982)	-0.539 (4.159)
Job loss	9.657 (5.932)	17.957*** (6.081)	-8.290 (6.483)	-2.494 (1.619)	-0.998 (0.657)	-13.900* (7.615)	-4.829 (7.359)	-2.843 (4.137)
Illness of non-earner	12.469*** (4.352)	-6.756* (3.478)	-20.556*** (4.872)	-0.498 (2.263)	-1.231** (0.526)	6.057 (6.328)	-2.223 (6.093)	5.816* (3.496)
Illness of earner	16.306*** (5.357)	-4.738 (3.487)	-23.988*** (5.481)	-1.753 (1.536)	-1.220** (0.579)	3.895 (7.075)	-7.625 (6.630)	2.882 (4.174)
Constant	28.547** (11.088)	13.501 (11.988)	24.187* (14.111)	1.024 (4.616)	-1.248 (1.394)	51.594*** (19.101)	54.897*** (14.839)	-2.793 (7.394)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.142	0.178	0.174	0.051	0.073	0.190	0.142	0.124
Observations	709	709	709	709	709	709	709	709

*Notes*: Estimated coefficients denote change in probability of an event in percentage points. *Abs. error* and  $\gamma$  variables are standardized to aid interpretation of estimates. Controls include age, education, and occupation of player and spouse, household composition and wealth index. SEs reported in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

*Notes*: Estimated coefficients denote change in probability of an event in percentage points. *Abs. error* and  $\gamma$  variables are standardized to aid interpretation of estimates. SEs reported in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

<sup>a</sup> The reference category for the shocks is the political revolution and associated socioeconomic upheaval during July-August 2024.

## 5 Conclusions

This paper uses a lab-in-field experiment to analyze coordination in risk-taking decisions between spouses in rural Bangladesh. I find evidence of widespread coordination error between spouses in joint-decision. Using a unique sequential game design I directly observe how spouses respond to each other in joint risk-taking decisions. The findings reveal that men are less willing than women to align with their spouse’s decisions. Consequently women face greater difficulty in coordinating with their spouse’s choice and household risk exposure levels deviate further from the first-mover’s preferred risk level when women perform this role. These findings contribute to the growing literature on intra-household information frictions (Conlon et al., 2021; Tagat et al., 2024; Abbink et al., 2020; Buchmann et al., 2025) by demonstrating how, under experimental conditions, frictions in information pass-through between spouses can contribute to coordination errors in risk-taking decisions in households.

Household data confirms the gendered division of household tasks, with most outdoor activities being performed solely by men, and activities such as investing in education and health of children often being performed by women alone. I show that the division of roles in the household fosters asymmetric information between spouses, especially with regard to the state of household assets—both pecuniary savings and real assets such as livestock. I am able to relate the experimental results to real-world data, showing that women who overestimated their husband’s risk aversion in the game were also more likely to be overoptimistic about their spouse’s savings strategy in the household. As women are more likely to make decisions such as taking out loans for their children’s future and make provisions for possible emergencies, such mistaken beliefs can threaten to overexpose the household to risk, especially in times of preexisting stress due to adverse shocks such as droughts, which are common among agricultural households. There is evidence of assortative matching between spouses by the willingness to coordinate in risk taking decisions, which aligns with the prediction of the separate spheres bargaining model (Lundberg and Pollak, 1993) that in the event of a cooperative equilibrium breakdown, spouses retreat into their traditional roles in the household leading to a sub-optimal non-cooperative equilibrium.

While the results derived in this study are based on a sample of participants recruited from rural Bangladesh, its findings are relevant to household decision-making in all information-constrained environments. Especially, patriarchal norms by restricting women’s roles in various spheres of decision-making, exacerbate the information dearth for them and make it harder for them to take well-informed decisions. The present study shows how in addition to limiting women’s agency, gender norms also negatively impact household well-being.

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# Appendix A: Conceptual Framework

This section presents a simple conceptual framework to describe the decision-making process between couples in the experiment. I start with a basic model of sequential household decision making where:

- The **first-mover** ( $H$ ) who has initial wealth  $M_H$  chooses what share ( $x_H$ ) of it to allocate to a risky investment with returns:  $X \sim f_X$ .
- The **second-mover** ( $W$ ) observes  $x_H$  and then chooses their investment allocation  $x_W$  into the risky investment.
- Each spouse **only maximizes their own expected utility** and this does not depend on the other's preferences.
- There is a sharing rule in the household such that the **second-mover shares  $\lambda_W$  share of their earnings with the spouse** and the **first-mover shares  $\lambda_H$  share of their earnings with the spouse**.

## A.1 Earnings

Each spouse's earnings is a random variable given by sum of earnings from the investment and any money not invested:

First-mover:

$$y_H = x_H M_H X + (1 - x_H) M_H \quad (\text{A.1})$$

Second-mover:

$$y_W = x_W M_W X + (1 - x_W) M_W \quad (\text{A.2})$$

## A.2 Consumption with Sharing Rule

Each spouse's consumption incorporates a fraction of the other's earnings:

First-mover:

$$c_H = (1 - \lambda_H) y_H + \lambda_W y_W \quad (\text{A.3})$$

Second-mover:

$$c_W = (1 - \lambda_W) y_W + \lambda_H y_H \quad (\text{A.4})$$

## A.3 Preferences

Each individual  $i$  maximizes a CRRA utility which is a function of their own consumption:

$$U_i(c) = \frac{c_i^{1-\rho_i}}{1-\rho_i}, \text{ for } i = H, W \quad (\text{A.5})$$

where  $\rho_i \neq 1$ .

## A.4 Second Mover's Optimization Problem

The second-mover maximizes:

$$\max_{x_W \in [0,1]} E [U_W(y_W, y_H)] = E \left[ \frac{((1 - \lambda_W)y_W + \lambda_H y_H)^{1-\rho_W}}{1 - \rho_W} \right]. \quad (\text{A.6})$$

The first-order condition is<sup>10</sup>:

$$\begin{aligned} \frac{\partial}{\partial x_W} E \left[ \frac{c_W^{1-\rho_W}}{1 - \rho_W} \right] &= 0 \\ \implies E [(c_W)^{-\rho_W} (1 - \lambda_W) M_W (X - 1)] &= 0 \\ \implies (1 - \lambda_W) M_W E [(c_W)^{-\rho_W} (X - 1)] &= 0 \\ \implies E [(c_W)^{-\rho_W} (X - 1)] &= 0 \end{aligned} \quad (\text{A.7})$$

This defines  $x_W^*(x_H)$ , the second mover's best response and so also  $y_W^*(x_W^*(x_H))$ .

$$y_W^*(x_H) = x_W^*(x_H) M_W X + (1 - x_W^*(x_H)) M_W \quad (\text{A.8})$$

$$\implies \frac{dy_W^*(x_H)}{dx_H} = M_W (X - 1) \frac{dx_W^*(x_H)}{dx_H} \quad (\text{A.9})$$

### A.4.1 Implicit Function Theorem to calculate $\frac{dx_W^*}{dx_H}$ :

Rewriting F.O.C. in equation (A.7) as:

$$F(x_W, x_H) = (1 - \lambda_W) M_W E [(c_W)^{-\rho_W} (X - 1)] = 0 \quad (\text{A.10})$$

Using IFT:

$$\frac{dx_W^*}{dx_H} = - \frac{\frac{\partial F}{\partial x_H}}{\frac{\partial F}{\partial x_W}} \quad (\text{A.11})$$

$$(\text{A.12})$$

$$\frac{\partial F}{\partial x_H} = -(1 - \lambda_W) M_W E [\rho_W (c_W)^{-\rho_W - 1} (X - 1) \frac{\partial c_W}{\partial x_H}] \quad (\text{A.13})$$

---

<sup>10</sup>In order to exchange the derivative and expectations operators, it is necessary that the conditions for the Dominated Convergence Rule hold (Casella and Berger, 2024). I assume that this condition is satisfied for each function within the expectation operator in this section.

$$\frac{\partial F}{\partial x_W} = -(1 - \lambda_W)M_W E[\rho_W(c_W)^{-\rho_W-1}(X - 1) \frac{\partial c_W}{\partial x_W}] \quad (\text{A.14})$$

Where,

$$\frac{\partial c_W}{\partial x_H} = \frac{\partial}{\partial x_H}[(1 - \lambda_W)y_W + \lambda_H y_H] = \lambda_H M_H (X - 1) \quad (\text{A.15})$$

$$\frac{\partial c_W}{\partial x_W} = \frac{\partial}{\partial x_W}[(1 - \lambda_W)y_W + \lambda_H y_H] = (1 - \lambda_W)M_W (X - 1) \quad (\text{A.16})$$

Substituting equation (A.15) in (A.13) and equation (A.16) in (A.14),

$$\frac{\partial F}{\partial x_H} = -(1 - \lambda_W)\lambda_H M_W M_H \rho_W E[(c_W)^{-\rho_W-1}(X - 1)^2] \quad (\text{A.17})$$

$$\frac{\partial F}{\partial x_W} = -(1 - \lambda_W)^2 M_W^2 \rho_W E[(c_W)^{-\rho_W-1}(X - 1)^2] \quad (\text{A.18})$$

From equations (A.11), (A.17), and (A.18),

$$\frac{dx_W^*}{dx_H} = -\frac{-(1 - \lambda_W)\lambda_H M_W M_H \rho_W E[(c_W)^{-\rho_W-1}(X - 1)^2]}{-(1 - \lambda_W)^2 M_W^2 \rho_W E[(c_W)^{-\rho_W-1}(X - 1)^2]}$$

Simplifying,

$$\boxed{\frac{dx_W^*}{dx_H} = -\frac{\lambda_H M_H}{(1 - \lambda_W)M_W}} \quad (\text{A.19})$$

Given  $\lambda_W < 1$ ,  $\frac{dx_W^*}{dx_H} < 0$ , implying that the second mover reduces the share of own income invested in the risky asset in response to higher investment by the first mover. Further, the derivative is equal to the ratio between the amount of earnings shared by the first-mover and the amount of earnings retained by the second-mover. Thus, for couples which share a larger fraction of earnings with each other the responsiveness of the second-mover's strategy to the first-mover's choice is greater.

So, from equations (A.43) and (A.19) we have:

$$\begin{aligned}\frac{dy_W^*(x_H)}{dx_H} &= M_W(X-1)\frac{dx_W^*(x_H)}{dx_H} \\ &= -\frac{\lambda_H M_H(X-1)}{(1-\lambda_W)}\end{aligned}\tag{A.20}$$

Implicit Function Theorem to calculate  $\frac{dx_W^*}{d\rho_W}$  Using IFT on second mover's F.O.C. in equation (A.44):

$$\frac{dx_W^*}{d\rho_W} = -\frac{\frac{\partial F}{\partial \rho_W}}{\frac{\partial F}{\partial x_W}}\tag{A.21}$$

$$\begin{aligned}\frac{\partial F}{\partial \rho_W} &= \frac{\partial}{\partial \rho_W} [(1-\lambda_W)M_W E\{(c_W)^{-\rho_W}(X-1)\}] \\ &= -(1-\lambda_W)M_W E[\ln c_W (c_W)^{-\rho_W}(X-1)]\end{aligned}\tag{A.22}$$

Thus, using the result from equation (A.18):

$$\frac{dx_W^*}{d\rho_W} = -\frac{-(1-\lambda_W)M_W E[(X-1)(c_W)^{-\rho_W} \ln c_W]}{-(1-\lambda_W)^2 M_W^2 \rho_W E[(c_W)^{-\rho_W-1}(X-1)^2]}$$

Simplifying,

$$\boxed{\frac{dx_W^*}{d\rho_W} = -\frac{1}{(1-\lambda_W)M_W \rho_W} \cdot \frac{E[(X-1)(c_W)^{-\rho_W} \ln c_W]}{E[(X-1)^2(c_W)^{-\rho_W-1}]}}\tag{A.23}$$

The second term on the RHS of equation (A.23) is a ratio between a term which captures how the marginal utility of the second-mover varies with respect to their degree of risk aversion and a term which is a kind of variance weighted utility measure. The first term is the inverse product of the share of own income that the second-mover retains  $((1-\lambda_W)M_W)$  and the second-mover's risk aversion parameter. In the second term, the denominator which is a product of a squared term and a transformation of  $c_w$  ( $> 0$ ) is non-negative. The numerator's is given by:

$$E[(X-1)(c_W)^{-\rho_W} \ln c_W] = -\frac{1}{(1-\lambda_W)M_W} \cdot \frac{\partial^2 E[U_W(y_W, y_H)]}{\partial \rho_W \partial x_W}$$

where  $\frac{\partial^2 E[U_W(y_W, y_H)]}{\partial \rho_W \partial x_W}$  can be interpreted as the change in the marginal expected utility of the share of wealth in the risky asset due to an increase in the second mover's level of

risk aversion. It stands to reason then that  $\frac{\partial^2 E[U_W(y_W, y_H)]}{\partial \rho_W \partial x_W} < 0$ . Therefore, the numerator,  $E[(X-1)(c_W)^{-\rho_W} \ln c_W]$ , is also non-negative in sign.

## A.5 First Mover's Optimization Problem

The first mover anticipates  $x_W^*(x_H)$  and maximizes:

$$\max_{x_H \in [0,1]} E[U_H(y_W, y_H)] = E \left[ \frac{((1-\lambda_H)y_H + \lambda_W y_W^*(x_H))^{1-\rho_H}}{1-\rho_H} \right]. \quad (\text{A.24})$$

The first-order condition is:

$$(1-\lambda_H)M_H E[(c_H)^{-\rho_H}(X-1)] + \lambda_W E \left[ (c_H)^{-\rho_H} \frac{dy_W^*}{dx_H} \right] = 0 \quad (\text{A.25})$$

Substituting  $\frac{dy_W^*(x_H)}{dx_H}$  from equation (A.20) in (A.25):

$$\begin{aligned} (1-\lambda_H)M_H E[(c_H)^{-\rho_H}(X-1)] + \lambda_W E \left[ (c_H)^{-\rho_H} \left\{ -\frac{\lambda_H M_H (X-1)}{(1-\lambda_W)} \right\} \right] &= 0 \\ \implies (1-\lambda_H)M_H E[(c_H)^{-\rho_H}(X-1)] - \frac{\lambda_W \lambda_H M_H}{1-\lambda_W} E[(c_H)^{-\rho_H}(X-1)] &= 0 \\ \implies \left[ (1-\lambda_H)M_H - \frac{\lambda_W \lambda_H M_H}{1-\lambda_W} \right] E[(c_H)^{-\rho_H}(X-1)] &= 0 \\ \implies \frac{(1-\lambda_W - \lambda_H)M_H}{1-\lambda_W} E[(c_H)^{-\rho_H}(X-1)] &= 0 \end{aligned} \quad (\text{A.26})$$

If  $\lambda_H + \lambda_W = 1$  the F.O.C. (A.26) holds for all values of  $c_H$  and  $x_H$ . The condition  $\lambda_H + \lambda_W = 1$  implies that the share of own income that individual  $i$  retains ( $\lambda_i$ ) for themselves is equal to the share of the spouse  $j$ 's income that is transferred to them ( $1-\lambda_j$ ) and vice versa. I make the assumption that  $\lambda_H + \lambda_W \neq 1$  since it is necessary to derive analytical solutions to the comparative static conditions. Further, if  $\lambda_H + \lambda_W > 1$ , then at least one of  $\lambda_H$  and  $\lambda_W$  must be  $\geq 0.5$ . I do not expect sharing between spouses to be that large in the present context, so I assume that  $\lambda_H + \lambda_W < 1$ .

### A.5.1 Implicit Function Theorem to calculate $\frac{dx_H^*}{d\rho_W}$

Rewriting FOC as:

$$G(x_H, \rho_W) = \frac{(1-\lambda_W - \lambda_H)M_H}{1-\lambda_W} E[(c_H(x_H, \rho_W))^{-\rho_H}(X-1)] = 0. \quad (\text{A.27})$$

Using IFT:

$$\frac{dx_H^*}{d\rho_W} = -\frac{\frac{\partial G}{\partial \rho_W}}{\frac{\partial G}{\partial x_H}} \quad (\text{A.28})$$

$$\frac{\partial G}{\partial \rho_W} = \frac{(1 - \lambda_W - \lambda_H)M_H}{1 - \lambda_W} E \left[ (X - 1)(-\rho_H)(c_H)^{-\rho_H - 1} \cdot \frac{\partial c_H}{\partial \rho_W} \right] \quad (\text{A.29})$$

$$\frac{\partial G}{\partial x_H} = \frac{(1 - \lambda_W - \lambda_H)M_H}{1 - \lambda_W} E \left[ (X - 1)(-\rho_H)(c_H)^{-\rho_H - 1} \cdot \frac{\partial c_H}{\partial x_H} \right] \quad (\text{A.30})$$

Where,

$$\frac{\partial c_H}{\partial \rho_W} = \lambda_W \frac{dy_W^*}{d\rho_W} = \lambda_W M_W (X - 1) \frac{dx_W^*}{d\rho_W} \quad (\text{A.31})$$

$$\frac{\partial c_H}{\partial x_H} = (1 - \lambda_H) \frac{\partial y_H}{\partial x_H} + \lambda_W \frac{dy_W^*}{dx_H} = (1 - \lambda_H) M_H (X - 1) + \lambda_W \frac{dy_W^*}{dx_H} \quad (\text{A.32})$$

Substituting equation (A.23) in (A.31):

$$\begin{aligned} \frac{\partial c_H}{\partial \rho_W} &= \lambda_W M_W (X - 1) \cdot \left[ -\frac{1}{(1 - \lambda_W) M_W \rho_W} \cdot \frac{E \{ (X - 1)(c_W)^{-\rho_W} \ln c_W \}}{E \{ (X - 1)^2 (c_W)^{-\rho_W - 1} \}} \right] \\ &= -\frac{\lambda_W (X - 1)}{(1 - \lambda_W) \rho_W} \cdot \frac{E [(X - 1)(c_W)^{-\rho_W} \ln c_W]}{E [(X - 1)^2 (c_W)^{-\rho_W - 1}]} \end{aligned} \quad (\text{A.33})$$

Substituting equation (A.20) in (A.32):

$$\begin{aligned} \frac{\partial c_H}{\partial x_H} &= (1 - \lambda_H) M_H (X - 1) + \lambda_W \cdot \left[ -\frac{\lambda_H M_H (X - 1)}{(1 - \lambda_W)} \right] \\ &= M_H (X - 1) \cdot \left[ (1 - \lambda_H) - \frac{\lambda_W \lambda_H}{(1 - \lambda_W)} \right] \\ &= \frac{M_H (1 - \lambda_W - \lambda_H)(X - 1)}{(1 - \lambda_W)} \end{aligned} \quad (\text{A.34})$$

Substituting equation (A.33) in (A.29):

$$\begin{aligned}
\frac{\partial G}{\partial \rho_W} &= \frac{(1 - \lambda_W - \lambda_H)M_H}{1 - \lambda_W} E \left[ (X - 1)(-\rho_H)c_H^{-\rho_H-1} \cdot \left\{ -\frac{\lambda_W(X - 1)}{(1 - \lambda_W)\rho_W} \cdot \frac{E[(X - 1)(c_W)^{-\rho_W} \ln c_W]}{E[(X - 1)^2(c_W)^{-\rho_W-1}]} \right\} \right] \\
&= \frac{(1 - \lambda_W - \lambda_H)\lambda_W\rho_H M_H}{(1 - \lambda_W)^2\rho_W} \cdot E[(X - 1)^2 c_H^{-\rho_H-1}] \cdot \frac{E[(X - 1)(c_W)^{-\rho_W} \ln c_W]}{E[(X - 1)^2(c_W)^{-\rho_W-1}]} \\
&= \frac{(1 - \lambda_W - \lambda_H)\lambda_W\rho_H M_H}{(1 - \lambda_W)^2\rho_W} \cdot \frac{E[(X - 1)(c_W)^{-\rho_W} \ln c_W] \cdot E[(X - 1)^2 c_H^{-\rho_H-1}]}{E[(X - 1)^2(c_W)^{-\rho_W-1}]} \quad (\text{A.35})
\end{aligned}$$

Substituting equation (A.34) in (A.30):

$$\begin{aligned}
\frac{\partial G}{\partial x_H} &= \frac{(1 - \lambda_W - \lambda_H)M_H}{1 - \lambda_W} \cdot E \left[ (X - 1)(-\rho_H)(c_H)^{-\rho_H-1} \cdot \left\{ \frac{M_H(1 - \lambda_W - \lambda_H)(X - 1)}{(1 - \lambda_W)} \right\} \right] \\
&= -\frac{(1 - \lambda_W - \lambda_H)^2 M_H^2 \rho_H}{(1 - \lambda_W)^2} \cdot E[(X - 1)^2 (c_H)^{-\rho_H-1}] \quad (\text{A.36})
\end{aligned}$$

Substituting equations (A.35) and (A.36) in (A.28):

$$\frac{dx_H^*}{d\rho_W} = -\frac{\frac{(1-\lambda_W-\lambda_H)\lambda_W\rho_H M_H}{(1-\lambda_W)^2\rho_W} \cdot \frac{E[(X-1)^2(c_W)^{-\rho_W} \ln c_W] \cdot E[(X-1)^2 c_H^{-\rho_H-1}]}{E[(X-1)^2(c_W)^{-\rho_W-1}]}}{-\frac{(1-\lambda_W-\lambda_H)^2 M_H^2 \rho_H}{(1-\lambda_W)^2} \cdot E[(X-1)^2 (c_H)^{-\rho_H-1}]}$$

Simplifying,

$$\boxed{\frac{dx_H^*}{d\rho_W} = \frac{\lambda_W}{(1 - \lambda_W - \lambda_H)M_H\rho_W} \cdot \frac{E[(X - 1)(c_W)^{-\rho_W} \ln c_W]}{E[(X - 1)^2(c_W)^{-\rho_W-1}]}} \quad (\text{A.37})$$

Using the result from equation (A.23) in (A.37):

$$\frac{dx_H^*}{d\rho_W} = \frac{\lambda_W}{(1 - \lambda_W - \lambda_H)M_H\rho_W} \cdot [-(1 - \lambda_W)M_W\rho_W] \cdot \frac{dx_W^*}{d\rho_W} = -\frac{\lambda_W(1 - \lambda_W)M_W}{(1 - \lambda_W - \lambda_H)M_H} \cdot \frac{dx_W^*}{d\rho_W} \quad (\text{A.38})$$

Equation (A.37) implies as the degree of risk aversion of the second mover increases ( $\rho_W \uparrow$ ) the first mover should increase their allocation into the risky asset. Further this implies that a first mover who overestimates the second mover's degree of risk aversion will overinvest in the risky asset while a first mover who underestimates the second mover's degree of risk aversion will underinvest in the risky asset.

Predictions from the model:

1. Equation (A.19) predicts that the second mover should choose safer lotteries as the first mover's choice grows progressively riskier. Thus, the *Strategy* variable for the second mover should be negative in sign.

$$\boxed{\frac{dx_W^*}{dx_H} = -\frac{\lambda_H M_H}{(1 - \lambda_W) M_W}}$$

Also as the fraction of income that the first-mover shares with the second-mover,  $\lambda_H$ , falls the sensitivity of the second-mover's choice to the first-mover's choice falls. The joint decision in the game artificially sets  $\lambda_H = \lambda_W = 0.5$ . However, if player's lived experience in the household influences their choices in the game the actual value of  $\lambda_H$  may be different. In our context, where men are in control of most household financial resources while most women do not possess independent income sources it is possible that the actual value of  $\lambda_H$  for men is closer to zero than for women.

2. Equation (A.37) implies that first movers who overestimate the second mover's degree of risk aversion overinvest in the risky asset whereas first mover who underestimate the second mover's degree of risk aversion underinvest in the risky asset.

## A.6 Addendum: Aligning with First Mover

While the first mover does not know what their spouse as second mover chooses, the second mover does know what their spouse's choice is. This knowledge can affect how second movers choose especially women. There is evidence that in patriarchal societies, women are more likely than men to defer to their spouses in decisions (Abbink et al., 2020). To reflect this behavior, I modify the second mover's utility function as follows:

$$U_W(c_W, x_H, x_W) = \frac{c_W^{1-\rho_W}}{1-\rho_W} - \delta(x_H - x_W)^2 \quad (\text{A.39})$$

where  $\delta$  is a non-negative constant reflecting to what degree the second mover "dislikes" diverging from the first mover's choices.

### A.6.1 Second Mover's New Optimization Problem

The second mover maximizes:

$$\max_{x_W \in [0,1]} E[U_W(y_W, y_H)] = E\left[\frac{((1 - \lambda_W)y_W + \lambda_H y_H)^{1-\rho_W}}{1 - \rho_W} - \delta(x_H - x_W)^2\right]. \quad (\text{A.40})$$

The first-order condition is:

$$\begin{aligned}
& \frac{\partial}{\partial x_W} \left[ E \left\{ \frac{c_W^{1-\rho_W}}{1-\rho_W} \right\} - \delta(x_H - x_W)^2 \right] = 0 \\
\implies & E [(c_W)^{-\rho_W} (1 - \lambda_W) M_W (X - 1)] + 2\delta(x_H - x_W) = 0 \\
\implies & (1 - \lambda_W) M_W E [(c_W)^{-\rho_W} (X - 1)] + 2\delta(x_H - x_W) = 0
\end{aligned} \tag{A.41}$$

This defines  $x_W^*(x_H)$ , the wife's best response and so also  $y_W^*(x_W^*(x_H))$ .

$$y_W^*(x_H) = x_W^*(x_H) M_W X + (1 - x_W^*(x_H)) M_W \tag{A.42}$$

$$\implies \frac{dy_W^*(x_H)}{dx_H} = M_W (X - 1) \frac{dx_W^*(x_H)}{dx_H} \tag{A.43}$$

### A.6.2 IFT to find $\frac{dx_W^*}{dx_H}$

Rewriting F.O.C. in equation (A.41) as:

$$F(x_W, x_H) = (1 - \lambda_W) M_W E [(c_W)^{-\rho_W} (X - 1)] + 2\delta(x_H - x_W) = 0 \tag{A.44}$$

Using IFT:

$$\frac{dx_W^*}{dx_H} = - \frac{\frac{\partial F}{\partial x_H}}{\frac{\partial F}{\partial x_W}} \tag{A.45}$$

$$\frac{\partial F}{\partial x_H} = -(1 - \lambda_W) M_W \cdot E[\rho_W (c_W)^{-\rho_W - 1} (X - 1) \frac{\partial c_W}{\partial x_H}] + 2\delta \tag{A.46}$$

$$\frac{\partial F}{\partial x_W} = -(1 - \lambda_W) M_W E[\rho_W (c_W)^{-\rho_W - 1} (X - 1) \frac{\partial c_W}{\partial x_W}] - 2\delta \tag{A.47}$$

Substituting equation (A.15) in (A.46) and equation (A.16) in (A.47),

$$\frac{\partial F}{\partial x_H} = -(1 - \lambda_W) \lambda_H M_W M_H \rho_W E[(c_W)^{-\rho_W - 1} (X - 1)^2] + 2\delta \tag{A.48}$$

$$\frac{\partial F}{\partial x_W} = -(1 - \lambda_W)^2 M_W^2 \rho_W E[(c_W)^{-\rho_W - 1} (X - 1)^2] - 2\delta \tag{A.49}$$

From equations (A.11), (A.48), and (A.49),

$$\begin{aligned}
\frac{dx_W^*}{dx_H} &= -\frac{-(1-\lambda_W)\lambda_H M_W M_H \rho_W \cdot E[(c_W)^{-\rho_W-1}(X-1)^2] + 2\delta}{-(1-\lambda_W)^2 M_W^2 \rho_W \cdot E[(c_W)^{-\rho_W-1}(X-1)^2] - 2\delta} \\
&= -\frac{(1-\lambda_W)\lambda_H M_W M_H \rho_W \cdot E[(c_W)^{-\rho_W-1}(X-1)^2] - 2\delta}{(1-\lambda_W)^2 M_W^2 \rho_W \cdot E[(c_W)^{-\rho_W-1}(X-1)^2] + 2\delta}
\end{aligned} \tag{A.50}$$

Rearranging terms in equation (A.50) produces:

$$\boxed{\frac{dx_W^*}{dx_H} \Big|_{\delta>0} = -\frac{\lambda_H M_H - \frac{2\delta}{(1-\lambda_W)M_W \rho_W \cdot E[(c_W)^{-\rho_W-1}(X-1)^2]}}{(1-\lambda_W)M_W + \frac{2\delta}{(1-\lambda_W)M_W \rho_W \cdot E[(c_W)^{-\rho_W-1}(X-1)^2]}}} \tag{A.51}$$

Now under the simple case where second movers do not care whether their choices diverge from their spouse's,

$$\boxed{\frac{dx_W^*}{dx_H} \Big|_{\delta=0} = -\frac{\lambda_H M_H}{(1-\lambda_W)M_W}} \tag{A.52}$$

$\frac{dx_W^*}{dx_H} \Big|_{\delta>0}$  adds a positive amount to the numerator and subtracts a positive amount from the denominator of  $\frac{dx_W^*}{dx_H} \Big|_{\delta=0}$ . Thus,

$$\frac{dx_W^*}{dx_H} \Big|_{\delta>0} \geq \frac{dx_W^*}{dx_H} \Big|_{\delta=0}$$

for  $\delta \geq 0$ .

Predictions from the modified model for second-mover decision-making:

1. Equation A.51 suggests that if second movers place some positive value to aligning with their spouse's choices then  $\frac{dx_W^*}{dx_H} \Big|_{\delta>0}$  will be less negative than otherwise. If  $\delta$  is large enough  $\frac{dx_W^*}{dx_H} \Big|_{\delta>0}$  could be positive. If women care more about align with their spouse than men then the *Strategy* variable for women should be more positive than for men second movers.

## Appendix B: Tables & Figures

Table B.1: Difference in characteristics of men participants and non-participants

	Participants		Non-participants		(1) - (2)	
	Mean	Std. Dev.	Mean	Std. Dev.	Diff.	Std. Err.
	(1)		(2)		(3)	
Age (years)	42.69	(10.93)	42.93	(14.40)	-0.24	(0.96)
<i>Education:</i>						
Less than primary (%)	15.03	(35.76)	21.84	(41.44)	-6.81**	(3.05)
Primary (%)	32.54	(46.88)	27.59	(44.82)	4.96	(3.86)
Secondary (%)	34.12	(47.44)	36.21	(48.20)	-2.08	(3.94)
Higher-secondary or more (%)	18.30	(38.69)	14.37	(35.18)	3.94	(3.16)
<i>Number of assets:</i>						
Mobile phone	2.42	(1.10)	2.33	(1.12)	0.09	(0.09)
Television	0.78	(0.55)	0.70	(0.55)	0.08*	(0.05)
Cow/Buffalo	1.22	(1.53)	0.92	(1.49)	0.30**	(0.13)
Poultry	15.63	(14.50)	15.00	(15.31)	0.63	(1.21)
Observations	885		174			

*Notes:* Standard deviation in parentheses for mean outcomes. Differences and associated significance levels were derived from two sample t-tests. Standard errors for the t-tests are presented in parentheses. \* p<0.1, \*\* p<0.05, and \*\*\* p<0.01.

Table B.2: Results from regression of coordination error (*Error*) by first-movers in the *Joint* game on risk preference disparity in household and strategy of members.

	Husbands				Wives			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Error</i> ( $= E_i(L_2) - L_2$ )								
<i>Shared</i> : Own choice - Spouse choice	0.141*** (0.032)	0.139*** (0.032)	0.181*** (0.045)	0.189*** (0.047)	0.185*** (0.035)	0.186*** (0.035)	0.210*** (0.047)	0.214*** (0.048)
<i>Shared</i> : Own choice			-0.083 (0.060)	-0.090 (0.061)			-0.050 (0.065)	-0.059 (0.067)
<i>Spouse Strategy</i>		0.092 (0.148)	0.065 (0.150)	0.032 (0.155)		0.037 (0.153)	0.034 (0.153)	0.042 (0.156)
<i>Strategy</i>		0.003 (0.138)	-0.001 (0.138)	0.004 (0.142)		0.012 (0.150)	-0.004 (0.160)	-0.024 (0.165)
Age				-0.026* (0.016)				0.011 (0.018)
Spouse's age				0.021 (0.017)				-0.014 (0.016)
Wife's decision-making				-0.087* (0.050)				-0.058 (0.060)
Dependency				0.070 (0.481)				-0.179 (0.515)
Children under 5 (=1)				0.169 (0.169)				-0.072 (0.185)
Husband's mother present (=1)				0.174 (0.218)				0.087 (0.256)
Husband's mother present (=1)				-0.276 (0.296)				-0.598* (0.311)
Wife's mother present (=1)				-0.352 (0.333)				-0.131 (0.516)
Wife's father present (=1)				1.557 (1.565)				0.353 (1.116)
<i>Education (Less than prim=0)</i> :								
Primary				0.033 (0.237)				0.061 (0.246)
Secondary				-0.109 (0.241)				-0.033 (0.276)
Highersecondary or more				-0.202 (0.290)				-0.208 (0.376)
<i>Spouse's education (Less than prim=0)</i> :								
Primary				0.034 (0.242)				-0.033 (0.246)
Secondary				-0.049 (0.264)				-0.084 (0.258)
Highersecondary or more				0.090 (0.370)				0.393 (0.320)
<i>Occup. (Farming = 0)</i> :								
Non-ag self-emp				-0.216 (0.229)				0.319 (0.967)
Ag wage lab				-0.513 (0.392)				0.410 (0.948)
Non-ag wage lab				-0.340 (0.295)				0.365 (0.872)
Raise livestock								0.413 (0.525)
Homemaker/Student				0.776* (0.420)				0.279 (0.435)
Other				0.156 (0.420)				1.008 (0.959)
<i>Spouses' occ. (Farming=0)</i> :								
Non-ag self-emp				0.893 (0.839)				-0.013 (0.259)
Ag wage lab				0.068 (1.365)				-0.294 (0.500)
Non-ag wage lab				-0.442 (0.683)				-0.150 (0.320)
Raise livestock				-0.098 (0.463)				
Homemaker/Student				-0.253 (0.349)				-0.615 (0.448)
Other				-1.864** (0.798)				-0.611 (0.420)
Wealth index				-0.027 (0.068)				0.122 (0.078)
Constant	-0.039 (0.070)	-0.069 (0.095)	0.226 (0.220)	1.179* (0.705)	0.031 (0.075)	0.021 (0.102)	0.199 (0.250)	0.154 (0.818)
Village FEs	Yes							
R-squared	0.061	0.061	0.063	0.090	0.086	0.086	0.087	0.104
Observations	885	885	885	885	885	885	885	885

Notes: *Error* takes integer values in  $[-5, 5]$ . Positive values indicate that the degree of risk aversion of the player was underestimated by their spouse, and negative values indicate overestimation. Wealth index created as mean response of wife to questions about assets owned by household. Heteroskedasticity robust standard errors in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

Table B.3: Results from regression of absolute value of coordination error (*Abs. error*) by first-movers in the *Joint* game on risk preference disparity in household and strategy of members.

	Husbands				Wives			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Abs. error</i> = $ E_1(L_2) - L_2 $								
<i>Shared</i> : Spouse abs. diff.	0.073** (0.034)	0.061* (0.034)	0.057* (0.034)	0.045 (0.034)	0.057 (0.036)	0.038 (0.035)	0.040 (0.035)	0.046 (0.035)
<i>Shared</i> : Own choice			0.049* (0.029)	0.046 (0.029)			-0.063** (0.031)	-0.052 (0.032)
Spouse <i>Strategy</i>		-0.434*** (0.096)	-0.427*** (0.096)	-0.428*** (0.096)		-0.692*** (0.093)	-0.692*** (0.092)	-0.666*** (0.096)
<i>Strategy</i>		-0.235*** (0.091)	-0.231** (0.091)	-0.215** (0.092)		-0.250** (0.098)	-0.280*** (0.098)	-0.272*** (0.101)
Age				0.002 (0.009)				0.011 (0.011)
Spouse's age				-0.002 (0.010)				-0.009 (0.010)
Wife's decision-making				0.037 (0.029)				0.050 (0.030)
Dependency				0.012 (0.319)				0.463 (0.315)
Children under 5 (=1)				0.003 (0.108)				0.126 (0.110)
Husband's mother present (=1)				-0.030 (0.136)				0.185 (0.163)
Husband's father present (=1)				0.269 (0.174)				-0.085 (0.192)
Wife's mother present (=1)				-0.639** (0.253)				0.348 (0.268)
Wife's father present (=1)				1.501* (0.793)				0.349 (0.344)
<i>Education (Less than prim.=0)</i> :								
Primary				0.277* (0.146)				-0.139 (0.155)
Secondary				0.105 (0.155)				-0.009 (0.173)
Highersecondary or more				-0.016 (0.189)				-0.046 (0.233)
<i>Spouse's education (Less than prim.=0)</i> :								
Primary				-0.135 (0.153)				0.056 (0.149)
Secondary				-0.200 (0.171)				0.106 (0.161)
Highersecondary or more				0.101 (0.235)				0.124 (0.201)
<i>Occup. (Farming = 0)</i> :								
Non-ag self-emp				-0.109 (0.156)				0.126 (0.681)
Ag wage lab				-0.459 (0.320)				-0.034 (0.554)
Non-ag wage lab				-0.046 (0.205)				0.013 (0.425)
Raise livestock								-0.307 (0.323)
Homemaker/Student				-1.308*** (0.289)				-0.231 (0.261)
Other				-0.113 (0.252)				-0.530 (0.420)
<i>Spouse's occup. (Farming = 0)</i> :								
Non-ag self-emp				0.598 (0.513)				-0.071 (0.158)
Ag wage lab				1.084** (0.539)				-0.734** (0.343)
Non-ag wage lab				-0.349 (0.481)				-0.205 (0.205)
Raise livestock				0.240 (0.305)				
Homemaker/Student				-0.049 (0.249)				-1.875*** (0.634)
Other				0.365 (0.656)				-0.507** (0.217)
Wealth index				-0.047 (0.047)				0.017 (0.050)
Constant	1.437*** (0.075)	1.642*** (0.088)	1.478*** (0.124)	1.515*** (0.468)	1.643*** (0.081)	1.884*** (0.089)	2.105*** (0.140)	1.895*** (0.484)
Village FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.047	0.080	0.083	0.120	0.064	0.134	0.138	0.165
Observations	885	885	885	885	885	885	885	885

Notes: *Abs. error* takes integer values in [0, 5] with higher values indicating greater deviation of spouse's predictions from actual choice. Wealth index created as mean response of wife to questions about assets owned by household. Heteroskedasticity robust standard errors in parentheses. \* p<0.1, \*\* p<0.05, and \*\*\* p<0.01.

Table B.4: Results from regression of individual's *Strategy* as second-mover on own and spouse characteristics.

	Husbands		Wives	
	(1)	(2)	(3)	(4)
<i>Strategy</i>				
Spouse <i>Strategy</i>	0.090** (0.037)	0.074* (0.039)	0.081** (0.033)	0.068** (0.034)
<i>Shared</i> : Abs. spouse diff.	-0.018 (0.013)	-0.020 (0.013)	-0.013 (0.012)	-0.012 (0.012)
<i>Shared</i> : Choice	-0.009 (0.011)	-0.009 (0.011)	-0.043*** (0.010)	-0.049*** (0.011)
Conscientious	0.019 (0.019)	0.016 (0.020)	0.064*** (0.018)	0.064*** (0.018)
Extraverted	-0.001 (0.023)	0.006 (0.023)	-0.067*** (0.020)	-0.059*** (0.021)
Agreeable	-0.007 (0.019)	-0.003 (0.020)	-0.003 (0.020)	-0.001 (0.020)
Open to new	0.042*** (0.014)	0.041*** (0.015)	-0.008 (0.013)	-0.015 (0.014)
Neuroticism	-0.002 (0.017)	-0.003 (0.017)	0.003 (0.014)	0.008 (0.014)
Age		-0.003 (0.004)		-0.002 (0.004)
Spouse's age		0.001 (0.004)		0.001 (0.004)
Wife's decision-making		0.009 (0.014)		-0.005 (0.016)
Dependency		-0.257** (0.122)		-0.197* (0.109)
Children under 5 (=1)		0.066* (0.039)		0.058 (0.035)
Husband's mother present (=1)		0.006 (0.051)		-0.056 (0.051)
Husband's father present (=1)		-0.050 (0.062)		-0.042 (0.062)
Wife's mother present (=1)		-0.130 (0.125)		-0.013 (0.118)
Wife's father present (=1)		-0.347 (0.339)		0.052 (0.314)
<i>Education (Less than prim.=0)</i> :				
Primary		-0.017 (0.058)		0.088 (0.055)
Secondary		-0.070 (0.061)		0.073 (0.061)
Highersecondary or more		-0.030 (0.072)		0.033 (0.084)
<i>Spouse's education (Less than prim.=0)</i> :				
Primary		0.001 (0.059)		0.091* (0.054)
Secondary		0.032 (0.065)		0.064 (0.057)
Highersecondary or more		-0.016 (0.090)		0.135* (0.070)
<i>Occup. (Farming=0)</i> :				
Non-ag self-emp		0.027 (0.056)		-0.138 (0.192)
Ag wage lab		0.138 (0.145)		0.099 (0.182)
Non-ag wage lab		-0.011 (0.071)		-0.362*** (0.140)
Raise livestock				-0.099 (0.104)
Homemaker/Student		0.304 (0.271)		-0.085 (0.079)
Other		0.268** (0.135)		-0.190 (0.259)
<i>Spouse's occup. (Farming=0)</i> :				
Non-ag self-emp		0.033 (0.214)		-0.050 (0.061)
Ag wage lab		-0.482*** (0.173)		0.380** (0.156)
Non-ag wage lab		-0.282 (0.181)		-0.043 (0.067)
Raise livestock		-0.058 (0.120)		
Homemaker/Student		-0.053 (0.101)		-0.239 (0.720)
Other		0.264 (0.233)		0.049 (0.113)
Wealth index		-0.028 (0.019)		-0.000 (0.018)
Constant	-0.047 (0.186)	0.194 (0.267)	0.448*** (0.163)	0.439* (0.235)
Village FEs	Yes	Yes	Yes	Yes
R-squared	0.091	0.122	0.109	0.143
Observations	885	885	885	885

Notes: The *Strategy* variable takes values in [-1, 1]. Positive values indicate that the riskiness of second mover's choices co-move with the first mover's choices, negative values indicate that a second mover who tries to counter their spouse's choice. Heteroskedasticity robust standard errors in parentheses. \* p<0.1, \*\* p<0.05, and \*\*\* p<0.01.

Table B.5: Results from regression of error in predicting savings made by spouse on errors made in *Joint* game for women.

	Correct (= 1)		Overestimates (= 1)		Underestimates (= 1)	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Error</i>	-0.013*	-0.013*	0.015**	0.014**	-0.003	-0.001
	(0.008)	(0.008)	(0.007)	(0.007)	(0.004)	(0.004)
<i>Shared: Diff. in pref. (<math>\gamma</math>)</i>	0.000	0.001	0.010	0.011	-0.010	-0.012
	(0.015)	(0.015)	(0.014)	(0.013)	(0.009)	(0.009)
<i>Shared: Own pref. (<math>\gamma</math>)</i>	-0.040*	-0.040*	0.018	0.018	0.022*	0.022*
	(0.020)	(0.021)	(0.019)	(0.019)	(0.013)	(0.013)
<i>Spouse Strategy</i>	0.051	0.055*	-0.022	-0.018	-0.029	-0.037*
	(0.032)	(0.032)	(0.029)	(0.030)	(0.019)	(0.019)
<i>Strategy</i>	-0.097***	-0.107***	0.084***	0.096***	0.013	0.011
	(0.034)	(0.033)	(0.032)	(0.032)	(0.021)	(0.021)
<i>Age</i>		-0.002		-0.000		0.002
		(0.003)		(0.003)		(0.002)
<i>Spouse's age</i>		0.008***		-0.004		-0.004**
		(0.003)		(0.003)		(0.002)
<i>Wife's decision-making</i>		-0.009		-0.009		0.017
		(0.011)		(0.011)		(0.011)
<i>Dependency</i>		-0.085		0.197*		-0.111*
		(0.109)		(0.102)		(0.066)
<i>Children under 5 (=1)</i>		0.074**		-0.120***		0.045**
		(0.035)		(0.033)		(0.022)
<i>Husband's mother present (=1)</i>		0.000		-0.000		-0.000
		(0.001)		(0.000)		(0.000)
<i>Husband's father present (=1)</i>		-0.000		0.000		0.000
		(0.001)		(0.001)		(0.000)
<i>Wife's mother present (=1)</i>		0.003***		-0.002***		-0.001***
		(0.001)		(0.001)		(0.000)
<i>Wife's father present (=1)</i>		-0.007***		0.005**		0.002
		(0.002)		(0.002)		(0.002)
<i>Education (Less than prim.=0):</i>						
<i>Primary</i>		0.074		-0.066		-0.009
		(0.051)		(0.047)		(0.031)
<i>Secondary</i>		0.041		-0.017		-0.024
		(0.059)		(0.055)		(0.036)
<i>Highersecondary or more</i>		0.095		-0.067		-0.028
		(0.080)		(0.073)		(0.051)
<i>Spouse's education (Less than prim.=0):</i>						
<i>Primary</i>		-0.028		0.016		0.012
		(0.054)		(0.049)		(0.029)
<i>Secondary</i>		-0.086		0.024		0.062*
		(0.057)		(0.052)		(0.033)
<i>Highersecondary or more</i>		-0.000		-0.019		0.019
		(0.069)		(0.063)		(0.037)
<i>Occup. (Farming=0):</i>						
<i>Non-ag self-emp</i>		-0.116		0.142		-0.026
		(0.178)		(0.180)		(0.051)
<i>Ag wage lab</i>		0.038		-0.134		0.096
		(0.208)		(0.190)		(0.159)
<i>Non-ag wage lab</i>		0.118		-0.157		0.039
		(0.175)		(0.154)		(0.098)
<i>Raise livestock</i>		0.098		-0.088		-0.010
		(0.105)		(0.104)		(0.049)
<i>Homemaker/Student</i>		0.006		-0.046		0.039
		(0.086)		(0.086)		(0.036)
<i>Other</i>		-0.075		0.093		-0.018
		(0.187)		(0.192)		(0.049)
<i>Spouse's occup. (Farming=0):</i>						
<i>Non-ag self-emp</i>		-0.109**		0.093*		0.016
		(0.054)		(0.054)		(0.034)
<i>Ag wage lab</i>		0.143		-0.138		-0.006
		(0.113)		(0.105)		(0.075)
<i>Non-ag wage lab</i>		0.044		-0.024		-0.020
		(0.072)		(0.066)		(0.043)
<i>Raise livestock</i>						
<i>Homemaker/Student</i>		0.415***		-0.257*		-0.157***
		(0.136)		(0.140)		(0.058)
<i>Other</i>		0.242**		-0.314***		0.072
		(0.108)		(0.046)		(0.094)
<i>Wealth index</i>		-0.003		0.023		-0.021**
		(0.017)		(0.016)		(0.010)
<i>Constant</i>	0.700***	0.401**	0.230***	0.461***	0.070***	0.138
	(0.032)	(0.159)	(0.030)	(0.150)	(0.018)	(0.094)
<i>Village FEs</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>R-squared</i>	0.077	0.137	0.077	0.128	0.072	0.115
<i>Observations</i>	885	885	885	885	885	885

Notes: Husbands and wives were asked if either "you or your husband made any savings in the past 12 months?" If a person reported their spouse as having savings when their spouse reported not it was taken to be an overestimation, and if a person reported their spouse as not having savings when their spouse reported having savings it was taken to be an overestimation. Controls include age, education, and occupation of player and spouse, dependency ratio, number of children under 5 in household, the presence of in-laws in household and a wealth index created as mean response of wife to questions about assets owned by household. Heteroskedasticity robust standard errors in parentheses. \* p<0.1, \*\* p<0.05, and \*\*\* p<0.01.

Table B.6: Results from regression of error in predicting savings made by spouse on errors made in *Joint* game for men.

	Correct (= 1)		Overestimates (= 1)	
	(1)	(2)	(3)	(4)
	(5)	(6)	(5)	(4)
<i>Error</i>	-0.005	-0.003	0.000	-0.001
0.005	(0.005)	(0.008)	(0.006)	(0.006)
(0.006)	(0.006)	(0.008)	(0.006)	(0.006)
<i>Sharef: Diff. in pref. (γ)</i>	0.011	0.020	-0.017	-0.024**
0.006	(0.004)	(0.015)	(0.012)	(0.012)
(0.012)	(0.012)	(0.015)	(0.012)	(0.012)
<i>Sharef: Own pref. (γ)</i>	-0.015	-0.023	0.013	0.020
0.001	(0.003)	(0.021)	(0.016)	(0.016)
(0.016)	(0.016)	(0.021)	(0.016)	(0.016)
<i>Spouse Strategy</i>	-0.010	-0.011	-0.008	-0.004
0.018	(0.015)	(0.014)	(0.028)	(0.028)
(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
<i>Strategy</i>	0.021	0.010	-0.019	-0.013
-0.002	(0.004)	(0.032)	(0.025)	(0.025)
(0.025)	(0.025)	(0.032)	(0.025)	(0.025)
<i>Age</i>	-0.002	0.010***	-0.008***	
	(0.003)	(0.003)	(0.003)	
<i>Spouse's age</i>	-0.003	-0.008**	0.000*	
	(0.003)	(0.004)	(0.003)	
<i>Wife's decision-making</i>	0.005	0.012	-0.017***	
	(0.011)	(0.010)	(0.004)	
<i>Dependency</i>	0.003	0.015	-0.018	
	(0.083)	(0.107)	(0.083)	
<i>Children under 5 (=1)</i>	0.026	-0.016	-0.010	
	(0.028)	(0.036)	(0.029)	
<i>Husband's mother present (=1)</i>	0.000	0.001**	-0.001***	
	(0.000)	(0.000)	(0.000)	
<i>Husband's father present (=1)</i>	-0.001*	-0.000	0.001	
	(0.000)	(0.001)	(0.001)	
<i>Wife's mother present (=1)</i>	0.000	-0.000	-0.000	
	(0.001)	(0.001)	(0.001)	
<i>Wife's father present (=1)</i>	0.002	-0.003	0.001	
	(0.003)	(0.002)	(0.002)	
<i>Education (Less than Prim.=0):</i>				
<i>Primary</i>	0.012	-0.085*	0.073*	
	(0.039)	(0.051)	(0.040)	
<i>Secondary</i>	-0.006	-0.081	0.087**	
	(0.043)	(0.054)	(0.042)	
<i>Highsecondary or more</i>	0.031	-0.041	0.013	
	(0.052)	(0.064)	(0.047)	
<i>Spouse's education (Less than Prim.=0):</i>				
<i>Primary</i>	-0.004	0.026	-0.021	
	(0.042)	(0.053)	(0.040)	
<i>Secondary</i>	0.038	0.001	-0.038	
	(0.048)	(0.059)	(0.045)	
<i>Highsecondary or more</i>	0.031	-0.017	-0.014	
	(0.063)	(0.081)	(0.065)	
<i>Occup. (Farming=0):</i>				
<i>Non-ag self-emp</i>	-0.011	-0.034	0.045	
	(0.042)	(0.056)	(0.046)	
<i>Ag wage lab</i>	-0.003	-0.010	0.013	
	(0.122)	(0.148)	(0.118)	
<i>Non-ag wage lab</i>	0.085	-0.123*	0.038	
	(0.062)	(0.070)	(0.058)	
<i>Raise livestock</i>				
<i>Homemaker/Student</i>	-0.079	-0.226	0.305	
	(0.070)	(0.478)	(0.451)	
<i>Other</i>	0.063	0.082	-0.144*	
	(0.107)	(0.128)	(0.083)	
<i>Spouse's occup. (Farming=0):</i>				
<i>Non-ag self-emp</i>	-0.056	-0.061	0.117	
	(0.159)	(0.169)	(0.133)	
<i>Ag wage lab</i>	0.191	-0.445*	0.254	
	(0.212)	(0.235)	(0.209)	
<i>Non-ag wage lab</i>	0.091	-0.324*	0.233*	
	(0.158)	(0.179)	(0.140)	
<i>Raise livestock</i>	0.014	-0.015	0.002	
	(0.085)	(0.103)	(0.072)	
<i>Homemaker/Student</i>	0.009	-0.084	0.075	
	(0.069)	(0.087)	(0.060)	
<i>Other</i>	-0.134*	0.136	-0.002	
	(0.078)	(0.221)	(0.226)	
<i>Wealth index</i>	0.039***	-0.039**	-0.001	
	(0.014)	(0.017)	(0.013)	
<i>Constant</i>	0.681***	0.760***	0.156***	0.257**
0.164***	(0.018)	(0.164)	(0.025)	(0.117)
(0.025)	(0.134)			
<i>Village FEs</i>	Yes	Yes	Yes	Yes
<i>Yes</i>	Yes	Yes	Yes	Yes
<i>Required</i>	0.042	0.087	0.059	0.102
<i>0.069</i>	(0.099)			
<i>Observations</i>	885	885	885	885
<i>885</i>	885			

Notes: Heteroskedastic and robust standard errors are reported in parentheses. \* p<0.1, \*\* p<0.05, and \*\*\* p<0.01. Heteroskedasticity robust standard errors in parentheses. \* p<0.1, \*\* p<0.05, and \*\*\* p<0.01.

Figure B.1: Visuals presented to players to describe the lottery options.

