Information Pooling in the Household: The Role of Expertise

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Abstract

A dismal view of household decision-making arises from evidence that individuals fail to incorporate information their spouses hold. I explore whether failure to pool information in the household arises from a reluctance to learn from one's spouse or from communication being challenging in the absence of expertise. Using a lab-in-field experiment with 400 married couples in Kolkata, India, I examine information pooling across two domains: (i) a gender-neutral ball-in-urn domain where neither spouse is better informed, and (ii) a novel gendered pricing domain, where individuals have to price a basket of either male or female products, and each spouse is better informed in their gender-congruent domain. In the gender-neutral domain, I replicate the finding that households fail to pool information. However, in the gendered domain, I find that households pool information successfully. The results point to common knowledge of expertise as facilitating communication, effectively incentivizing spouses to both talk and listen.

Keywords: Household, Gender, Experiment, Information Sharing
JEL Codes: D13, J16, C93, D83

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1 Introduction

Household members often have access to independent information through their personal experiences and recommendations from friends and family. Pooling information from different sources allows households to make better and more informed decisions, such as which vaccine to use, which school to send children to, or which crop to use. Standard economic models of household decision-making (Chiappori, 1992; Chiappori and Mazzocco, 2017; Lundberg and Pollak, 1996) assume that such disparate sources of information are shared between spouses as long as there is no strategic reason to withhold or not to incorporate the information. In contrast to this assumption, recent experimental evidence shows that individuals fail to pool information from their spouses, even when incentives are aligned (Conlon et al., 2022; Fehr et al., 2024).

While failure to pool information may be seen as a reluctance to listen to one's spouse, I explore if there are circumstances when information pooling is successful within the household. Specifically, I expand prior research by showing that couples pool information when they know who among them holds expertise in a domain, that is, where there is common knowledge of expertise. Of interest is whether expertise facilitates communication and information pooling, with the mechanism being that common knowledge of expertise incentivizes individuals to both listen and speak.

New information tends to spread better from an informed person (at least partially) to an uninformed person (Calvo-Armengol and Jackson, 2004; Jackson and Yariv, 2007) because the better-informed individual has an information advantage (Banerjee et al., 2013).[1] Thereby, individuals are more likely to listen to someone's recommendation when they are better informed or believed to be better informed.[2] Differential information advantages are likely to arise in households where differences in preferences and skills make specialization advantageous (Shelton and John, 1996; Becker, 1981). As spouses focus efforts on different domains,

[1]See Mobius and Rosenblat (2014) for a review of social learning.

[2]This is consistent with empirical evidence showing information is incorporated from experts, community leaders, celebrities, male farmers (Mertes and Weber, 2023; Miller and Mobarak, 2015; Alatas et al., 2024; BenYishay et al., 2020).

they will acquire, aggregate, and process different sources of information, similar to what one might expect from division of labor. This potentially results in a mutual recognition of information advantage in their gender-congruent domain.

Common knowledge of such information advantage may ease communication when incentives are aligned. The return to listening and speaking increases when it is commonly understood that statements are consequential. Speaking is rewarded when your spouse listens, and listening is rewarded when communication is understood to be informative.[3] By contrast, information pooling may be challenging in the absence of expertise, where the returns to speaking and listening are less clear.

My study explores the role of expertise and common knowledge of differential information advantages to study if married couples learn from one another in a non-strategic environment. I conduct a lab-in-field experiment in Kolkata, India, with 400 married couples. It is of particular interest to explore information pooling in this context because adherence to traditional gender roles in India increases both the returns and challenges to information pooling, in turn demonstrating the potential role of expertise. Couples in my experiment take part in information aggregation tasks across two information domains: (i) a gender-neutral domain where an information advantage is absent - neither spouse is better informed and (ii) a gendered domain where an information advantage is present - each spouse is better informed in their gender-congruent domain.

For the gender-neutral information domain, I use a standard ball-in-urn task. I adapt Conlon et al. (2022)'s design with changes to shed light on common knowledge on expertise. This design studies information pooling between married couples by varying the source of the information to be either self or spouse. A couple is given a shared urn with a randomly determined number of red and white balls. Each spouse is asked to make two guesses on the number of red balls in their urn. To help them make their guesses, each spouse independently receives noisy signals about the contents of the urn. Two between-subject treatments vary the source

[3]This kind of reasoning is consistent with the literature on inter-generational advice (Schotter and Sopher, 2007), which finds that people often receive and follow advice from those who have already experienced the situation before.

of the signal. In an Individual Treatment, each spouse draws five balls from the collective urn before each guess, thus, in total, having two sets of draws before the second guess. In a Discussion Treatment, each spouse draws five balls before the first guess, just like in the Individual Treatment. Before the second guess, however, in lieu of the second set of draws, couples discuss among themselves, thereby learning about *their spouse's first* set of draws. That is, spouses receive the same number of draws, and the provided information does not give them an information advantage. To align incentives, a guess from either spouse is randomly selected and counted for payment for each member of the couple.

I explore the degree of information pooling by comparing the weight one puts on their spouse's information in the Discussion Treatment versus the weight one puts on their own information in the Individual Treatment. My findings show that compared to having received their own signal, the spouse's signal is less accounted for, with the weight being 21.1% (p=0.03) lower in the Discussion Treatment. Further, not only is there no ex-ante difference in the quality of information given to either spouse, there is also no difference in their ability to process the information. That is, neither spouse is better at guessing the number of red balls in the urn.

Although the above design can examine how information from a spouse is incorporated, it does not shed light on whether there is common knowledge about which spouse is better at the task. To capture this, I add an incentivized delegation decision to the original design. After making both guesses, participants decide which spouse's guess to rely on. Specifically, they are asked to choose whose *second guess* they would want implemented for joint couple payment. When participants do not know their spouse's signals or guesses in the Individual Treatment, they delegate to the wrong spouse 48 percent of the time. That is, they are no better than a coin flip at selecting the spouse with the best Bayesian second guess, indicating that no spouse correctly is seen as holding expertise. While the opportunity to discuss in the Discussion Treatment leads to only a marginal improvement in selecting the spouse with the better guess, 41.5 percent of delegation decisions are to the spouse with an inferior guess. As further evidence that spouses are not seen as holding superior information, beliefs elicited at the end of the task reveal that only 27.5 percent believe their spouse is providing a better *first* *guess*.

To explore the potential role of expertise and to assess whether the lack of information pooling results from a general reluctance to listen to one's spouse, I develop a novel "guess-the-price" task, where spouses individually guess the price of two baskets of goods, one with male-type products and one with female-type products. Assuming traditional gender roles and specialization within the household, the task was intended to capture a domain where spouses hold expertise (and an informational advantage) in their gender-congruent domain. Spouses are asked to submit two private guesses on each of the baskets. The *first guesses* are made independently. Before making a *second guess*, they discuss the guess with their spouse. Thus, the first guess establishes existing knowledge (if any), while the second (updated) guess captures the extent to which the spouse's first guess is incorporated. Incentives are aligned by randomly selecting one spousal guess for payment for both the wife and the husband. The variation in the product type allows me to test if being better informed can lead to successful information sharing, independent of which spouse holds the information. Performance on the *first guess* establishes an initial information advantage consistent with specialization within the households - wives (husbands) are better at guessing prices for female (male) type products. However, the discussion allows for successful pooling of information. There are no differences in ability when spouses submit their *second guess*. Husbands become as good as wives in pricing female-type products, and wives become as good as husbands in pricing male-type products. Consistent with this, when comparing the weight an individual puts on their own and spouse's information, I find that neither husband nor wife disregards their spouse's information when their spouse is better informed. This clearly suggests that information pooling is possible and that prior evidence of failed pooling does not result from a general reluctance to learn from one's spouse.

Next, I examine how households make similar delegation decisions in the guess-the-price task to assess whether the gendered information advantage is common knowledge. For each product type, participants choose whose *first guess* they want implemented for joint couple payment. Both spouses are more likely to delegate to husbands for male-type products (73.5%

of husbands vs 79.6% of wives), and more likely to delegate to their wives for female-type products (74.3% of husbands vs 78.5% of wives). The likelihood of delegating to the spouse with the worse first guess is 23.2 percent for male-type products, and 25.3 percent for female-type products. This rate of mistake does not differ between product types (p=0.43) and is almost half of the rate of mistakes seen for the ball-in-urn task. Beliefs about task performance lends further support to there being common knowledge of expertise: 73.25 percent of wives and 79.5 percent of husbands believe their spouses to be better at male-type and female-type products, respectively. In addition, consistent with specialization, when asked about shopping habits, most couples agree that husbands shop for male-type products while wives shop for female-type products.

Information pooling is a two-way street. While listening to other's information is one aspect of effective communication, talking about one's information is equally important. An analysis of the communication style and patterns using transcripts of the discussions confirms this. Households engage better and have more substantive discussions in the guess-the-price task than in the ball-in-urn task. Pooling across both spouses in the subset of 200 households in the Discussion Treatment of ball-in-urn task, I find that discussions last longer in the guess-the-price task (5.4 vs. 2.2 minutes, p<0.01). Further couples in the guess-the-price task are also more likely to share their information (95% vs. 76%, p<0.01), are more likely to suggest a second guess (96% vs. 59%, p<0.01), and more likely to seek out information (53% vs. 22%, p<0.01). Both spouses are more likely to say they are sure about their guesses in the gender-congruent domain and more likely to say the other spouse is better in the gender-incongruent domain.

In summary, I find that households fail to pool information in the ball-in-urn task but are successful in doing so in the guess-the-price task. This suggests the failed information pooling does not result from a general reluctance to learn from your spouse. I propose common knowledge of expertise as the mechanism behind improving both communication and information pooling.

There is a vast amount of literature studying household decision-making with the help of experiments with married couples.[4] Much of this literature has focused on information asymmetry and household decision-making when incentives between spouses are not aligned, such as income hiding (Ashraf, 2009), demand for agency (Afzal et al., 2022), labor force participation decisions (Lowe and McKelway, 2021), child marriage (Cassidy et al., 2024) or contraception usage (Ashraf et al., 2014). The literature studying how information flows within households when incentives are aligned is, however, relatively new (Conlon et al., 2022; Fehr et al., 2024).[5] Both these studies find no difference in ability between husbands and wives, i.e., both are equally good at processing new information, but find information from spouse is less accounted for. Using the ball-in-task with married couples in Chennai, India (Conlon et al., 2022), find that while wives take the information discovered by their husbands into full consideration, husbands fail to do the same with information discovered by their wives. Studying information sharing in Germany Fehr et al. (2024) asked household members for their beliefs about their household's rank in the national income distribution. Their results show that when only the husband receives the correct information about household income rank, it influences the wife's beliefs; however, when only the wife receives the information, it does not affect the husband's beliefs. I make three contributions to this literature. First, I replicate the finding that information pooling is indeed unsuccessful in such gender-neutral domains.[6] Second, I show that a reason for unsuccessful information pooling might be the lack of common knowledge of which spouse is better, which makes communication more challenging. Third, I examine information pooling in *gendered information domains* when incentives align. To the best of my knowledge, this is the first paper to do so.[7]

The second strand of literature that I add to is the one studying information flow between individuals in the presence of an information advantage. Until now, this literature has focused

[4] See Ashraf (2009); Apedo-Amah et al. (2020); Hoel (2015); Hoel et al. (2021); Ambler et al. (2022); Munro et al. (2014) for example. Munro (2018) provides an excellent review on intra-household experiments.

[5] The assumption of aligned incentives means it is in both parties' best interest that full information spreads.

[6] My results suggest that while husbands discount their wives more, but the degree of disregard does not differ between genders.

[7] A recent study by Ashraf et al. (2022) examines information diffusion in a female-type information domain - maternal health risks. The authors find that when women are taught about maternal risk, they are unable to transmit the information to their husbands. However, fertility decisions are a setting where incentives are not aligned, and preferences differ (see Page 10 of their paper making the same claim).

on how we incorporate information from better-informed individuals *outside* the household. I add to this literature by showing that the presence of an information advantage, even within households, helps with information flow. This is consistent with this literature's general finding that people tend to incorporate information from better-informed individuals (Mertes and Weber, 2023; Miller and Mobarak, 2015; BenYishay et al., 2020; Alatas et al., 2024).

The third strand of literature that I add to is the one studying communication in laboratory experiments. It has been shown to increase trust and trustworthiness (Ben-Ner et al., 2007), team effort (Sutter and Strassmair, 2009), efficiency with respect to promises (Charness and Dufwenberg, 2006; Lundquist et al., 2009) and cooperation (Cooper and Kühn, 2014) even without strategic interactions (Zultan, 2012).[8] I add to this literature by showing that economic decision-making can be refined when there is a mutual understanding of expertise, as it incentivizes effective communication, both in terms of speaking and listening. The most relevant to my study is Ambuehl et al. (2022), who explore advice-giving in the domain of financial decisions. They find people are worse at transmitting recently acquired skills to peers than their baseline competence. My findings on common knowledge of specialized knowledge facilitating information pooling have a similar flavor.

Finally, my study lends itself to the critical policy debate on who should be targeted for information campaigns (Reynolds et al., 2006), just as sanitation campaigns are typically targeted at women (Augsburg et al., 2023) while campaigns to promote voter turnout are targeted to men (Cheema et al., 2023). A common practice in developing countries when spreading the word about government programs is to provide information to only one household member. The underlying assumption is that the information will be perfectly transmitted to other household members. My results suggest that information that needs to be transmitted in the household should be targeted to the individual with expertise in that domain. However, absent such domains, providing information to any one spouse is not enough as they may overlook each other's insights and, in turn, make sub-optimal decisions.

The paper is organized as follows. Section 2 describes the experimental design, procedures,

[8] See Brandts et al. (2019) for a review on communication in laboratory experiments.

and the two tasks. Section 3 presents the results in two parts. First, I show the results from the ball-in-urn task in Section 3.1 and Section 3.2 followed by the results from the guess-the-price task in Section 3.3 and Section 3.4. In Section 4, I present the communication differences using transcripts of discussions for each task. Finally, the paper concludes with Section 5.

2 Experimental Design

2.1 Procedure

The experiment was conducted in peri-urban and urban areas of Kolkata, India, in two waves: 12 sessions in August 2023 (Wave 1) and 20 sessions in March 2024 (Wave 2). About ten pairs participated in each session. Couples from middle-income communities were recruited.[9] The survey team went door-to-door to recruit them, asking them to participate in a "research study on household decision-making". The couple's marital status was verified with the help of the same address and last name on their National Identification Card (Aadhar Card). Everyone was informed that the study would take approximately two hours of their time. Participants were asked to visit a nearby local community hall with their spouses. These local community halls acted as my "lab". They were told they would receive Rs. 300 (~ $3.50) to cover travel expenses to the lab, and both husband and wife needed to participate together. They were also informed that, on average, each couple could additionally earn Rs. 300-500 based on their decisions. Upon arrival at the lab location, each couple was randomly allocated one enumerator who conducted their interview on a tablet.[10]

2.2 Descriptive Statistics

Table 1 presents the sample characteristics of the 400 married couples who participated in the study. An average couple was married for 15 years and had 1.15 children. Husbands were typically six years older than their wives. Approximately 46 percent of the sample had a love

[9] During recruitment, the field team ensured that the average daily earnings for the couple would be at least as much as the average incentives used in the experiment of Rs. 800.

[10] The survey was programmed on SurveyCTO.

marriage. 75 percent of the sample belonged to the General Caste.[11] Typical of Indian family norms, 25 percent of the wives resided with at least one in-law (either the husband's father or mother or both). 96 percent of the husbands in the sample were working. In comparison, the female labor force participation rate was significantly lower at 24 percent for the wives.[12] Husbands and wives have similar levels of education of 12.5 years, i.e., graduated high school.

2.3 Overview of Design

Each couple participated in information aggregation tasks across two information domains (i) gender-neutral information domain and (ii) gendered information domain in a fixed order. I defer the discussion of the details of each task to the corresponding sections below. But here, I first list some of the common design features between the two tasks.

Guesses: In each task, participants are asked to make *two guesses*, each pertaining to the information at hand. Between the first and the second guess, each participant receives new information, and I study how this new information is pooled between spouses.

Aligned Incentives: For each task, their guesses are incentivized for accuracy. Any one of their guesses could count towards a joint payment for the couple for each task. This joint couple payment is then divided equally for each spouse. It is in both spouses' best interest to share any information and learn from their spouses' information when given a chance to discuss, thus aligning the incentives between spouses.

Delegation Decision: Within each task, I design an incentivized feature to measure if information advantage is common knowledge among spouses by asking them whose guess they would want to rely on for additional joint payment.

Performance Feedback: No feedback on the accuracy of anyone's guesses in any task is provided at any stage of the experiment to avoid backlash at home. Delegation decisions are also not revealed to the participants. For each task, each participant receives half of the total cou-

[11] According to caste hierarchy in India, the General Caste category excludes the "lower caste category" (Scheduled Caste (SC), Scheduled Tribe (ST), or Other Backward Class (OBC)). In other words, the General Caste category represents the higher social and economic rungs of society in the country.

[12] According to World Bank Gender Portal, the female labor force participation rate of 25 percent in West Bengal in 2012 was among the lowest among all states in India. Kolkata is the capital of West Bengal.

Table 1: Sample Characteristics

	Husband	Wife
Marital Controls		
Duration of Marriage	15	
	(8.89)	
# of children	1.15	
	(0.65)	
Love Marriage	0.46	
	(0.50)	
Family Controls		
Residing in-laws	0.25	
	(0.25)	
Family Size	4.26	
	(1.48)	
Demographic Controls		
Age	42.42	35.91
	(9.58)	(8.70)
General Caste | Hindu	0.74	0.75
	(0.44)	(0.43)
Muslim	0.03	0.03
	(0.17)	(0.16)
Christian	0.01	0.01
	(0.07)	(0.07)
Socio-economic controls		
Labor Force Participation	0.96	0.24
	(0.21)	(0.43)
Years of education	12.58	12.48
	(2.67)	(2.61)
Sample Size	400	400

† This table shows the sample characteristics. The standard deviations are in the parentheses. Marital and Family controls are defined at the household level, while Demographic and Socioeconomic controls are defined at the individual level. Duration of marriage is in years; Love Marriage is an indicator variable if the couple did not have an arranged marriage; Residing in-laws is an indicator variable if the husband's parents live in the same house, while Family Size is the total number of household members including the spouses. Age for both spouses is measured in years. Conditional upon being Hindu, the General Caste category is an indicator variable for when the participant is not a member of SC, ST, and OBC caste groups. Muslim and Christian are indicator variables for the respective religion. Labor Force participation is an indicator variable if the participant works outside the home for pay, while Years of Education is a continuous measure of the years of school starting from primary school level.

ple's joint payment, i.e., the payment from the randomly chosen guess *and* the payment from the randomly chosen delegation decision. When the participant receives their half of the couple's joint payment they only know how much is based on each of the two tasks and not the different components therein. This ensures neither spouse can back-calculate whose guess may have been more accurate.

2.4 Gender-neutral Information Domain

I adapt Conlon et al. (2022)'s (henceforth CMRRS) experimental design to study information pooling when neither spouse has an information advantage, i.e., neither is better informed. Both husbands and wives participate in a standard ball-in-urn task often used to study social learning (Benjamin, 2019). Each couple receives an urn with 20 red and white balls. The number of red balls is uniformly drawn between 4 and 16. The composition of the urn is explained to them with the help of a visual aid (see Figure C1 of Appendix C). Participants are individually asked to submit *two* private guesses about the number of red balls in their urn. Each of their guesses are incentivized based on accuracy, i.e., the closer their private guess is to the true number of red balls in the couple's urn, the higher their earnings would be.[13]

Before each guess, they get an opportunity to learn about the ball composition of the urn with the help of a noisy signal. Before the first guess, each spouse privately draws five balls from the urn (with replacement); this forms their first signal. Based on this signal, each spouse privately guess the number of red balls. Thus, by design, the provided information gives neither spouse an information advantage. After one's *first guess* and before making their *second guess*, each spouse receives a second signal about the ball composition in the urn. Using two between-subject treatments, the source of this second signal is varied between couples as follows:

Individual Treatment: In this treatment, each spouse again draws five balls (with replacement) a second time privately; this forms their second signal. Thus, the size of the information set before the *second guess* is ten draws, while before the *first guess*, it is five draws.

[13]More specifically, the payment scale as shown in Figure C2 is a piece-wise linear-loss function of the form Rs. Max{(300 − 30 × |g − r|),0} where g is the randomly chosen guess, and r is the true number of red balls in the couple's urn. Thus, the maximum possible joint earnings for the couple is Rs. 300. For each ball that the randomly selected guess is different than the true number of red balls, the couple loses Rs. 30. If the guess g is more than ten balls away from the true number of red balls r, the couple earns nothing from the task. The truncation of the loss function at zero ensures the elicitation is incentive-compatible. Any of the four guesses is randomly selected for joint payment for the couple and divided equally for each spouse.

Discussion Treatment: In this treatment, in lieu of five more draws, participants discuss with their spouses for as long as they want. Thus, the source of a second signal is their spouse instead of a second set of draws. Specifically, one can form their second signal by discussing their spouse's *first* draws. Thus, even in this treatment, the size of the information set before the *second guess* is ten draws, while before the *first guess* it is five draws. The audio of the discussion is recorded - the transcripts are coded by the field team immediately after the interview.

Table 2 presents the balance test for individual and household characteristics between the two treatments. Overall, the treatments are balanced on marital-level controls (duration of marriage, number of children) and family-level controls (cohabitation with in-laws and household size). Furthermore, the two treatments are also balanced on individual level controls (age, caste, religion) and socio-economic controls (labor force participation rate, and years of education) separately for husbands and wives.[14]

Comparing the *second guess* between the two treatments allows me to study how the new information of one's second signal is pooled between spouses. Note that by design, the quality of information that spouses share with one another is the same- five signals. Thus, this is a setting without any asymmetric information advantage.[15] The order of receiving signals and making the consequent guess is randomized between spouses.

2.4.1 Assessment of Common Knowledge

Although the above design can study if the information is pooled, it does not allow me to assess whether it is common knowledge which spouse is better at the task. To capture this, I design an incentivized delegation decision where participants decide which spouse's guess to rely on. After the *second guess*, participants are presented with a surprise opportunity to earn

[14]Table A1 and Table A2 in Appendix A present the same for each of waves of data collection separately.

[15]In CMRRS, the authors varied the informativeness of signals by letting participants draw one, five, or nine balls. Thus, it could be that a husband draws one ball in his first set of draws and five balls in his second set of draws, while his wife draws one ball in her first set of draws and nine balls in her second set of draws. Since I am studying information pooling when neither spouse has an information advantage, I keep the number of draws the same between spouses. It is also critical that both husbands and wives know that neither of them has better information.

Table 2: Balance Table

	Individual (T0)		Discussion (T1)				
	Husband	Wife	Husband	Wife	Diff (T0-T1)		pval
Marital Controls							
Duration of Marriage	14.81		15.27			-0.46	0.63
	(8.11)		(8.97)				
# of children	1.17		1.16			0.01	0.94
	(0.59)		(0.67)				
Love Marriage	0.44		0.48			-0.04	0.43
	(0.45)		(0.50)				
Family Controls							
Residing in-laws	0.26		0.24			0.02	0.42
	(0.23)		(0.26)				
Family Size	4.38		4.21			0.17	0.25
	(1.30)		(1.44)				
	Individual (T0)		**Discussion (T1)**				
	Husband	Wife	Husband	Wife	Diff (T0-T1)		pval
Demographic Controls							
Age	42.04	35.49	42.82	36.33	H	-0.78	0.41
	(9.36)	(8.75)	(9.81)	(8.67)	W	-0.84	0.33
General Caste | Hindu	0.72	0.71	0.76	0.79	H	-0.04	0.25
	(0.45)	(0.45)	(0.42)	(0.41)	W	-0.08	0.11
Muslim	0.03	0.03	0.03	0.03	H	0	1.00
	(0.16)	(0.16)	(0.16)	(0.16)	W	0	1.00
Christian	0.01	0.01	0.01	0.01	H	0	1.00
	(0.07)	(0.07)	(0.07)	(0.07)	W	0	1.00
Socio-economic controls							
Labor Force Participation	0.95	0.23	0.97	0.25	H	-0.02	0.33
	(0.23)	(0.42)	(0.18)	(0.43)	W	-0.02	0.56
Years of education	12.6	12.31	12.57	12.66	H	0.03	0.91
	(2.65)	(2.56)	(2.71)	(2.65)	W	-0.35	0.17
Sample Size	200	200	200	200			

† This table shows the balance test for basic characteristics between the treatments. The standard deviations are in the parentheses. . Marital and Family controls are defined at the couple level, while Demographic and Socioeconomic controls are defined at the individual level. A t-test has been used to compare the differences between Individual Treatment (T0) and Discussion Treatment (T1). The treatment difference is tested for husbands and wives separately for the individual-level controls. *** p<0.01, ** p<0.05, * p<0.1

additional money for joint payment.[16] Each participant is asked to choose whose *second guess* they would prefer to have implemented for additional joint payment for the couple, following the same payment scale. Each individual makes this delegation decision in private, using the visual aid shown in Figure C3. Only one of their delegation choice is randomly implemented for the couple. This again ensures that incentives are aligned between the spouses as it is in one's best interest to delegate to the spouse who holds the expertise, i.e., is better at incorporating information from both signals. The variation in treatment before *second guess* allows me to explore whether people can respond to (lack of) learning when delegating decision-making power. The complete design of the ball-in-urn task with its various stages is presented in Figure C4 of Appendix C.

Further, beliefs about task performance may influence whose information you wish to incorporate. At the end of the ball-in-urn task i.e., after the delegation decision, I elicited subjective beliefs about the spouse's ability. Individuals were asked who they thought performed better at the *first guess* where the options were "I am better" "almost same" and "spouse is better".

2.5 Gendered Information Domain

In the second part of the experiment, to explore the potential role of expertise and assess whether the lack of information pooling results from a general reluctance to listen to one's spouse - the guess-the-price task. Participants participate in the guess-the-price task after finishing the ball-in-urn task. Specialization in households leads to gendered information domains that are separated between spouses. Specifically, in this task, participants are shown two types of baskets of goods - male-type and female-type. The male-type basket consists of an electric bulb and shaving cream, while the female-type basket consists of one pack of cooking oil and makeup eyeliner.

Participants are asked to submit *two* private guesses about the prices of each basket type. The *first guess* is made without consulting their spouse, thus indicative of one's initial knowl-

[16]Before their draws, guesses, or discussion, they did not know that they would need to make this decision to avoid influencing their guesses. Due to the surprise element in eliciting this choice, my design deviates from the original within-subject design of CMRRS.

edge in the said domain. After the *first guess*, participants can discuss with their spouses for as long as they want. After a discussion with one's spouse, they again privately make their *second guess* about the prices for each basket type. The audio of the discussion is recorded - the transcripts are coded by the field team immediately after the interview. For each type of basket, one of the four guesses is randomly selected for joint payment, which is divided equally between the spouses.[17] By using gendered products, I study how individuals treat their own and their spouse's information, i.e., does one over-correct or under-correct based on expertise?

2.5.1 Assessment of Common Knowledge

To test whether people are aware of differential expertise within the household, individuals are again asked to make a similar delegation decision, where participants decide whose guesses to rely on.[18] Participants are presented with a surprise opportunity to earn additional money as a joint payment for the couple. For each basket type, participants are asked to choose whose *first guess* they would like to be counted for additional joint payment for the couple, following the same payment scale. The *first guess* is one without consultation, thus indicative of one's initial knowledge of the prices. For each basket type, participants make this delegation decision in private using the visual aid shown in Figure C5 of Appendix C. Only one of their delegation choice is randomly implemented for the couple. This again ensures that incentives are aligned between the spouses as it is in one's best interest to delegate to the spouse who holds the expertise as they are better informed in a particular information domain. The complete design of the guess-the-price task with its various stages is presented in Figure C6 of Appendix C.

Further, beliefs about task performance may influence whose information you wish to incorporate. At the end of the guess-the-price task i.e., after the delegation decision, I elicited subjective beliefs about the spouse's ability. Individuals were asked who they thought performed better at the *first guess* where the options were "I am better" "almost same" and "spouse is better". Participants are also asked who is more likely to shop for the specific products used

[17]For each type of basket, the guesses are incentivized such that the couple receives Rs. 150 if the randomly selected guess is within Rs. 30 of the true market value.

[18]This delegation decision was asked only in the second wave of data collection.

in the task.

3 Results

In this section, I present the results of information pooling in two different information aggregation tasks. Section 3.1 presents the results form the ball-in-urn task while Section 3.3 presents the results from the guess-the-price task.

3.1 Ball-in-urn Task: Information Flow

First, I test how individuals pool information with their spouses when neither has an information advantage. To do so, I compare how people weigh the information they gather on their own (Individual Treatment) to the information they gather from their spouses (Discussion Treatment).

By design, each spouse gets five draws before their first guess, ensuring neither has an information advantage. In Individual Treatment, before the *second guess*, each spouse again draws five more balls. In Discussion Treatment, before the *second guess*, spouses discuss each other's *first* set of draws. Thus, both the first and second signals are always about five draws.

Ability Differences: While an information advantage may not exist, one spouse may still be better at processing information, resulting in performance differences. Irrespective of the treatment status, the *first guess* is always after five balls drawn by individuals. Thus, I use performance on the *first guess* as an ability measure. Overall, both husbands and wives perform equally well in the ball-in-urn task. The average expected earnings of the first guess for husbands is Rs. 216.2, which is not different from the average expected earnings of the first guess for wives of Rs. 212.7 (p=0.12). The magnitude of the difference is also negligible. The difference between the husband's and wife's expected earnings of *first guess* is insignificant at each number of draws as seen in Figure 1.

As further evidence of similar performance for husbands and wives, there is no gender difference in one's ability to aggregate signals when looking at performance on *second guess* in

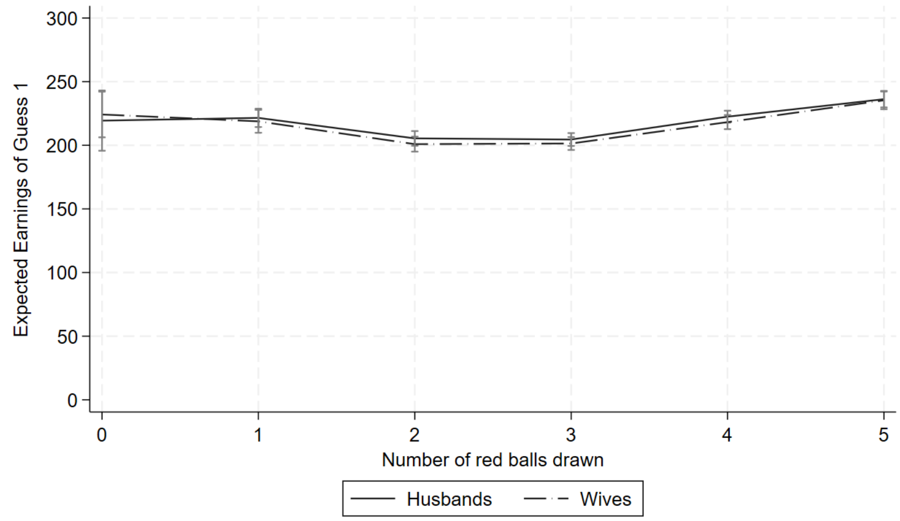


Figure note: This figure plots the expected earnings of the *first guess* for husbands and wives for every possible signal, i.e., the number of red balls drawn in the first set of draws. The expected earnings do not differ between spouses when each drew 0 red balls (p=0.74), one red ball (p=0.63), two red balls (p=0.27), three red balls (p=0.38), four red balls (p=0.25) and five red balls (p=0.84).

Figure 1: Ball-in-urn Task: Expected Earnings of Guess 1 conditional on draws

Individual Treatment, where individuals made their second guess after individually drawing five plus five balls. The average expected earnings of the *second guess* in Individual Treatment for husbands is Rs. 221.3, while for wives, it is Rs.216.9 (p=0.24).[19] Both husbands and wives have similar performances on a comprehension quiz, a math test, and a memory test (see Table A3 in Appendix A). Thus, both spouses also understand the rules of the game equally.

The source of the second signal, i.e., the signal before one makes their second guess, varies between the two treatments. In Individual Treatment, the second signal is the information one gathers privately. In contrast, in Discussion Treatment, the second signal is the information that one potentially gathers from one's spouse. Thus, to test if individuals incorporate information their spouses hold, I compare the weight one puts on their second signal between the two treatments. Following CMRRS, I estimate the following equation at the household level:[20]

[19] Figure A1 of Appendix A plots the average first guesses made by the husbands and the wives, conditional upon draws and the guess that a risk-neutral Bayesian would have made to maximize expected earnings, given the same draws and incentive structure. Both husbands and wives deviate from a Bayesian guess; however, there is no gender difference in how they deviate.

[20] Since by design neither spouse is better informed, my analysis in this section and the next is at the household level, i.e., are households pooling information? For an analysis of gender differences in information pooling, please refer to Section B.2.

$$Guess2_i = \alpha + \beta_1 1stSignal_i + \beta_2 2ndSignal_i + \beta_3 2ndSignal_i XTreat_i + Wave2 + e_i \tag{1}$$

where $Guess2_i$ is individual i's *second guess*. $1stSignal_i$ ($2ndSignal_i$) is the net number of red balls drawn by individual i in their first (second) set of draws. $Treat_i$ is an indicator variable for the Discussion Treatment, thus $2ndSignal_i XTreat_i$ is the net number of red balls drawn by individual i's *spouse* in their first set of draws. β_2 is the weight one puts on their *second* signal when they draw the second five balls themselves, while $\beta_2 + \beta_3$ is the weight one puts on the *second* signal when their spouse communicates *their first* signal. $\beta_3 < 0$ would imply that one underweighs the information from their spouse. $Wave2$ is an indicator variable for data collected in the second wave. The corresponding regression results for households are presented in Table 3.[21]

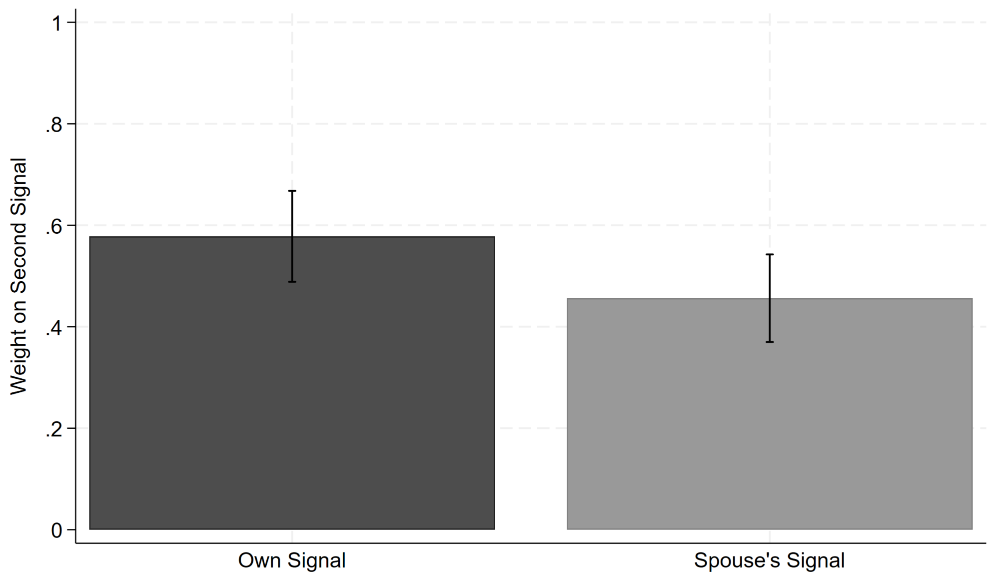


Figure note: This figure plots the average weight on the *second* signal by treatment. Own Signal means the *second* signal is acquired by drawing the second set of balls yourself, i.e., the regression coefficient (β_2) from Column (1) of Table 3. Spouse's Signal means the *second* signal when acquired through a discussion, i.e., the regression coefficient ($\beta_2 + \beta_3$) from Column (1) of Table 3. Overall, the weight individuals put on their own signal is 0.58, while the weight they put on their spouses is 0.45 (p=0.03). The error bars reflect the 95% confidence interval, with standard errors clustered at couple level.

Figure 2: Ball-in-urn Task: Differential Weight on Spouse's Signals

Figure 2 plots the average weight one puts on the *second* signal. The black bars represent the weight they put on their own *own* signal in Individual Treatment (β_2). In contrast, the grey

[21]The regression results for each wave of data collection are presented in Table A4 of Appendix A.

bars represent the weight they put on their spouse's signals ($\beta_2 + \beta_3$) in Discussion Treatment, as estimated from Equation 1. My results show that $\beta_3 < 0$ (p=0.03), i.e., the *additional* weight one puts on their spouse's signal is negative. Individuals put 21.1% less weight on their spouse's information, thus failing to fully account for their spouse's information.[22]

Table 3: Ball-in-urn Task: Weight on Own vs. Spouse's Information

	(1) Guess 2
Signal 1	0.445***
	(0.034)
Signal 2	0.578***
	(0.045)
Signal 2 X Discussion	-0.122**
	(0.058)
Wave2	0.013
	(0.214)
Observations	800
R-squared	0.525
$\beta_2 + \beta_3 = \beta_3$	0.03

† This table shows the OLS estimates of Equation 1, pooled across couples and separately for husbands and wives. The dependent variable is a participant's second individual guess. Signal 1 is the net number of red balls (i.e., red minus white) balls drawn in the first set of draws. Signal 2 is the net number of red balls (i.e., red minus white) balls drawn in the second set of draws. "Discussion" is the treatment indicator that equals one for the second individual guess when the participant's spouse drew Signal 2 and then (potentially) communicated to her through discussion. Wave2 is an indicator for data collected in the second wave of data collection. The standard errors are in the parentheses and are clustered at the couple level. The lower panel reports the p-values for test of the linear combination of coefficients. *** p<0.01, ** p<0.05, * p<0.1

3.2 Ball-in-urn Task: Common Knowledge of Information Advantage

3.2.1 Perceived Ability Differences

At the end of the task, individuals were asked who they thought performed better at the *first guess* where the options were "I am better" "almost same" and "spouse is better". Beliefs about *first guess* may affect whose information you incorporate before making your *second guess* and thereby one's delegation decisions.[23] Pooling across treatments, only 27.5 percent of the house-

[22] The results are robust to including household and individual level controls. The regression results for the same are presented in Table A5 of Appendix A.

[23] By design, the *first guess* is the same across both treatments as it is based on one's own five draws. Thus, beliefs about this guess give me the uncontaminated effect of perceived ability differences.

holds believed their spouse to be better at the *first guess*.[24] In Table A6 in Appendix A, I show that the rate at which one disregards their spouse's information does not vary by these beliefs or initial ability on the *first guess*.

3.2.2 Delegation Decisions

Participants are given a surprise opportunity to delegate decision-making power after the *second guess* to assess if it is common knowledge which spouse is better at processing information from both signals. Each participant is asked to choose whose *second guess* they would prefer to have implemented for additional joint payment for the couple. The treatment variation before *second guess* allows me to explore if couples respond to a lack of learning among themselves when deciding how to delegate decision-making power.

I examine if individuals correctly delegate decisions within the household. Since delegation is based on *second guess*, I use the performance on *second guess* to categorize delegation decisions as correct or incorrect ones. If the expected earnings for the second guess were the same between spouses, neither spouse is better; thus, delegating to either would be a correct decision. When expected earnings are not the same between spouses, the spouse with higher expected earnings is better; thus, the decision should be delegated to them. Figure 3 plots the likelihood of choosing the incorrect spouse in each treatment. In Individual Treatment, the rate of mistake is 48 percent. This is almost as good as a random coin flip (p=0.37), indicating that it is indeed hard to assess expertise when you do not have a scope to communicate. However, even with the help of a discussion, there is only a marginal improvement with the rate of mistakes falling to 41.5 percent in Discussion Treatment (48% vs. 41.5%, p=0.07).[25]

3.3 Guess-the-price Task: Information Flow

Till now, I have shown that when neither spouse has better information by design, there is imperfect information pooling, and there is a lack of common knowledge about expertise. In

[24] There is no treatment difference for beliefs about the *first guess* either.
[25] There is no gender difference in the rate of making a mistake in either treatment.

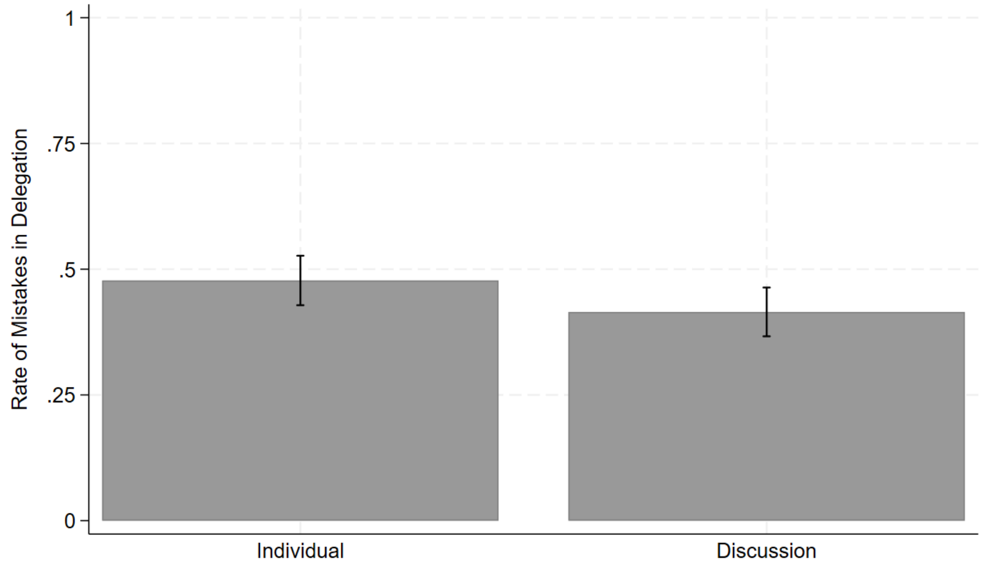


Figure note: This figure plots the average likelihood of delegating to a spouse whose expected earnings in the *second guess* were lower by treatment. The rate of mistakes in Individual Treatment is 48% while in Discussion Treatment, it decreases to 41.5% (p=0.07). The error bars reflect the 95% confidence interval.

Figure 3: Ball-in-urn Task: Likelihood of Delegating to Wrong Spouse

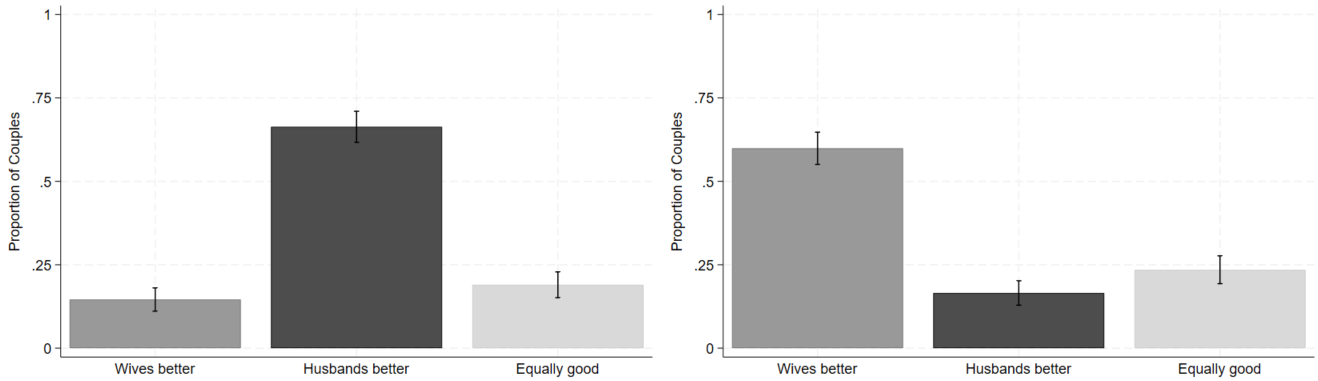
this section, I present the results of the second task—the guess-the-price task, in which one spouse has an information advantage.

Ability Differences: If an individual made similar guesses as their spouse, i.e., within Rs. 10 of each other, then neither spouse can be deemed better at the task. If the individuals didn't make similar guesses, one spouse is categorized as "better". The spouse whose deviation from the true price is lower is thereby better at the guess-the-price task.[26] Figure 4 plots the proportion of *first guess* by performance and product type. Indeed, consistent with the spouse's shopping behavior, spouses perform better on the *first guess* in their gender-congruent domain.[27] Thus, an initial performance advantage exists where husbands perform better for male-type products while wives perform better for female-type products.

If information pooling is successful, then spouses should effectively transmit their knowledge during the discussion. Figure 3 reports the performance on second guess, which shows that the initial performance advantage disappears after the discussion. As seen in Figure 5,

[26]Rs. 10 was decided to account for price volatility and discounts across different stores and locations. The results are robust to adjusting the "similarity" window to Rs. 5.

[27]Note this characterization is based on *first guess* as that's the guess that happens without any consultation with one's spouse.



(a) Male-type Products: Performance on Guess 1

(b) Female-type Products: Performance on Guess 1

Figure note: This figure plots the proportion of *first guesses* by performance and product type. Equal performance is when the husband and wife's *first guesses* are within Rs. 10 of each other. Thus, neither can be characterized as being better. If their *first guesses* are not within this close interval of each other, someone is better *before* a discussion. An individual is said to be better if their *first guesses* is closer to the true price, i.e., the absolute distance between their *first guesses* and true price is lower than their spouse's distance. The error bars reflect the 95% confidence interval.

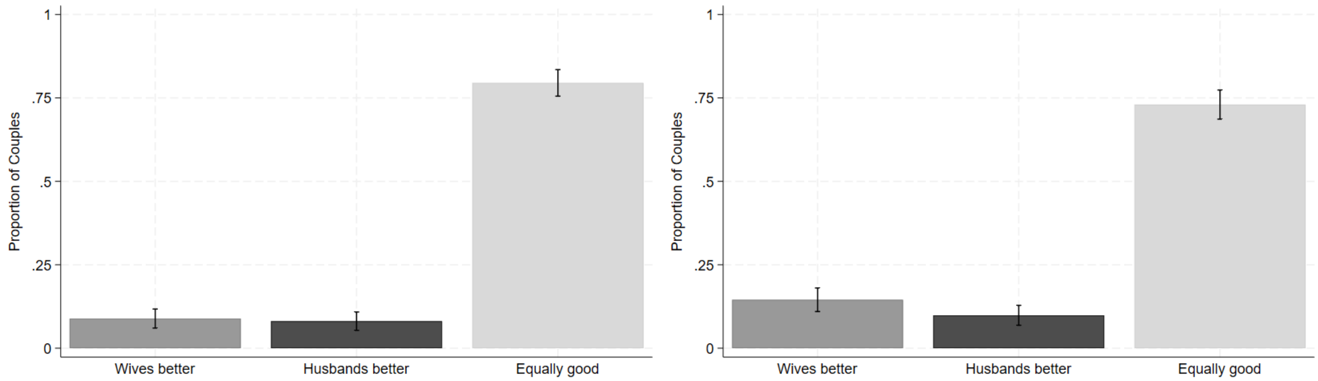
Figure 4: Guess-the-price Task: Initial Gendered Performance Advantage before Discussion

the proportion of couples making similar *second guess* is 64.75 percent for male-type products and 73 percent for female-type products.[28] Thus, after a discussion, the proportion of spouses emerging as better in the guess-the-price task is negligible and significantly lower than the same proportions before a discussion. The initial information advantage (based on *first guess*) disappears for *second guess* after a discussion. Husbands become as good as wives in pricing female-type products, and wives become as good as husbands in pricing male-type products. This shows that the degree of information pooling is high enough that the initially lesser informed spouse becomes as good as the spouse who started out being better informed.

Additionally, after a discussion, both spouses also see an improvement in their performance - the distance between their *second guess* and the true price shrinks, as seen in Figure 6. This gain in efficiency is mainly due to an increase in the proportion of making similar guesses.

So, how was the information pooled between spouses such that both become equally good at the end of a discussion? I test if individuals incorporate information held by their spouses and if the degree of information pooling varies by the product type by examining the weight one puts on own and spouse's information. To do so, I estimate the following equation:

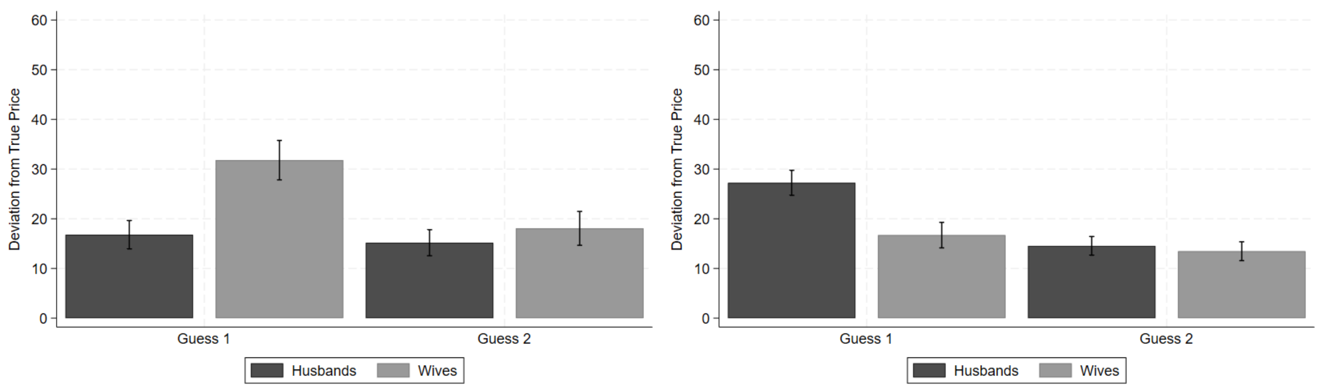
[28] Equal performance is when the husband's and wife's *second guesses* are within Rs. 10 of each other. If their *second guesses* are not within this close interval of each other, i.e., if $Guess_W - Guess_H > Rs.10$, someone is better even *after* a discussion. An individual is said to be better if their *second guess* is closer to the true price, i.e., the absolute distance between their *second guess* and true price is lower than their spouse's absolute distance.



(a) Male-type Products: Performance on Guess 2 *(b) Female-type Products: Performance on Guess 2*

Figure note: This figure plots the proportion of *second guesses* by performance and product type. Equal performance is when the husband and wife's *second guesses* are within Rs. 10 of each other. Thus, neither can be characterized as being better. If their *second guesses* are not within this close interval of each other, someone is better *after* a discussion. An individual is said to be better if their *second guesses* is closer to the true price, i.e., the absolute distance between their *second guesses* and true price is lower than their spouse's distance. The error bars reflect the 95% confidence interval.

Figure 5: Guess-the-price Task: No Gendered Performance Advantage after Discussion



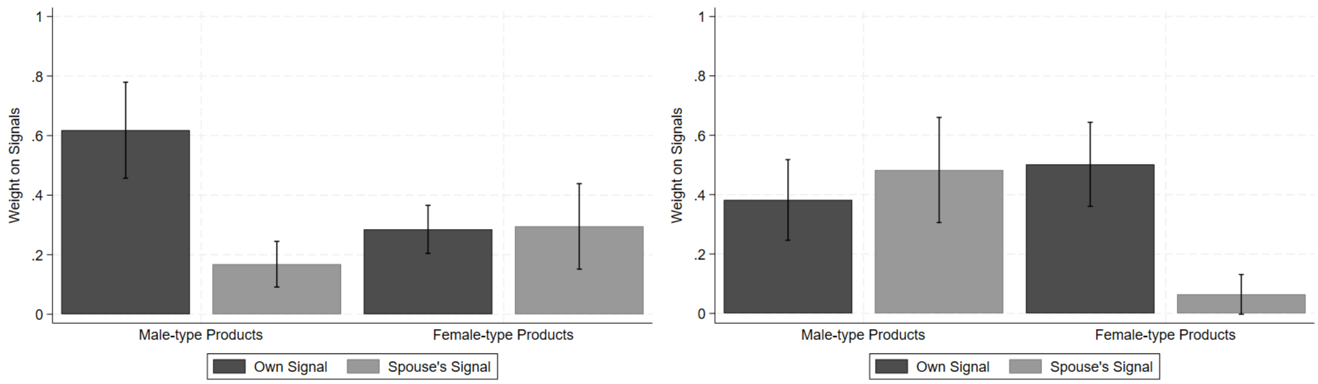
(a) Male-type Products *(b) Female-type Products*

Figure note: This figure plots the deviation between one's *second guess* and the true price by spouse and product type. Before any consultation with their spouse, for male-type products, a wife's *second guess* is further away from the true price than that of their husbands (p<0.01). For female-type products, a husband's *second guess* is further away from the true price than that of their wives (p<0.01). However, after discussing with their spouses, both individuals move closer to the objective truth. The deviation between *second guess* and the true price is not significantly different between husbands and wives for male-type products (p=0.18) or female-type products (p=0.42). The error bars reflect the 95% confidence interval.

Figure 6: Guess-the-price Task: Movement to Objective Truth

$$Guess2_{i,k} = \alpha + \beta_1 OwnSignal_{i,k} + \beta_2 Spouse'sSignal_{i,k} + Wave2 + e_{ik} \quad (2)$$

where individual i is either the husband or wife. $Guess2_i$ is individual i's *second guess* for product type k, where $k \in \{$ Male, Female$\}$. $OwnSignal_{i,k}$ is individual i's *first guess* for product type k while $Spouse'sSignal_{i,k}$ is individual i's spouses's *first guess* for product type k, that individual i potentially learnt about during the discussion. $Wave2$ is an indicator variable for data collected in the second wave.



(a) Husbands *(b) Wives*

Figure note: This figure plots the average weight husbands and wives put on their own signal and their spouse's signal for each product type from Table 4. Own signal is the regression coefficient (β_1) for an individual's own *first guess*, i.e., their initial knowledge of the prices without any consultation between the couples. The spouse's signal is the regression coefficient (β_2) for their spouse's *first guess*, i.e., their spouse's initial knowledge of the prices without any consultation between the couples. The error bars reflect the 95% confidence interval, with standard errors clustered at couple level.

Figure 7: Guess-the-price Task: Differential Weight on Other's Signals

Figure 7 thus plots the average weight one puts on their own signal (β_1) and their spouse's signal (β_2) estimated from Equation 2. Husbands put less weight on their wives for male-type products (p<0.01) but put similar weight on their wives for female-type products, i.e., do not disregard their spouse (p=0.91). Similarly, the wives put less weight on their husbands for female-type products (p<0.01) but put similar weight on their husbands for the male-type products, i.e., they do not disregard their spouse (p=0.42). Thus, I find no evidence of asymmetric learning by spouses in their gender-incongruent domain, as husbands and wives treat information equally when it is in the gender-incongruent domain. This is incredibly important, as this suggests that from a policy perspective, information campaigns in gendered domains should be targeted to the spouse holding an information advantage. The corresponding regression results for husbands and wives are presented in Table 4.[29,30]

[29]The results are robust to the inclusion of individual and household level controls, presented in Table A7 of Appendix A.

[30]The results for each wave of data collection are the same and presented in Table A8 and Table A9 of Appendix A.

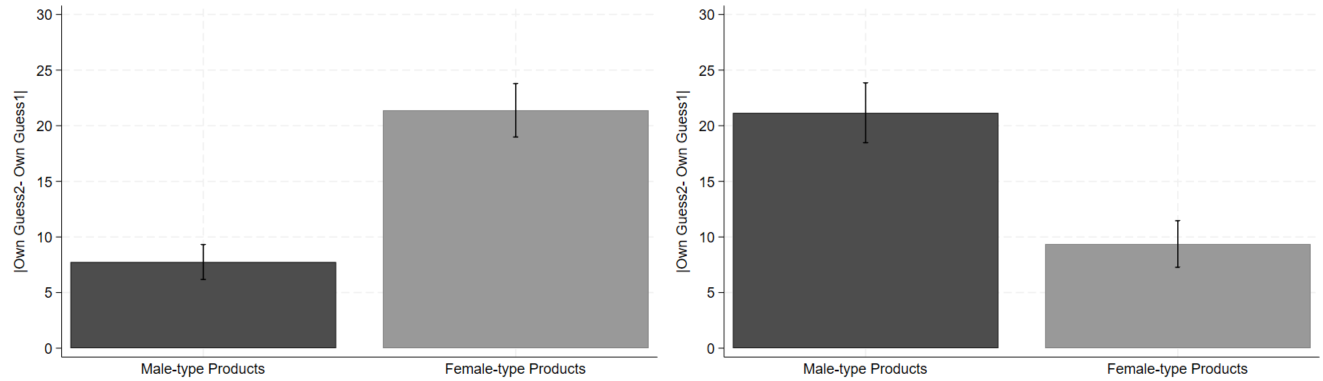
Table 4: Guess-the-price Task: Weight on Own vs Spouse's Information

	(1)	(2)	(3)	(4)
	Husband's Guess 2		Wife's Guess 2	
Own Signal	0.618***	0.285***	0.382***	0.502***
	(0.082)	(0.041)	(0.069)	(0.072)
Spouse's Signal	0.168***	0.295***	0.483***	0.064*
	(0.039)	(0.073)	(0.090)	(0.034)
Wave2	-1.614	-3.339	-5.367**	-0.185
	(1.729)	(2.453)	(2.730)	(2.259)
Observations	400	400	400	400
R-squared	0.722	0.418	0.633	0.478
Product Type	Male	Female	Male	Female
$\beta_{1,H} = \beta_{2,H}$	0.00	0.91		
$\beta_{1,W} = \beta_{2,W}$			0.42	0.00

† This table shows the OLS estimates of Equation 2, separately for husbands and wives, by product type. The dependent variable is a participant's second individual guess. Own signal is the first guess made by an individual. The spouse's signal is the first guess made by their spouse, thus potentially communicated during the discussion. The standard errors are in the parentheses and are clustered at the couple level. The lower panel reports the p-values for test of the linear combination of coefficients. *** p<0.01, ** p<0.05, * p<0.1

3.3.1 Belief Updating

If individuals learn from their spouses when it's their gender-incongruent domain, their price guesses in those domains would be less sticky as they adjust towards their spouse's guesses after a discussion. Figure 8 presents the results for such belief updating by comparing a spouse's absolute deviation between their first and second guess for a particular product type. The guesses made by husbands are stickier for the male-type products than female-type products (p<0.01). Similarly, the wife's guesses are stickier for the female-type products than male-type products(p<0.01). Thus, individuals are willing to adjust and learn from their spouse when it's in their own gender-incongruent domain.



(a) Price Adjustment by Husbands

(b) Price Adjustment by Wives

Figure note: This figure plots the absolute difference between one's *second guess* and *first guess*, i.e., the amount one changes or updates their price guesses after a discussion with their spouse. For husbands, the adjustment for male-type products is Rs. 7.75, whereas for female-type products, it is Rs. 21.39 (p<0.01). For wives, the adjustment for male-type products is Rs. 21.16, whereas for female-type products, it is Rs. 9.37 (p<0.01). The error bars reflect the 95% confidence interval.

Figure 8: Guess-the-price Task: Price Adjustment by Product Type

3.4 Guess-the-price task: Common Knowledge of Information Advantage

Given the initial information advantage in product types due to specialization, the important question is whether couples are aware of it. This is crucial as you are more likely to listen and incorporate someone else's information when you know they are better informed. Further, someone with better information will be inclined to talk and share their information when they know that you know that they are better and hence will listen to them.

3.4.1 Differences in Shopping

While gendered roles may exist within the household, shopping or pricing products *in general* is not one of them for my sample. When asked about general shopping habits, 82 percent of the sample said that both divided responsibilities for household purchases. Instead, when asked about the likelihood of shopping for the specific products used in the experiment, the responses indicate specialization within the household. 75 percent of husbands and 69 percent of wives say that the husbands shop more frequently for male-type products, while 65 percent of husbands and 71 percent of wives say that the wives shop more regularly for female-type products.[31] This shows that due to specialization and division of labor within the household, there

[31] These questions on shopping for specific products were only asked in the second wave of data collection. Thus, the reported proportions correspond to the sample size of 560 couples.

is a reason for individuals to believe that their spouse does (or does not) have an information advantage, depending on the product type.

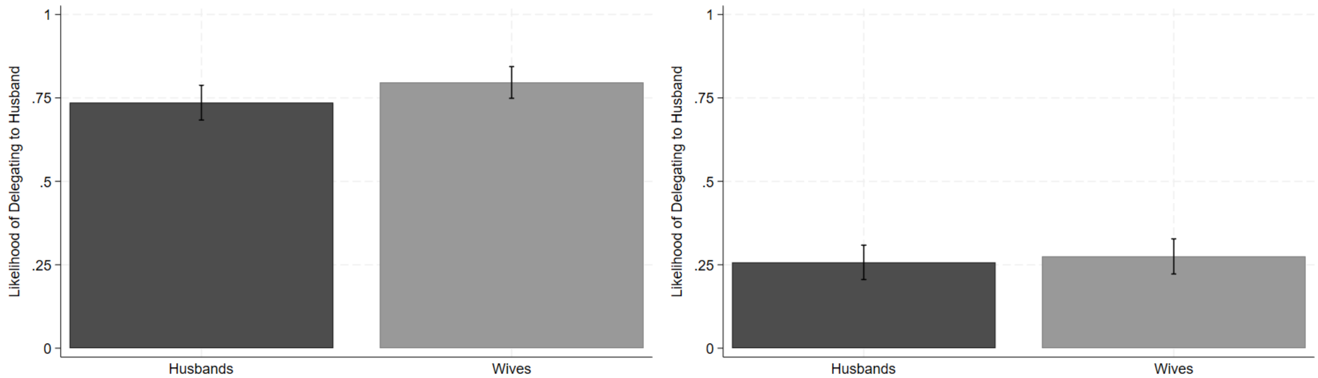
3.4.2 Perceived Ability Differences

Similiar to the ball-in-urn task, subjective beliefs about the spouse's ability on the guess-the-price task were elicited at the end of the guess-the-price task. Individuals were asked who they thought performed better on the *first guess* for each of the product types, where the options were "I am better ", "Almost same" and "Spouse is better". Beliefs about *first* guess may affect whose information you incorporate in order to make a better informed *second guess* and thereby one's delegation decision. Indeed, 77.75 percent (79.50 percent) of the husbands feel that they (their spouses) are strictly better at *first guess* for male-type (female-type) products. Similarly, 81 percent (73.25 percent) of the wives feel that they (their spouses) are strictly better at *first guess* for female-type (male-type) products.

3.4.3 Delegation Decisions

To test if gendered information advantage is common knowledge, participants are asked to choose whose *first guess* they would prefer to have implemented for additional joint payment for the couple. They make this choice for each product type. The *first guess* is one without consultation, thus indicative of one's initial knowledge of the prices. As seen in Figure 9, for male-type products, both husband and wife favor the husband's knowledge, while for female-type products, both husband and wife's knowledge. Thus, delegation decisions indicate that individuals are aware of the gendered information advantage caused by specialization within households.

Finally, I examine if individuals correctly delegate decisions within the household. Since delegation was based on *first guess*, I use the performance on *first guess* to categorize delegation decisions as correct or incorrect ones. For each product type, if the first guess made by husbands and wives are similar (i.e., within Rs. 10 of each other), then neither spouse is better; thus, delegating to either for that product type would be the correct decision. When the first



(a) Male-type Products *(b) Female-type Products*

Figure note: This figure plots the likelihood of delegating to husbands based on *first guess* by individuals for each of the two product types. Both spouses are more likely to delegate to husbands for male-type products, wives slightly more (73.5% vs 79.6%, p=0.09). Relatedly, both spouses are less likely to delegate to their husbands for female-type products (74.3% vs 78.5% p=0.6). The error bars reflect the 95% confidence interval.

Figure 9: Guess-the-price Task: Likelihood of Delegation to Husbands across Gendered Domains

guess made by husbands and wives are not similar (i.e., not within Rs. 10 of each other), then the spouse whose first guess is closer to the true price is better, and thus, the decision should be delegated to them. Figure 10 plots the likelihood of choosing the incorrect spouse for each product type. For any product type, a benchmark corresponding to a random coin flip would be mistakes at the rate of 50 percent. For male-type products, the rate of mistake is 23.2 percent, while for female-type products, the rate of mistake is 25.3 percent (p=0.43).[32] Thus, the rate of mistakes in such a gendered information domain is about half of the rate of mistakes in the gender-neutral information domain. Thus, households are far more likely to delegate to the better-informed spouse when it is common knowledge that they have an information advantage.

In the second wave of the data collection, at the end of the survey, individuals were asked to rank on a scale of 1-5 how much they used the information they learned from their spouse during the discussion for each product type.[33] For the male-type products, husbands (correctly) realize they did not use their spouse's information, while the wives (correctly) realize they did use their spouse's information (Fisher's exact (p<0.01). Similarly, for the female-type

[32]These delegation decisions were only elicited in the second wave of data collection. Thus, the reported proportions correspond to the sample size of 560 couples.

[33]The question was framed as follows: "Today, before your second guess in the guess-the-price task, you were able to learn about the prices of two product baskets from your spouse. On a scale of 1-5, how good do you think you were at using that information? 1 means not good at all, and 5 means very good

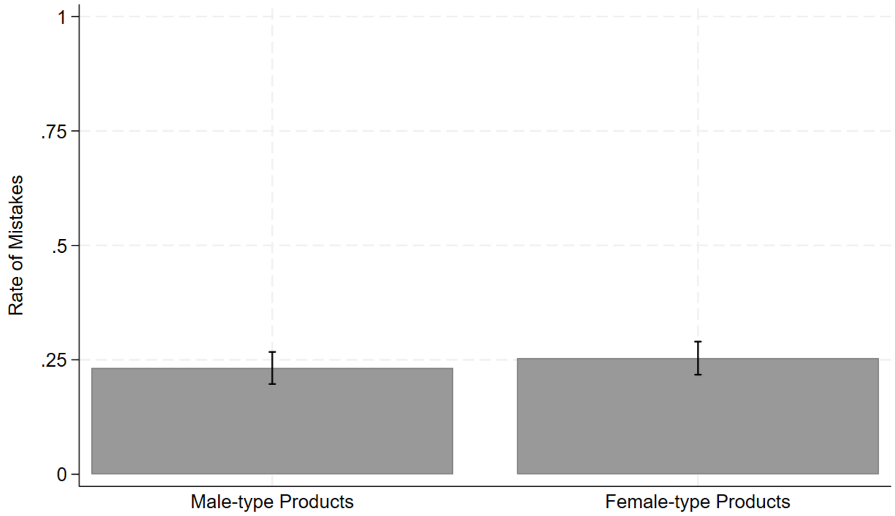


Figure note: This figure plots the average likelihood of delegating to a spouse whose *first guess* was further away from the true price. The rate of mistakes for male-type products is 23.2%, while for female-type products, it is 25.3% (p=0.43). The error bars reflect the 95% confidence interval.

Figure 10: Guess-the-price Task: Likelihood of Delegating to Wrong Spouse

products, wives (correctly) realize they did not use their spouse's information, while the husbands (correctly) realize they did use their spouse's information (Fisher's exact (p<0.01). Thus, both spouses are aware of when they did and did not incorporate their spouse's information.

4 Communication Differences

Till now, the results show that households (do not) learn from the information held by their spouses in the (absence) presence of expertise. Mutual recognition of the expertise can facilitate communication both in terms of speaking and listening. Speaking about your independent information is rewarded if your spouse will listen, and listening is rewarded if expertise and communication are anticipated. I use the transcripts of the discussion in both tasks to evaluate communication effectiveness with or without common knowledge of expertise. The discussions before one's *second guess* were recorded for both tasks. I use those transcripts to construct a few measures of talking better. Namely (i) length of a discussion, (ii) asking for information, (iii) sharing information, (iv) suggesting the upcoming second guess, and (v) vocalizing about their or their spouse's information advantage.[34] In Table 5, I present the average characteristics of the discussions in both tasks at the household level. For each characteristic, I compare the proportion of couples between the two tasks. While the averages in Table 5, are for the full sample, for the statistical comparison I focus on the subset of households in Discussion Treatment of the ball-in-urn task (N=200).

Table 5: Comparing Discussion in Ball-in-urn Task and Guess-the-price Task

	Ball-in-urn Task	Guess-the-price Task
Duration	2.2 minutes	5.6 minutes
Ask for Information	0.22	0.51
Information shared	0.76	0.96
Suggest Guess 2	0.59	0.97
Claim they are correct	0.26	0.59
Observations	200	400

† This table shows the average characteristics of the discussion between the couples before they made their second individual guess in each task. The characteristics are at the couple level, thus it averages over both product types for the guess-the-price task. All variables except duration are binary variables, thereby indicating the proportion of couples.

Duration: This is the length of each discussion recorded in minutes. The first notable difference between tasks is the duration of discussions - discussions in the guess-the-price task last longer, indicating greater deliberation among couples (5.4 minutes vs. 2.2 minutes, $p<0.01$).

Ask for Information: Since the discussion takes place before the *second guess*, couples can use the opportunity to ask for information from their spouse. For the ball-in-urn task, it is defined as a binary variable if at least one household member asks for their spouse's draws (signals) or their spouse's *first guess* or both. The analogy for the guess-the-price task is if at least one household member asks for their spouse's first guess for either of the two product types. Households are more likely to ask for information for the guess-the-price task (0.53 vs. 0.22, $p<0.01$).

Information Shared: For the ball-in-urn task, the sharing of information is defined as a

[34]These variables are constructed with the help of a separate questionnaire, which the enumerators fill out during the discussion itself. The conversations were recorded; thus, the same enumerator ensured data quality by double-checking this data entry at the end of each interview.

binary variable if at least one household member talks about their draws and guesses. The analog of the guess-the-price task is that at least one household member talks about their own first guess for either of the two product types. Households are more likely to share information for the guess-the-price task (0.95 vs. 0.76, p<0.01).

Suggesting Guess 2: For the ball-in-urn task, this is a binary variable if at least one household member suggests the next guess they should make after the discussion. The analog of the guess-the-price task is that at least one household member suggests the next guess for either of the two types of products. Households are more likely to deliberate about the *second guess* for the guess-the-price task (0.96 vs. 0.59, p<0.01).

Claim they are correct: For the ball-in-urn task, this is a binary variable if at least one household member suggests the next guess they should make after the discussion. The analog of the guess-the-price task is that at least one household member suggests the next guess for either of the two types of products. Households are more likely to say that their guesses are accurate or that they know more about the information in the guess-the-price task (0.59 vs. 0.26, p<0.01).

Overall, the evidence in this section shows that when there is common knowledge of the advantages of differential information, households identify that speaking and listening are valuable and thereby engage in the discussion better. That is, there are efforts to improve the second guess, which must be made after a discussion. In doing so, I present further evidence that the (lack of) common knowledge of an information advantage is an underlying mechanism for (unsuccessful) successful information pooling in the (ball-in-urn) guess-the-price task. In Section B.1 of the appendix, I present the same characteristics separated by gender. I add comparisons on who speaks longer, who speaks first and last, who is more likely to correct the other, who is more likely to suggest they are correct, and how likely they are to say they are unsure about their guesses. Consistent with awareness of one's information advantage in the guess-the-price task, participants are more likely to indicate that their guesses are more accurate in the gender-congruent domain than in the gender-incongruent domain.

5 Conclusion

Household members rely on information to make good decisions. Spouses often have access to private information from different sources, such as personal experiences and recommendations from friends and family. Standard economic models of household decision-making assume that all new information is shared among household members. While failure to pool information may be seen as a reluctance to listen to one's spouse, I explore if there are circumstances when information pooling is successful within the household. Using a lab-in-field experiment in Kolkata, India, I examine information pooling across two information domains: (i) a gender-neutral domain wherein the information advantage is absent - neither spouse is better informed, and (ii) a gendered domain wherein the information advantage is present - each spouse is better informed in their gender-congruent domain.

My findings in the gender-neutral information domain show that compared to having received their own signal, the spouse's signal is less accounted for, with the weight being 21.1% (p=0.03) lower in the discussion treatment. Thus, households fail to incorporate the information held by their spouses. To assess if it is common knowledge which spouse has the expertise in the task, individuals make an incentivized delegation decision where participants decide which spouse's guess to rely on. Households delegate incorrectly almost 48% of the time, failing to delegate to the person better at aggregating the information. However, even with a chance to discuss with one's spouse, there is only a minor improvement - the likelihood of incorrect delegation decisions falls to 41.5%. This suggests that information pooling is unsuccessful when spouses are not known to be better at the task.

My results in the gendered information domain show that, indeed, an information advantage congruent with one's gender and consistent with specialization patterns in the household exists. Contrary to the ball-in-urn task, both spouses pool information successfully, such that after a discussion, individuals become as good as their better-informed spouse. Information pooling is successful in the presence of an information advantage because spouses have common knowledge of it. When given a choice to delegate decision-making power, households do so successfully 77% of the time - the likelihood of incorrect delegation decisions is about half of the one in the ball-in-urn task.

Information pooling is a two-way street. While listening to other's information is one aspect of effective communication, talking about one's information is equally important. I find that households engage better and have more substantive discussions with their spouses when there is a mutual recognition of expertise. They talk longer and exchange more information; the less-informed spouse seeks information from the better-informed one.

My findings show that failed information pooling in the household does not result from a general reluctance to learn from your spouse, but rather that communication is challenging in a domain where there is no clear expertise. Common knowledge of information advantage facilitates effective communication. However, if this common knowledge is absent, it may impede information pooling within households.

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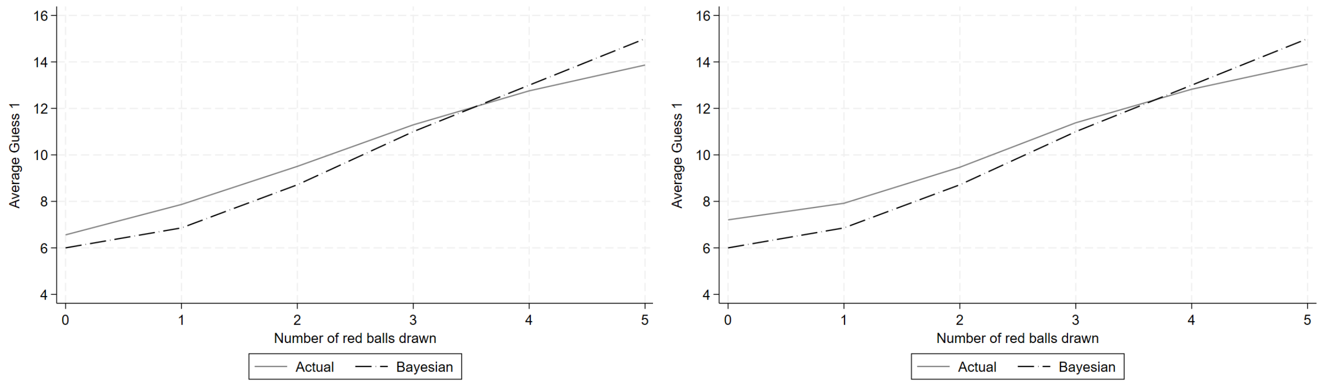
A Appendix: Additional Tables for Main Results



(a) Guesses by Husbands

(b) Guesses by Wives

Figure note: This figure plots the average first guess made by the husbands and wives, conditional upon the draws in their first draws of five balls. The dotted lines plots the guess that an expected earnings maximizing Bayesian would have guessed given the same draws.

Figure A1: Ball-in-Urn Task: Average Guess 1

Table A1: Balance Table- Wave 1

	Individual		**Discussion**			
	Husband	Wife	Husband	Wife	Diff (T0-T1)	pval
Marital Controls						
Duration of Marriage	14.47		16.32		-1.85	0.19
	(7.52)		(7.96)			
# of children	1.23		1.22		0.01	0.89
	(0.67)		(0.69)			
Love Marriage	0.35		0.5		-0.15	0.09*
	(0.48)		(0.50)			
Family Controls						
Residing in-laws	0.22		0.22		0	1.00
	(0.25)		(0.27)			
Family Size	4.25		4.12		0.13	0.76
	(1.61)		(1.38)			

	Individual (T0)		**Discussion (T1)**				
	Husband	Wife	Husband	Wife	Diff (T0-T1)		pval
Demographic Controls							
Age	42.04	35.88	45.47	38.1	H	-3.43	0.06*
	(8.53)	(7.70)	(8.51)	(7.22)	W	-2.22	0.11
General Caste | Hindu	0.78	0.77	0.78	0.80	H	0	1.00
	(0.42)	(0.43)	(0.42)	(0.40)	W	-0.03	0.67
Muslim	0.00	0.02	0.00	0.02	H	0	0.32
	(0.00)	(0.13)	(0.00)	(0.13)	W	0	0.32
Christian	0.00	0.02	0.00	0.02	H	0	0.32
	(0.00)	(0.13)	(0.00)	(0.13)	W	0	0.32
Socio-economic controls							
Labor Force Participation	0.92	0.23	0.92	0.25	H	0	1.00
	(0.28)	(0.43)	(0.28)	(0.44)	W	-0.02	0.83
Years of education	13.27	12.5	12.58	12.95	H	0.69	0.20
	(2.56)	(2.75)	(2.16)	(2.85)	W	-0.45	0.38
Sample Size	60	60	60	60			

† This table shows the balance test for basic characteristics between Individual Treatment (T0) and Discussion Treatment (T1) in Wave 1 of data collection. The standard deviations are in the parentheses. Marital and Family controls are defined at the couple level, while Demographic and Socioeconomic controls are defined at the individual level. A t-test has been used to compare the differences between treatments. The treatment difference is tested for husbands and wives separately for the individual-level controls. *** p<0.01, ** p<0.05, * p<0.1

Table A2: Balance Table- Wave 2

	Individual		Discussion				
	Husband	Wife	Husband	Wife	Diff (T0-T1)		pval
Marital Controls							
Duration of Marriage	14.86		14.81		0.05		0.97
	(9.37)		(9.36)				
# of children	1.11		1.14		-0.03		0.65
	(0.63)		(0.66)				
Love Marriage	0.47		0.47		0		1.00
	(0.50)		(0.50)				
Family Controls							
Residing in-laws	0.28		0.25		0.03		0.4
	(0.25)		(0.25)				
Family Size	4.35		4.22		0.13		0.47
	(1.45)		(1.47)				
	Individual (T0)		**Discussion (T1)**				
	Husband	Wife	Husband	Wife	Diff (T0-T1)		pval
Demographic Controls							
Age	41.81	35.32	41.69	35.58	H	0.12	0.92
	(9.71)	(9.18)	(10.14)	(9.13)	W	-0.26	0.81
General Caste | Hindu	0.69	0.69	0.76	0.77	H	-0.07	0.18
	(0.47)	(0.46)	(0.43)	(0.42)	W	-0.08	0.18
Muslim	0.03	0.03	0.03	0.03	H	0	0.74
	(0.19)	(0.19)	(0.17)	(0.17)	W	0.00	0.74
Christian	0.00	0.007	0.00	0.007	H	0	0.32
	(0.00)	(0.08)	(0.00)	(0.08)	W	0	0.32
Socio-economic controls							
Labor Force Participation	0.96	0.22	0.99	0.25	H	-0.03	0.15
	(0.20)	(0.42)	(0.12)	(0.43)	W	-0.03	0.58
Years of education	12.31	12.56	12.23	12.53	H	0.08	0.42
	(2.64)	(2.49)	(2.50)	(2.56)	W	0.03	0.32
Sample Size	140	140	140	140			

† This table shows the balance test for basic characteristics between Individual Treatment (T0) and Discussion Treatment (T1) in Wave 2 of data collection. The standard deviations are in the parentheses. Marital and Family controls are defined at the couple level, while Demographic and Socioeconomic controls are defined at the individual level. A t-test has been used to compare the differences between treatments. The treatment difference is tested for husbands and wives separately for the individual-level controls. *** p<0.01, ** p<0.05, * p<0.1

Table A3: Comprehension, Memory and Math

	Individual		**Discussion**	
	Husband	Wife	Husband	Wife
Comprehension				
Who chooses the number of red balls?	0.97	0.99	0.96	0.98
Will you have the same bucket as your spouse?	1.00	0.99	0.99	0.99
Who knows number of red balls?	0.98	0.99	0.97	0.98
Which guess is paid?	0.97	0.97	0.98	0.98
Payment Calculation	0.99	0.98	0.97	0.94
Memory				
Correctly remembered own # red in first draw	0.55	0.62	0.70	0.73
Correctly remembered own Guess 1	0.69	0.71	0.71	0.70
Math Skills				
What is 32+16?	0.96	0.96	0.99	0.96
What is 3 X 9?	0.99	0.98	0.97	0.98
What is 44 / 11?	0.98	0.98	0.98	0.97
What is 17-9?	0.96	0.95	0.97	0.98
Observations	200	200	200	200

† This table shows summary statistics of participants' comprehension of the task, their memory of previous draws and guesses, and math skills, broken by gender and treatment.

Table A4: Ball-in-Urn Task- Weight on Own vs. Spouse's Information- Wave 1 and 2

	(1) Guess 2	(2) Guess 2
Signal 1	0.405***	0.459***
	(0.065)	(0.040)
Signal 2	0.620***	0.563***
	(0.075)	(0.057)
Signal 2 X Discussion	-0.149	-0.110
	(0.113)	(0.070)
Observations	240	560
R-squared	0.520	0.527
Data Collection	First Wave	Second Wave

† This table shows the OLS estimates of Equation 1, separately for Wave 1 and Wave 2 of data collection. The dependent variable is a participant's second individual guess. Signal 1 is the net number of red balls (i.e., red minus white) balls drawn in the first set of draws. Signal 2 is the net number of red balls (i.e., red minus white) balls drawn in the second set of draws. "Discussion" is the treatment indicator that equals one for the second individual guess when the participant's spouse drew Signal 2 and then (potentially) communicated to her through discussion. The standard errors are in the parentheses and are clustered at the couple level. *** p<0.01, ** p<0.05, * p<0.1

Table A5: Ball-in-Urn Task- Weight on Own vs. Spouse's Information- With Individual and Household Level Controls

	(1) Guess 2	(2) Guess 2	(3) Guess 2	(4) Guess 2	(5) Guess 2
Signal 1	0.445***	0.445***	0.441***	0.442***	0.442***
	(0.034)	(0.033)	(0.033)	(0.034)	(0.034)
Signal 2	0.578***	0.579***	0.583***	0.583***	0.582***
	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)
Signal 2 X Discussion	-0.122**	-0.123**	-0.128**	-0.131**	-0.131**
	(0.058)	(0.058)	(0.057)	(0.058)	(0.058)
Wave2	0.013	0.020	0.038	0.054	0.051
	(0.214)	(0.215)	(0.217)	(0.216)	(0.215)
Observations	800	800	800	800	798
R-squared	0.525	0.525	0.530	0.530	0.531
Demographic Controls	Yes	Yes	Yes	Yes	Yes
Education-Work Controls	No	No	Yes	Yes	Yes
Marital Controls	No	No	No	Yes	Yes
Family Controls	No	No	No	No	Yes

† This table shows the OLS estimates of Equation 1 with individual and household level controls. Demographic controls include age and general caste category indicator. Education-work controls include years of education and indicator for labor force participation. Marital controls include the duration of the marriage and the number of children, while Family controls include household size. The dependent variable is a participant's second individual guess. Signal 1 is the net number of red balls (i.e., red minus white) balls drawn in the first set of draws. Signal 2 is the net number of red balls (i.e., red minus white) balls drawn in the second set of draws. "Discussion" is the treatment indicator that equals one for the second individual guess when the participant's spouse drew Signal 2 and then (potentially) communicated to her through discussion. The standard errors are in the parentheses and are clustered at the couple level. *** p<0.01, ** p<0.05, * p<0.1

Table A6: Ball-in-Urn Task- Weight on Own vs. Spouse's Information

	(1) Guess 2	(2) Guess 2	(3) Guess 2
Signal 1	0.445***	0.445***	0.448***
	(0.034)	(0.034)	(0.034)
Signal 2	0.578***	0.578***	0.577***
	(0.045)	(0.045)	(0.045)
Signal 2 X Discussion	-0.122**	-0.129**	-0.161**
	(0.058)	(0.063)	(0.075)
Signal 2 X Believe Spouse Strictly Better X Discussion		0.029	
		(0.089)	
Signal 2 X Spouse Strictly Better X Discussion			0.058
			(0.072)
Wave2	0.013	0.016	0.016
	(0.214)	(0.214)	(0.214)
Observations	800	800	800
R-squared	0.525	0.525	0.525

† This table shows the OLS estimates of Equation 1, pooled across couples and separately for husbands and wives. The dependent variable is a participant's second individual guess. Signal 1 is the net number of red balls (i.e., red minus white) balls drawn in the first set of draws. Signal 2 is the net number of red balls (i.e., red minus white) balls drawn in the second set of draws. "Discussion" is the treatment indicator that equals one for the second individual guess when the participant's spouse drew Signal 2 and then (potentially) communicated to her through discussion. Believe Spouse Strictly Better is an indicator variable if the individual believes their spouse is strictly better at Guess 1 while Spouse Strictly Better is an indicator variable if the spouse's expected earnings for Guess 1 were higher. Wave2 is an indicator for data collected in the second wave of data collection. The standard errors are in the parentheses and are clustered at the couple level. The lower panel reports the p-values for test of the linear combination of coefficients. *** p<0.01, ** p<0.05, * p<0.1

Table A7: Guess-the-price Task: Weight on Own vs Spouse's Information- With Individual and Household Level Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Husband's Guess 2									
Own Signal	0.618***	0.617***	0.624***	0.624***	0.623***	0.285***	0.283***	0.275***	0.269***	0.269***
	(0.082)	(0.082)	(0.083)	(0.083)	(0.083)	(0.041)	(0.040)	(0.039)	(0.038)	(0.039)
Spouse's Signal	0.168***	0.170***	0.168***	0.172***	0.173***	0.295***	0.295***	0.309***	0.308***	0.308***
	(0.039)	(0.039)	(0.039)	(0.041)	(0.041)	(0.073)	(0.073)	(0.072)	(0.071)	(0.072)
Wave2	-1.614	-1.850	-1.693	-1.909	-1.883	-3.339	-3.662	-2.912	-2.828	-2.831
	(1.729)	(1.750)	(1.754)	(1.755)	(1.768)	(2.453)	(2.379)	(2.366)	(2.305)	(2.308)
Observations	400	400	400	400	399	400	400	400	400	399
R-squared	0.722	0.724	0.728	0.730	0.730	0.418	0.421	0.443	0.449	0.448
	Wife's Guess 2									
Own Signal	0.382***	0.386***	0.388***	0.390***	0.393***	0.502***	0.503***	0.500***	0.501***	0.504***
	(0.069)	(0.069)	(0.069)	(0.069)	(0.068)	(0.072)	(0.070)	(0.071)	(0.072)	(0.071)
Spouse's Signal	0.483***	0.482***	0.482***	0.481***	0.481***	0.064*	0.059*	0.055	0.058	0.055
	(0.090)	(0.089)	(0.090)	(0.089)	(0.090)	(0.034)	(0.034)	(0.036)	(0.036)	(0.036)
Wave2	-5.367**	-5.608**	-5.761**	-6.041**	-5.929**	-0.185	-0.561	-0.485	-0.293	-0.232
	(2.730)	(2.818)	(2.800)	(2.828)	(2.793)	(2.259)	(2.095)	(2.174)	(2.176)	(2.155)
Observations	400	400	400	400	399	400	400	400	400	399
R-squared	0.633	0.637	0.642	0.643	0.645	0.478	0.485	0.489	0.492	0.495
Product Type	Male	Male	Male	Male	Male	Female	Female	Female	Female	Female
Demographic Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education-Work Controls	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Marital Controls	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Family Controls	No	No	No	No	Yes	No	No	No	No	Yes

† This table shows the OLS estimates of Equation 2 with individual and household level controls by product type. Panel A shows the results for husbands, while Panel B shows the results for wives. Demographic controls include age and general caste category indicator. Education-work controls include years of education and indicator for labor force participation. Marital controls include the duration of the marriage and the number of children, while Family controls include household size. The dependent variable is a participant's second individual guess. Own signal is the first guess made by an individual. The spouse's signal is the first guess made by their spouse, thus potentially communicated during the discussion. The standard errors are in the parentheses and are clustered at the couple level. *** p<0.01, ** p<0.05, * p<0.1

Table A8: Guess-the-price Task: Weight on Own vs Spouse's Information - Phase 1

	(1)	(2)	(3)	(4)
	Husband's Guess 2		Wife's Guess 2	
Own Signal	0.593***	0.415***	0.623***	0.493***
	(0.090)	(0.077)	(0.096)	(0.086)
Spouse's Signal	0.265***	0.224**	0.402***	0.029
	(0.061)	(0.095)	(0.086)	(0.072)
Observations	120	120	120	120
R-squared	0.727	0.434	0.710	0.453
Product Type	Male	Female	Male	Female

† This table shows the OLS estimates of Equation 2, separately for husbands and wives, by product type for Phase 1 of data collection. The dependent variable is a participant's second individual guess. Own signal is the first guess made by an individual. The spouse's signal is the first guess made by their spouse, thus potentially communicated during the discussion. The standard errors are in the parentheses and are clustered at the couple level. *** p<0.01, ** p<0.05, * p<0.1

Table A9: Guess-the-price Task: Weight on Own vs Spouse's Information- Phase 2

	(1)	(2)	(3)	(4)
	Husband's Guess 2		Wife's Guess 2	
Own Signal	0.545***	0.195***	0.115***	0.542***
	(0.063)	(0.037)	(0.026)	(0.118)
Spouse's Signal	0.064***	0.406***	0.485***	0.091***
	(0.019)	(0.084)	(0.061)	(0.023)
Observations	280	280	280	280
R-squared	0.490	0.425	0.423	0.495
Product Type	Male	Female	Male	Female

† This table shows the OLS estimates of Equation 2, separately for husbands and wives, by product type for Phase 2 of data collection. The dependent variable is a participant's second individual guess. Own signal is the first guess made by an individual. The spouse's signal is the first guess made by their spouse, thus potentially communicated during the discussion. The standard errors are in the parentheses and are clustered at the couple level. *** p<0.01, ** p<0.05, * p<0.1

B Appendix: Additional Results

B.1 Heterogeneity by Gender in Discussion Patterns

Ball-in-urn Task: Table B1 presents the averages of key characteristics of the discussion among couples. The fraction of couples who do not discuss their first draws with their spouse is 21.75 percent. Individually, the rate at which husbands and wives share (or do not share) information about their first set of draws and their first guesses are comparable. Thus, the underweighting is not explained by either spouse trying to withhold information. Notably, almost 41 percent of the couples do not even suggest a *second guess*. More importantly, 73 percent do not indicate that their *first guesses* are correct, nor do they try to overrule their spouse's suggestions.

Guess-the-price Task: Table B2 presents the averages of key characteristics of the discussion among couples. In nearly 52 percent of the couples, both the husbands and wives actively indicate that their spouses are more likely to know about the prices of the female-type and male-type products, respectively. Husbands are more likely to suggest a second guess for the male-type product, while the wives do so for the female-type product.

Table B1: Ball-in-urn Task: Transcript of Discussion

		Husband (%)	Wife (%)
Duration		2.2 minutes	
Speak first		0.57	0.43
Speak last		0.46	0.54
Speak longer		0.57	0.44
Ask for Information		0.21	0.24
Information shared		0.86	0.84
Types of Info shared | Sharing			
	Composition	0.64	0.63
	Guess 1	0.59	0.57
Suggest Guess 2			
	Individually	0.24	0.13
	Both	0.23	
	None	0.41	
Claim they are correct			
	Individually	0.15	0.05
	Both	0.06	
	None	0.74	
Corrects Spouse			
	Individually	0.18	0.06
	Both	0.04	
	None	0.73	
Observations		200	200

† This table shows the average characteristics of the discussion between the couples before they made their second individual guess in the Discussion Treatment. All variables except duration are binary variables, thereby indicating the proportion of couples. During the discussion, the participant could choose to share two pieces of information with their spouse: (i) the composition of the first five balls they drew and (ii) the first individual guess they already made. Additionally, they deliberate over the upcoming second guess that each has to make. In terms of communication patterns, the participant can (i) correct or overrule their spouse's guesses and (ii) claim to be more accurate in their own guesses.

Table B2: Guess-the-price Task: Transcript of Discussion

		Husband (%)	Wife (%)
Duration		5.6 minutes	
Speak first		0.52	0.49
Speak last		0.43	0.57
Speak longer		0.48	0.52
Ask for Information for Male type		0.21	0.82
Ask for Information for Female type		0.86	0.13
Information Shared for Male type		0.98	0.98
Information Shared for Female type		0.97	0.97
Suggest Guess 2 for Male Type			
	Individually	0.64	0.11
	Both	0.24	
	None	0.01	
Suggest Guess 2 for Female Type			
	Individually	0.12	0.62
	Both	0.18	
	None	0.02	
Claim they are correct for Male Type			
	Individually	0.45	0.11
	Both	0.17	
	None	0.28	
Claim they are correct for Female Type			
	Individually	0.13	0.41
	Both	0.16	
	None	0.3	
Suggest spouse correct for Male Type			
	Individually	0.11	0.52
	Both	0.06	
	None	0.32	
Suggest spouse correct for Female Type			
	Individually	0.53	0.15
	Both	0.05	
	None	0.27	
Observations		400	400

† This table shows the average characteristics of the discussion between the couples before they made their second individual guess in the guess-the-price Task. All variables except duration are binary variables, thereby indicating the proportion of couples. During the discussion, the participant could choose to (i) suggest the next individual guess to be made (ii) claim to know more about a product type (iii) indicate their spouse may know more about a product type.

B.2 Heterogeneity in Weighting Spouse's Information by Gender in Ball-in-urn Task

Underweighting of spouse's information differs by gender of the spouse. Figure B1 plots the average weight one puts on the *second* signal separately for husbands and wives. Husbands discount their wife's signals by 27.3 percent (p=0.04), whereas wives put 14.9 percent less weight on their spouse's signals (p=0.27). Consistent with CMRRS, husbands discount the information from their wives significantly, while wives treat information equally.[35] However, my results differ from CMRRS as the rate of discounting spouse's information, i.e., β_3, does not differ between spouses, i.e., I cannot reject that husbands and wives discount spouse's information by equal amounts (p=0.39). The corresponding regression results for husbands and wives are presented in Column (1) and (2) of Table B3.

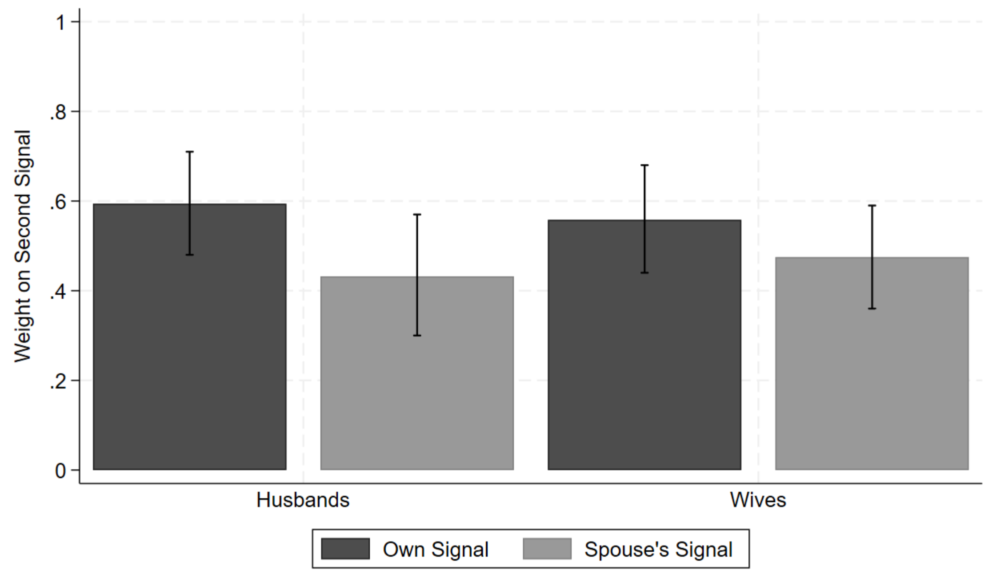


Figure note: This figure plots the average weight on the *second* signal by treatment. Own Signal means β_2 and Spouse's Signal means $\beta_2 + \beta_3$ from Table B3. The error bars reflect the 95% confidence interval, with standard errors clustered at couple level.

Figure B1: Ball-in-urn Task: Differential Weight on Spouse's Signals by Gender

Figure B2 plots the likelihood of delegating to husbands by gender. The wives anticipate the

[35] The magnitude of husband's disregard is much smaller than CMRRS, who find 60 percent underweighting by husbands. This could be driven by the differences in norms across Indian states (Lancaster et al., 2008). CMRRS's study location is Chennai, Tamil Nadu, and my study location is Kolkata, West Bengal. For example, from nationally representative data of the National Family Health Survey (NFHS Round V), the support for equal decision-making power is higher in West Bengal than in Tamil Nadu (66% vs 47%). However, including individual and household-level controls does not change the coefficients. The results are presented in Table B4.

Table B3: Ball-in-urn Task- Gender Differences in Weighting Spouse's Information

	(1) Husband's Guess 2	(2) Wife's Guess 2
Signal 1	0.447***	0.444***
	(0.054)	(0.048)
Signal 2	0.594***	0.558***
	(0.059)	(0.063)
Signal 2 X Discussion	-0.162**	-0.083
	(0.079)	(0.074)
Wave2	0.110	-0.085
	(0.267)	(0.257)
Observations	400	400
R-squared	0.534	0.516
$\beta_{2,H} + \beta_{3,H} = \beta_{3,H}$	0.04	
$\beta_{2,W} + \beta_{3,W} = \beta_{3,W}$		0.27
$\beta_{3,H} = \beta_{3,W}$		0.39

† This table shows the OLS estimates of Equation 1 separately for husbands and wives. The dependent variable is a participant's second individual guess. Signal 1 is the net number of red balls (i.e., red minus white) balls drawn in the first set of draws. Signal 2 is the net number of red balls (i.e., red minus white) balls drawn in the second set of draws. "Discussion" is the treatment indicator that equals one for the second individual guess when the participant's spouse drew Signal 2 and then (potentially) communicated to her through discussion. The standard errors are in the parentheses and are clustered at the couple level. *** p<0.01, ** p<0.05, * p<0.1

lack of learning by their husbands, thereby delegating to their husbands less often in Discussion Treatment (69.5% vs 27.5%, p<0.01). Similarly, the husbands anticipate that their wives might have listened to them as they become less likely to delegate to themselves after a discussion (78% vs. 51%, p<0.01).

Table B4: Ball-in-urn Task- Gender Differences in Weighting Spouse's Information With Individual and Household Level Controls

	(1)	(2)	(3)	(4)	(5)
	Husband's Guess 2				
Signal 1	0.447***	0.446***	0.442***	0.436***	0.438***
	(0.054)	(0.054)	(0.055)	(0.055)	(0.055)
Signal 2	0.594***	0.594***	0.597***	0.607***	0.605***
	(0.061)	(0.061)	(0.060)	(0.062)	(0.062)
Signal 2 X Discussion	-0.162**	-0.163**	-0.169**	-0.176**	-0.173**
	(0.078)	(0.079)	(0.078)	(0.079)	(0.079)
Wave2	0.110	0.124	0.141	0.181	0.178
	(0.266)	(0.266)	(0.277)	(0.273)	(0.273)
Observations	400	400	400	400	399
R-squared	0.534	0.534	0.544	0.546	0.549
	Wife's Guess 2				
Signal 1	0.444***	0.448***	0.439***	0.443***	0.443***
	(0.048)	(0.048)	(0.049)	(0.049)	(0.049)
Signal 2	0.558***	0.560***	0.573***	0.570***	0.569***
	(0.063)	(0.062)	(0.063)	(0.063)	(0.063)
Signal 2 X Discussion	-0.083	-0.087	-0.102	-0.109	-0.113
	(0.074)	(0.074)	(0.075)	(0.075)	(0.076)
Wave2	-0.085	-0.082	-0.079	-0.090	-0.095
	(0.257)	(0.260)	(0.259)	(0.260)	(0.260)
Observations	400	400	400	400	399
R-squared	0.516	0.517	0.524	0.527	0.525
Demographic Controls	No	Yes	Yes	Yes	Yes
Education-Work Controls	No	No	Yes	Yes	Yes
Marital Controls	No	No	No	Yes	Yes
Family Controls	No	No	No	No	Yes

† This table shows the OLS estimates of Equation 1 with individual and household level controls, separately for husbands and wives. Demographic controls include age and general caste category indicator. Education-work controls include years of education and indicator for labor force participation. Marital controls include the duration of the marriage and the number of children, while Family controls include household size. The dependent variable is a participant's second individual guess. Signal 1 is the net number of red balls (i.e., red minus white) balls drawn in the first set of draws. Signal 2 is the net number of red balls (i.e., red minus white) balls drawn in the second set of draws. "Discussion" is the treatment indicator that equals one for the second individual guess when the participant's spouse drew Signal 2 and then (potentially) communicated to her through discussion. The standard errors are in the parentheses and are clustered at the couple level. *** p<0.01, ** p<0.05, * p<0.1

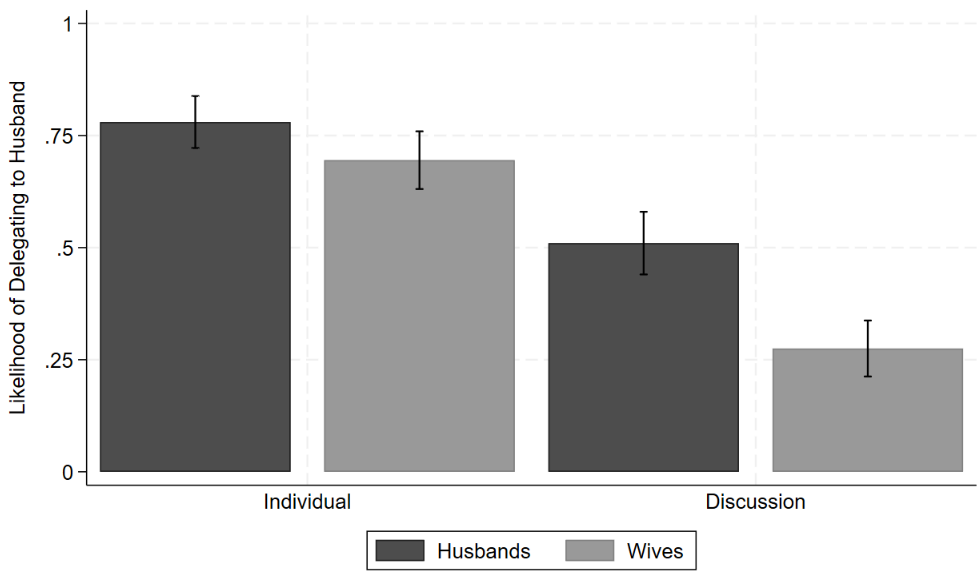


Figure note: This figure plots the average likelihood of delegating to the husband by treatment. Wives are significantly less likely to delegate to their husbands after a discussion (69.5% in Individual Treatment vs. 27.5% in Discussion Treatment, p<0.01). Husbands are less likely to delegate to themselves after a discussion (78% in Individual Treatment vs. 51% in Discussion Treatment, p<0.01). The error bars reflect the 95% confidence interval.

Figure B2: Ball-in-urn Task: Likelihood of Delegating to Husband

B.3 Heterogeneity by Household Characteristics

In this section, I explore whether household characteristics, such as decision-making power differences, cohabitation with in-laws, or numeracy skills, can explain a spouse's information underweighting in the ball-in-urn task. To do so, I estimate the following regression.

$$\begin{aligned} Guess2_i = \alpha + \beta_1 1stSignal_i + \beta_2 2ndSignal_i + \beta_3 2ndSignal_i XTreat_i \\ + \beta_4 2ndSignal_i XTreat_i XH_i + Wave2 + e_i \end{aligned} \tag{3}$$

where $Guess2_i$, $1stSignal_i$, $2ndSignal_i$ and $Treat_i$ is defined as before in Equation 1. H_i is a vector of controls for household characteristics or numeracy skills. $Wave2$ is an indicator variable for data collected in the second wave. The regression results are presented in Table B5.

Perceived Ability Differences Perceived ability differences, i.e., beliefs about task performance, may influence whose information you wish to incorporate. I elicited subjective beliefs about the spouse's ability on the ball-in-urn task at the end of the ball-in-urn task. Individuals were asked who they thought performed better at the *first guess* where the options were "I am better" "almost same" and "spouse is better". Beliefs about *first guess* may affect whose information you incorporate before making your *second guess* and thereby one's delegation decisions.[36] Pooling across treatments, 30 percent of the wives believed their husbands were strictly better at the first guess. In contrast, 25 percent of the husbands believed their wives were strictly better at the first guess.[37] Neither the husband's nor the wife's guesses respond to perceived ability differences, as seen in Column (2) of Table B5. The husband's weight on their wife's signal is not different when he believes her to be strictly better than when he believes her to be equally good or worse than him (p=0.84). Similarly, a wife's weight on their husband's signal is not different when she believes him to be strictly better than when she believes him to be equally good or worse than her (p=0.38).

Cohabitation with in-laws: Next, I explore if cohabitation with in-laws can explain how one listens to their spouses. In South Asia, it is typical for women to move to their husband's

[36] By design, the first guess is the same across both treatments. Thus, beliefs about this guess give us the uncontaminated effect of perceived ability differences.

[37] There is no difference between treatments for beliefs about the *first guess* either.

home, where they reside with their parents after marriage (Jayachandran, 2015). The literature shows that cohabitation with in-laws reduces married Indian women's autonomy within the house Anukriti et al. (2020). In my sample, 25% of the couples are of the type where the wife lives with her husband's parents. Thus, I create an indicator variable if the couple has the husband's parents living in the same house. Column (3) of Table B5 shows that if in-laws live in the same house, then the wife puts significantly more weight on the husband's signal than if in-laws don't live in the same house (p=0.05). The interaction coefficient for the husband is in the right direction, i.e., he puts less weight on his wife if his parents reside in the same house, but the effect is insignificant (p=0.64), i.e., the *additional* weight he puts on his wife if his parents reside with him is not significantly different from zero.

Self-DM: Next, I explore if decision-making power differences within the household can explain how one listens to their spouses. To capture this, I create an indicator variable if the spouse feels that they are the primary decision-maker between the two of them. CMRRS shows that more decision-making power for the husband within the household means his signals are weighted more by both the husband and the wife. Contrary to their results, Column (4) of Table B5 does not qualitatively replicate for the weight the husbands put, but it does for the weight the wives put.

Husband More Numeracy: Finally, since the ball task can be math-intensive, I explore if numeracy and educational differences between spouses can explain how they listen to one another. I create a numeracy index averaging over the following indicator variables, which take the value of 1: (education) if the husband has more education than his wife, (math) if he correctly answered more questions on math, (comprehension) if he correctly answered more of the five comprehension questions, and (memory) if he correctly answered more of the two memory questions (about the number of red balls drawn in the first set and the first guess made). I then create a dichotomous version of this index; if the value of the index is above the median, then the dichotomous version takes the value 1, i.e., the husband's numeracy score is higher than his wife's. Column (5) of Table B5 shows that if the numeracy score of the husband score is higher, then the husband (wife) puts more (less) weight on the wife's (husband's signal) than when it is low. However, these results are not statistically significant.

Table B5: Ball-in-urn Task- Weight on Own vs. Spouse's Information: Heterogeneity

	(1)	(2)	(3)	(4)	(5)
			Husband's Guess 2		
Signal 1	0.447***	0.446***	0.447***	0.446***	0.448***
	(0.054)	(0.054)	(0.047)	(0.053)	(0.054)
Signal 2	0.594***	0.595***	0.594***	0.594***	0.594***
	(0.061)	(0.059)	(0.063)	(0.060)	(0.061)
Signal 2 X Discussion	-0.162**	-0.154*	-0.159*	-0.371**	-0.209**
	(0.078)	(0.087)	(0.082)	(0.158)	(0.093)
Signal 2 X Believe Spouse Strictly Better X Discussion		-0.027			
		(0.126)			
Signal 2 X Discussion X In-laws			-0.126		
			(0.384)		
Signal 2 X Discussion X Self DM				0.261	
				(0.161)	
Signal 2 X Discussion X Husband More Numeracy					0.121
					(0.114)
Wave2	0.110	0.109	0.111	0.125	0.086
	(0.266)	(0.267)	(0.252)	(0.263)	(0.267)
Constant	10.200***	10.202***	10.198***	10.210***	10.218***
	(0.235)	(0.235)	(0.212)	(0.233)	(0.236)
Observations	400	400	400	400	400
R-squared	0.534	0.534	0.534	0.538	0.535
			Wife's Guess 2		
Signal 1	0.444***	0.444***	0.444***	0.444***	0.444***
	(0.050)	(0.049)	(0.049)	(0.050)	(0.050)
Signal 2	0.558***	0.559***	0.558***	0.559***	0.558***
	(0.061)	(0.063)	(0.061)	(0.061)	(0.061)
Signal 2 X Discussion	-0.083	-0.104	-0.155*	-0.092	-0.078
	(0.074)	(0.078)	(0.080)	(0.079)	(0.080)
Signal 2 X Believe Spouse Strictly Better X Discussion		0.100			
		(0.114)			
Signal 2 X Discussion X In-laws			0.190*		
			(0.098)		
Signal 2 X Discussion X Self DM				0.042	
				(0.109)	
Signal 2 X Discussion X Husband More Numeracy					-0.012
					(0.101)
Wave2	-0.085	-0.067	-0.113	-0.079	-0.084
	(0.259)	(0.259)	(0.259)	(0.260)	(0.259)
Observations	400	400	400	400	400
R-squared	0.516	0.517	0.520	0.516	0.516

† Column (1) shows the OLS estimates of Equation 1 while Column (2)-(4) shows the OLS estimates of Equation 3, for each spouse. The dependent variable is a participant's second guess. Signal 1 is the net number of red balls (i.e., red minus white) balls drawn in the first set of draws. Signal 2 is the net number of red balls (i.e., red minus white) balls drawn in the second set of draws. "Discussion" is the treatment indicator that equals one for the second guess when the participant's spouse communicated to her through discussion. Believe Spouse Better is an indicator variable if the individual believes their spouse is strictly better at Guess 1. In-laws is an indicator if the couple resides with the wife's in-laws in the same house. Self DM is an indicator if the individual considers herself as the primary decision maker. Husband More Numeracy is an indicator if the husband ranked higher on the numeracy index consisting of education years, ball-in-urn task comprehension, ball-in-urn task memory task, and math task. The standard errors are in the parentheses and are clustered at the couple level. *** p<0.01, ** p<0.05, * p<0.1

C Appendix: Design and Visual Aid

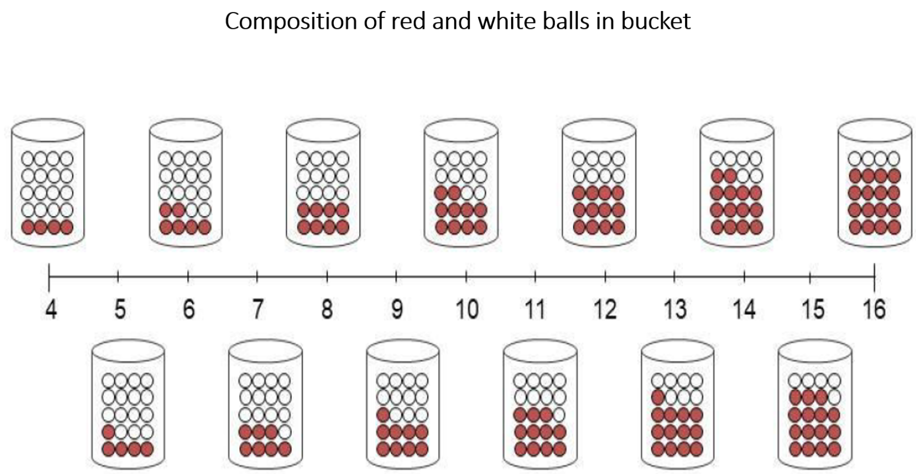


Figure note: This figure shows the 13 possible combinations. While making a guess, participants use a coin and place it on the urn they think corresponds to theirs, thereby guessing the number of red balls in the urn.

Figure C1: Ball-in-urn Task: Guess Scale

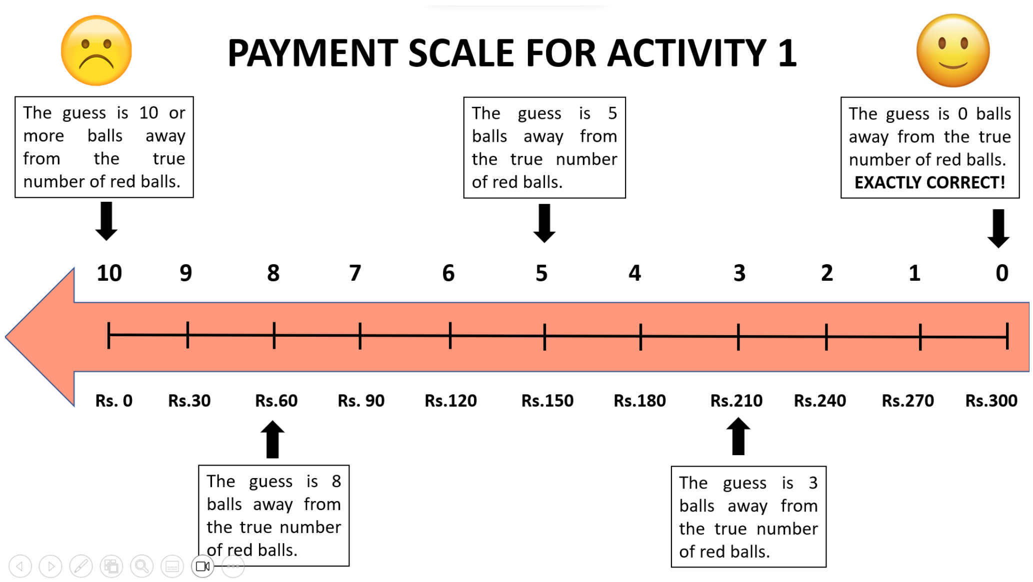


Figure note: This figure shows the payment scale. For each ball that their guess was off by from the true number of red balls, the couple lost Rs. 30.

Figure C2: Ball-in-urn Task: Payment Scale

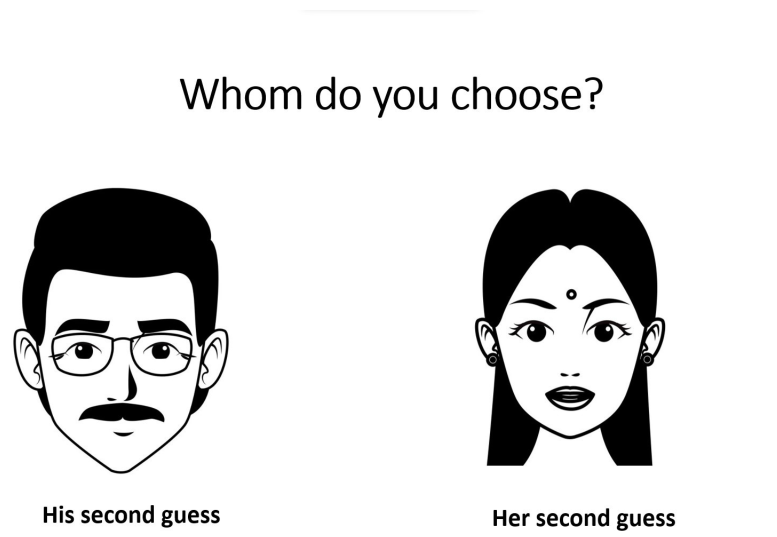


Figure note: This figure shows the avatars used to elicit delegation decisions in the ball-in-urn Task based on *second guess*. Individuals placed a coin on the avatar to indicate their choice.

Figure C3: Ball-in-urn Task: Delegation Choice Avatars

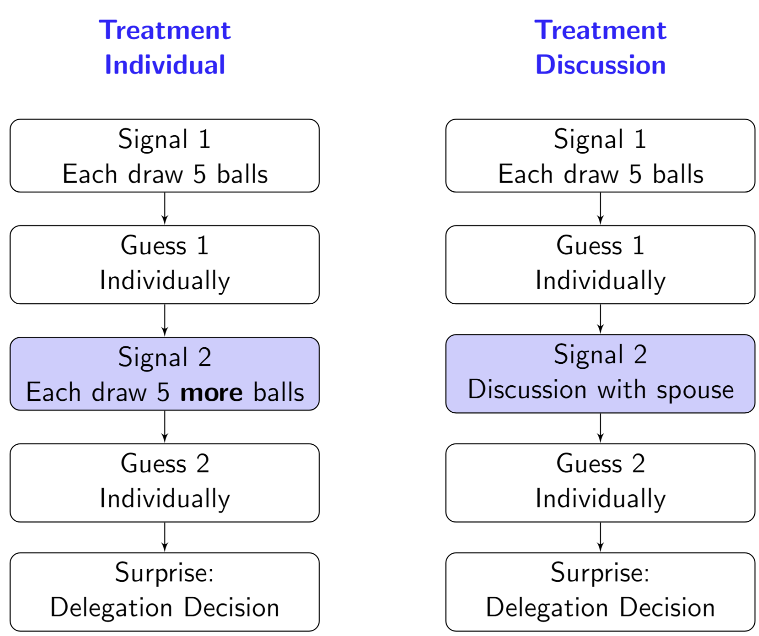


Figure note: This figure shows the two between-subject treatments in the ball-in-urn task.

Figure C4: Ball-in-urn Task

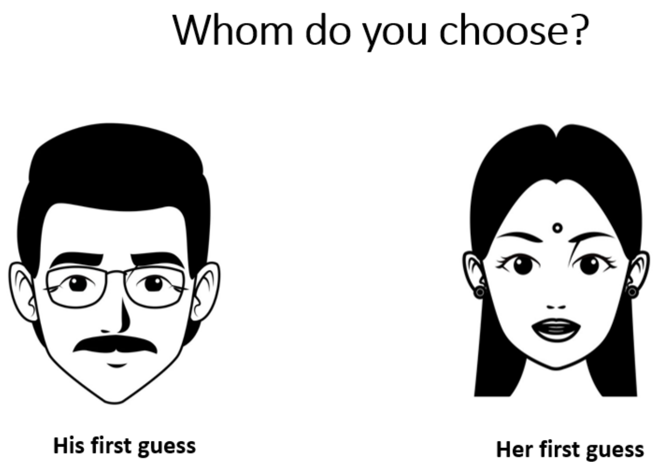


Figure note: This figure shows the avatars used to elicit delegation decisions in the guess-the-price Task based on *first guess*. Individuals placed a coin on the avatar to indicate their choice.

Figure C5: Guess-the-price Task: Delegation Choice Avatars

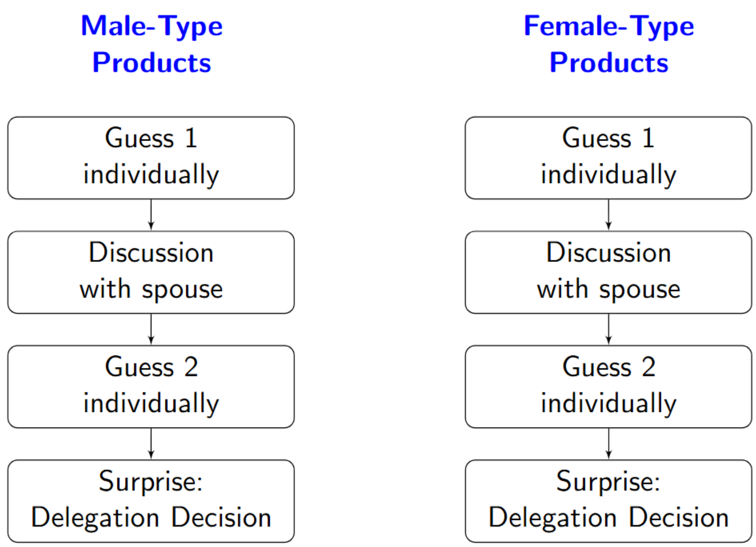


Figure note: This figure shows the within-subject treatment with two product types in the guess-the-price Task.

Figure C6: Guess-the-price Task