

# Mental Accounting, Spousal Control and Intra-Household Communication: Evidence from an Experiment in India \*

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## Abstract

To understand interactions between mental accounting, spousal control and couple's communication, informed by recent innovations in the fin-tech space, we mimicked practical iterations of income type and spousal monitoring, in a pre-registered lab-in-the-field experiment with 1,008 couples in Kolkata, India. The experimental design was a cross randomisation where, first, for half the sample the female spouse worked for resources and the other half received money as a gift, before allocation decision were made under five different monitoring frameworks that mirror potential iterations in account type: private, private labelled, visible, approval and negotiation. Our findings highlight the importance of female labour market participation and the mental accounting of earned resources. Earned income by wives was allocated to a greater extent to accounts over which she has more control. While no overall effect of workfare on consumption decisions was found, we did find that, for women who have low control over money, earning money induces her to spend more on her personal consumption. Labelling newly acquired resources for household purposes in individual accounts for both wife and husband did not alter expenditure patterns, indicating a failure of the mental accounting of household resources in individual accounts. Spousal visibility of male decision-making ensures they allocate more towards the collective and away from themselves. Conversely, spousal transparency and communication did not alter wives allocation patterns, but such innovations came at a cost for the less empowered: in households where wife has low control over money, or is more risk averse, visibility of her decisions by husband or an approval requirement from her husband for her decisions leads her to allocate more to accounts he has control in. Our findings provide important insights for the design and delivery of social protection programmes, and suggests the existence of potential welfare gains of shared, or joint, financial products for the management of household resources.

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# 1 Introduction

Anti-poverty programmes globally have sought to advance women’s economic empowerment through unconditional cash transfers and programmes with conditionalities such as child school enrolment or workfare (Haushofer and Shapiro, 2018; Adato et al., 2000; Rodriguez, 2022). Despite the now pervasive presence of these programmes across the globe, the evidence base on optimal design is mostly missing. For example, little is known about the consequences of household-level mechanisms of financial resource delivery across the spectrum of individualised to shared financial accounts (Field et al., 2019; Fiala et al., 2017). Indeed, theories of bargaining power, mental accounting and asymmetric information each predict that the design and delivery of anti-poverty programmes will influence important outcomes such as female autonomy and household welfare. (Doss, 2013; Thaler, 2008; Chen, 2013).

To address this gap in the literature, we first estimate the impact of the female spouse personally earning money, as opposed to receiving money as a gift, on subsequent allocation and expenditure decisions in a lab-in-the-field experiment in India. A particular focus of this study, the concept of mental accounting, popularised by Thaler (2008), suggests that earned income may be treated differently to unearned income simply because of how households understand ownership of incoming resources (Cox et al., 2007; Jakiela, 2011). More generally, while there is evidence in the development literature on the positive impact of work for women (Sivasankaran, 2014; Heath and Jayachandran, 2016), there is mixed empirical evidence on the role working plays in the female agency. Duflo (2012) finds that working improves agency for women, whereas others find that improved women’s labour opportunities do not increase her involvement in household decision making (Jensen, 2012; McKelway, 2019). This study is the first to examine the role played by mental accounting of earned resources in gender empowerment.

Second, we study the role played by differentiated spousal control and monitoring over financial decisions and assess how practical iterations in the decision-making framework, inspired by innovations in the fintech sector, affect the intrahousehold allocation and expenditure decisions. We specifically investigate the mental accounting of household resources in private accounts and the role played by approval, visibility and negotiation in spousal allocation decisions. Building on the previous work of Ashraf (2009) and Schaner (2017), to provide insights on optimal account design in the Fintech era, this study represents a comprehensive examination of approval, visibility and negotiation in spousal allocation decisions.

We hope this study inspires a re-examination of the role joint accounts can play in household decision-making and welfare. There are a number of reasons why private accounts may not always be optimal. First, despite the benefits of control over resources and bargaining power as argued by Anderson and Baland (2002); Aker et al. (2016); Field et al. (2019), there may be unintended negative consequences from the separation of domains

on female empowerment such as low subjective well being for women, or more spending on luxury goods (Ashraf et al., 2014; Garbinsky and Gladstone, 2019). Second, financial individualisation may not be optimal for couples and families with significant shared expenditure and shared savings/investment goals. For example, household resources that reside in one partner’s account may lessen the sharing for joint household expenses (Ashraf (2009)). Third, women’s private access to financial products may not translate to her ability to take full control over the money due to gender norms in certain contexts that influence control and usage of financial products (Schaner, 2017).<sup>1</sup> Moreover, mobile banking and fintech products have opened up innovation possibilities for financial products with the potential for household welfare improvements (Suri and Jack, 2016; Lee et al., 2021; De Mel et al., 2020).

We first mimic the individualised decision-making among couples in a household through two experimental arms: Private and Private Labelled for Household. A consequence of the global trend towards financial account individualisation has resulted in household resources often residing in the dominant spouse’s account. If mental accounting prevails, the location of household resources may not matter, and there are reasons to think there is no issue with earmarked household resources in individual accounts (Thaler, 1999). And there are reasons to be optimistic. For example, earmarking money for specific purposes is shown to have increased savings behaviour of individuals Dupas and Robinson (2013); Aggarwal et al. (2020).<sup>2</sup> To provide direct evidence on this question, we examine the effect of mental accounting of household money in individual accounts by comparing individual decisions of spouses in a private account where money is labelled for household purposes to one where money is not labelled for household purposes.

Separately, we estimate the impact of practical iterations in spousal control and couple’s communication for resource allocation in three forms: approval for female decisions by the husband, transparency or visibility of spousal decisions, and an in-person couples negotiation for female decisions. Under the Approval treatment arm, female decisions are “approved” or otherwise by her husband through a digital system. In this experimental arm, we digitally simulate the household decision-making processes in a setting such as ours where women may often have access to resources but do not necessarily have the final say on decisions (Pahl, 1995). We then extend the notion of control over decisions, under the Visible treatment arm, by providing women full control over decision-making but without the privacy of their decisions from their husbands. This treatment arm relates to the literature on intrahousehold allocation where theoretical models assume perfect information (Chiappori, 1992; Lundberg and Pollak, 1996) and yet empirical evidence

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<sup>1</sup> In a study in Kenya, she shows that ATM cards for female accounts reduced women’s control over her account because the cards made it convenient for their spouses to withdraw money.

<sup>2</sup> Benhassine et al. (2015) looks at the gender aspect of labelling by observing the effectiveness of labelling a cash transfer for education purposes by targeting mothers in one case and fathers in another. They find similar results of labelling, regardless of targeting the mother or father for the program.

points to information asymmetries within household [Ashraf \(2009\)](#); [Castilla \(2019\)](#). We further iterate spousal monitoring with a highly collaborative spousal decision-making process where couples make in-person negotiations regarding female allocation decisions. Literature on intrahousehold decision-making often record inefficiencies in such bargaining process ([Castilla, 2019](#); [Schaner, 2015](#)) and points to the possibility that negotiated outcome is determined by the relative power of spouses in household ([Ashraf, 2009](#)).

We selected 1,008 low-income couples identified as literate and having bank accounts from the client pool maintained by several microfinance organisations and through household sampling in semi-urban Kolkata, India. Like the rest of urban areas in India, our sample is characterised by low female labour force participation [Andres et al. \(2017\)](#).<sup>3</sup> While it was a pre-requisite for our study that female and male participants have individual bank accounts, this is not a particularly restrictive pre-requisite as access to bank accounts is close to universal in India, and [Demirgüç-Kunt et al. \(2022\)](#) find a zero gender gap in account ownership in India. Relevant to our study, however, is the 10% gender difference in the percentage of inactive accounts, with more female inactive accounts. This is likely to be attributed to a range of factors, including lower economic empowerment and bargaining power of women and administratively burdensome rule attached to bank accounts, which may act as a barrier for women to access and use financial services continuously.

In our experiment, couples made two allocation decisions, under whose control to allocate income to and what to spend it on, separately and sometimes in conjunction with one another. While such allocation decisions are made related to unearned or earned income by the wife, in subsequent rounds of games with the same decision-making conditions, we assess allocation and expenditure decisions of money that could be won individually by spouses in a lottery. This second round of allocation games contrasts with the first in two respects. One, for the woman, her husband has full information about receiving the income during the first allocation games, whereas, in the second one, she can choose to deny receiving the amount as in [Ashraf \(2009\)](#). Two, for the men, instead of making decisions about income earned or received by their wives in the first allocation game, they make decisions about the money they could win in the lottery under the conditions of privacy, privacy with labelling, and transparency of their decisions to the wife.

Analysing the effect of female workfare, we find that when women work for money, the share of the amount she allocates to her bank account or a private female voucher is 5.5 percentage points more than when she did not earn the amount. Earning money by performing a task provides women with a sense of ownership of the money and improves their control over the money. While we find no overall effect of workfare on subsequent expenditure decisions, we find that, for women with low control over money, personally

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<sup>3</sup> 28.2% of women in our sample are working women, which is slightly above the national urban average, 18.6%.

earning money induces them to spend more on their personal expenses.<sup>4</sup>

Within the in-person negotiation setup of our lab setting, we find that if she worked for the amount, she is likely to claim an 8.9 percentage points higher share of the amount towards her bank account or a female voucher in the negotiation process, compared to when she was gifted the amount. Independently earning the amount gives women more bargaining power in the household negotiation process, which translates to their increased ability to claim a higher share of the amount to accounts over which she has control. It also has implications on spending patterns, leading her to spend more towards her own expenses and less towards collective use by all household members.

We find no overall effects on allocation and spending decisions from labelling female-held money or male-held money for household purposes when compared with private resources in private accounts. While our information nudge may have been too subtle, we consider this as evidence of potential issues with household resources residing in individual accounts, suggesting potential improvements in women’s economic empowerment from joint accounts for household resources. However, in our study, we fail to provide evidence on the effect of spousal monitoring on the wife’s allocation decisions. Additionally, we find that, in households where the wife has low control over money, visibility of her decisions by her husband or an approval requirement from her husband for her decisions leads her to allocate 12.06 percentage points and 11.23 percentage points more to accounts under his control, respectively. These findings indicate that, in households where the wife has low autonomy over resources, women give up control over money under digital mechanisms of transparency and approval for her decisions by her husband.

Under a lottery game where wife and husband had equal chances of winning the lottery, we find that spousal transparency of decisions leads to women spending less for collective use (and more for herself) and men spending more for everyone in the household (and less for himself) compared to when their decisions are kept private from their spouse. Hence we observe opposite effects for women and men when their financial decisions are visible to their spouses, where transparency gives women more leverage to spend for themselves. and, for men, it prevents spending less on themselves. This implies that visibility may have provided the wife more legitimacy in spending unearned money for her own expenses in a context where she does not usually control household resources and spending.

Keeping with the literature that privacy and communication with husband on decisions can have effects on the mental well-being of women [Ashraf et al. \(2014\)](#), we check if the monitoring rules relating to spousal decision-making affects women’s emotional well-being

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<sup>4</sup> We measure women’s control over the money in the household by their high willingness to pay to have control over money and existing patterns of hiding income/expenditure from their husbands.

and mental bandwidth. Visibility of decisions by husband and an approval mechanism from their husband on their decisions improved women’s mental bandwidth score for women who reported that they had ever hidden income or expenditure from their husband. This suggests that for women who exhibit poor information flow with their husbands, a digital mechanism to share and communicate financial decisions provides women with better cognitive performance.

This study contributes to three different strands of literature. First, we contribute to the social protection literature on the relevance of workfare versus transfers (Cox et al., 2007; Thaler, 2008; Jakiela, 2011; Bhanot et al., 2018). While the literature has focused on households as one singular unit in order to measure the impact of workfare versus transfers, our work is the first to assess the relative importance of workfare versus cash gifts for women’s economic autonomy. Our findings have important implications for social protection programs, such as ongoing discussions about universal income programs, and for the intersection of literature on labour force participation, gender pay gaps and financial product independence.

Second, our study provides insights on aspects of gender targeting for financial product access. Evidence from recent literature suggests that targeting women for programs improves their bargaining power within the household, thus increasing spending on household goods and children (Duflo, 2003; Attanasio and Lechene, 2002; Akresh et al., 2016; Field et al., 2019; Armand et al., 2020). However, within a family setting, women may not have complete control over the resources she has access to. Few studies like Schaner (2017) and Fiala et al. (2017) provides evidence in this direction. Through comparing the Private treatment arm to varying levels of monitoring under spousal decision-making, we explore potential mechanisms of financial decision-making among couples.

Third, we contribute to existing experimental literature on joint accounts, extending it in the context of the fintech era. Experimental evidence shows that women are more likely than men to reveal the need to hide resources from their spouses (Anderson and Baland, 2002; Dupas and Robinson, 2013). However, recent studies indicate that there could be unintended consequences in providing women with privacy and control over resources Ashraf et al., 2014; Schaner, 2017. Our study specifically advances the work of Ashraf (2009) by comparing the relative impacts of five forms of financial arrangements (account types) in varying levels of control and monitoring. Our focus on joint accounts provides an important addition to the literature on how couples manage their finances in developing countries, particularly in relation to privacy and control of resources.

This paper proceeds as follows. We discuss the conceptual framework in section 2 and describe the experimental design in section 3. Section 4 describes our data and empirical strategy, and we report the results in section 5. Section 6 concludes with a

discussion of the results.

## 2 Theoretical Framework

We extend and adapt the theoretical framework in [Ashraf \(2009\)](#) to our study context and experimental treatment arms. We extend the framework in a number of ways. First, while spouses receive money through “luck of the draw” in their framework, we additionally incorporate the aspect of a sense of ownership the wife gets through earning the amount. Second, we extend the individual decision-making framework among couples beyond privacy by including a real-world scenario of transferring money labelled for household purposes to an individual spouse in the family. Also, adding the additional elements of monitoring by labelling money for household purposes and an “approval” requirement for the wife’s decisions by the husband, we extend the framework of monitoring through transparency and communication in [Ashraf \(2009\)](#). We adopt the spousal decision-making scenarios to our context where the husband has the final say in household decision-making as compared to the context in [Ashraf \(2009\)](#) where the wife is traditionally in control of household finances.

While we describe the theoretical framework from the point of women making financial decisions and their strategies, different strategies would apply when husbands make decisions, which we explain in detail in Appendix A.

### 2.1 Basic Setup

Consider a basic setup of the household where the wife (Player  $W$ ) and the husband (Player  $H$ ) decide about the household’s financial resources. Suppose the contract of financial management in a household happens in the following way: the wife will turn over her income to her husband, and the husband will have the final say on how to allocate it for household expenditures and also give the wife an allowance for her needs. This contract could be thought of as a result of social norms in our study context, India, where the husband is considered the spouse in control of financial resources in the household.<sup>5</sup> Let  $Y$  be an income shock the wife receives in a given period. In our experiment,  $Y$  can be received in two ways: by performing a task or as a gift. Let  $S$  represent the degree to which spouses assign personal ownership to income earned through a task and income received as a gift,  $S \in [0, 1]$ .

$S$  under task is greater than  $S$  under gift due to the concept of mental accounting where the wife takes more ownership (and the husband gives more ownership) on earned income compared to unearned income. Cross-randomization of couples across treatment arms varying in degrees of transparency, control over decision-making, and communication

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<sup>5</sup> In our sample, the wife’s willingness to pay any amount to have control over money (18%) is almost double as compared to the husband’s willingness to pay (35%). This is an indication that the husband controls household financial resources.

allows us to identify the role of ownership of income under these conditions.

In our setting, mimicking real-world scenarios, the wife has five available strategies to allocate the money she earned from the task or received as a gift:  $\{T_W, T_H, V_W, V_H, V_S, O_S\}$ , where  $T_W$  and  $T_H$  is to transfer money to the wife and the husband, respectively,  $V_W$  and  $V_H$  is to commit to consumption for the wife and the husband, respectively,  $V_S$  is to commit to consumption for collective consumption by household and  $O_S$  is to transfer all the money to someone else who is not their partner. Transferring money to the wife's bank account and committing to consumption for the wife ( $T_W$  and  $V_W$ ) can be considered the share of income fully controlled by the wife. Transferring money to the husband's bank account and committing to consumption for the husband ( $T_H$  and  $V_H$ ) can be considered the share of income fully controlled by the husband.

If the wife transfers money to her husband, he allocates a fraction  $(1 - S)\theta$  to his private or household public good consumption, and the wife gets  $S(1 - \theta)$  for herself. The parameter  $\theta$  can be considered the husband's tax rate on any income the wife gets. Apart from taking  $\theta$  from her income, the husband assigns the wife  $S$  for her ownership over the income, based on whether she earned it or not.

The tax rate  $\theta$  that the husband imposes on his wife is predetermined in the marriage contract. The larger the tax rate  $\theta$  imposed by the husband, the more incentive the wife has to transfer the income to herself or commit to any type of consumption, private or shared. If  $\theta$  is low enough, that is, her husband taxes little of her income, then she plausibly derives utility from joint decision-making with her husband through improving their relationship. In this specific case, her utility of turning over income to him in the form of direct transfer or committed consumption for him could be greater than the utility from taking control of the income through transfer to her bank account or private consumption.

If the wife chooses a male voucher, the husband may try to undo the consumption commitment in the case that he did not approve her commitment to consumption. He may be able to undo a share of the committed consumption, denoted by  $\alpha$ , where  $\alpha \in [0, 1]$ . If  $\alpha = 0$ , then the husband cannot undo any of the committed consumption that the wife made and if  $\alpha = 1$ , then the husband can completely undo the committed consumption that the wife made and regain his control over income.  $\alpha$  represents the degree to which he can undo the committed consumption.<sup>6</sup> In the case that he undoes the committed consumption that she made for her husband, he retrieves  $\alpha Y$ . Out of the  $\alpha Y$  he retrieves, she gets her share  $S(1 - \theta)\alpha Y$ . The husband may also impose a punishment whose monetary equivalent is  $P$  if he does not prefer his wife to make a committed consumption for him.

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<sup>6</sup> The degree of undoing the committed consumption can also be in the form of cutting the budget allocations in the future based on the committed consumption made.



Suppose the wife decides to transfer the amount to her bank account. The husband may find out about the transfer with probability  $p$ . Then he would take control of the allocation jointly with her (or alone) and may impose a punishment whose monetary equivalent is  $P$ . Suppose we denote  $C$  as the monetary equivalent of the disutility she receives from sharing control with her husband. There could also be a situation where the wife gains from sharing control with her husband due to an improvement in intimacy, and, in that case,  $C$  can be thought of as the utility she receives from sharing control with her husband. Hence, if the husband finds out about her decision to transfer to her bank account, she gets her share in the household allocation process:  $S(1-\theta)Y - P - C$ .

The punishment  $P$  imposed by the husband if the wife makes an allocation decision without his approval or in case she decides to hide the decisions she made, is increasing in the tax rate  $\theta$ . If the marriage contract is in such a way that the husband taxes a lot of her income, it would also imply that the punishment  $P$  associated with her decision-making scenarios is also high. However, punishment  $P$  is decreasing in the sense of ownership of income  $S$ . If the husband assigns her control of money due to the task she performs, then the punishment  $P$  that he imposes on her would be lower as compared to if she hadn't earned money. In such a case, the wife's utility of keeping income for herself or committing to private consumption is higher as compared to other strategies.

The probability  $p$  with which her husband may find out about the decisions she made could vary based on her strategies. For example, the probability of getting caught after a consumption commitment may be higher than the probability of getting caught otherwise. The probability  $p$  that we describe here is only related to the probability of finding about the wife's decisions and not about her income. Within our experimental setting, in a separate allocation game, along with incomplete information about her decisions, we also capture the additional effects of incomplete information about the wife receiving the income. In this case, the probability  $p$  of the husband finding about her strategies would be lower as there is an additional option to plausibly deny that she received the money.

The disutility she receives from sharing control with her husband,  $C$ , could be high or low based on the tax rate  $\theta$  the husband imposes on the wife. If the tax rate  $\theta$  in the marriage contract is low, then she would not face high disutility from sharing control with her husband and, indeed, benefit from the joint decision-making with the husband. However, if  $\theta$  is high enough, outcomes of sharing control with the husband may be too far from her preferences, and she may perceive low values of  $C$ .

Suppose the wife chooses to commit to consumption for herself and let the probability of being caught be  $\hat{p}$ .  $\hat{p}$  need not be equal to  $p$  since the probability of getting caught after making a consumption commitment is different from the probability of getting caught otherwise. If she gets caught after choosing to commit to consumption for herself, then the

husband may impose punishment  $P$  for committing to consumption he may not necessarily approve of and will try to undo the consumption commitment. In this case, as well, she receives disutility  $C$  from giving up full control over decision-making on the committed consumption for herself. Also, as before, the husband may be able to undo a share of the committed consumption,  $\alpha Y$ . In that case, he takes  $\alpha\theta Y$  from her. She receives  $(1 - \alpha)Y$  from the committed consumption she made for herself and also received her share  $S(1 - \theta)$  of  $\alpha Y$ , that is,  $S(1 - \theta)\alpha Y$  from what he can retrieve. Hence, in total she receives:  $(1 - \alpha)Y + S(1 - \theta)\alpha Y - P - C = [1 - \alpha(1 - S(1 - \theta))]Y - P - C$ .

Suppose the wife chooses strategy  $V_S$  to make committed consumption for household use. If the husband does not find out, the wife allocates the income and keeps share  $S(1 - \gamma)Y$  for herself.  $\gamma$  can be thought of as the share of  $Y$  wife gives to the household public good and could be different from  $\theta$ , the share that the husband keeps for household consumption out of the income. If the husband finds out with probability  $\hat{p}$ , then he might try to undo the committed consumption by  $\alpha Y$ . In that case, he takes control over the decision to spend income jointly or alone. She receives  $S(1 - \theta)$  from the committed consumption retrieved  $\alpha Y$ , and also receives  $S(1 - \theta)$  of committed consumption  $(1 - \alpha)Y$ . In total, she receives,  $S(1 - \theta)\alpha Y + S(1 - \theta)(1 - \alpha)Y = S(1 - \theta)Y$ . In this strategy as well, the husband imposes a punishment  $P$  for committing to consumption he may not necessarily approve of. Also, she may receive disutility  $C$  from giving up her full control over consumption.

Suppose the wife chooses the strategy to transfer  $Y$  to a third person other than her husband. Let  $\tilde{p}$  be the probability that the husband finds out.  $\tilde{p}$  is not equal to  $\hat{p}$  or  $p$  since the probability of him finding out about the transfer she made to someone else is different from the transfer made to her account or a consumption made by her. If the husband finds out with probability  $\tilde{p}$ , then as in the case of committed consumption before, he might be able to undo a part of the transfer,  $\alpha Y$ . In that case, she receives her share  $S(1 - \theta)\alpha Y$ .<sup>7</sup> If the husband does not find out about the transfer to the third person, she might be able to retrieve  $\alpha Y$  of the transfer from the transfer she made. For example, it could be the case that she sent the money to her extended family to buy her goods, or she is paying off her personal debt to a family member. In that case, with probability  $(1 - \tilde{p})$ , she gets  $\alpha Y$ . We describe F's utility function and her preference for different strategies in Appendix A.

### 2.1.1 Parameter Variation Across Experimental Treatments

The treatment arms in this study vary in three parameters: a sense of ownership ( $S$ ), disutility that the wife has from sharing control over decision-making from the husband ( $C$ ), transparency ( $p, \hat{p}, \tilde{p}$ ), and punishment ( $P$ ).  $\theta$  can be considered a condition under the marriage contract between couples, and  $\alpha$  can be considered a technological constraint for

<sup>7</sup> The  $\alpha$  under the strategy  $O_S$  may vary based on whether she transfers to her extended family/friends or his extended family/friends.

committed consumption for spouses under all treatment arms.

In our experimental setting, we vary the sense of ownership of money through two treatment arms. One is where the wife performs a task to receive the money, and another is where she receives the amount as a gift. We hypothesise that spousal decision-making will be affected by the sense of ownership that the wife perceives from earning the income as compared to receiving the income as a gift.

Across the treatment arms, the female spouse's disutility from giving up full control decision-making varies, as defined by the parameter  $C$ . Women get complete control over decisions, binding in Private, Private Labelled, and Visible treatment groups. Under Negotiation, spouses jointly decide on how to allocate the money, which means the wife suffers some utility loss from giving up full control over the decision but may gain from jointly negotiating with her husband on allocation decisions. For low levels of tax rate  $\theta$  from her husband, disutility from sharing control with her husband on decision making,  $C$ , could be less under Private, Private Labelled, and Visible. If the husband imposes less tax on her income, her intimacy gains from joint decision-making would be higher than the loss from giving up full control over decisions. Hence, by making decisions without consultation with her husband would give her a low level of  $C$  under low levels of  $\theta$ . Under Joint Approval, for any levels of  $\theta$ , since the decision is made only after the "Approval" from her husband, she loses more control over the decision than all the other treatment arms. Hence, in this scenario, her disutility from losing full control over decisions is the highest. Overall, the level of  $C$  under each treatment arm is determined by the tax rate that the husband imposes,  $\theta$ .

In the Private and Private Labelled conditions, both spouses do not have full information about their partner's choices. Thus, in Private and Private Labelled conditions, decisions were unobserved such that there exists a certain probability that the partner will find out. Under Private and Private Labelled conditions, we assume  $\tilde{p} \leq p \leq \hat{p} < 1$ . Committed consumption in the form of a gift voucher for private consumption is arguably more observable than transferring money to a personal bank account ( $p \leq \hat{p}$ ). Also, if the wife decides to transfer the amount to a third person, there is a probability  $\tilde{p}$  with which her husband can find out.  $\tilde{p}$  could be lower than  $p$  and  $\hat{p}$  because there is less probability of observing money transferred to another person as compared to money in her account or goods purchased from committed consumption. Under Visible, Approval, and Negotiation, all spouses' decisions are revealed to their partners and hence,  $\tilde{p} = p = \hat{p} = 1$ .

The treatment arms also vary in the level of punishment  $P$  that the husband can impose on his wife if she makes decisions far from his preferences or hides her decisions. Under the Private condition, where income could be used for any purposes and decisions are not visible to partners, the expected punishment is low. However, since income under

the Private Labelled condition is labelled for household purposes, the punishment would be higher than the Private Non-labelled condition. In the Approval and Negotiation condition, both spouses communicated their decisions in two different ways. Under the Approval condition, the husband could “accept”, or “reject” his wife’s decisions on how to allocate the income, and hence there was limited communication. Hence, given that the husband dictates the decisions completely, the level of expected punishment is lower in Approval as compared to Negotiation or Visible. Under the Negotiation condition, couples communicate in person about their preferences and make joint decisions on allocation. The punishment level under this treatment arm is higher than the punishment under Approval, given the bargaining framework under negotiation compared to a dictator framework in Approval. Under the Visible, decisions are visible to the partner, and there is no communication of preferences between partners. This can lead to higher punishment if he disapproves of her decisions. Hence, the punishment level under Visible is higher than Negotiation and Approval.

Table 1 summarises the values of parameters,  $S$ ,  $C$ ,  $p$ , and  $P$  under the treatment condition in our experiment.

Table 1: Predicted Parameter Values by Experimental Treatment Arms

	Private	Private Labelled	Approval	Visible	Negotiation
Gift	$S_{low}$	$S_{low}$	$S_{low}$	$S_{low}$	$S_{low}$
	$C_{low}$ for $\theta_{low}$	$C_{low}$ for $\theta_{low}$	$C_{high}$ for $\theta_{all}$	$C_{low}$ for $\theta_{low}$	$C_{low}$ for $\theta_{low}$
	$p \leq \hat{p} < 1$	$p \leq \hat{p} < 1$	$p = \hat{p} = 1$	$p = \hat{p} = 1$	$p = \hat{p} = 1$
	$P_{low}$	$P > P_{low}$	$P_{low}$	$P_{high}$	$P > P_{low}$
Task	$S_{high}$	$S_{low}$	$S_{low}$	$S_{low}$	$S_{low}$
	$C_{low}$ for $\theta_{low}$	$C_{low}$ for $\theta_{low}$	$C_{high}$ for $\theta_{all}$	$C_{low}$ for $\theta_{low}$	$C_{low}$ for $\theta_{low}$
	$p \leq \hat{p} < 1$	$p \leq \hat{p} < 1$	$p = \hat{p} = 1$	$p = \hat{p} = 1$	$p = \hat{p} = 1$
	$P_{low}$	$P > P_{low}$	$P_{low}$	$P_{high}$	$P > P_{low}$

### 3 Experimental Design

#### 3.1 Sampling

We use a sample of 1,008 couples randomly selected from several microfinance organisations’ client pools and through sampling in semi-urban Kolkata, India. Couples were initially

contacted via phone and asked about their willingness to participate in the study. Further, we checked their eligibility to participate in the study under the following eligibility criteria: (1) Couples are married and living in the same household, (2) both are literate, (3) both have individual bank accounts, and (4) both are 60 or less years of age. We restricted the sample to couples 60 years or less and have individual bank accounts due to restrictions on the usage of survey instruments and pay-out options provided by our partner organisation, respectively. However, this study and its results would be relevant for couples who make household decisions on a day-to-day basis and have access to physical or digital financial services.

### 3.2 Assignment to Treatment

We randomise at two levels: one, based on a work requirement of female partners, and second, based on various joint account terms such as privacy, labelling, and communication. The first level of randomisation determined whether the female partner worked during the first half an hour of the experiment. The second level of randomisation determined differential levels of labelling, information, and communication among couples concerning their financial decisions. We describe the various treatment arms and associated interventions in [Figure 1](#).

During the second level of randomisation, participants were randomised into five treatment groups, namely:

1. **Private** - Participants were informed that their choices would be kept private from their spouses.
2. **Private, with Resources Labelled Joint** - Participants were informed that their decisions are kept private from their spouse, but any amount they receive from this experiment is for common family expenditures. We provide a simple nudge that the amount is for family expenditures and can help them achieve their family financial goals.
3. **Approval Required** - Under this treatment arm, husbands were given a chance to “approve” or “reject” the decision made by their wives through a digital app. The game ended if the husband “approved” her decision, and her choices on allocation were enacted. The wife had to choose again if her husband “rejected” her decision until he “approved” her decision. This sequential game went on for three rounds or until the husband “approved” the wife’s decision. If the husband did not approve his wife’s decision three times, he had to forgo his chance to accept or reject the allocation during the fourth round. However, he was able to see the decision that his wife made.
4. **Visible, No Approval required** - Under this treatment arm, couples could see the decisions made by their partner after deciding how to allocate the money and the respective expenditure decisions. Participants under this treatment arm made decisions

without consultation with their partner, but information on their decisions was later shared with them through a digital app after the experiment.

5. **Negotiated Outcome** - Under this treatment arm, female partners were required to communicate and negotiate their decision in person with their husbands in a separate room. After the negotiation, the couple jointly made their allocation and expenditure decisions. We also captured participants' preferences before the in-person negotiation to understand the difference between the preferred choice and the outcome of negotiation between couples.

Under the different types of treatment at the first and second randomisation levels, couples made decisions on how they wished to allocate a certain amount of money into the six different options outlined in the theoretical section: depositing in their own bank account, depositing in their partners' bank account, depositing to a third person's bank account, a personal gift voucher to buy female clothing, footwear and other accessories, a personal gift voucher to buy male clothing, footwear and other accessories, and a shared gift voucher to buy household items. Participants were also asked how they plan to spend the amount on different types of expenditure, which range from savings to children's expenditure to different types of daily expenditure goods such as food items and personal goods. We also capture information on whom participants would like to spend the amount on, for example, self or partner or all members of the family (Figure 2).

### 3.3 Timeline of the Experiment Session

The experiment session began with a survey to record household and individual characteristics of couples, which took approximately half an hour. During the next half an hour of the experiment, each couple were randomised into a 'task' or 'gift' stream. Under the "task" stream, female spouses worked for half an hour for 400 rupees on a moderately intensive mundane task of packing rice into small bags, while their partner watched on or read some magazine in the same room.<sup>8</sup> Women were expected to achieve a target of 30 small bags within the timeframe of half an hour. This ensured that the task replicated the structure of daily wage work with certain expectations. Under the "gift" stream, female spouses received 400 rupees, while both male and female participants enjoyed some magazines and other temporary, within-room distractions.<sup>9</sup>

After half an hour of working or waiting, all couples entered the lab for a session to complete an allocation game on how they would like to spend the 400 rupees earned/received by women under varying conditions of privacy, labelling and communication between partners, the five treatment arms of the second level randomisation. Both partners were in separate

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<sup>8</sup> 400 rupees is the equivalent amount of daily wage in the study area, mimicking our lab setting to a workfare program setting.

<sup>9</sup> As done in (Bhanot et al., 2018), participants were asked to come to the front of the room to confirm their name, bank details on a sheet of paper, explaining that these details would be important for receiving money.

Figure 1: Assignment to Treatment

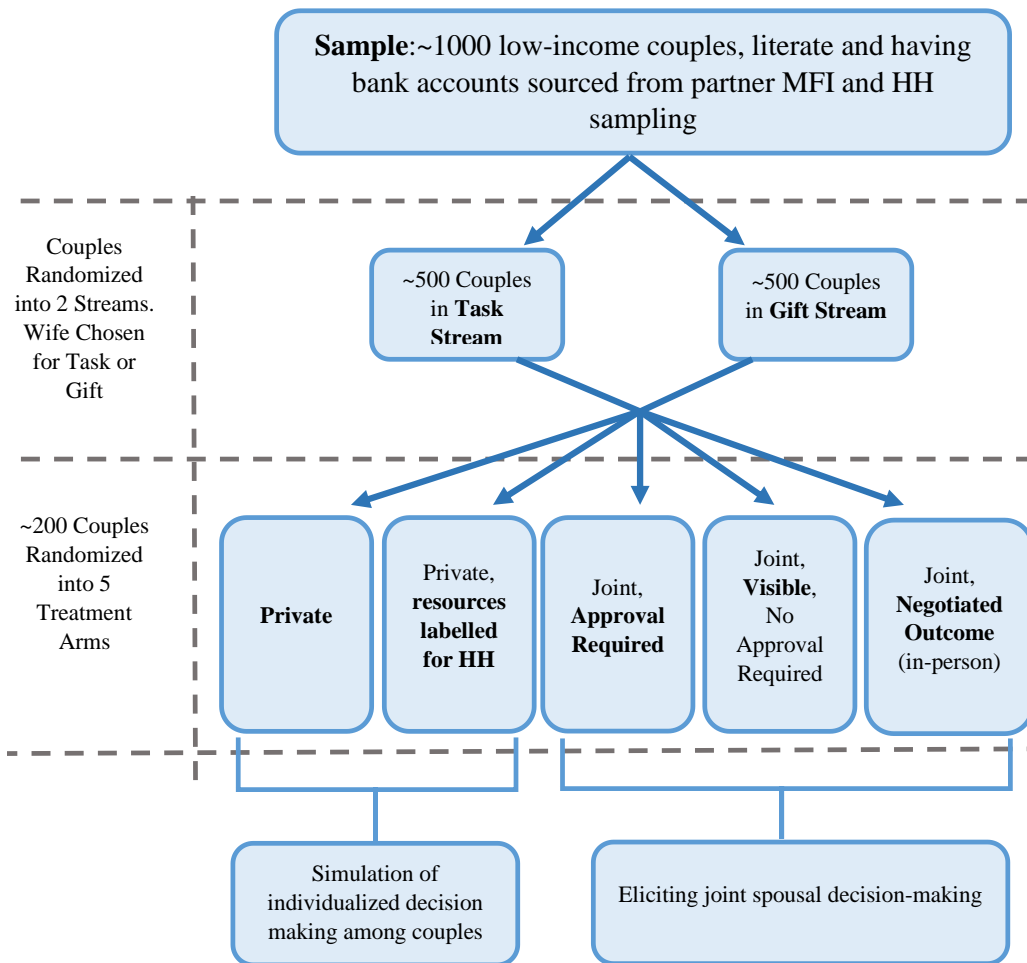
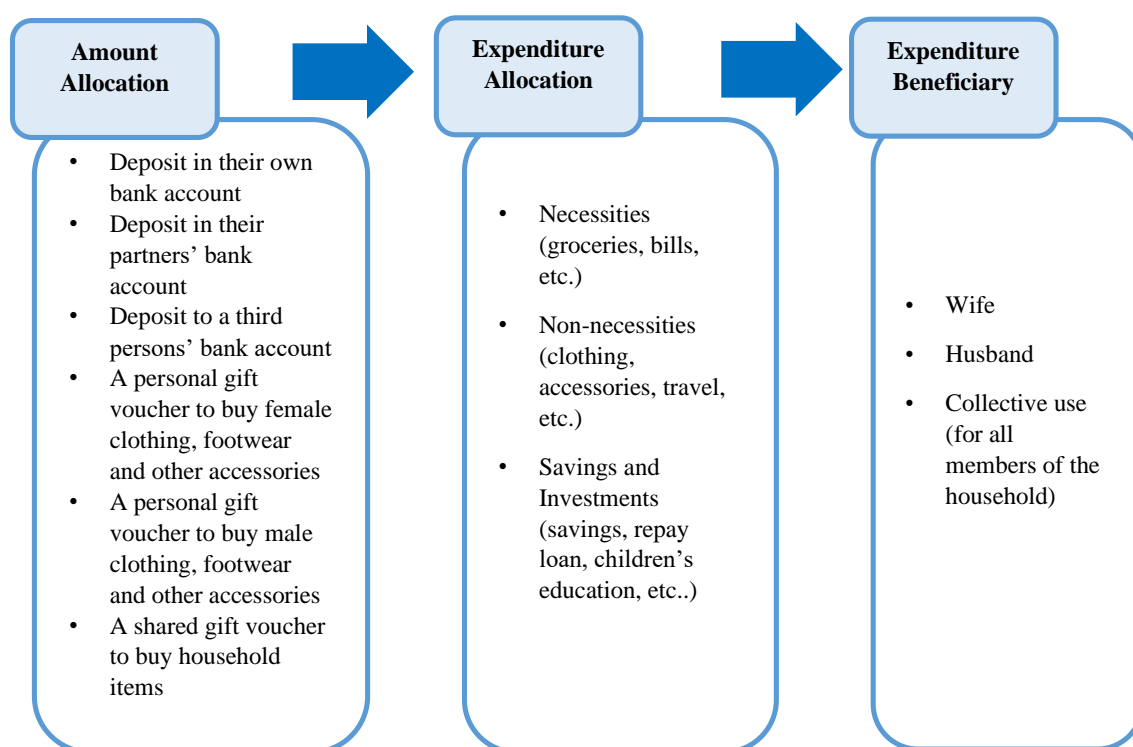


Figure 2: Assignment to Treatment



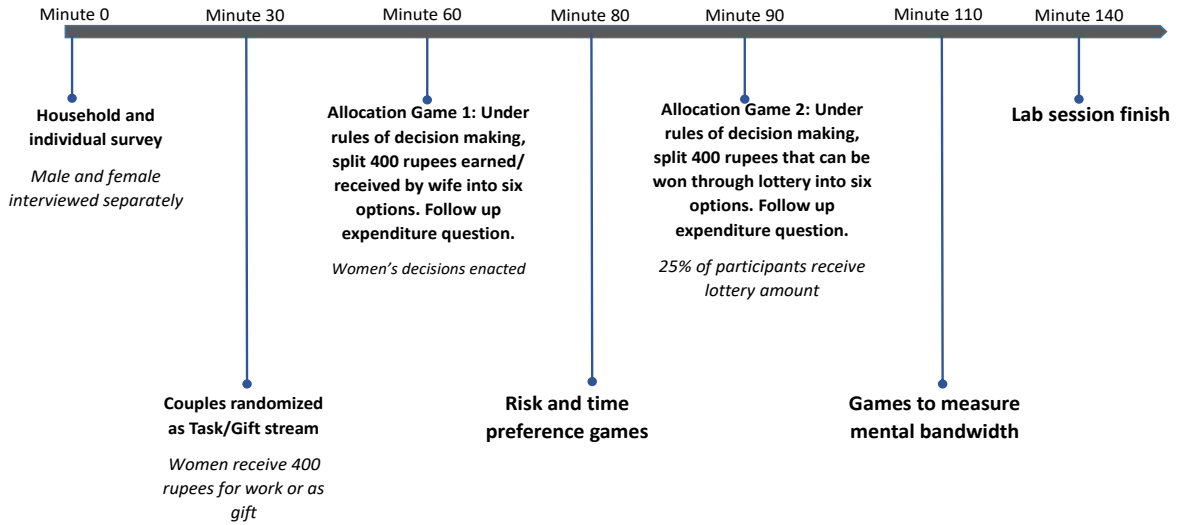
rooms during the allocation game and were given an android tablet, each with survey CTO installed. Men and women were asked separately how they would like to split 400 rupees that women earned or received into one or more options as described in Figure 2. While women were asked how they wished to spend the money they earned or received, men were asked how they wish their wives to spend the money they earned or received during the first round.

In the first round, we enacted women's decisions on allocation. Participants were asked to assign an amount ranging from zero to four hundred rupees into the above five allocation categories. Depositing in a bank account allows participants to decide later how they wish to spend the amount received while choosing vouchers was a way of committing to a particular consumption good. Private vouchers were only redeemable for the purchase of 'female' items (or male' items). For example, suppose the wife allocates an 'x' amount to a personal gift voucher for female products. In that case, she receives a gift voucher only redeemable for items such as clothes, footwear, and other items for women. As a follow-up to the question on how they would allocate the amount women earned or received, we also record how they plan to spend the amount towards different types of expenditure and for whom the expenditure would be made. The participant's answers to the follow-up question on expenditure need not be binding because we could not restrict their expenditures to the items they choose in the allocation game.

Following this, both males and females played another round of the allocation game where they were given an opportunity to win 400 rupees with a 25% probability through



Figure 3: Assignment to Treatment



a lottery system. This was in addition to the 400 rupees women won in the first round of work or no work. This contrasts with the first round of the allocation game in two respects. In the first round of the allocation game, both the partners had full information that women receive 400 rupees from working or waiting, while the lottery in the second round ensured plausible deniability for women about receiving the amount. This helps us identify the difference in women's choices when we move from a setting of certain to uncertain earnings, allowing for greater freedom in allocation choice. Secondly, during the second round of the allocation game, we analyse the effect of household resources in the male account (Private, Labelled for Household) and the transparency of female decisions. The decisions couples had to make about the amount they would potentially win through lottery were similar to the first round of the allocation game (Figure 2). The allocation games were followed by some questions and games to assess the emotional well-being and mental bandwidth of the participants. Through such games, we intend to assess the impact of privacy and communication between partners on their mental well-being. Figure 3 outlines the timeline of the experiment session.

## 4 Data and Empirical Strategy

### 4.1 Summary Statistics

Table 2 provides descriptive statistics on the couples who participated in the study under different rules of spousal financial decision-making. The women in the study have an average age of 36 and married at age of 21. The majority are educated, with 75% of the women having a high school education or higher, while just over 28% of them are employed. Just over a quarter, 26%, of the women have some form of informal savings, and 25% of women

Table 2: Descriptive Statistics

	Task	Gift	Private	Private Labelled	Public Visible	Public Approval	Public Negotiation
<b>Household</b>							
Years being married	15.60 (9.63)	15.57 (8.96)	15.03 (9.27)	15.50 (9.35)	15.58 (8.98)	17.34 (10.36)	14.50 (8.24)
Household members	4.01 (1.40)	4.27 (1.62)	4.46 (1.84)	3.92 (1.31)	4.07 (1.40)	4.11 (1.46)	4.16 (1.49)
Number of children	1.21 (0.82)	1.34 (0.83)	1.29 (0.88)	1.25 (0.83)	1.27 (0.81)	1.34 (0.92)	1.21 (0.70)
Number of adults over 60	0.35 (0.64)	0.41 (0.68)	0.41 (0.74)	0.29 (0.55)	0.36 (0.62)	0.39 (0.68)	0.43 (0.68)
Number of rooms	1.93 (0.80)	1.84 (0.82)	2.01 (0.93)	1.80 (0.75)	2.00 (0.83)	1.80 (0.71)	1.81 (0.80)
Has a joint bank account with spouse	0.32 (0.47)	0.29 (0.46)	0.28 (0.45)	0.32 (0.47)	0.33 (0.47)	0.33 (0.47)	0.28 (0.45)
<b>Female</b>							
Age	36.40 (9.02)	35.80 (8.55)	35.38 (9.14)	36.65 (8.60)	35.98 (8.48)	37.63 (9.36)	34.88 (8.13)
Age at marriage	21.08 (4.95)	20.47 (4.38)	20.59 (4.34)	21.52 (5.70)	20.68 (4.09)	20.36 (4.82)	20.72 (4.22)
High school education or more	0.70 (0.46)	0.79 (0.40)	0.74 (0.44)	0.78 (0.41)	0.69 (0.46)	0.79 (0.41)	0.75 (0.43)
Employed	0.28 (0.45)	0.29 (0.45)	0.31 (0.46)	0.31 (0.46)	0.21 (0.41)	0.29 (0.46)	0.29 (0.46)
Typical month income is 10 k rupees or more	0.10 (0.31)	0.09 (0.28)	0.10 (0.29)	0.08 (0.27)	0.07 (0.25)	0.13 (0.34)	0.10 (0.30)
Contributes half or more towards HH income	0.68 (0.47)	0.76 (0.43)	0.72 (0.45)	0.70 (0.46)	0.70 (0.46)	0.74 (0.44)	0.74 (0.44)
Use informal savings	0.22 (0.42)	0.30 (0.46)	0.25 (0.43)	0.28 (0.45)	0.26 (0.44)	0.32 (0.47)	0.20 (0.40)
Use mobile banking	0.28 (0.45)	0.23 (0.42)	0.20 (0.40)	0.30 (0.46)	0.30 (0.46)	0.19 (0.40)	0.27 (0.44)
<b>Male</b>							
Age	42.72 (9.94)	42.65 (9.43)	42.23 (9.98)	43.05 (9.66)	42.49 (9.43)	44.05 (10.06)	41.64 (9.14)
Age at marriage	27.08 (5.67)	26.97 (5.40)	26.98 (5.17)	27.59 (6.16)	26.70 (5.01)	26.92 (5.46)	26.95 (5.78)
High school education or more	0.59 (0.49)	0.76 (0.43)	0.72 (0.45)	0.68 (0.47)	0.62 (0.49)	0.71 (0.46)	0.65 (0.48)
Employed	0.99 (0.12)	0.98 (0.13)	0.98 (0.14)	0.98 (0.12)	0.99 (0.07)	0.97 (0.16)	0.99 (0.12)
Last month income is 10 k rupees or more	0.67 (0.47)	0.57 (0.50)	0.62 (0.49)	0.56 (0.50)	0.66 (0.47)	0.61 (0.49)	0.65 (0.48)
Contributes half or more towards HH income	0.91 (0.28)	0.89 (0.31)	0.89 (0.32)	0.87 (0.34)	0.95 (0.22)	0.88 (0.32)	0.91 (0.28)
Use informal savings	0.10 (0.30)	0.18 (0.38)	0.15 (0.36)	0.11 (0.31)	0.13 (0.34)	0.14 (0.35)	0.16 (0.37)
Use mobile banking	0.35 (0.48)	0.29 (0.46)	0.30 (0.46)	0.27 (0.44)	0.37 (0.48)	0.29 (0.45)	0.37 (0.48)
<i>N</i>	1000	1016	400	400	404	400	412

use mobile banking. The men in the study had an average age of 43 and married at age 27. The majority of the men, 67%, also have a high school education or more, and 99% of men are employed. Only 14% of men have informal savings and 32% of men use mobile banking. On average, the couples in the study are married for 16 years, have one child, and 31% of the couples have a joint account with their spouse.

## 4.2 Balance between treatment groups

We use the joint test of orthogonality to test the balance between treatment and control groups. We run the following regression to check if the coefficients  $\beta_1 = \beta_2 = \beta_3 = \dots = 0$ .

$$Treat = \beta_0 + \beta_1 * X_1 + \beta_2 * X_2 + \beta_3 * X_3 + \dots + u \quad (1)$$

Table 3 reports results from the joint test of orthogonality for testing balance between various treatment and control groups. For all treatment types, we cannot reject the hypothesis that coefficients for household characteristics are all equal to zero. Hence, the joint test of orthogonality shows a balance between all types of treatment and control groups.

Table 3: Balance Table

	Task (1)	Labelling (2)	Visibility (3)	Approval (4)	Negotiation (5)
Number of years married	0.003 (0.002)	0.001 (0.003)	0.004 (0.003)	0.007*** (0.002)	-0.000 (0.003)
Number of children	-0.043* (0.026)	-0.032 (0.033)	-0.017 (0.034)	-0.015 (0.029)	-0.024 (0.034)
Number of adults over 60	-0.032 (0.025)	-0.070 (0.047)	-0.024 (0.040)	0.015 (0.038)	0.003 (0.038)
Have a joint account	0.016 (0.037)	0.062 (0.044)	0.030 (0.050)	0.041 (0.050)	-0.011 (0.048)
Wife is employed	0.008 (0.041)	0.005 (0.055)	-0.138** (0.056)	-0.037 (0.054)	-0.008 (0.066)
Couple age difference	-0.006 (0.004)	-0.005 (0.006)	-0.006 (0.006)	-0.007 (0.005)	-0.001 (0.005)
Wife has high school education or more	-0.076 (0.053)	0.045 (0.068)	-0.056 (0.071)	0.051 (0.080)	0.027 (0.065)
Husband's monthly income is 10 k rupees or more	0.088** (0.040)	-0.046 (0.054)	0.013 (0.060)	0.023 (0.056)	0.038 (0.059)
<i>N</i>	1975	783	785	785	789
<i>F</i>	1.716	1.247	1.235	1.566	0.165
<i>p</i> -value	0.103	0.282	0.287	0.151	0.995

Notes: Dependent variables: Dummy variable 1 if participant is in treated group, 0 if participant is in control group. *p* value from joint orthogonality test is reported. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## 4.3 Empirical strategy

To estimate the causal effect of treatments related to various rules of workfare and monitoring rules among spouses for financial decision-making, we perform the following empirical specification for participant *i*:

$$Y_i = \alpha + \beta_1 Task + \beta_2 M + X_h + \epsilon_i \quad (2)$$

where  $Y_i$  is the outcome variable,  $M$  is a dichotomous variable equal to one if a participant is under a specific treatment arm under different rules of spousal monitoring, ranging from private to public negotiation,  $X_h$  are household control variables for the participant, and  $\epsilon_i$  is the error term. The standard errors are clustered at the session level. We focus on the coefficient  $\beta_1$  to understand the effect of workfare versus unconditional

transfers and the coefficient  $\beta_2$  for different rules related to spousal financial decision-making.

To understand the interactive effect of workfare and different rules among spouses for financial decision-making, we perform the following empirical specification for participant  $i$ :

$$Y_i = \alpha + \beta_1 Task + \beta_2 M + \beta_3 M * Task + X_h + \epsilon_i \quad (3)$$

where  $Y_i$  is the outcome variable,  $M$  is a binary variable equal to one if a participant is under a specific treatment arm under different rules of spousal monitoring,  $X_h$  are household control variables for the participant, and  $\epsilon_i$  is the error term. The standard errors are clustered at the session level. We focus on the coefficient  $\beta_1 + \beta_3$  to estimate the effect of workfare under different rules of spousal monitoring and the coefficient  $\beta_2 + \beta_3$  to estimate the effect of different rules of spousal monitoring under workfare.

Our primary set of outcome variables is divided into three aspects of financial decision-making: to whom the amount is allocated, the type of allocation expenditure, and for whom the expenditure is made. For capturing the effect on who the amount is allocated to, our three main outcome variables are (1) Amount share to the wife, (2) Amount share to the husband, and (3) Visible to the partner.<sup>10</sup> We calculate the “amount share to the wife” as the share of 400 rupees the participant chooses to transfer to the wife’s bank account and a voucher for female products. We similarly define the “amount share to the husband”. We calculate “Visibility” as a binary variable equal to one if participants transfer the money to their partner’s bank account, a voucher for themselves or their partner or a shared voucher for both, and zero otherwise. This outcome overlaps with the other two outcomes, for example, if the wife allocates an amount to her husband’s account, this increases the amount share to the husband and the amount under “Visibility”.

Under the first allocation game, for the female, these outcomes are the share of resources she allocates to herself, while for the male, this is the amount he wants her to allocate to herself. In the appendix section of the paper, we analyse the female and male responses on how they would like to allocate and spend the money the wife earned or received. We report the difference in these effects for female and male responses and check if the coefficients are significantly different from each other. In the second allocation game, this outcome definition changes for the husband as it is now what he chooses to allocate to his wife if he wins the lottery.

To analyse the effect on the type of expenditure allocation, we categorise the expenditure into three types: (1) Necessities, including groceries, bill payments such as rent and electricity and so on, (2) Non-necessities, including clothing, tobacco, and personal

<sup>10</sup> We do not categorise the strategies of participants as described in our theoretical framework due to insufficient observations for some categories. For example, only a few under each treatment arm choose strategies of choosing vouchers (due to preference for money over vouchers) or transferring the amount to a third person.

male products and female products, (3) Savings and investments, which includes savings, children’s education, repaying loan or debt. We also look at the impact on whom they wish to make the expenditure for, which have three beneficiary categories: (1) wife, (2) husband, and (3) everyone in the household, including wife and husband. As a robustness check to correct for multiple hypothesis testing, we also report Anderson’s  $q$ -values (Anderson, 2008) in all our results.

## 5 Results

In this section, we first present our findings on the effect of workfare versus gifted amount on spousal decision-making regarding whom the amount is allocated to, the type of allocation expenditure and for whom the expenditure is made. We then present the effects under different rules on spousal decision-making.

### 5.1 Workfare Versus Unconditional Transfers

#### 5.1.1 Overall Effect

We first analyse the effect of female workfare on spousal financial decision making. In Table 4, we find that when women work for the amount, the share of amount she allocates to her bank account or private female voucher is 5.5 percentage points more as compared to when she received the amount as a gift (Panel A, column 1,  $p < 0.05$ ,  $q < 0.1$ ). Linked with this, we find that under workfare, women are 5.6 percentage points less likely to allocate the amount to accounts visible to their husbands, such as the husband’s bank account or any type of voucher (Panel A, column 5,  $p < 0.05$ ,  $q < 0.1$ ). Additionally, in Table C1, we find that the husband also is in agreement with her decision to allocate money to her account. We find no effect on the couple’s spending patterns when the wife earns the amount (Panel B and Panel C). Our results are robust after accounting for multiple hypothesis testing. What these results suggest is that personally earning income increased the wife’s sense of ownership of the money, and hence women allocated more to accounts over which she has more control, but interestingly this ownership does not necessarily translate to lower shared spending. Our findings also highlights husband’s perception of women’s workfare and the related ownership of the money earned. These results contribute to the literature that women’s earned income is causally related to her having control over resources, which in turn gives her direct bargaining power (Doss, 2013).

#### 5.1.2 Workfare under In-person Negotiation

While we observe an overall effect of workfare on female control over money, we further examine if workfare provides the wife more advantage to bargain under an in-person negotiation with her husband. This analysis would mimic how female-earned money is treated differently to her receiving a free transfer within a day-to-day household decision-making

Table 4: Effect of women's workfare on spousal decision making

	Female Spouse					
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A - Amount allocation</b>						
	Amount share to wife		Amount share to husband		Visibility	
Task [A]	0.055 (0.02) [0.016]** {0.099}*	0.052 (0.02) [0.029]** {0.153}	-0.034 (0.02) [0.086]* {0.216}	-0.033 (0.02) [0.104] {0.322}	-0.056 (0.02) [0.020]** {0.099}*	-0.054 (0.02) [0.026]** {0.153}
N	1008	987	1008	987	1008	987
Gift Mean	0.84	0.84	0.12	0.12	0.16	0.16
<b>Panel B - Expenditure allocation</b>						
	Necessities		Non-necessities		Savings and Investments	
Task [B]	0.003 (0.03) [0.898] {0.665}	0.012 (0.02) [0.628] {0.794}	-0.005 (0.03) [0.840] {0.665}	-0.017 (0.03) [0.536] {0.794}	0.010 (0.03) [0.769] {0.665}	0.013 (0.04) [0.703] {0.794}
N	995	974	995	974	995	974
Gift Mean	0.26	0.26	0.15	0.15	0.57	0.57
<b>Panel C - Expenditure Beneficiary</b>						
	Wife		Husband		Collective Use	
Task [C]	0.054 (0.03) [0.101] {0.216}	0.033 (0.03) [0.268] {0.473}	-0.015 (0.01) [0.174] {0.296}	-0.016 (0.01) [0.197] {0.456}	-0.017 (0.03) [0.578] {0.627}	0.004 (0.03) [0.888] {0.929}
N	995	974	995	974	996	975
Household Controls	No	Yes	No	Yes	No	Yes
Gift Mean	0.31	0.31	0.04	0.04	0.65	0.65

*Notes:* Dependent variables: Columns in panel A indicate the amount allocation decisions made by spouses. Columns in panel B indicate share of amount participant wishes to spend on the specific category of expenditure. Columns in panel C indicate share of amount participant wishes to spend on individual/individuals described. Percentage point changes are calculated relative to the mean of the respective control group, which in this case is the treatment group where women receive the amount as a gift. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

negotiation setting among couples. We analyse whether her ability to claim control over money (or enact her preferences) in the bargaining process varies based on whether she worked. The outcome variable for this analysis is the difference between the negotiated outcome and female/male initial preferences before the negotiation. In [Table 5](#), we examine the role of workfare in the negotiation process between the couple by focusing only on the couples in the “Negotiation” treatment group.

Our results mirror the existing empirical evidence that personally earning money provides women with a sense of ownership and improves their say in household decision-making ([Majlesi, 2016](#); [Luke and Munshi, 2011](#); [Bertocchi et al., 2014](#); [Anderson and Eswaran, 2009](#)). Earning money gives her direct bargaining power, which in turn may have provided her with more leverage during an in-person negotiation with her husband to take more control over the money she earned (by allocating more to accounts under her control). In [Table 5](#) (Panel A, column 1), we find that if she worked for the amount, she is likely to claim 8.9 percentage points higher share of the amount towards her bank account or a female voucher ( $p < 0.01$ ,  $q < 0.05$ ) in the negotiation process, compared to when she was gifted the amount. Under the negotiation process, workfare also reduces the likelihood that she transfers the amount to accounts visible to her husband by 7.1 percentage points (Panel A, column 5,  $p < 0.05$ ,  $q$  value not significant).

The couple’s decision on the type of expenditure they would spend the amount on is not determined by whether she worked or not ([Table 5](#), Panel B). Examining how workfare affects the decision on whom to spend the money towards during spousal negotiation, we find that couples agree on spending 10.2 percentage points less towards all household members if she worked for the amount ([Table 5](#), Panel C, column 5,  $p < 0.05$ ,  $q$  value not significant). Although not statistically significant, this is associated with her spending 6.7 percentage points more for her personal expenditures. In a negotiation process, a sense of ownership of the amount through workfare allows the female spouses to negotiate better to spend less for collective use and more towards themselves. The null results for men ([Table 5](#), Columns 7 to 12) indicate that under an in-person negotiation, workfare provides women the ability to enact preferences in her direction rather than his.



Table 5: Effect of Workfare on Spousal Decision Making under an In-person Negotiation

	Female Spouse						Male Spouse					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>Panel A - Amount allocation</b>												
	Amount share to wife		Amount share to husband		Visibility		Amount share to wife		Amount share to husband		Visibility	
Task [A]	0.089 (0.03) [0.004]*** {0.042}**	0.087 (0.03) [0.003]*** {0.028}**	-0.031 (0.03) [0.282] {0.320}	-0.035 (0.03) [0.206] {0.368}	-0.071 (0.03) [0.039]** {0.137}	-0.064 (0.03) [0.062]* {0.315}	0.086 (0.08) [0.258] {1.000}	0.097 (0.09) [0.257] {1.000}	-0.059 (0.07) [0.410] {1.000}	-0.090 (0.08) [0.272] {1.000}	0.032 (0.06) [0.587] {1.000}	0.004 (0.07) [0.955] {1.000}
N	206	200	206	200	206	200	206	200	206	200	206	200
Gift Mean	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.27	0.27	-0.32	-0.32	0.54	0.54
Female - Male [A]	0.00	-0.01	0.03	0.06	-0.10	-0.07						
Female=Male [A]	0.97	0.90	0.69	0.50	0.11	0.35						
<b>Panel B - Expenditure allocation</b>												
	Necessities		Non-necessities		Savings and Investments		Necessities		Non-necessities		Savings and Investments	
Task [B]	-0.034 (0.04) [0.373] {0.335}	-0.033 (0.04) [0.427] {0.400}	-0.023 (0.04) [0.586] {0.484}	-0.008 (0.05) [0.872] {0.564}	0.063 (0.06) [0.275] {0.320}	0.049 (0.07) [0.457] {0.400}	0.040 (0.06) [0.508] {1.000}	0.050 (0.06) [0.410] {1.000}	-0.021 (0.06) [0.735] {1.000}	-0.064 (0.07) [0.350] {1.000}	-0.028 (0.09) [0.747] {1.000}	0.002 (0.09) [0.983] {1.000}
N	202	196	202	196	202	196	202	196	202	196	202	196
Gift Mean	-0.02	-0.02	0.00	0.00	0.02	0.02	-0.06	-0.06	0.02	0.02	0.04	0.04
Female - Male [B]	-0.07	-0.08	-0.00	0.06	0.09	0.05						
Female=Male [B]	0.23	0.21	0.98	0.39	0.32	0.63						
<b>Panel C - Expenditure Beneficiary</b>												
	Wife		Husband		Collective Use		Wife		Husband		Collective Use	
Task [C]	0.067 (0.05) [0.190] {0.295}	0.062 (0.05) [0.240] {0.368}	0.039 (0.02) [0.111] {0.201}	0.039 (0.03) [0.125] {0.333}	-0.102 (0.05) [0.045]** {0.137}	-0.094 (0.05) [0.090]* {0.315}	0.051 (0.08) [0.531] {1.000}	0.047 (0.08) [0.565] {1.000}	0.037 (0.04) [0.328] {1.000}	0.035 (0.04) [0.335] {1.000}	-0.124 (0.07) [0.103] {1.000}	-0.114 (0.08) [0.148] {1.000}
N	202	196	202	196	202	196	202	196	202	196	202	196
Household Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Gift Mean	0.01	0.01	-0.02	-0.02	0.00	0.00	0.25	0.25	-0.03	-0.03	-0.23	-0.23
Female - Male [C]	0.02	0.01	0.00	0.00	0.02	0.02						
Female=Male [C]	0.83	0.83	0.94	0.91	0.74	0.78						

Notes: Dependent variables: All the dependent variables is the difference between the negotiated outcome and female/male's initial preferences. Columns in panel A indicate the amount allocation decisions made by spouses. Columns in panel B indicate share of amount participant wishes to spend on the specific category of expenditure. Columns in panel C indicate share of amount participant wishes to spend on individual/individuals described. Percentage point changes are calculated relative to the mean of the group where women receive the amount as a gift within the negotiation treatment group. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in parentheses.

\* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

### 5.1.3 Workfare under Varying Levels of Male Monitoring for Female Decisions

In this section, we check for the effect of workfare under different practical scenarios of decision making among couples, ranging from a digital approval mechanism for the wife’s decision to an in-person negotiation regarding her decisions. We estimate and report  $\beta_1 + \beta_3$  from equation 3. From Table 6 (Row C), we find that the positive effect that women’s workfare has on her taking control over the resources is only present for women in the Negotiation treatment group. An approval requirement and visibility of decisions from husbands nullify the positive effect that workfare has on women taking control of their money. However, in Table 7 (Row A and Row B, Column 5), we find that workfare leads to a higher share towards savings and investments only under a digital approval requirement from her husband or digital transparency with her husband. That is, digital mechanisms of sharing control with her husband provide an additional effect of workfare by improving the household’s share towards savings and investments. In terms of the effect of workfare under different rules related to male monitoring of female decisions regarding the expenditure beneficiary, we find marginal effects on decreased share towards the husband under visibility and decreased share towards public good under in-person negotiation (Table 8).

### 5.1.4 Workfare based on Individual and Couple Characteristics

Now, we analyse the heterogeneous treatment effect of women’s workfare on financial decisions based on their individual and intrahousehold characteristics. Overall, when women work for the amount, they allocate a higher share of resources to accounts they control and less to accounts their husband controls or have visibility of. We suppose that the sense of ownership that workfare provides would depend on women’s individual characteristics, like their general self-efficacy and their relationship with their husbands, measured using indicators such as their high willingness to pay to have control over money and high intrahousehold decision making power. We observe that individual or couple characteristics do not drive the overall effect of workfare on her allocation decisions, except for self-efficacy (Figure 4). For women with self-efficacy scores higher than the median, a sense of ownership from workfare leads her to allocate 6.2 percentage points more to herself ( $p < 0.05$ ,  $q$  value not significant).<sup>11</sup>

Additionally, in households where women have limited control over resources, workfare provides her with a sense of ownership of the amount and induces her to spend more towards her expenses. We find that if the wife has ever hidden income or expenditure from her husband, under workfare, she decides to spend 17 percentage points more on herself ( $p < 0.01$ ,  $q < 0.05$ ) and 15 percentage points less for collective use by everyone in the household ( $p < 0.05$ ,  $q < 0.1$ ). The same results hold for women who have a high willingness to pay for control over resources.<sup>12</sup> If the wife has less control over resources in a household,

<sup>11</sup> A detailed description of the definition of high self-efficacy and other variables used for heterogeneous treatment effects analysis can be found in Appendix E

<sup>12</sup> We measure “high willingness to pay” as a binary variable equal to one if the woman chooses to pay any amount greater than zero to transfer money won in a hypothetical lottery game to her account, and zero

Table 6: Effect of Workfare under Male Monitoring of Female Allocation Decisions

	Amount share to wife		Amount share to husband		Visibility	
	(1)	(2)	(3)	(4)	(5)	(6)
Task&Approval [A]	0.005 (0.04) [0.909] {0.697}	0.004 (0.04) [0.925] {0.882}	0.013 (0.04) [0.764] {0.676}	0.016 (0.04) [0.694] {0.727}	-0.000 (0.04) [1.000] {0.697}	-0.002 (0.04) [0.971] {0.882}
Task&Visible [B]	0.064 (0.06) [0.260] {0.380}	0.056 (0.05) [0.306] {0.495}	-0.049 (0.05) [0.286] {0.401}	-0.051 (0.05) [0.279] {0.495}	-0.076 (0.05) [0.149] {0.364}	-0.071 (0.05) [0.162] {0.391}
Task&Negotiation [C]	0.114 (0.04) [0.010]*** {0.135}	0.093 (0.04) [0.037]** {0.301}	-0.087 (0.04) [0.023]** {0.163}	-0.076 (0.04) [0.043]** {0.301}	-0.120 (0.04) [0.003]*** {0.091}*	-0.098 (0.04) [0.014]** {0.301}
<i>N</i>	808	790	808	790	808	790
Household Controls	No	Yes	No	Yes	No	Yes
Control Mean [A]	0.87	0.87	0.10	0.10	0.14	0.14
Control Mean [B]	0.81	0.81	0.16	0.16	0.20	0.20
Control Mean [C]	0.82	0.82	0.14	0.14	0.17	0.17
[A] - [B]	0.06	0.05	-0.06	-0.07	-0.08	-0.07
[A]=[B]	0.41	0.45	0.33	0.28	0.27	0.30
[C] - [B]	0.05	0.04	-0.04	-0.03	-0.04	-0.03
[C]=[B]	0.50	0.60	0.53	0.66	0.53	0.68
[C] - [A]	0.11	0.09	-0.10	-0.09	-0.12	-0.10
[C]=[A]	0.08	0.16	0.09	0.11	0.05	0.12

*Notes:* Dependent variables: Row [A] is the effect of workfare when having an-app based approval requirement from husband, row [B] is the effect of workfare when wife's decisions are transparent to husband, row [C] is the effect of workfare during in-person negotiation with husband on decisions. All the above described rows are compared to their respective control group. Rows [A]-[B], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [A]=[B], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

Table 7: Effect of Workfare under Male Monitoring of Female Expenditure Allocation Decisions

	Necessities		Non-necessities		Savings and Investments	
	(1)	(2)	(3)	(4)	(5)	(6)
Task&Approval [A]	-0.071 (0.06) [0.214] {0.368}	-0.061 (0.06) [0.290] {0.495}	-0.076 (0.05) [0.107] {0.325}	-0.077 (0.05) [0.123] {0.370}	0.155 (0.06) [0.014]** {0.135}	0.152 (0.06) [0.019]** {0.301}
Task&Visible [B]	-0.067 (0.05) [0.224] {0.368}	-0.058 (0.06) [0.312] {0.495}	-0.029 (0.05) [0.572] {0.639}	-0.037 (0.05) [0.452] {0.527}	0.106 (0.06) [0.089]* {0.295}	0.106 (0.06) [0.099]* {0.370}
Task&Negotiation [C]	0.107 (0.06) [0.072]* {0.295}	0.130 (0.06) [0.027]** {0.301}	-0.006 (0.05) [0.904] {0.697}	-0.020 (0.06) [0.721] {0.727}	-0.101 (0.07) [0.144] {0.364}	-0.108 (0.07) [0.114] {0.370}
<i>N</i>	796	778	796	778	796	778
Household Controls	No	Yes	No	Yes	No	Yes
Control Mean [A]	0.30	0.30	0.17	0.17	0.50	0.50
Control Mean [B]	0.33	0.33	0.20	0.20	0.47	0.47
Control Mean [C]	0.17	0.17	0.14	0.14	0.69	0.69
[A] - [B]	0.00	0.00	0.05	0.04	-0.05	-0.05
[A]=[B]	0.96	0.98	0.45	0.52	0.56	0.59
[C] - [B]	0.17	0.19	0.02	0.02	-0.21	-0.21
[C]=[B]	0.03	0.02	0.74	0.81	0.03	0.02
[C] - [A]	0.18	0.19	0.07	0.06	-0.26	-0.26
[C]=[A]	0.04	0.03	0.31	0.42	0.01	0.01

*Notes:* Row [A] is the effect of workfare when having an-app based approval requirement from husband, row [B] is the effect of workfare when wife's decisions are transparent to husband, row [C] is the effect of workfare during in-person negotiation with husband on decisions. All the above described rows are compared to their respective control group. Rows [A]-[B], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [A]=[B], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household, number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

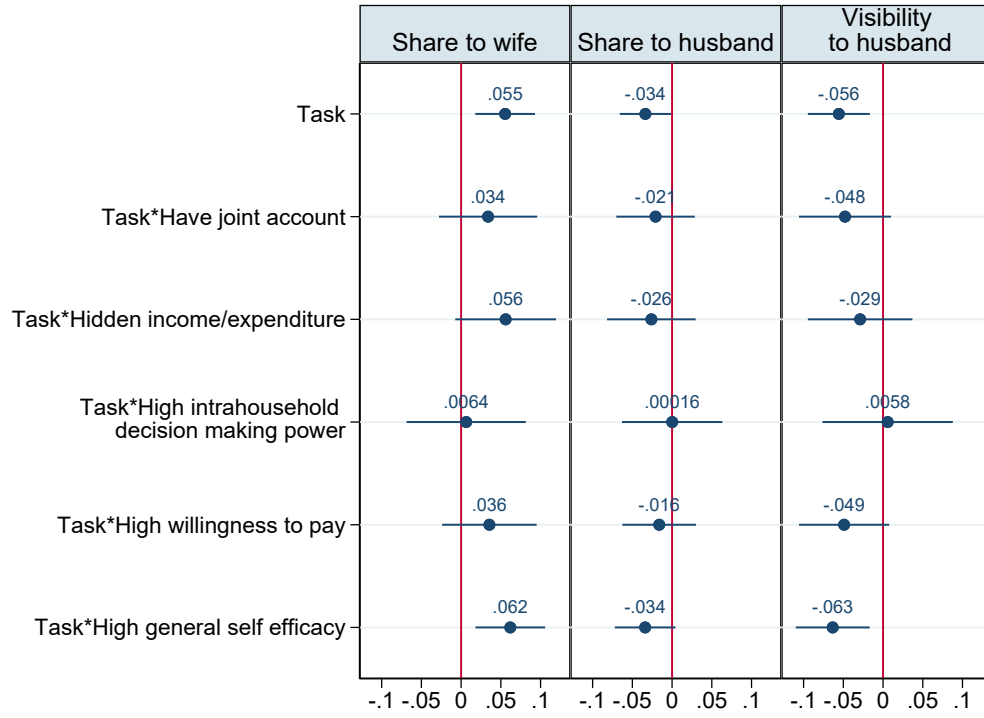
Table 8: Effect of Workfare under Male Monitoring of Female Expenditure Beneficiary Decisions

	Wife		Husband		Collective Use	
	(1)	(2)	(3)	(4)	(5)	(6)
Task&Approval [A]	-0.067 (0.06) [0.305] {0.405}	-0.078 (0.06) [0.221] {0.495}	-0.010 (0.02) [0.558] {0.639}	-0.009 (0.02) [0.617] {0.692}	0.075 (0.06) [0.243] {0.377}	0.088 (0.06) [0.166] {0.391}
Task&Visible [B]	0.086 (0.07) [0.204] {0.368}	0.059 (0.07) [0.369] {0.495}	-0.040 (0.02) [0.081]* {0.295}	-0.040 (0.02) [0.087]* {0.370}	-0.056 (0.07) [0.402] {0.502}	-0.030 (0.06) [0.642] {0.692}
Task&Negotiation [C]	0.137 (0.07) [0.058]* {0.295}	0.114 (0.07) [0.119] {0.370}	0.002 (0.02) [0.926] {0.697}	0.000 (0.02) [0.984] {0.882}	-0.129 (0.07) [0.072]* {0.295}	-0.104 (0.07) [0.136] {0.374}
<i>N</i>	796	778	796	778	796	778
Household Controls	No	Yes	No	Yes	No	Yes
Control Mean [A]	0.34	0.34	0.02	0.02	0.64	0.64
Control Mean [B]	0.33	0.33	0.05	0.05	0.64	0.64
Control Mean [C]	0.28	0.28	0.04	0.04	0.69	0.69
[B] - [A]	0.15	0.14	-0.03	-0.03	-0.13	-0.12
[B]=[A]	0.11	0.13	0.31	0.30	0.16	0.18
[C] - [B]	0.05	0.05	0.04	0.04	-0.07	-0.07
[C]=[B]	0.58	0.57	0.21	0.25	0.42	0.41
[C] - [A]	0.20	0.19	0.01	0.01	-0.20	-0.19
[C]=[A]	0.04	0.06	0.67	0.75	0.04	0.05

*Notes:* Dependent variables: Row [A] is the effect of workfare when having an-app based approval requirement from husband, row [B] is the effect of workfare when wife's decisions are transparent to husband, row [C] is the effect of workfare during in-person negotiation with husband on decisions. All the above described rows are compared to their respective control group. Rows [A]-[B], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [A]=[B], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

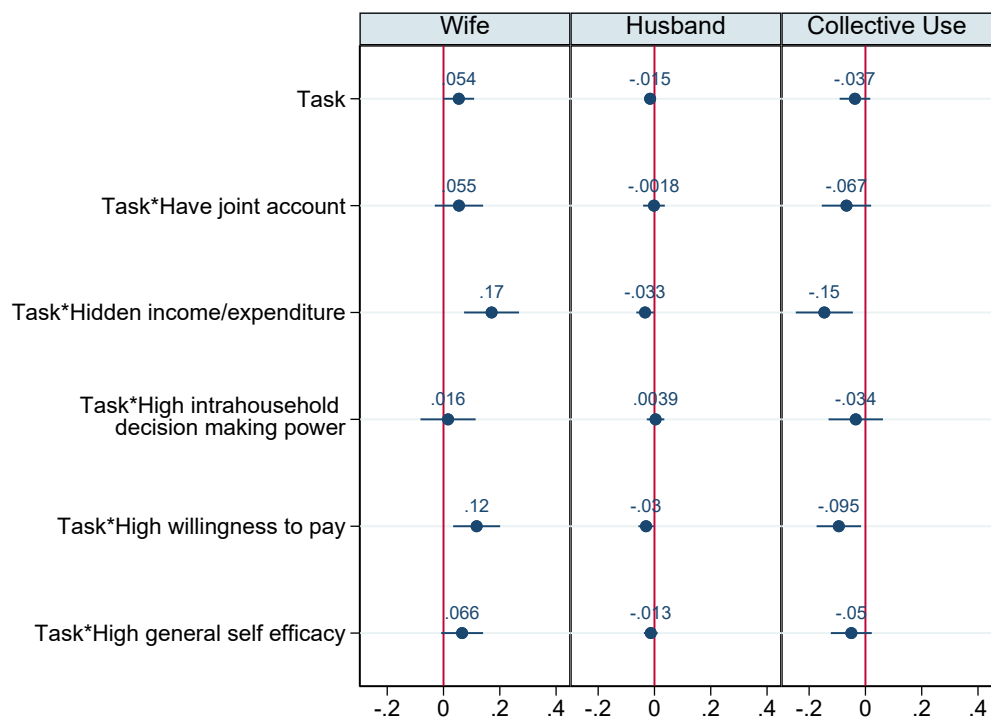
under workfare, she wishes to spend 12 percentage points higher share of the money for herself ( $p < 0.01$ ,  $q < 0.1$ ) and 9.5 percentage point lower share of the money for collective use ( $p < 0.05$ ,  $q$  value not significant).

Figure 4: Heterogeneous Effects of Women’s Workfare on Allocation Decisions



otherwise. [Almås et al. \(2018\)](#) shows that this measure is a more effective way to measure bargaining power than traditional survey-based measures.

Figure 5: Heterogeneous Effects of Women’s Workfare on Decisions Regarding Expenditure Beneficiary



## 5.2 Household Resources in Individual Accounts

### 5.2.1 Household Resources in Female-held Accounts

We now shift our focus to analysing the effect of transferring money for household purposes to a female individual account (Private Labelled for Household versus Private). When money labelled for household purposes is transferred to accounts under female control, we find no overall effects on allocation and spending decisions (Table 9). This finding contradicts the dominant approach in policies whereby an increased sharing of resources and spending on household public goods is expected when transferring “shared” household resources to female-held accounts.

We observe that women in treatment arms where money is not labelled for household purposes spend 63% of the amount towards collective use by all household members. Hence, even when resources are not labelled for household purposes, women mostly perceive money under their control as money for household public goods. Additionally, in the context of a lab setting where couples came together to make household financial decisions, women may have already perceived the setting as one for joint decision making based. The null results from labelling female-held resources for household purposes could also be associated with the information nudge being too subtle in this specific context.

The one area we find some marginal impacts is when we look at the effect of la-

bellings under workfare scenario. Rows [B] in [Table 9](#) indicate the effect of labelling if the wife worked for the amount. The coefficients reported are  $\beta_2 + \beta_3$  in [equation 3](#). If the wife had worked for the amount meant for household purposes, she is more likely to allocate the amount to her bank account or a private voucher ( $p < 0.1$ ,  $q$  value not significant). This could be attributed to the sense of ownership that workfare provides the wife to take control of resources labelled for household purposes. In this workfare scenario, the share of labelled resources that the wife chooses towards her husband’s personal expenditure is less, though the result again is only significant at the 10%  $p$ -value and not significant at the  $q$  value. This decrease is accompanied by an increase in the amount spent for collective purposes, though this result is insignificant. Again, the sense of ownership of money through tasks provides women the ability to spend a greater share of money towards household public goods and a lower share of money towards the husband’s personal expenditures.

### 5.2.2 Household Resources in Female-held and Male-held Accounts

Using the second allocation game in our experimental setup, where couples decide on how they would allocate and spend the money they could potentially win through a lottery, we are able to compare how couples make decisions about household resources in their individual account. From [Table 10](#), we find that putting resources labelled as household resources under female or male controlled scenarios does not change spousal decision making compared to when money is not labelled for household purposes. While it is common for programs that aim to improve household welfare outcomes to transfer household money to individual accounts, our results fail to detect any evidence in the direction that such an approach leads to more sharing towards household spending. This finding suggests that household money in jointly controlled and monitored scenarios where both partners have control and monitoring capacities, defined by mechanisms of visibility, approval requirement or communication, could potentially lead to more sharing of household resources.

Even though we find no overall effects of household money in individual accounts, we find some heterogeneous results from labelling male-held resources for family purposes, based on couple characteristics ([Figure 6](#)). We find that in households where women have more willingness to pay, that is, she has less bargaining power in the household, men allocate 14 percentage points lower share of the amount to their wife’s account ( $p < 0.1, q < 0.1$ ), and 13 percentage points higher share of the amount to his own account ( $p < 0.1, q < 0.1$ ). Hence, in scenarios of low bargaining power of women, transferring household money to a male account may lead to a further decrease in her control over money. Also, we find that men with impatient time preferences and risk-averse behaviour allocate a greater share of the amount to their wife’s account (14.17 percentage points in case of impatient time preferences ( $p < 0.05, q < 0.1$ ) and 9.5 percentage points in case of risk-averse behaviour ( $p < 0.1, q < 0.1$ )) and less share of amount to his account (16.04 percentage points less in case of impatient time preference ( $p < 0.05, q < 0.1$ ) and 10.85 percentage points less in case



Table 9: Effect of labelling money earned/received by women on their financial decisions

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A - Amount allocation</b>						
		Amount share to wife		Amount share to husband		Visibility
Labelling [A]	0.019 (0.03) [0.591] {1.000}	0.015 (0.04) [0.673] {1.000}	-0.004 (0.03) [0.891] {1.000}	-0.001 (0.03) [0.967] {1.000}	-0.010 (0.04) [0.788] {1.000}	-0.007 (0.04) [0.859] {1.000}
Labelling&Task [B]	0.083 (0.04) [0.063]* {0.417}	0.086 (0.05) [0.067]* {0.436}	-0.043 (0.03) [0.220] {0.495}	-0.045 (0.04) [0.235] {0.543}	-0.080 (0.05) [0.110] {0.417}	-0.085 (0.05) [0.113] {0.436}
<i>N</i>	400	391	400	391	400	391
Non-labelled Mean	0.87	0.87	0.09	0.09	0.14	0.14
Non-labelled&Task Mean	0.86	0.86	0.10	0.10	0.15	0.15
<b>Panel B - Expenditure allocation</b>						
		Necessities		Non-necessities		Savings and Investments
	(1)	(2)	(3)	(4)	(5)	(6)
Labelling [A]	0.005 (0.04) [0.898] {1.000}	0.002 (0.04) [0.951] {1.000}	0.010 (0.04) [0.791] {1.000}	0.022 (0.04) [0.582] {1.000}	-0.015 (0.05) [0.768] {1.000}	-0.022 (0.06) [0.688] {1.000}
Labelling&Task [B]	-0.023 (0.06) [0.701] {0.979}	-0.014 (0.06) [0.806] {1.000}	0.016 (0.06) [0.792] {0.979}	0.019 (0.07) [0.772] {1.000}	0.017 (0.08) [0.835] {0.979}	0.006 (0.09) [0.945] {1.000}
<i>N</i>	397	388	397	388	397	388
Non-labelled Mean	0.26	0.26	0.14	0.14	0.59	0.59
Non-labelled&Task Mean	0.29	0.29	0.16	0.16	0.54	0.54
<b>Panel C - Expenditure Beneficiary</b>						
		Wife		Husband		Collective Use
	(1)	(2)	(3)	(4)	(5)	(6)
Labelling [A]	-0.028 (0.05) [0.566] {1.000}	-0.027 (0.04) [0.536] {1.000}	0.014 (0.02) [0.528] {1.000}	0.012 (0.02) [0.587] {1.000}	0.008 (0.05) [0.873] {1.000}	0.011 (0.05) [0.820] {1.000}
Labelling&Task [B]	-0.011 (0.07) [0.881] {0.979}	-0.032 (0.07) [0.633] {1.000}	-0.051 (0.03) [0.065]* {0.417}	-0.056 (0.03) [0.061]* {0.436}	0.042 (0.08) [0.603] {0.979}	0.068 (0.07) [0.349] {0.723}
<i>N</i>	397	388	397	388	397	388
Household Controls	No	Yes	No	Yes	No	Yes
Non-labelled Mean	0.34	0.34	0.04	0.04	0.63	0.63
Non-labelled&Task Mean	0.36	0.36	0.06	0.06	0.60	0.60

*Notes:* Dependent variables: Columns in panel A indicate the amount allocation decisions made by women in the sample. Columns in panel B indicate share of amount female participant wishes to spend on the specific category of expenditure. Columns in panel C indicate share of amount female participant wishes to spend on individual/individuals described. Rows [A] indicate effect of labelling money earned/received by women on their financial decisions and rows [B] indicate the effect of labelling female-held money if women earned the amount. Percentage point changes are calculated relative to the mean of the respective control group. For rows [A], the results are compared to the treatment group where transactions are private and resources are not labelled. For rows [B], the results are compared to the treatment group where transactions are private and resources are not labelled and if she earned the amount. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

of risk-averse behaviour ( $p < 0.1, q < 0.1$ ). Men with impatient time preferences and are risk averse give control of their money to wife if the money is meant for household purposes.

Table 10: Effect of labelling on allocation decisions

	Amount share to wife		Female Spouse Amount shared to husband				Amount share to wife		Male Spouse Amount shared to husband			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Labelling [A]	0.065 (0.04) [0.109] {1.000}	0.060 (0.04) [0.142] {1.000}	-0.019 (0.03) [0.551] {1.000}	-0.019 (0.03) [0.546] {1.000}	-0.060 (0.04) [0.174] {1.000}	-0.051 (0.04) [0.239] {1.000}	0.036 (0.05) [0.428] {1.000}	0.031 (0.05) [0.506] {1.000}	-0.046 (0.05) [0.319] {1.000}	-0.042 (0.05) [0.370] {1.000}	0.035 (0.05) [0.451] {1.000}	0.030 (0.05) [0.524] {1.000}
<i>N</i>	400	391	400	391	400	391	400	392	400	392	400	392
Non-labelled Mean	0.82	0.82	0.11	0.11	0.18	0.18	0.52	0.52	0.48	0.48	0.52	0.52
Female - Male [A]	0.03	0.03	0.03	0.02	-0.09	-0.08						
Female=Male [A]	0.65	0.64	0.63	0.69	0.10	0.18						

Panel B - Expenditure allocation												
	Necessities		Non-necessities		Savings and Investments		Necessities		Non-necessities		Savings and Investments	
	Labelling [A]	0.008 (0.04) [0.845] {1.000}	0.012 (0.04) [0.747] {1.000}	-0.029 (0.04) [0.485] {1.000}	-0.031 (0.04) [0.463] {1.000}	0.032 (0.05) [0.537] {1.000}	0.030 (0.05) [0.572] {1.000}	-0.084 (0.05) [0.130] {1.000}	-0.078 (0.06) [0.163] {1.000}	0.035 (0.03) [0.259] {1.000}	0.031 (0.03) [0.268] {1.000}	0.044 (0.06) [0.456] {1.000}
Non-labelled Mean	0.23	0.23	0.16	0.16	0.60	0.60	0.35	0.35	0.09	0.09	0.56	0.56
Female - Male [A]	0.09	0.09	-0.06	-0.06	-0.01	-0.01						
Female=Male [A]	0.20	0.22	0.20	0.22	0.89	0.88						

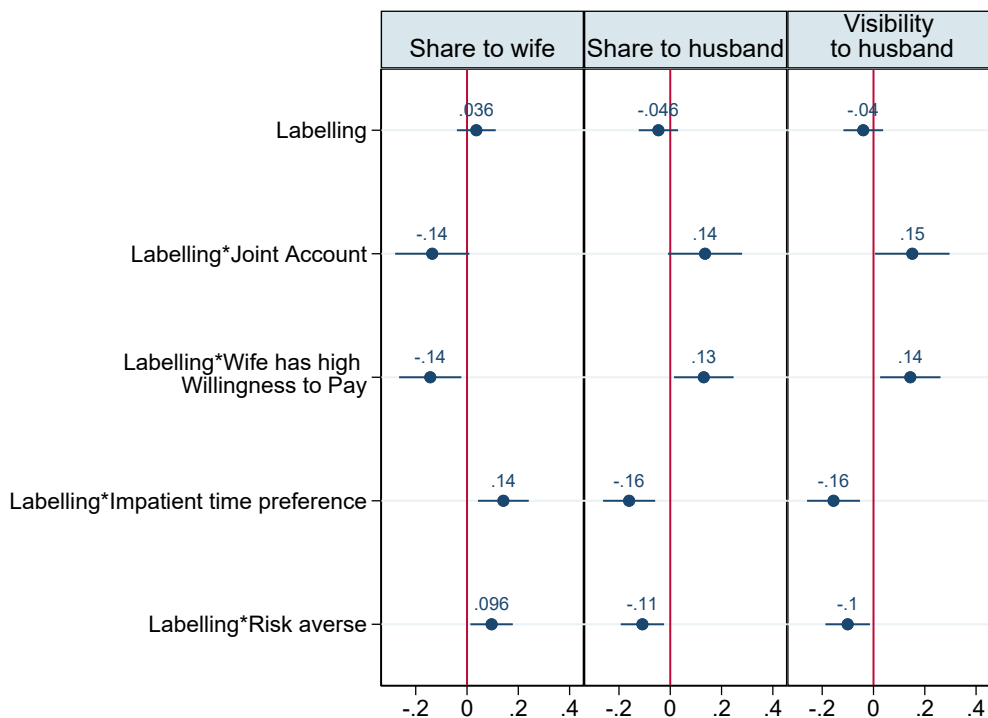
  

Panel C - Expenditure Beneficiary												
	Wife		Husband		Collective Use		Wife		Husband		Collective Use	
	Labelling [A]	0.032 (0.04) [0.410] {1.000}	0.036 (0.04) [0.383] {1.000}	0.020 (0.02) [0.275] {1.000}	0.023 (0.02) [0.194] {1.000}	-0.057 (0.04) [0.148] {1.000}	-0.061 (0.04) [0.141] {1.000}	0.006 (0.02) [0.774] {1.000}	0.000 (0.02) [0.989] {1.000}	-0.024 (0.03) [0.352] {1.000}	-0.031 (0.02) [0.216] {1.000}	0.014 (0.03) [0.616] {1.000}
<i>N</i>	396	387	396	387	396	387	398	390	398	390	398	390
Household Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Non-labelled Mean	0.33	0.33	0.03	0.03	0.66	0.66	0.04	0.04	0.08	0.08	0.90	0.90
Female - Male [A]	0.03	0.04	0.04	0.05	-0.07	-0.08						
Female=Male [A]	0.55	0.44	0.16	0.08	0.15	0.10						

*Notes:* Dependent variables: Columns in panel A indicate the amount allocation decisions made by spouses. Columns in panel B indicate share of amount participant wishes to spend on the specific category of expenditure. Columns in panel C indicate share of amount participant wishes to spend on individual/individuals described. Columns (1) to (6) denote responses by female spouse on how she would like to allocate or spend amount she could win in lottery and columns (7) to (14) denote responses by male spouse on how he would like her to allocate or spend amount he could win in lottery. Percentage point changes are calculated relative to the mean of the group where resources are not labelled for household purposes. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account.

Clustered standard errors by sessions in round parentheses. *p* values in [ ] parentheses. Anderson's *q* values in { } parentheses. \* *p*,*q*<0.10, \*\* *p*,*q*<0.05, \*\*\* *p*,*q*<0.01.

Figure 6: Heterogeneous Effect of Labelling Male-held Resources Based on Couple Characteristics



### 5.3 Decision Making among Couples under Spousal Monitoring

In the lab setting, we mimic practical iterations of how joint accounts for women might work, varying in spousal control, monitoring and communication levels. We test if household money held by spouses, characterised by an approval requirement, transparency and in-person negotiation, affects spousal decision-making. We do this by estimating the effect of varying levels of control, monitoring and communication for female financial decisions through a digital approval requirement from the husband, digital visibility of decisions to the husband, and an in-person negotiation with the husband. Under the “Approval” treatment arm, decisions made by women are communicated through an app-based system to the husband, who he would have to “approve” her choices for the decision to be final. The decisions made by women in this treatment arm can be perceived as decisions she made under a threat of “rejection” by her husband<sup>13</sup>. Under the “Visible” treatment arm, allocation and expenditure decisions made by women are made visible to the husband through an app-based system. Couples in the “Negotiation” treatment arm made decisions regarding money the wife earned/received through in-person communication in a separate room within the lab setting.

<sup>13</sup> In our lab setting, only one out of 200 husbands in the “Approval” treatment arm used the option to reject wife’s decisions. Given the low usage of the “reject” option by the husband for the wife’s decisions, the treatment effects we observe, if any, can be explained as the effects of the wife having a threat of “rejection” of decisions by the husband

### 5.3.1 Spousal Monitoring on Female Decision Making

In the lab setting, we fail to find evidence that any form of monitoring and control mechanisms by the husband for female decision-making, in the form of approval requirement or transparency or in-person communication with the husband, reduces the share of the amount she allocates to accounts she controls ( [Table 11](#), [Table 12](#), and [Table 13](#)). When women make decisions privately, they allocate 87% of the amount to accounts they have control over and 9% of the amount to accounts their husband controls. The null results for the varying monitoring levels of spousal decision-making within the lab setting could be attributed to the fact that the amount was always directed to the wife as a gift or payment for work.

In relation to how women make decisions on expenditure allocation, we do not find evidence that any level of transparency and communication rules affect the expenditure choices of women. Women in the “Private” treatment group allocate 59% towards savings and investment, 26% towards necessities such as food and bill payments and 14% towards non-necessities such as clothing, footwear and other accessories. When there is no spousal monitoring, women aspire to allocate a greater proportion to savings. This is consistent with the previous studies that find individual financial products for women improve savings behaviours ([Field et al., 2019](#)). We find no evidence on what direction spousal interaction through approval requirement, transparency and communication affects expenditure patterns.

Similarly, we do not find any significant effects on for whom women decide to spend the expenditure under different rules of spousal decision making ([Table 13](#)). Even without approval requirements, transparency and communication with their husband, female spouses wish to spend more towards collective use and themselves in comparison to how much she decides to spend for their husband’s expenses. Women in the private treatment group choose to spend 63% of the amount for collective use by all household members, 34% of the amount for themselves, and 4% for husbands. This is in line with empirical studies that find that targeting transfers to females increases spending towards women and all household members([Duflo, 2003](#); [Akresh et al., 2016](#); [Armand et al., 2020](#)). Our results show no evidence of the husband’s monitoring and control mechanisms affecting how female partners allocate expenditure among household members.

### 5.3.2 Spousal Monitoring of Female Decisions under Workfare

We now assess the effect of spousal approval requirement, transparency and communication in the case where the wife earned the amount. We estimate and report  $\beta_2 + \beta_3$  from equation 3. In [Table 14](#), we find that if she earned the amount, she is 10 percentage points less likely to transfer it to accounts which are visible to her husband (that is, her husband’s account or choose any type of consumption voucher) after an in-person

Table 11: Effect of Joint Decision Making on Female Allocation Decisions

	Amount share to wife		Amount share to husband		Visibility	
	(1)	(2)	(3)	(4)	(5)	(6)
Approval [A]	-0.001 (0.03) [0.971] {1.000}	-0.006 (0.03) [0.860] {1.000}	0.020 (0.03) [0.498] {1.000}	0.026 (0.03) [0.382] {1.000}	0.005 (0.04) [0.895] {1.000}	0.009 (0.04) [0.820] {1.000}
Visible [B]	-0.031 (0.04) [0.444] {1.000}	-0.035 (0.04) [0.380] {1.000}	0.044 (0.03) [0.167] {1.000}	0.050 (0.03) [0.115] {1.000}	0.023 (0.04) [0.547] {1.000}	0.026 (0.04) [0.485] {1.000}
Negotiation [C]	0.001 (0.04) [0.984] {1.000}	0.015 (0.04) [0.686] {1.000}	0.006 (0.03) [0.846] {1.000}	-0.004 (0.03) [0.895] {1.000}	-0.024 (0.04) [0.508] {1.000}	-0.039 (0.04) [0.277] {1.000}
<i>N</i>	808	790	808	790	808	790
Household Controls	No	Yes	No	Yes	No	Yes
Private Mean	0.87	0.87	0.09	0.09	0.14	0.14
[A] - [B]	-0.03	-0.03	0.02	0.02	0.02	0.02
[A]=[B]	0.41	0.42	0.46	0.46	0.61	0.61
[C] - [B]	0.03	0.05	-0.04	-0.05	-0.05	-0.07
[C]=[B]	0.41	0.16	0.22	0.07	0.18	0.05
[C] - [A]	0.00	0.02	-0.01	-0.03	-0.03	-0.05
[C]=[A]	0.95	0.51	0.61	0.30	0.34	0.12

*Notes:* Dependent variables: The columns *Amount share to wife* and *Amount share to husband* is the share of amount allocated by participant to wife and husband, respectively. The column *visibility* is a binary variable coded as 1 if participant chooses to deposit in husband's bank account or any type of voucher. Row [A] is the effect of having an-app based approval requirement from husband, row [B] is the effect of digital transparency in wife's decisions, row [C] is the effect of in-person negotiation with husband on decisions. All the above described rows are compared to the control group where there wife makes decisions privately. Percentage point changes are calculated relative to the mean of the respective control group. Rows [A]-[B], [C]-[A] and [C]-[B] reports difference in coefficients for the corresponding rows. Rows [A]=[B], [C]=[A] and [C]=[B] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

Table 12: Effect of Joint Decision Making on Female Expenditure Allocation Decisions

	Necessities		Non-necessities		Savings and Investments	
Approval [A]	-0.003 (0.04) [0.945] {1.000}	-0.001 (0.03) [0.971] {1.000}	-0.006 (0.04) [0.883] {1.000}	-0.003 (0.04) [0.936] {1.000}	-0.008 (0.05) [0.856] {1.000}	-0.008 (0.05) [0.864] {1.000}
Visible [B]	0.034 (0.04) [0.394] {1.000}	0.047 (0.04) [0.219] {1.000}	0.040 (0.04) [0.311] {1.000}	0.035 (0.04) [0.361] {1.000}	-0.069 (0.05) [0.199] {1.000}	-0.076 (0.05) [0.157] {1.000}
Negotiation [C]	-0.045 (0.04) [0.290] {1.000}	-0.035 (0.04) [0.377] {1.000}	0.000 (0.04) [0.999] {1.000}	-0.003 (0.04) [0.938] {1.000}	0.055 (0.05) [0.286] {1.000}	0.049 (0.05) [0.347] {1.000}
<i>N</i>	796	778	796	778	796	778
Household Controls	No	Yes	No	Yes	No	Yes
Private Mean	0.26	0.26	0.14	0.14	0.59	0.59
[A] - [B]	0.04	0.05	0.05	0.04	-0.06	-0.07
[A]=[B]	0.36	0.25	0.15	0.23	0.15	0.11
[C] - [B]	-0.08	-0.08	-0.04	-0.04	0.12	0.13
[C]=[B]	0.07	0.06	0.25	0.27	0.01	0.01
[C] - [A]	-0.04	-0.03	0.01	0.00	0.06	0.06
[C]=[A]	0.33	0.44	0.87	1.00	0.18	0.24

*Notes:* Dependent variables: share of amount participant chooses to spend on the category of expenditure. Row [A] is the effect of having an-app based approval requirement from husband, row [B] is the effect of digital transparency in wife's decisions, row [C] is the effect of in-person negotiation with husband on decisions. All the above described rows are compared to the control group where there wife makes decisions privately. Percentage point changes are calculated relative to the mean of the respective control group. Rows [A]-[B], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [A]=[B], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses.

\* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

Table 13: Effect of Joint Decision Making on Beneficiary of Expenditure

	Wife		Husband		Collective Use	
Approval [A]	-0.036 (0.05) [0.433] {1.000}	-0.027 (0.05) [0.562] {1.000}	-0.020 (0.02) [0.247] {1.000}	-0.021 (0.02) [0.216] {1.000}	0.044 (0.05) [0.379] {1.000}	0.038 (0.05) [0.447] {1.000}
Visible [B]	0.024 (0.04) [0.579] {1.000}	0.011 (0.04) [0.784] {1.000}	-0.005 (0.02) [0.790] {1.000}	-0.003 (0.02) [0.873] {1.000}	-0.024 (0.05) [0.617] {1.000}	-0.013 (0.05) [0.774] {1.000}
Negotiation [C]	0.003 (0.04) [0.952] {1.000}	-0.010 (0.04) [0.822] {1.000}	0.002 (0.02) [0.923] {1.000}	0.002 (0.02) [0.897] {1.000}	-0.009 (0.05) [0.835] {1.000}	0.002 (0.04) [0.967] {1.000}
<i>N</i>	796	778	796	778	796	778
Household Controls	No	Yes	No	Yes	No	Yes
Private Mean	0.34	0.34	0.04	0.04	0.63	0.63
[A] - [B]	0.06	0.04	0.02	0.02	-0.07	-0.05
[A]=[B]	0.22	0.42	0.30	0.23	0.15	0.27
[C] - [B]	-0.02	-0.02	0.01	0.01	0.01	0.01
[C]=[B]	0.64	0.66	0.68	0.74	0.74	0.75
[C] - [A]	0.04	0.02	0.02	0.02	-0.05	-0.04
[C]=[A]	0.45	0.74	0.13	0.10	0.29	0.48

*Notes:* Dependent variables: share of amount participant chooses to spend the expenditure on individual/individuals described. Row [A] is the effect of having an-app based approval requirement from husband, row [B] is the effect of digital transparency in wife's decisions, row [C] is the effect of in-person negotiation with husband on decisions. All the above described rows are compared to the control group where there wife makes decisions privately. Percentage point changes are calculated relative to the mean of the respective control group. Rows [A]-[B], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [A]=[B], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.



negotiation versus when she makes the decision privately ( $p < 0.05$ ,  $q$  value not significant). Although not statistically significant, this is associated with an increase in share to the wife’s personal bank account by 6.8 percentage points. As in [Section 5.1.2](#), this could be assigned to the interacted effect of in-person bargaining when women personally earn money.

We find some marginal effects from the approval requirement of her husband and the visibility of her decisions to her husband on her expenditure decisions in [Table 15](#) and [Table 16](#) ( $p < 0.1$ ,  $q$  value not significant). We find that an approval requirement from the husband leads women to spend 11.2 percentage points greater share of their earned money towards savings and investments. It is also associated with her spending 11.7 percentage points higher share of her earned money towards household public goods and 5.1 percentage points lower share for her husband. Visibility of decisions to her husband allows female partners to spend 5 percentage points less share of their earned money towards their husband’s personal expenditure. Again, this could be attributed to the sense of ownership earning money provides. Even with digital mechanisms of surveillance of her decisions, she is able to share less with her husband when she has earned the amount.

### 5.3.3 Emotional Well-being and Mental Bandwidth under Spousal Monitoring

Based on a growing strand of literature that the absence of privacy in household decision-making in the form of transparency of decisions and communication can improve women’s mental well-being, we measure women’s emotional well-being and mental bandwidth under varying levels of spousal transparency and communication soon after the lab-session ([Ashraf et al., 2014](#)). We created the emotional well-being index as a standardised variable of four items measuring women’s emotional well-being during allocation games; feeling of nervousness, inability to concentrate, tiredness, and difficulty coping with all the things they had to do. We code the emotional well-being index so that a higher score means better emotional well-being. We describe in detail the creation of variables in [Appendix E](#). In [Table 17](#), we find that none of the rules relating to spousal decision-making affects women’s emotional well-being.

We complement our analysis with scores from games that measure the mental bandwidth of the participant. The games we use to measure the mental bandwidth of women after the allocation game help us correctly identify the effects of male monitoring on women’s mental well-being and cognitive performance, as there is little to no scope for misreporting. We create the mental bandwidth index, a standardised index of scores from four games, to measure the participant’s responsiveness, accuracy, memory, and stress level. After controlling for household characteristics, we find marginal effects on mental bandwidth for women in the “Approval” treatment group. Accounting for household characteristics, we find that women who made decisions under the threat of “rejection” of their decisions from their husbands have a 0.11 standard deviation higher mental bandwidth index than women who made decisions privately ( $p < 0.1$ ,  $q$  value not significant). Given that mental

Table 14: Effect of Jointness on Female Allocation Decisions when She Earn the Amount

	Amount share to wife		Amount share to husband		Visibility	
	(1)	(2)	(3)	(4)	(5)	(6)
Task&Approval [A]	0.010 (0.05) [0.839] {1.000}	0.008 (0.05) [0.874] {1.000}	0.017 (0.04) [0.666] {1.000}	0.021 (0.04) [0.597] {1.000}	-0.010 (0.05) [0.852] {1.000}	-0.011 (0.05) [0.826] {1.000}
Task&Visible [B]	0.010 (0.05) [0.855] {1.000}	0.006 (0.05) [0.918] {1.000}	0.010 (0.04) [0.821] {1.000}	0.011 (0.04) [0.795] {1.000}	-0.030 (0.05) [0.577] {1.000}	-0.029 (0.05) [0.582] {1.000}
Task&Negotiation [C]	0.068 (0.05) [0.156] {1.000}	0.073 (0.05) [0.126] {0.943}	-0.048 (0.04) [0.190] {1.000}	-0.055 (0.03) [0.109] {0.943}	-0.100 (0.05) [0.040]** {1.000}	-0.108 (0.05) [0.024]** {0.943}
<i>N</i>	808	790	808	790	808	790
Household Controls	No	Yes	No	Yes	No	Yes
Private&TaskMean	0.86	0.86	0.10	0.10	0.15	0.15
[A] - [B]	0.00	-0.00	-0.01	-0.01	-0.02	-0.02
[A]=[B]	1.00	0.97	0.86	0.82	0.67	0.70
[C] - [B]	0.06	0.07	-0.06	-0.07	-0.07	-0.08
[C]=[B]	0.19	0.10	0.13	0.07	0.08	0.04
[C] - [A]	0.06	0.07	-0.06	-0.08	-0.09	-0.10
[C]=[A]	0.15	0.11	0.08	0.04	0.03	0.02

*Notes:* Row [A] is the effect of having an-app based approval requirement from husband when wife earned the amount, row [B] is the effect of transparency in wife's decisions when wife earned the amount, row [C] is the effect of in-person negotiation with husband on decisions when wife earned the amount. All the above described rows are compared to the control group where there wife makes decisions privately and she earned the amount. Rows [A]-[B], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [A]=[B], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients forfor the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

Table 15: Effect of Jointness on Expenditure Allocation Decisions when She Earn the Amount

	Necessities		Non-necessities		Savings and Investments	
	(1)	(2)	(3)	(4)	(5)	(6)
Task&Approval [A]	-0.063 (0.05) [0.227] {1.000}	-0.059 (0.05) [0.237] {1.000}	-0.062 (0.05) [0.254] {1.000}	-0.058 (0.06) [0.296] {1.000}	0.112 (0.07) [0.095]* {1.000}	0.111 (0.06) [0.077]* {0.943}
Task&Visible [B]	-0.025 (0.06) [0.656] {1.000}	-0.010 (0.05) [0.854] {1.000}	0.007 (0.05) [0.889] {1.000}	-0.001 (0.05) [0.987] {1.000}	0.028 (0.08) [0.713] {1.000}	0.021 (0.07) [0.780] {1.000}
Task&Negotiation [C]	-0.015 (0.06) [0.818] {1.000}	0.003 (0.06) [0.962] {1.000}	-0.021 (0.05) [0.689] {1.000}	-0.030 (0.06) [0.602] {1.000}	0.046 (0.08) [0.572] {1.000}	0.038 (0.08) [0.619] {1.000}
<i>N</i>	796	778	796	778	796	778
Household Controls	No	Yes	No	Yes	No	Yes
Private&TaskMean	0.29	0.29	0.16	0.16	0.54	0.54
[A] - [B]	0.04	0.05	0.07	0.06	-0.08	-0.09
[A]=[B]	0.49	0.42	0.04	0.11	0.11	0.11
[C] - [B]	0.01	0.01	-0.03	-0.03	0.02	0.02
[C]=[B]	0.86	0.83	0.54	0.55	0.80	0.80
[C] - [A]	0.05	0.06	0.04	0.03	-0.07	-0.07
[C]=[A]	0.44	0.35	0.42	0.58	0.31	0.28

*Notes:* Row [A] is the effect of having an-app based approval requirement from husband when she earned the amount, row [B] is the effect of transparency in wife's decisions when she earned the amount, row [C] is the effect of in-person negotiation with husband on decisions when she earned the amount. All the above described rows are compared to the group where there wife makes decisions privately and she earned the amount. Rows [A]-[B], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [A]=[B], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

Table 16: Effect of Jointness on Expenditure Beneficiary when She Earn the Amount

	Wife		Husband		Collective Use	
	(1)	(2)	(3)	(4)	(5)	(6)
Task&Approval [A]	-0.089 (0.06) [0.139] {1.000}	-0.078 (0.06) [0.192] {0.943}	-0.051 (0.03) [0.074]* {1.000}	-0.050 (0.03) [0.077]* {0.943}	0.117 (0.07) [0.096]* {1.000}	0.108 (0.07) [0.119] {0.943}
Task&Visible [B]	0.047 (0.06) [0.454] {1.000}	0.029 (0.06) [0.628] {1.000}	-0.050 (0.03) [0.063]* {1.000}	-0.048 (0.03) [0.089]* {0.943}	-0.017 (0.07) [0.812] {1.000}	-0.001 (0.07) [0.985] {1.000}
Task&Negotiation [C]	0.052 (0.06) [0.353] {1.000}	0.036 (0.06) [0.523] {1.000}	-0.022 (0.03) [0.458] {1.000}	-0.022 (0.03) [0.483] {1.000}	-0.040 (0.06) [0.499] {1.000}	-0.024 (0.06) [0.679] {1.000}
<i>N</i>	796	778	796	778	796	778
Household Controls	No	Yes	No	Yes	No	Yes
Private&TaskMean	0.36	0.36	0.06	0.06	0.60	0.60
[A] - [B]	0.14	0.11	0.00	0.00	-0.13	-0.11
[A]=[B]	0.03	0.08	0.99	0.87	0.04	0.07
[C] - [B]	0.01	0.01	0.03	0.03	-0.02	-0.02
[C]=[B]	0.93	0.90	0.19	0.22	0.68	0.66
[C] - [A]	0.14	0.11	0.03	0.03	-0.16	-0.13
[C]=[A]	0.01	0.05	0.16	0.14	0.00	0.01

*Notes:* Row [A] is the effect of having an-app based approval requirement from husband when she earned the amount, row [B] is the effect of transparency in wife's decisions when she earned the amount, row [C] is the effect of in-person negotiation with husband on decisions when she earned the amount. All the above described rows are compared to the group where there wife makes decisions privately and she earned the amount. Rows [A]-[B], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [A]=[B], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

bandwidth was measured soon after the experiment, “Approval” of her decisions from her husband might have reduced her stress about the differences in preference he might have, resulting in a better mental bandwidth score. We also analyse the effect of assignment into different treatment groups on each item of the emotional well-being index and emotional bandwidth index in [Table D1 and D2](#) and find no statistically significant effects.

Table 17: Effect of Jointness on Women’s Emotional Well-being and Mental Bandwidth

	Emotional Well-being Index		Mental Bandwidth Index	
	(1)	(2)	(3)	(4)
Approval [A]	0.009 (0.02) [0.676] {1.000}	0.011 (0.02) [0.587] {1.000}	0.071 (0.06) [0.251] {1.000}	0.110 (0.06) [0.078]* {0.881}
Visible [B]	0.013 (0.02) [0.545] {1.000}	0.013 (0.02) [0.536] {1.000}	0.017 (0.07) [0.799] {1.000}	0.018 (0.07) [0.786] {1.000}
Negotiation [C]	-0.001 (0.02) [0.953] {1.000}	-0.004 (0.02) [0.846] {1.000}	0.016 (0.07) [0.821] {1.000}	0.020 (0.07) [0.762] {1.000}
<i>N</i>	808	790	808	790
Household Controls	No	Yes	No	Yes
Private Mean	3.92	3.92	-0.09	-0.09

*Notes:* Percentage point changes are calculated relative to the mean of the treatment group where decisions made were purely private. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife’s high school completion status, husband’s income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson’s q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

### 5.3.4 Spousal Monitoring under Individual and Couple Characteristics

We now focus on the heterogeneous effect of transparency and communication among spouses on the outcomes: women’s allocation to accounts under their control and women’s mental well-being.<sup>14</sup> As mentioned in the previous section of results, we find no effects of transparency of communication among spouses on women’s transfer to different types of accounts and vouchers. In [Figure 10](#), we find that if the wife has a high willingness to pay to have control over the money, then the share she allocates to her husband’s bank account or a male voucher is 11 percentage points more when her decisions are to be “approved” by husband as compared to when her decisions are completely private ( $p < 0.05$ , q value not significant). A high willingness to pay for control over money indicates low bargaining power in the household. Hence, in a household where the wife has low control over money, an approval requirement for her decisions by her husband leads her to allocate more to the accounts he controls. We observe similar results for women with a high willingness to pay when there is transparency in their decisions with their husbands. In [Figure 11](#), we find that when the wife has less control over the money in the household, the threat of rejection of her decisions through an in-app mechanism increases the amount she allocates to accounts her husband controls by 12 percentage points ( $p < 0.05$ , q value not significant). Both these findings indicate that in households where women have low autonomy over resources,

<sup>14</sup> We checked for the heterogeneous effect of spousal decision-making on outcomes of expenditure patterns and found no effects.

visibility and a digital approval system for women’s financial decisions can lead to her giving up more control over the money. However, this does not hold when couples make decisions through in-person bargaining.

Women who are risk averse also show similar patterns of allocation when their decisions are visible to their husbands. That is, risk-averse women, allocate 9.2 percentage points lower share of the amount to accounts under her control ( $p < 0.05$ ,  $q$  value not significant) and 7.7 percentage points higher share of the amount to accounts under her husband’s control ( $p < 0.1$ ,  $q$  value not significant) when her decisions are visible to the husband.

We also find heterogeneous effects of an in-person negotiation for couples who have a high quality of relationship (figure 12). A high quality of relationship demonstrates a good level of communication among the couple. We find that if wife reports having a high quality of relation with her husband, after an in-person negotiation, women allocate 10.33 percentage points lower share of money to accounts visible to husband ( $p < 0.05$ ,  $q$  value not significant).

Our results on the heterogeneous effects of transparency and varying levels of communication on women’s emotional well-being and emotional bandwidth index suggest that a digital mechanism to share and communicate financial decisions provides better mental well-being for women who exhibit poor information flows with her husband. We find that women who report that they had ever hidden income or expenditure from their husband score better by 30 standard deviations ( $p < 0.05$ ,  $q$  value not significant) on the emotional bandwidth index score under transparency of their decisions to their husband. We find similar effects for women who made decisions under the threat of ”rejection” of decisions from their husband. Women who had hidden income or expenditure from their husband obtained 23 standard deviations higher scores on the emotional bandwidth index under an in-app approval system as compared to women in the “Private” treatment group ( $p < 0.05$ ,  $q$  value not significant).

Figure 7: Heterogeneous treatment effects of approval requirement for wife's decisions

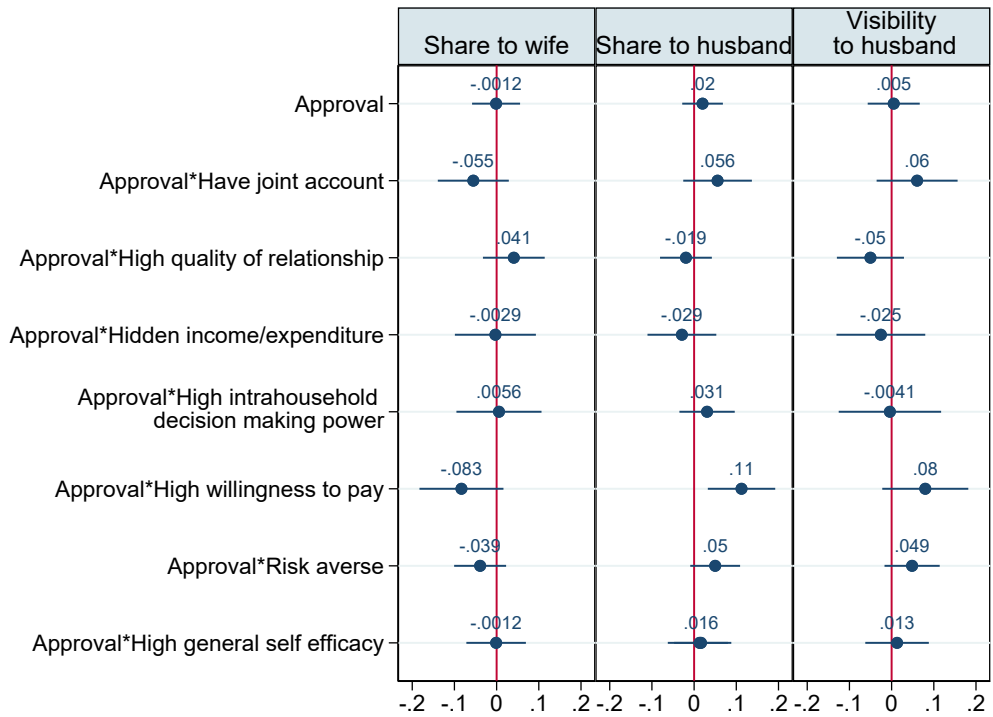


Figure 8: Heterogeneous treatment effects of transparency of wife's decisions



Figure 9: Heterogeneous treatment effects of in-person negotiation of spouses for decisions

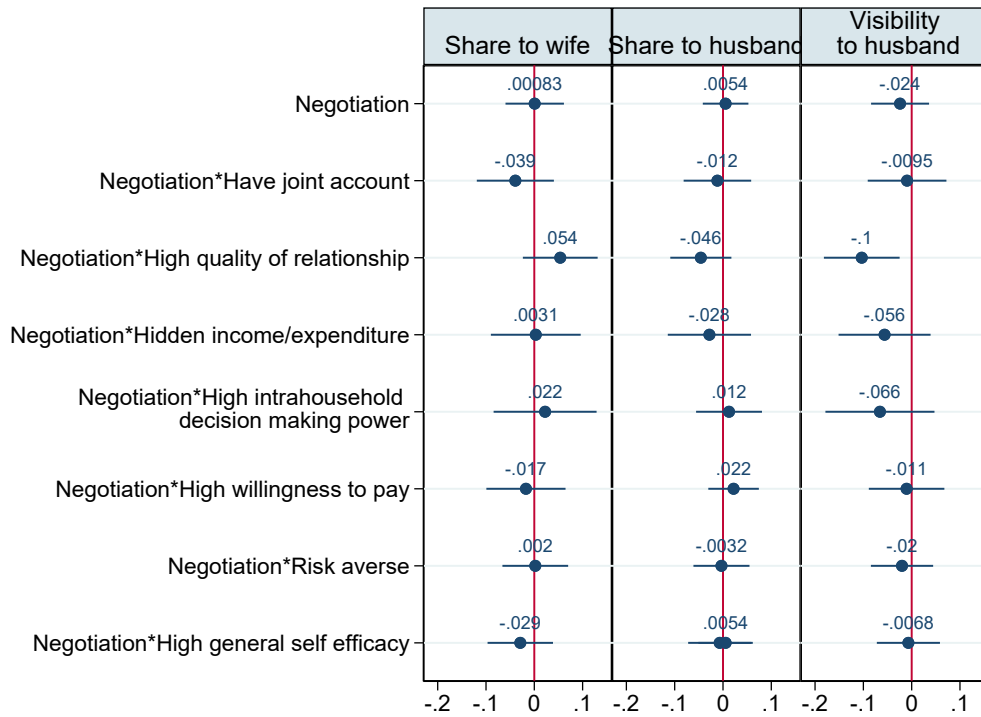


Figure 10: Heterogeneous treatment effects of approval requirement for wife's decisions

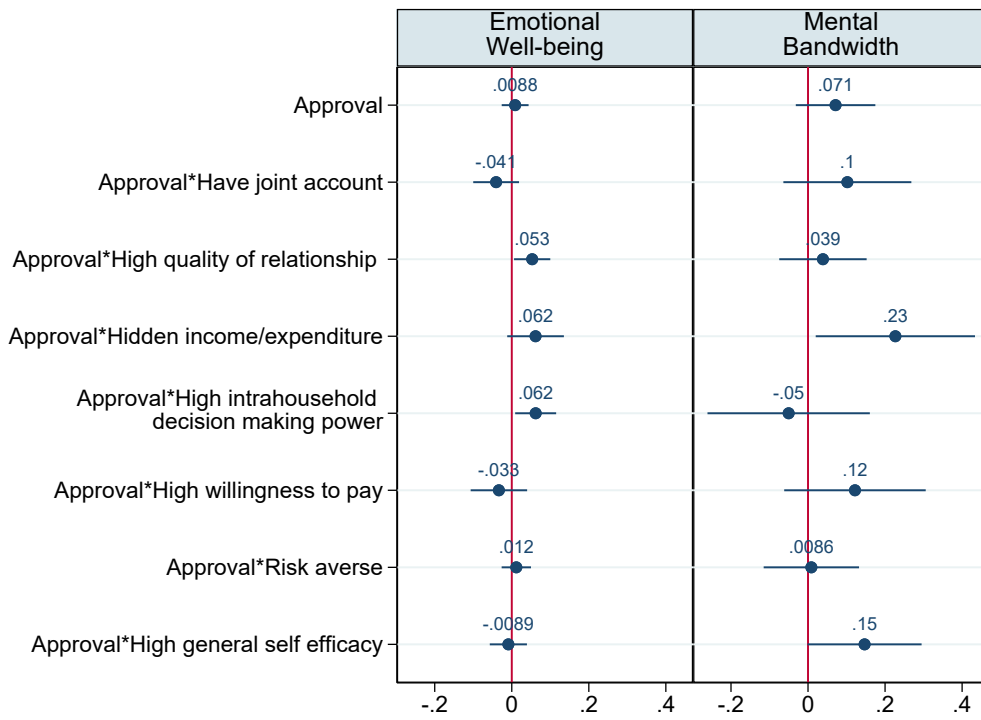




Figure 11: Heterogeneous treatment effects of transparency of wife's decisions

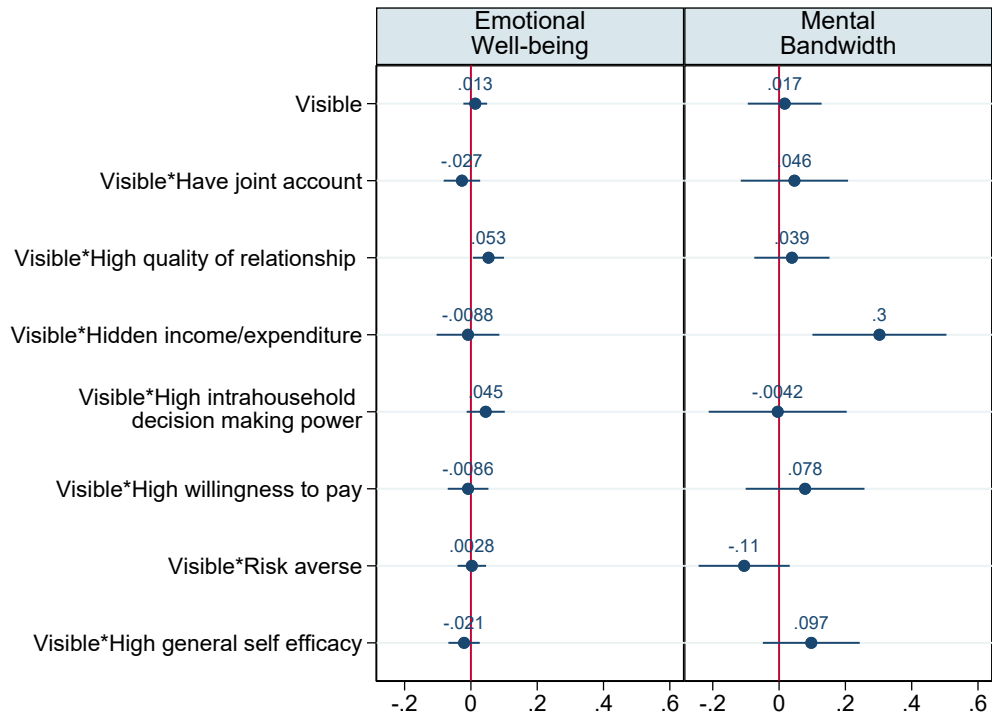
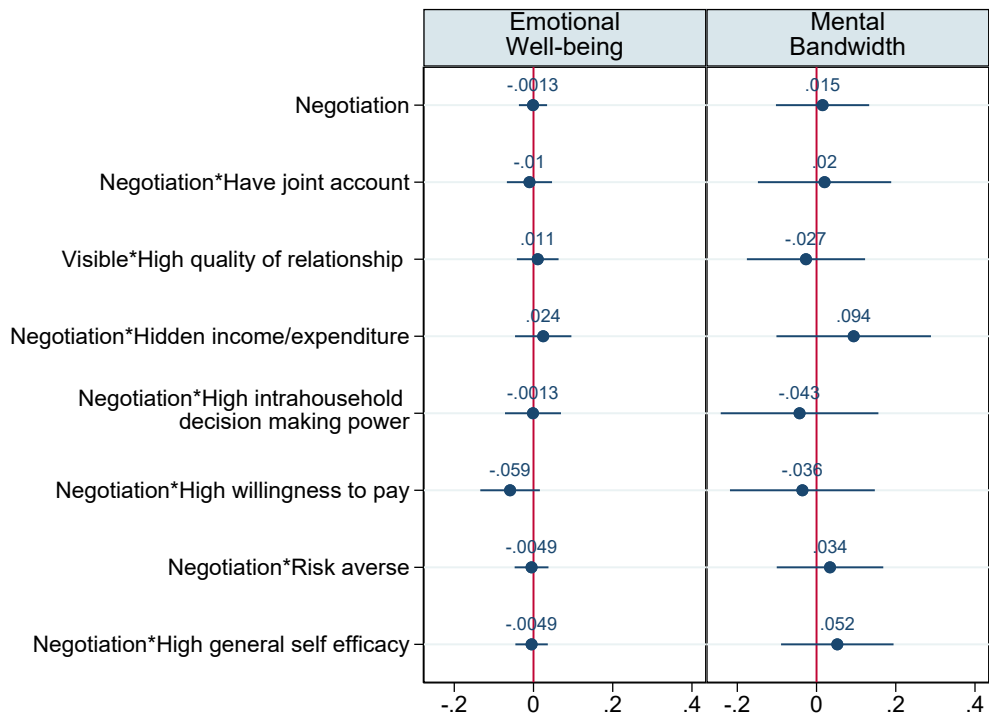


Figure 12: Heterogeneous treatment effects of in-person negotiation of spouses for decisions



### 5.3.5 Transparency of Female and Male Decisions

Using data from the allocation game where couples decide on how they allocate and spend money they could win through a lottery, we compare the effect of transparency on female and male decisions. During the second allocation game described in Section 3.3, the possibility of winning the lottery by each partner provides comparability for how wives and husbands make decisions under transparency. We find the opposite effects of visibility for women and men. Under visibility of their decisions, while women spend 11.4 percentage points lower share of money towards household public goods ( $p < 0.01, q < 0.05$ ), their husband spends 4.5 percentage points greater share of money towards household public goods (Panel C, column 5 and 11 in Table 18). Also, when decisions are visible to their partner, the wife spends 8.4 percentage points greater share of money towards her personal expenses, and the husband spends 4.1 percentage points lower share for his personal expenses. This indicates that while spousal transparency encourages women to spend more for themselves, it deters men from spending on their personal expenses. Visibility of her decisions may have provided the wife more legitimacy in spending unearned money for her own expenses. But for men, since he controls most of the household resources and spending, visibility of their decisions to their wives may have led them to spend less on themselves.

Table 18: Effect of Transparency on Female and Male Decisions

	Female Spouse						Male Spouse					
	Amount share to wife		Amount shared to husband		Visibility		Amount share to wife		Amount shared to husband		Visibility	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Visibility [A]	0.019 (0.04) [0.655] {0.260}	0.003 (0.04) [0.940] {0.535}	0.014 (0.03) [0.673] {0.428}	0.017 (0.03) [0.599] {0.577}	-0.022 (0.04) [0.624] {0.260}	-0.001 (0.04) [0.989] {0.535}	0.021 (0.04) [0.614] {0.509}	0.032 (0.04) [0.471] {0.508}	-0.031 (0.04) [0.459] {0.441}	-0.043 (0.04) [0.339] {0.508}	0.020 (0.04) [0.633] {0.509}	0.033 (0.04) [0.457] {0.508}
N	402	392	402	392	402	392	402	393	402	393	402	393
Non-visible Mean	0.82	0.82	0.11	0.11	0.18	0.18	0.52	0.52	0.48	0.48	0.48	0.52
Female - Male [A]	-0.00	-0.03	0.04	0.06	-0.04	-0.03						
Female=Male [A]	0.97	0.63	0.40	0.28	0.47	0.57						

Panel B - Expenditure allocation												
	Necessities		Non-necessities		Savings and Investments		Necessities		Non-necessities		Savings and Investments	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Visibility [A]	-0.001 (0.04) [0.986] {0.467}	0.019 (0.04) [0.655] {0.812}	0.064 (0.04) [0.123] {0.260}	0.056 (0.04) [0.177] {0.535}	-0.051 (0.06) [0.425] {0.467}	-0.062 (0.07) [0.356] {0.812}	-0.101 (0.05) [0.037]** {0.225}	-0.087 (0.05) [0.058]* {0.332}	0.066 (0.03) [0.027]** {0.509}	0.060 (0.03) [0.041]** {0.332}	0.030 (0.05) [0.574] {0.441}
N	397	387	397	387	397	387	400	391	400	391	400	391
Non-visible Mean	0.23	0.23	0.16	0.16	0.60	0.60	0.35	0.35	0.09	0.09	0.56	0.56
Female - Male [A]	0.10	0.11	-0.00	-0.00	-0.08	-0.08						
Female=Male [A]	0.10	0.08	0.96	0.93	0.31	0.30						

Panel C - Expenditure Beneficiary												
	Wife		Husband		Collective Use		Wife		Husband		Collective Use	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Visibility [A]	0.084 (0.04) [0.033]** {0.131}	0.070 (0.04) [0.062]* {0.160}	0.015 (0.02) [0.487] {0.397}	0.020 (0.02) [0.305] {0.535}	-0.114 (0.04) [0.004]*** {0.027}**	-0.103 (0.04) [0.006]*** {0.023}**	-0.009 (0.02) [0.664] {0.509}	-0.009 (0.02) [0.655] {0.644}	-0.041 (0.02) [0.064]* {0.509}	-0.039 (0.02) [0.083]* {0.332}	0.045 (0.02) [0.072]* {0.441}
N	397	387	397	387	397	387	400	391	400	391	400	391
Household Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Non-visible Mean	0.33	0.33	0.03	0.03	0.66	0.66	0.04	0.04	0.08	0.08	0.90	0.90
Female - Male [A]	0.09	0.08	0.06	0.06	-0.16	-0.14						
Female=Male [A]	0.03	0.06	0.11	0.08	0.00	0.00						

Notes: Dependent variables: Columns in panel A indicate the amount allocation decisions made by spouses. Columns in panel B indicate share of amount participant wishes to spend on the specific category of expenditure. Columns in panel C indicate share of amount participant wishes to spend on individual/individuals described. Columns (1) to (6) denote responses by female spouse on how she would like to allocate or spend amount she could win in lottery and columns (7) to (14) denote responses by male spouse on how he would like her to allocate or spend amount he could win in lottery. Percentage point changes are calculated relative to the mean of the group where participant's choices are non-visible to their partner. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

## 5.4 Plausible deniability

Data from women’s decisions during the two allocation games makes it possible to analyse the role of plausible deniability in women’s financial decisions. We capture the impact of plausible deniability by comparing how women’s financial decisions change between the first and second allocation games. In the first allocation game, women had to make allocation and expenditure decisions about the money they knew with full certainty that they would receive. During the second allocation game, women had to make allocation and expenditure decisions about resources they could win through a lottery with a 25% chance under the same rules of privacy, labelling, information sharing and communication. The second allocation game is different to the first for female participants because if she wins the lottery, she can now plausibly deny to her husband that she received the lottery, which was not the case in the first game.

For this analysis, we focus only on women in the “Gift” group since it is only in the “Gift” group that women receive the amount as a free transfer during both allocation games. For the “Task” group women, the first and the second allocation game is different in two ways; one, she earned the amount through the task in the first game and did not earn in the second game, and two, there was no opportunity to plausibly deny that she received the amount in the first game whereas in the second game, she had the opportunity to withhold the information about receiving the amount. Hence, including the women in the “Task” group for the analysis could give us spurious results when trying to identify the role of plausible deniability in women’s decisions. Also, we include only women in the treatment groups whose decisions are kept private from their husbands. By focusing on women who can keep their decisions private, we are able to understand the role of plausible deniability in the share they allocate to whom and what they spend it on. For women in the treatment arms that vary decision visibility, we cannot separate the impact of plausible deniability from visibility. For the results below, we focus on only women in the “Gift” group and the “Private” and “Private Labelled” treatment groups.

In [Table 19](#), we find that having the opportunity to plausibly deny that she received the amount does not affect women’s allocation decisions (Panel A) and her decision on who the expenditure beneficiary would be while spending the amount (Panel C). However, we find that under plausible deniability, women spend 5.9 percentage points smaller share of the amount on necessities (Panel B, Column 1,  $p < 0.05$ , q value not significant) and 5.5 percentage points higher share of amount on savings and investments (Panel B, Column 5,  $p < 0.05$ , q value not significant). Existing empirical evidence on women’s behaviour when hiding resources from their husbands or other family members suggests that women often hide resources from the rest of the family to protect against immediate consumption and for savings ([Anderson and Baland, 2002](#); [Dupas and Robinson, 2013](#)). We observe a similar pattern in our lab setting as well. When there is an opportunity to hide the information from her husband about receiving the amount, women wish to spend more on savings and

less on immediate consumption such as necessities.

Table 19: Effect of Plausible Deniability on Women's Financial Decisions

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A - Amount allocation</b>						
	Amount share to wife		Amount share to husband		Visibility	
Plausible Deniability [A]	-0.001 (0.02) [0.940] {1.000}	-0.001 (0.02) [0.940] {1.000}	0.019 (0.02) [0.295] {0.993}	0.019 (0.02) [0.301] {1.000}	0.010 (0.02) [0.600] {1.000}	0.010 (0.02) [0.603] {1.000}
<i>N</i>	400	390	400	390	400	390
Allocation Game 1 Mean	0.86	0.86	0.10	0.10	0.15	0.15
<b>Panel B - Expenditure allocation</b>						
	Necessities		Non-necessities		Savings and Investments	
Plausible Deniability [A]	-0.059 (0.03) [0.028]** {0.143}	-0.056 (0.03) [0.033]** {0.241}	0.015 (0.02) [0.539] {1.000}	0.015 (0.02) [0.550] {1.000}	0.064 (0.03) [0.027]** {0.143}	0.061 (0.03) [0.043]** {0.241}
<i>N</i>	397	387	397	387	397	387
Allocation Game 1 Mean	0.25	0.25	0.13	0.13	0.61	0.61
<b>Panel C - Expenditure Beneficiary</b>						
	Wife		Husband		Collective Use	
Plausible Deniability [A]	0.033 (0.02) [0.166] {0.633}	0.029 (0.02) [0.225] {1.000}	-0.012 (0.01) [0.385] {0.993}	-0.013 (0.01) [0.395] {1.000}	-0.011 (0.03) [0.680] {1.000}	-0.006 (0.03) [0.806] {1.000}
<i>N</i>	397	387	397	387	397	387
Household Controls	No	Yes	No	Yes	No	Yes
Allocation Game 1 Mean	0.30	0.30	0.05	0.05	0.65	0.65

*Notes:* Dependent variables: Columns in panel A indicate the amount allocation decisions made by women in the sample. Columns in panel B indicate share of amount female participant wishes to spend on the specific category of expenditure. Columns in panel C indicate share of amount female participant wishes to spend on individual/individuals described. Rows [A] indicate effect of plausible deniability of the receiving the amount on women's financial decisions. Percentage point changes are calculated relative to the mean the first allocation game where there women did not have opportunity to deny that she received the amount. Rows [A] involves the sample of women who did not perform the task before the first allocation game. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

## 6 Discussion and Conclusion

This study provides insights on various aspects of design and delivery of social protection programmes within a household setting. Along with improving women's control over resources, workfare substantially increases women's say in the context of the daily bargaining among couples. This adds to the evidence on the importance of women's labour force participation, especially for women with low control over money. While we find that

workfare improves women's autonomy, further work is needed to understand the effect of women's workfare on other streams of household outcomes, such as overall household income, savings, and labour time use. Such work will enhance our understanding on the benefits of women's workfare over unconditional transfer as a policy approach.

Our failure to find evidence of an increase in sharing or spending on household public goods when resources labelled for household purposes are individually held by couples reveals a weakness in the dominant policy strategy of transferring resources meant for household purposes to an individually held account. Individualised financial products for household purposes and joint decision-making in families need to be reexamined in detail. Furthermore, the observed heterogeneity in the effect of spousal monitoring mechanisms based on several couples' characteristics call for a broader policy approach for female financial inclusion based on underlying intrahousehold structures when targeting families. While previous studies on household bargaining highlight that one size does not fit all, our findings emphasize on tailored mechanisms based on underlying preferences that can help women overcome barriers related to financial inclusion. We consider this study as a preliminary advancement to improve the match between couples and financial products, and advocate future research through field experiments to test the specific roles of varying levels of monitoring and joint decision-making among couples.

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## Appendix A: Theoretical Framework

In this section, we describe women's utility function under different strategies she could choose and the conditions under which she chooses one strategy over the other.

Under the contract described in Section 2.1, expected utility of wife is given as follows:

$$\mathbb{E}[U_F] = \begin{cases} S(1 - \theta)Y, & T_M \text{ if } F \text{ transfers} \\ & \text{income to } M \\ S(1 - \theta)\alpha Y - P, & V_M \text{ if } F \text{ commit to} \\ & \text{consumption for } M \\ (1 - p)Y + p[S(1 - \theta)Y - P - C], & T_F \text{ if } F \text{ transfers} \\ & \text{income for herself} \\ (1 - \hat{p})Y + \hat{p}\{[1 - \alpha(1 - S(1 - \theta))]Y - P - C\}, & V_F \text{ if } F \text{ commit to} \\ & \text{consumption for herself} \\ (1 - \acute{p})S(1 - \gamma)Y + \acute{p}\{S(1 - \theta)Y - P - C\}, & V_S \text{ if } F \text{ commit to} \\ & \text{consumption for household} \\ (1 - \tilde{p})\alpha Y + \tilde{p}\{S(1 - \theta)\alpha Y - P - C\}, & O_S \text{ if } F \text{ transfers} \\ & \text{to third person} \end{cases} \quad (4)$$

Agent F's preference for strategies will depend on the parameters described above.

1. F prefers strategy  $T_M$  to strategy  $V_M$  if and only if

$$P \geq (\alpha - 1)(1 - \theta)SY \quad (5)$$

2. F prefers strategy  $T_M$  to strategy  $T_F$  if and only if

$$p \geq \frac{[(1 - S(1 - \theta))]Y}{[(1 - S(1 - \theta))]Y + P + C} \quad (6)$$

3. F prefers strategy  $T_M$  to strategy  $V_F$  if and only if

$$\hat{p} \geq \frac{[(1 - S(1 - \theta))]Y}{[(1 - S(1 - \theta))\alpha Y + P + C]} \quad (7)$$

4. F prefers strategy  $T_M$  to strategy  $V_S$  if and only if

$$\acute{p} \geq \frac{(\theta - \gamma)SY}{(\theta - \gamma)SY + P + C} \quad (8)$$

5. F prefers strategy  $T_M$  to strategy  $O_S$  if and only if

$$\tilde{p} \geq \frac{[(\alpha - S(1 - \theta))Y]}{[(\alpha - S(1 - \theta))Y + P + C]} \quad (9)$$

6. F prefers strategy  $V_M$  to strategy  $T_F$  if and only if

$$p \geq \frac{[(1 - (1 - \theta))Y - P]}{[(1 - S(1 - \theta))Y + P + C]} \quad (10)$$

7. F prefers strategy  $V_M$  to strategy  $V_F$  if and only if

$$\hat{p} \leq \frac{[(1 - (1 - \theta))Y - P]}{[(1 - S(1 - \theta))\alpha Y + P + C]} \quad (11)$$

8. F prefers strategy  $V_M$  to strategy  $O_S$  if and only if

$$\tilde{p} \leq \frac{[(1 - (1 - \theta))Y - P]}{[(1 - (1 - \theta))Y + P + C]} \quad (12)$$

9. F prefers strategy  $T_F$  to strategy  $V_F$  if and only if

$$p \leq \frac{\hat{p}\{[(1 - S(1 - \theta))\alpha Y + P + C]\}}{[(1 - S(1 - \theta))Y + P + C]} \quad (13)$$

10. F prefers strategy  $T_F$  to strategy  $O_S$  if and only if

$$p \leq \frac{\tilde{p}\{[(1 - \alpha S(1 - \theta))Y + P + C]\}}{[(1 - S(1 - \theta))Y + P + C]} \quad (14)$$

11. F prefers strategy  $V_F$  to strategy  $O_S$  if and only if

$$\hat{p} \leq \frac{\tilde{p}\{[(1 - \alpha S(1 - \theta))Y + P + C]\}}{[(1 - \beta(1 - \theta))\alpha Y + P + C]} \quad (15)$$

In our experimental setup, we also analyse male decision making under two scenarios: household resources are transferred to his individual account (Labelled for Household Purposes), and his decisions are visible to his wife (Visible). Similar to wife, husband  $M$  has six available strategies to allocate the money he could win through lottery:  $\{T_F, T_M, V_F, V_M, V_S, O_S\}$ , where  $T_F$  and  $T_M$  is to transfer money to  $F$  and  $M$ , respectively,  $V_F$  and  $V_M$  is to commit to consumption for  $F$  and  $M$ , respectively,  $V_S$  is to commit to consumption for collective consumption by household and  $O_S$  is to transfer all the money to someone else who is not their partner. Strategies  $T_F$  and  $V_F$  can be considered as the share of income fully controlled by wife, and strategies  $T_M$  and  $V_M$  as the share of income fully controlled by husband.

Since the financial management in household is set up in a such way that husband has the final say on decision making, there are some differences in husband's utility function under different strategies as compared to wife's. If husband chooses strategies  $T_M$  or  $V_M$ ,

he can keep all of  $Y$  since he dictates household decision making. If he chooses  $T_F$ , that is, to transfer the income to wife, he may get a share of  $Y$ ,  $\alpha Y$ . Similarly, if he chooses  $V_F$ , he may be able to undo the committed consumption and get  $\alpha Y$ . If he chooses  $V_S$ , a shared household good voucher, he can keep  $\gamma Y$  for himself and give the rest  $(1 - \gamma)Y$  to household members. Similar to strategies  $T_F$  and  $V_F$ , he might be able to retrieve  $\alpha$  of  $Y$  if he chooses to transfer the amount to a third person. The husband's preference for one strategy over the other can be easily deducted similar to the calculation of the wife's preference over strategies as above.

## Appendix B: Definition of Relevant Variables

Table B1: Primary Outcomes

Variable	Definition
Share to Wife	Share of money allocated towards wife's account and female personal gift voucher
Share to Husband	Share of money allocated towards husband's account and partner's gift voucher
Visibility	<p>Binary (0/1) - 1 if participant chooses one of the below in the allocation game, 0 otherwise</p> <ul style="list-style-type: none"> <li>• Deposit the amount in their partner's bank account</li> <li>• A personal gift voucher to buy female clothing, footwear, and other accessories</li> <li>• A personal gift voucher to buy male clothing, footwear, and other accessories</li> <li>• A shared gift voucher to buy household items</li> </ul>
Share towards Expenditure - Food and necessities	<p>Percentage share</p> <ul style="list-style-type: none"> <li>• Percentage share - share of money participant spends on 'food and necessities'</li> </ul> <p>Food and necessities - rice, wheat, vegetables, fruits, milk and dairy items, pulses, eggs, fish, chicken, meat, electricity bills, water bill, and rent.</p>
Share towards Expenditure - Personal goods and services	<p>Percentage share</p> <ul style="list-style-type: none"> <li>• Percentage share - share of money participant spends on 'personal goods and services'</li> </ul>
<i>Continued on next page</i>	

**Table B1: Primary Outcomes**

<b>Variable</b>	<b>Definition</b>
	Personal goods/services - haircuts, female products like sanitary pads, tobacco, alcohol, soap, shampoo, travel, male products like razors, and mobile recharge.
Expenditure - Savings and investments	<p>Percentage share</p> <ul style="list-style-type: none"> <li>• Percentage share - share of money participant spends on 'savings and investments'</li> </ul> <p>Savings and investments - house repairs, savings, invest in business, education expenses like books, uniforms, and repayment of loans.</p>
Beneficiary of expenditure - Wife	Share of money participant chooses items in the follow up question on expenditure for wife.
Beneficiary of expenditure - Husband	Share of money participant chooses items in the follow up question on expenditure for husband.
Beneficiary of expenditure - Everyone in the household	Share of money participant chooses items in the follow up question on expenditure for everyone in the household.

**Table B2: Secondary Outcomes**

<b>Variable</b>	<b>Definition</b>
Emotional well being	Standardized index of variables measuring how often participant felt the following during the session (options range from 'often' to 'never')
<i>Continued on next page</i>	

**Table B2: Secondary Outcomes**

Variable	Definition
	<ul style="list-style-type: none"> <li>• Nervous, tense, or uneasy</li> <li>• Felt difficult to concentrate on what they were doing</li> <li>• Sad</li> <li>• Tired</li> <li>• Could not cope with things asked to do</li> <li>• Felt confident about the future</li> </ul>
Mental Bandwidth	<p>Standardized index and individual score of the following tests</p> <ul style="list-style-type: none"> <li>• Psycho-motor vigilance test (reactive function): Average and best reaction time taken to click on a target that appears on the screen</li> <li>• Hearts and flower test (executive function): Number of times participant accurately answer tests based on congruent and incongruent blocks.</li> <li>• Memory test: Number of correct answers respondent gives to memory test</li> <li>• Raven’s test (abstract reasoning): Number of correct answers participant gives in a test to determine the missing element in a pattern</li> </ul>

**Table B3: Household and Individual Controls**

Variable	Definition
Household Controls	
Household size	Number of individuals living in the household
Number of adults over 60	Number of adults above 60 and living in the household
Number of children	Number of children below age 18
<i>Continued on next page</i>	



**Table B3: Household and Individual Controls**

<b>Variable</b>	<b>Definition</b>
Housing Quality	Number of rooms in household used for sleeping
Use of formal joint bank account	Binary (1/0) - 1 if the respondent has a formal joint bank account with his/her spouse, 0 otherwise
Years being married	Number of years of marriage
Individual Controls	
Age	Age of the respondent
Age at marriage	Age of the respondent at marriage
Education	Categorical; Highest level of education attained
Employment status	Categorical; description of current employment status of respondent
Previous month income	Income earned by the respondent during the previous month
Typical month income	Income earned by the respondent during a typical month
Contribution to household income	Proportion of income that respondent earns to the total income of household; categorical
Use of mobile money/ wallets	Binary (1/0) - 1 if the respondent has ever used mobile money or online wallets such as paytm account or google pay account, 0 otherwise
Use of informal savings accounts	Binary (1/0) - 1 if the respondent uses informal savings products like savings group, microfinance, home, relatives, 0 otherwise

## Appendix C: Comparing Treatment Effects for Wife and Husband

For the allocation game where wife makes decisions on how they allocate and spend money they earn or receive, we also record the husband's responses on how he would like his wife to allocate and spend the money she earned or received. In the following tables ([Table C1 to C5](#)), we document the differences in their responses in the context of treatment effects of the experiment. We discuss any results of importance from this analysis in the main results section of the paper.

Table C1: Effect of women's workfare on spousal decision making

	Female Spouse						Male Spouse					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>Panel A - Amount allocation</b>												
	Amount share to wife		Amount share to husband		Visibility		Amount share to wife		Amount share to husband		Visibility	
Task [A]	0.055 (0.02) [0.016]** {0.099}*	0.052 (0.02) [0.029]** {0.153}	-0.034 (0.02) [0.086]* {0.216}	-0.033 (0.02) [0.104] {0.322}	-0.056 (0.02) [0.020]** {0.099}*	-0.054 (0.02) [0.026]** {0.153}	0.038 (0.03) [0.242] {0.533}	0.045 (0.03) [0.180] {0.356}	-0.037 (0.03) [0.260] {0.533}	-0.043 (0.03) [0.204] {0.356}	-0.038 (0.03) [0.231] {0.533}	-0.047 (0.03) [0.159] {0.356}
N	1008	987	1008	987	1008	987	1008	988	1008	988	1008	988
Gift Mean	0.84	0.84	0.12	0.12	0.16	0.16	0.52	0.52	0.47	0.47	0.47	0.47
Female - Male [A]	0.02	0.01	0.00	0.01	-0.02	-0.01						
Female=Male [A]	0.67	0.88	0.93	0.80	0.68	0.86						
<b>Panel B - Expenditure allocation</b>												
	Necessities		Non-necessities		Savings and Investments		Necessities		Non-necessities		Savings and Investments	
Task [B]	0.003 (0.03) [0.898] {0.665}	0.012 (0.02) [0.628] {0.794}	-0.005 (0.03) [0.840] {0.665}	-0.017 (0.03) [0.536] {0.794}	0.010 (0.03) [0.769] {0.665}	0.013 (0.04) [0.703] {0.794}	-0.015 (0.03) [0.619] {0.642}	-0.018 (0.03) [0.544] {0.356}	-0.028 (0.02) [0.179] {0.533}	-0.032 (0.02) [0.103] {0.356}	0.046 (0.03) [0.140] {0.533}	0.052 (0.03) [0.099]* {0.356}
N	995	974	995	974	995	974	1003	983	1003	983	1003	983
Gift Mean	0.26	0.26	0.15	0.15	0.57	0.57	0.28	0.28	0.12	0.12	0.60	0.60
Female - Male [B]	0.02	0.03	0.02	0.02	-0.04	-0.04						
Female=Male [B]	0.57	0.37	0.46	0.63	0.39	0.36						
<b>Panel C - Expenditure Beneficiary</b>												
	Wife		Husband		Collective Use		Wife		Husband		Collective Use	
Task [C]	0.054 (0.03) [0.101] {0.216}	0.033 (0.03) [0.268] {0.473}	-0.015 (0.01) [0.174] {0.296}	-0.016 (0.01) [0.197] {0.456}	-0.017 (0.03) [0.578] {0.627}	0.004 (0.03) [0.888] {0.929}	0.027 (0.01) [0.016]** {0.171}	0.022 (0.01) [0.052]* {0.356}	-0.009 (0.01) [0.507] {0.642}	-0.014 (0.01) [0.290] {0.356}	0.013 (0.02) [0.386] {0.642}	0.022 (0.02) [0.160] {0.356}
N	995	974	995	974	996	975	1003	983	1003	983	1003	983
Household Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Gift Mean	0.31	0.31	0.04	0.04	0.65	0.65	0.04	0.04	0.05	0.05	0.91	0.91
Female - Male [C]	0.03	0.01	-0.01	-0.00	-0.03	-0.02						
Female=Male [C]	0.40	0.72	0.76	0.94	0.36	0.58						

*Notes:* Dependent variables: Columns in panel A indicate the amount allocation decisions made by spouses. Columns in panel B indicate share of amount participant wishes to spend on the specific category of expenditure. Columns in panel C indicate share of amount participant wishes to spend on individual/individuals described. Columns (1) to (6) denote responses by female spouse on how she would like to allocate or spend amount she earned or received, and columns (7) to (12) denote responses by male spouse on how he would like his wife to allocate or spend amount wife earned or received. Percentage point changes are calculated relative to the mean of the respective control group, which in this case is the treatment group where women receive the amount as a gift. Row Female - Male [A], Female - Male [B] and Female - Male [C] reports difference in coefficients for male and female for the corresponding coefficients in row [A], [B] and [C]. Row Female=Male [A], Female=Male [B], and Female=Male [C] reports p value from testing the hypothesis that coefficients for male and female are equal for the corresponding coefficients in row [A], [B] and [C]. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

Table C2: Effect of labelling money earned/received by women on their financial decisions

	Female Spouse						Male Spouse					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>Panel A - Amount allocation</b>												
	Amount share to wife		Amount share to husband		Visibility		Amount share to wife		Amount share to husband		Visibility	
Labelling [A]	0.019 (0.03) [0.591] {1.000}	0.015 (0.04) [0.673] {1.000}	-0.004 (0.03) [0.891] {1.000}	-0.001 (0.03) [0.967] {1.000}	-0.010 (0.04) [0.788] {1.000}	-0.007 (0.04) [0.859] {1.000}	0.025 (0.05) [0.646] {1.000}	0.029 (0.05) [0.583] {1.000}	-0.030 (0.05) [0.572] {1.000}	-0.034 (0.05) [0.504] {1.000}	-0.040 (0.05) [0.459] {1.000}	-0.046 (0.05) [0.379] {1.000}
Labelling&Task [B]	0.083 (0.04) [0.063]* {0.417}	0.086 (0.05) [0.067]* {0.436}	-0.043 (0.03) [0.220] {0.495}	-0.045 (0.04) [0.235] {0.543}	-0.080 (0.05) [0.110] {0.417}	-0.085 (0.05) [0.113] {0.436}	-0.020 (0.08) [0.794] {1.000}	-0.011 (0.08) [0.884] {1.000}	0.020 (0.08) [0.795] {1.000}	0.010 (0.08) [0.890] {1.000}	0.010 (0.08) [0.897] {1.000}	-0.003 (0.08) [0.967] {1.000}
Non-labelled Mean	0.87	0.87	0.09	0.09	0.14	0.14	0.53	0.53	0.47	0.47	0.47	0.47
Non-labelled&Task Mean	0.86	0.86	0.10	0.10	0.15	0.15	0.56	0.56	0.43	0.43	0.44	0.44
Female - Male [A]	-0.01	-0.01	0.03	0.03	0.03	0.04						
Female=Male [A]	0.93	0.83	0.67	0.58	0.67	0.56						
Female - Male [B]	0.10	0.10	-0.06	-0.06	-0.09	-0.08						
Female=Male [B]	0.29	0.31	0.47	0.51	0.37	0.40						
<b>Panel B - Expenditure allocation</b>												
	Necessities		Non-necessities		Investments		Necessities		Non-necessities		Savings and Investments	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Labelling [A]	0.005 (0.04) [0.898] {1.000}	0.002 (0.04) [0.951] {1.000}	0.010 (0.04) [0.791] {1.000}	0.022 (0.04) [0.582] {1.000}	-0.015 (0.05) [0.768] {1.000}	-0.022 (0.06) [0.688] {1.000}	-0.020 (0.06) [0.712] {1.000}	-0.028 (0.05) [0.599] {1.000}	0.021 (0.03) [0.446] {1.000}	0.014 (0.03) [0.595] {1.000}	-0.001 (0.05) [0.987] {1.000}	0.014 (0.05) [0.791] {1.000}
Labelling&Task [B]	-0.023 (0.06) [0.701] {0.979}	-0.014 (0.06) [0.806] {1.000}	0.016 (0.06) [0.792] {0.979}	0.019 (0.07) [0.772] {1.000}	0.019 (0.08) [0.835] {0.979}	0.006 (0.09) [0.945] {1.000}	0.017 (0.09) [0.423] {1.000}	-0.069 (0.08) [0.368] {1.000}	-0.076 (0.04) [0.347] {1.000}	0.037 (0.03) [0.497] {1.000}	0.023 (0.07) [0.652] {1.000}	0.053 (0.07) [0.467] {1.000}
Non-labelled Mean	0.26	0.26	0.14	0.14	0.59	0.59	0.31	0.31	0.07	0.07	0.62	0.62
Non-labelled&Task Mean	0.29	0.29	0.16	0.16	0.54	0.54	0.30	0.30	0.06	0.06	0.65	0.65
Female - Male [A]	0.03	0.03	-0.01	0.01	-0.01	-0.04						
Female=Male [A]	0.68	0.63	0.83	0.88	0.84	0.62						
Female - Male [B]	0.05	0.06	-0.02	-0.00	-0.01	-0.05						
Female=Male [B]	0.63	0.50	0.77	0.96	0.89	0.63						
<b>Panel C - Expenditure Beneficiary</b>												
	Wife		Husband		Collective Use		Wife		Husband		Collective Use	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Labelling [A]	-0.028 (0.05) [0.566] {1.000}	-0.027 (0.04) [0.536] {1.000}	0.014 (0.02) [0.528] {1.000}	0.012 (0.02) [0.587] {1.000}	0.008 (0.05) [0.873] {1.000}	0.011 (0.05) [0.820] {1.000}	-0.005 (0.02) [0.779] {1.000}	-0.006 (0.02) [0.758] {1.000}	-0.008 (0.03) [0.783] {1.000}	-0.015 (0.03) [0.585] {1.000}	0.008 (0.03) [0.801] {1.000}	0.014 (0.03) [0.661] {1.000}
Labelling&Task [B]	-0.011 (0.07) [0.881] {0.979}	-0.032 (0.07) [0.633] {1.000}	-0.051 (0.03) [0.065]* {0.417}	-0.056 (0.03) [0.061]* {0.436}	0.042 (0.08) [0.603] {0.979}	0.068 (0.07) [0.349] {0.723}	-0.010 (0.03) [0.741] {1.000}	-0.015 (0.03) [0.619] {1.000}	0.001 (0.03) [0.988] {1.000}	-0.016 (0.03) [0.634] {1.000}	-0.001 (0.04) [0.983] {1.000}	0.018 (0.04) [0.614] {1.000}
Household Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Non-labelled Mean	0.34	0.34	0.04	0.04	0.63	0.63	0.04	0.04	0.07	0.07	0.90	0.90
Non-labelled&Task Mean	0.36	0.36	0.06	0.06	0.60	0.60	0.05	0.05	0.05	0.05	0.92	0.92
Female - Male [A]	-0.02	-0.02	0.02	0.03	0.00	-0.00						
Female=Male [A]	0.66	0.65	0.59	0.50	1.00	0.95						
Female - Male [B]	-0.00	-0.02	-0.05	-0.04	0.04	0.05						
Female=Male [B]	0.98	0.81	0.29	0.43	0.62	0.54						

## **Appendix D: Emotional Well-being and Mental Bandwidth**

In the main results section of the paper, we report the effect of varying levels of spousal monitoring of female decisions on the standardised index created for emotional well-being and mental bandwidth. In this section, we check for the effect of spousal monitoring of female decisions on each item used in the creating index of emotional well-being and mental bandwidth. We find no significant effects on any of the individual items of the indices.

Table C3: Effect of Monitoring by the Husband on Female Allocation Decisions

	Female Spouse						Male Spouse					
	Amount share to wife		Amount shared together		Visibility		Amount share to wife		Amount shared together		Visibility	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Visible [A]	-0.031 (0.04) [0.444] {1.000}	-0.035 (0.04) [0.380] {1.000}	0.044 (0.03) [0.167] {1.000}	0.050 (0.03) [0.115] {1.000}	0.023 (0.04) [0.547] {1.000}	0.026 (0.04) [0.485] {1.000}	-0.001 (0.05) [0.979] {1.000}	0.013 (0.05) [0.800] {1.000}	0.006 (0.05) [0.894] {1.000}	-0.007 (0.05) [0.881] {1.000}	-0.000 (0.05) [1.000] {1.000}	-0.014 (0.05) [0.779] {1.000}
Approval [B]	-0.001 (0.03) [0.971] {1.000}	-0.006 (0.03) [0.860] {1.000}	0.020 (0.03) [0.498] {1.000}	0.026 (0.03) [0.382] {1.000}	0.005 (0.04) [0.895] {1.000}	0.009 (0.04) [0.820] {1.000}	0.030 (0.04) [0.480] {1.000}	0.026 (0.04) [0.558] {1.000}	-0.037 (0.04) [0.385] {1.000}	-0.027 (0.04) [0.537] {1.000}	-0.030 (0.04) [0.483] {1.000}	-0.026 (0.04) [0.554] {1.000}
Negotiation [C]	0.001 (0.04) [0.984] {1.000}	0.015 (0.04) [0.686] {1.000}	0.006 (0.03) [0.846] {1.000}	-0.004 (0.03) [0.895] {1.000}	-0.024 (0.04) [0.508] {1.000}	-0.039 (0.04) [0.277] {1.000}	0.032 (0.05) [0.502] {1.000}	0.044 (0.05) [0.380] {1.000}	-0.022 (0.05) [0.644] {1.000}	-0.033 (0.05) [0.498] {1.000}	-0.029 (0.05) [0.533] {1.000}	-0.041 (0.05) [0.402] {1.000}
<i>N</i>	808	790	808	790	808	790	808	791	808	791	808	791
Household Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Private Mean	0.87	0.87	0.09	0.09	0.14	0.14	0.53	0.53	0.47	0.47	0.47	0.47
[B] - [A]	0.03	0.03	-0.02	-0.02	-0.02	-0.02	0.03	0.01	-0.04	-0.02	-0.03	-0.01
[B]=[A]	0.41	0.42	0.46	0.46	0.61	0.61	0.45	0.77	0.30	0.65	0.47	0.78
[C] - [B]	0.00	0.02	-0.01	-0.03	-0.03	-0.05	0.00	0.02	0.02	-0.01	0.00	-0.02
[C]=[B]	0.95	0.51	0.61	0.30	0.34	0.12	0.97	0.69	0.71	0.89	0.98	0.73
[C] - [A]	0.03	0.05	-0.04	-0.05	-0.05	-0.07	0.03	0.03	-0.03	-0.03	-0.03	-0.03
[C]=[A]	0.41	0.16	0.22	0.07	0.18	0.05	0.40	0.44	0.48	0.53	0.47	0.51
F-M [A]	-0.03	-0.05	0.04	0.06	0.02	0.04						
F=M [A]	0.63	0.45	0.50	0.32	0.70	0.51						
F-M [B]	-0.03	-0.03	0.06	0.05	0.03	0.03						
F=M [B]	0.59	0.60	0.27	0.33	0.55	0.57						
F-M [C]	-0.03	-0.03	0.03	0.03	0.01	0.00						
F=M [C]	0.62	0.64	0.63	0.60	0.93	0.97						

*Notes:* Row [A] is the effect of transparency in wife's decisions, row [B] is the effect of having an-app based approval requirement from husband, row [C] is the effect of in-person negotiation with husband on decisions. All the above described rows are compared to the control group where there wife makes decisions privately (T1). Columns (1) to (6) denote responses by female spouse on how she would like to allocate or spend amount she earned or received, and columns (7) to (12) denote responses by male spouse on how he would like his wife to allocate or spend amount wife earned or received. Percentage point changes are calculated relative to the mean of the respective control group. Rows [B]-[A], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [B]=[A], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01. Clustered standard errors by sessions in round parentheses. p values in [] parentheses. Anderson's q values in {} parentheses.

Table C4: Effect of Monitoring by the Husband on Female Expenditure Allocation Decisions

	Female Spouse						Male Spouse					
	Necessities		Non-necessities		Savings and Investments		Necessities		Non-necessities		Savings and Investments	
Visible [A]	0.034 (0.04) [0.394] {1.000}	0.047 (0.04) [0.219] {1.000}	0.040 (0.04) [0.311] {1.000}	0.035 (0.04) [0.361] {1.000}	-0.069 (0.05) [0.199] {1.000}	-0.076 (0.05) [0.157] {1.000}	-0.025 (0.05) [0.594] {1.000}	-0.016 (0.04) [0.725] {1.000}	0.087 (0.03) [0.003]*** {0.104}	0.075 (0.03) [0.010]*** {0.352}	-0.062 (0.05) [0.195] {1.000}	-0.059 (0.05) [0.205] {1.000}
Approval [B]	-0.003 (0.04) [0.945] {1.000}	-0.001 (0.03) [0.971] {1.000}	-0.006 (0.04) [0.883] {1.000}	-0.003 (0.04) [0.936] {1.000}	-0.008 (0.05) [0.856] {1.000}	-0.008 (0.05) [0.864] {1.000}	-0.068 (0.05) [0.152] {1.000}	-0.073 (0.05) [0.111] {1.000}	0.004 (0.02) [0.864] {1.000}	0.008 (0.03) [0.759] {1.000}	0.053 (0.05) [0.311] {1.000}	0.055 (0.05) [0.262] {1.000}
Negotiation [C]	-0.045 (0.04) [0.290] {1.000}	-0.035 (0.04) [0.377] {1.000}	0.000 (0.04) [0.999] {1.000}	-0.003 (0.04) [0.938] {1.000}	0.055 (0.05) [0.286] {1.000}	0.049 (0.05) [0.347] {1.000}	-0.055 (0.05) [0.260] {1.000}	-0.057 (0.05) [0.220] {1.000}	0.056 (0.03) [0.049]** {1.000}	0.053 (0.03) [0.063]* {1.000}	-0.006 (0.05) [0.912] {1.000}	-0.001 (0.05) [0.988] {1.000}
<i>N</i>	796	778	796	778	796	778	806	789	806	789	806	789
HH Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Private Mean	0.26	0.26	0.14	0.14	0.59	0.59	0.31	0.31	0.07	0.07	0.62	0.62
[B] - [A]	-0.04	-0.05	-0.05	-0.04	0.06	0.07	-0.04	-0.06	-0.08	-0.07	0.12	0.11
[B]=[A]	0.36	0.25	0.15	0.23	0.15	0.11	0.35	0.21	0.01	0.04	0.02	0.02
[C] - [B]	-0.04	-0.03	0.01	0.00	0.06	0.06	0.01	0.02	0.05	0.05	-0.06	-0.06
[C]=[B]	0.33	0.44	0.87	1.00	0.18	0.24	0.78	0.73	0.11	0.14	0.23	0.26
[C] - [A]	-0.08	-0.08	-0.04	-0.04	0.12	0.13	-0.03	-0.04	-0.03	-0.02	0.06	0.06
[C]=[A]	0.07	0.06	0.25	0.27	0.01	0.01	0.41	0.28	0.37	0.51	0.18	0.19
F-M [A]	0.06	0.06	-0.05	-0.04	-0.01	-0.02						
F=M [A]	0.30	0.28	0.34	0.42	0.93	0.82						
F-M [B]	0.07	0.07	-0.01	-0.01	-0.06	-0.06						
F=M [B]	0.25	0.17	0.83	0.81	0.39	0.34						
F-M [C]	0.01	0.02	-0.06	-0.06	0.06	0.05						
F=M [C]	0.84	0.66	0.24	0.24	0.39	0.47						

*Notes:* Row [A] is the effect of transparency in wife's decisions, row [B] is the effect of having an-app based approval requirement from husband, row [C] is the effect of in-person negotiation with husband on decisions. All the above described rows are compared to the control group where there wife makes decisions privately (T1). Columns (1) to (6) denote responses by female spouse on how she would like to allocate or spend amount she earned or received, and columns (7) to (12) denote responses by male spouse on how he would like his wife to allocate or spend amount wife earned or received. Percentage point changes are calculated relative to the mean of the respective control group. Rows [B]-[A], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [B]=[A], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.

Table C5: Effect of Monitoring by the Husband on Beneficiary of Expenditure

	Female Spouse						Male Spouse					
	Wife		Husband		Collective Use		Wife		Husband		Collective Use	
Visible [A]	0.024 (0.04) [0.579] {1.000}	0.011 (0.04) [0.784] {1.000}	-0.005 (0.02) [0.790] {1.000}	-0.003 (0.02) [0.873] {1.000}	-0.024 (0.05) [0.617] {1.000}	-0.013 (0.05) [0.774] {1.000}	0.021 (0.02) [0.322] {1.000}	0.011 (0.02) [0.590] {1.000}	-0.041 (0.02) [0.075]* {1.000}	-0.047 (0.02) [0.046]** {1.000}	0.022 (0.03) [0.425] {1.000}	0.034 (0.03) [0.212] {1.000}
Approval [B]	-0.036 (0.05) [0.433] {1.000}	-0.027 (0.05) [0.562] {1.000}	-0.020 (0.02) [0.247] {1.000}	-0.021 (0.02) [0.216] {1.000}	0.044 (0.05) [0.379] {1.000}	0.038 (0.05) [0.447] {1.000}	0.016 (0.02) [0.463] {1.000}	0.020 (0.02) [0.365] {1.000}	-0.039 (0.02) [0.110] {1.000}	-0.039 (0.02) [0.115] {1.000}	0.042 (0.03) [0.121] {1.000}	0.039 (0.03) [0.145] {1.000}
Negotiation [C]	0.003 (0.04) [0.952] {1.000}	-0.010 (0.04) [0.822] {1.000}	0.002 (0.02) [0.923] {1.000}	0.002 (0.02) [0.897] {1.000}	-0.009 (0.05) [0.835] {1.000}	0.002 (0.04) [0.967] {1.000}	0.026 (0.02) [0.196] {1.000}	0.025 (0.02) [0.220] {1.000}	-0.024 (0.02) [0.334] {1.000}	-0.026 (0.03) [0.299] {1.000}	0.010 (0.03) [0.725] {1.000}	0.014 (0.03) [0.618] {1.000}
N	796	778	796	778	796	778	806	789	806	789	806	789
Household Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Private Mean	0.34	0.34	0.04	0.04	0.63	0.63	0.04	0.04	0.07	0.07	0.90	0.90
[B] - [A]	-0.06	-0.04	-0.02	-0.02	0.07	0.05	-0.00	0.01	0.00	0.01	0.02	0.01
[B]=[A]	0.22	0.42	0.30	0.23	0.15	0.27	0.87	0.72	0.88	0.65	0.38	0.82
[C] - [B]	0.04	0.02	0.02	0.02	-0.05	-0.04	0.01	0.00	0.01	0.01	-0.03	-0.03
[C]=[B]	0.45	0.74	0.13	0.10	0.29	0.48	0.70	0.86	0.45	0.52	0.22	0.30
[C] - [A]	-0.02	-0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	-0.01	-0.02
[C]=[A]	0.64	0.66	0.68	0.74	0.74	0.75	0.81	0.56	0.32	0.25	0.63	0.42
F-M [A]	0.00	0.00	0.04	0.04	-0.05	-0.05						
F=M [A]	0.93	1.00	0.26	0.18	0.35	0.33						
F-M [B]	-0.05	-0.05	0.02	0.02	0.00	-0.00						
F=M [B]	0.27	0.34	0.56	0.58	0.97	0.98						
F-M [C]	-0.02	-0.03	0.03	0.03	-0.02	-0.01						
F=M [C]	0.62	0.47	0.45	0.41	0.68	0.80						

Notes: Row [A] is the effect of transparency in wife's decisions, row [B] is the effect of having an-app based approval requirement from husband, row [C] is the effect of in-person negotiation with husband on decisions. All the above described rows are compared to the control group where there wife makes decisions privately (T1). Columns (1) to (6) denote responses by female spouse on how she would like to allocate or spend amount she earned or received, and columns (7) to (12) denote responses by male spouse on how he would like his wife to allocate or spend amount wife earned or received. Percentage point changes are calculated relative to the mean of the respective control group. Rows [B]-[A], [C]-[B] and [C]-[A] reports difference in coefficients for the corresponding rows. Rows [B]=[A], [C]=[B] and [C]=[A] reports p value from testing the hypothesis that coefficients for the corresponding rows are equal. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife's high school completion status, husband's income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. p values in [ ] parentheses. Anderson's q values in { } parentheses. \* p,q<0.10, \*\* p,q<0.05, \*\*\* p,q<0.01.



Table D1: Effect of Monitoring by the Husband on Women’s Emotional Well-being (Items)

	Feeling		Hard to		Tired		Hard to	
	Nervous, Tense		Concentrate				Cope	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Approval[A]	-0.036 (0.03) [0.242] {1.000}	-0.038 (0.03) [0.242] {1.000}	-0.001 (0.03) [0.984] {1.000}	0.001 (0.03) [0.985] {1.000}	0.010 (0.01) [0.445] {1.000}	0.012 (0.01) [0.287] {1.000}	0.010 (0.02) [0.575] {1.000}	0.005 (0.02) [0.778] {1.000}
Visible [B]	-0.056 (0.03) [0.078]* {1.000}	-0.052 (0.03) [0.106] {1.000}	0.009 (0.03) [0.739] {1.000}	0.011 (0.03) [0.701] {1.000}	-0.000 (0.01) [1.000] {1.000}	-0.000 (0.01) [0.996] {1.000}	-0.005 (0.01) [0.722] {1.000}	-0.004 (0.01) [0.789] {1.000}
Negotiation [C]	-0.014 (0.04) [0.721] {1.000}	-0.010 (0.04) [0.791] {1.000}	0.017 (0.03) [0.520] {1.000}	0.024 (0.03) [0.406] {1.000}	-0.010 (0.01) [0.428] {1.000}	-0.006 (0.01) [0.658] {1.000}	-0.006 (0.01) [0.653] {1.000}	-0.005 (0.01) [0.687] {1.000}
<i>N</i>	807	789	805	788	805	787	807	789
Household Controls	No	Yes	No	Yes	No	Yes	No	Yes
Private Mean	0.14	0.14	0.06	0.06	0.03	0.03	0.03	0.03

*Notes:* Dependent variables: The columns indicate outcome variables related to emotional wellbeing of the participant soon after the allocation game. The variables are coded as binary variable equal to 1 if the female participant felt the emotion described during the allocation game and, 0 if not. Percentage point changes are calculated relative to the mean of the treatment group where decisions are purely private. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife’s high school completion status, husband’s income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. *p* values in [ ] parentheses. Anderson’s *q* values in { } parentheses. \* *p*,*q*<0.10, \*\* *p*,*q*<0.05, \*\*\* *p*,*q*<0.01.

Table D2: Effect of Monitoring by the Husband on Women’s Mental Bandwidth (Items)

	Memory		Executive		Abstract		Reaction	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Approval[A]	-0.325 (0.25) [0.194] {1.000}	-0.176 (0.24) [0.460] {1.000}	0.110 (0.21) [0.600] {1.000}	0.152 (0.20) [0.457] {1.000}	0.135 (0.13) [0.291] {1.000}	0.234 (0.13) [0.083]* {1.000}	-8.641 (7.98) [0.281] {1.000}	-8.959 (8.02) [0.267] {1.000}
Visible [B]	0.155 (0.25) [0.542] {1.000}	0.143 (0.24) [0.549] {1.000}	-0.262 (0.25) [0.288] {1.000}	-0.304 (0.24) [0.212] {1.000}	0.043 (0.12) [0.712] {1.000}	0.074 (0.12) [0.530] {1.000}	-0.325 (11.43) [0.977] {1.000}	-0.367 (13.10) [0.978] {1.000}
Negotiation [C]	0.247 (0.26) [0.335] {1.000}	0.232 (0.23) [0.325] {1.000}	-0.007 (0.21) [0.973] {1.000}	0.024 (0.20) [0.905] {1.000}	-0.037 (0.13) [0.772] {1.000}	-0.018 (0.13) [0.888] {1.000}	-8.535 (8.03) [0.290] {1.000}	-8.004 (7.77) [0.305] {1.000}
<i>N</i>	808	790	808	790	808	790	808	790
Household Controls	No	Yes	No	Yes	No	Yes	No	Yes
Private Mean	4.43	4.43	14.91	14.91	3.09	3.09	9.83	9.83

*Notes:* Dependent variables: The columns indicate outcome variables related to mental bandwidth of the participant soon after the allocation game. Percentage point changes are calculated relative to the mean of the treatment group where decisions are purely private. Estimates with and without household controls are reported. Household controls include difference in age of husband and wife, years being married, number of children, number of adults over 60 in household number of rooms, wife employment status, wife’s high school completion status, husband’s income being above 10 thousand rupees per month, and couples having a joint account. Clustered standard errors by sessions in round parentheses. *p* values in [ ] parentheses. Anderson’s *q* values in { } parentheses. \* *p*,*q*<0.10, \*\* *p*,*q*<0.05, \*\*\* *p*,*q*<0.01.

## Appendix E: Heterogeneous Treatment Effects

To test whether treatment effects vary heterogeneously across groups with specific individual level and intrahousehold characteristics, we re-run the empirical specification, interacting the treatment with variables of interest for heterogeneity. We carry out heterogeneous treatment effects regression based on the following characteristics and hypothesise the following mechanisms based on the heterogeneity for the outcomes on financial decision making by women.

Table E1: Dimensions of heterogeneity and related hypothesis

Variable and definition	Hypothesis
<p><b>Couple has a joint account</b></p>	<p>Joint account can be considered a proxy for existing joint decision making in household.</p> <p><i>Treatment effects of workfare</i> - Under workfare, if couple has a joint account, she is less likely to transfer to accounts under her control.</p> <p><i>Treatment effects of labelling money for household purposes</i> - Couples who have a joint account are more likely to spend for household purposes when resources are labelled for household purposes.</p> <p><i>Treatment effects of transparency and communication with husband</i> - If couples have a joint account, she may be less likely to allocate to an account she controls.</p>
<p><b>Wife has ever hidden income or expenditure</b> indicated by a binary variable equal to 1 if wife has ever hidden income or expenditure from husband, and 0 otherwise</p>	<p>Indicator of less control over her money</p> <p><i>Treatment effects of task</i> - more likely to allocate to accounts over which she has more control, such as her personal bank account or vouchers and allocate more expenditure to herself. Also, more likely to save than spend.</p>
<p><i>Continued on next page</i></p>	

**Table E1: Dimensions of heterogeneity and related hypothesis**

Variable and definition	Hypotheses
	<i>Treatment effects of transparency and communication with husband</i> - may allocate more share of money to accounts on which husband has more control.
<p><b>High level of involvement in household decisions making</b> measured as binary variable equal to 1 if wife has a score above the median score for involvement in household decision making, and 0 otherwise. Women's score for involvement in household decision making is measured as the sum of seven items which measure her involvement alone or jointly with husband on decisions regarding her own income, partner's income, minor and major purchases, children's education, visits to family and friends, and her health care.</p>	<p>Indicator high bargaining power of wife</p> <p><i>Treatment effects of task</i> - She allocates more to accounts she controls.</p> <p><i>Treatment effects of transparency and communication with husband</i> - Allocate more share of money to herself.</p>
<p><b>High willingness to pay</b> to have control over money measured as a binary variable equal to one if wife is willing to give up some amount of money in order to have full control of the money she will receive.</p> <p><i>Hypothetical Question:</i> Suppose you are given an investment opportunity where you can invest 200 rupees in three different ways: (1) You will get 400 rupees in return (2) Your partner will get 800 rupees in return (3) You and your partner jointly will get 600 rupees in return. Which one would you choose?</p> <p><i>Choices:</i> 400 rupees for myself 800 rupees for partner 600 rupees for me and my partner jointly</p>	<p>Indicator of women's low control over money in household</p> <p><i>Treatment effects of task</i> - may allocate less to her personal bank account or for female voucher. May also spend less on herself.</p> <p><i>Treatment effects of transparency and communication with husband</i> - may allocate less to herself.</p>
<i>Continued on next page</i>	

**Table E1: Dimensions of heterogeneity and related hypothesis**

Variable and definition	Hypotheses
<p><b>Quality of relationship between couple</b> measured as binary variable equal to one if wife responds that she expresses her disagreement with partner’s opinion frequently or sometimes, and if she agrees that wife has the right to express her opinion when she disagrees with what her husband is saying; 0 otherwise</p>	<p>Indicator for good level of communication between couple</p> <p><i>Treatment effects of transparency and communication with husband</i> - may increase the share of amount she allocates to herself and decrease share she allocates to husband.</p>
<p><b>Impatient time preference</b> measured as a binary variable equal to one if wife chooses immediate reward in two questions regarding her preference for receiving a certain amount of money</p> <p><i>Questions:</i> 1. Would you prefer to receive 250 rupees guaranteed today, or 350 rupees guaranteed in 1 month? 2. Would you prefer to receive 250 rupees guaranteed in 6 months, or 350 rupees guaranteed in 7 months?</p>	<p><i>Treatment effects of task</i> - Wife may allocate less share of money towards savings/investments.</p> <p><i>Treatment effects of labelling money for household purposes</i> - Participants may allocate more share of money towards savings/investments.</p>
<p><b>Risk averse</b> measured as a binary variable equal to one if participant chooses sure outcome over lottery even when pay-out of sure outcome is less than the lottery amount</p> <p>Series of choice problems which finishes when she choose a lower sure amount compared to higher uncertain (50% chance amount)</p>	<p><i>Treatment effects of labelling money for household purposes</i> - may participants allocate more towards savings and household public good.</p> <p><i>Treatment effects of transparency and communication with husband</i> - may allocate less towards herself.</p>
<p><i>Continued on next page</i></p>	

**Table E1: Dimensions of heterogeneity and related hypothesis**

Variable and definition	Hypotheses
<p><i>Questions:</i> 1. Which would you prefer: 200 rupees for sure or a 50% chance to win 700? 2. "Which would you prefer: 300 rupees for sure or a 50% chance to win 700? 3. "Which would you prefer: 400 rupees for sure or a 50% chance to win 700? 4. "Which would you prefer: 500 rupees for sure or a 50% chance to win 700?</p>	
<p><b>High general self-efficacy</b> measured as a binary variable equal to one if wife's score on general self-efficacy scale is higher than the median score for all women in the subject pool</p> <p>Items on the scale:</p> <p>1. I will be able to achieve most of the goals that I have set for myself 2. When facing difficult tasks, I am certain that I will accomplish them. 3. In general, I think that I can obtain outcomes that are important to me. 4. I believe I can succeed at most any endeavor to which I set my mind. 5. I will be able to successfully overcome many challenges. 6. I am confident that I can perform effectively on many different tasks. 7. Compared to other people, I can do most tasks very well. 8. Even when things are tough, I can perform quite well.</p>	<p><i>Treatment effects of task</i> - may assume more sense of ownership of the amount she earned. Hence, she is more likely to allocate to accounts that she controls. Also, may spend more on herself.</p> <p><i>Treatment effects of transparency and communication with husband</i> - more likely to allocate amount to account she controls.</p>

## **Appendix F: Changes to Registered Pre-Analysis Plan**

### **Analysing Effect of Labelling Money for Household Purposes and Transparency for Husbands**

Even though we mentioned in our pre-analysis plan that we would record both male and female responses in the second allocation game where each partner has a 25% chance of winning 400 rupees, we did not mention the analysis we will be performing using the data. Using the data documented in the pre-analysis plan, we analyse how labelling lottery money for household purposes will affect husband's decisions compared to when money is not labelled. Additionally, we can also analyse how visibility of his decisions by wife will affect his allocation and spending decisions as compared to when his decisions are kept private from his husband. In both cases, we also compare his responses to his wife's responses under the same conditions.

### **Changes in the primary outcome variables used**

In our pre-analysis plan, we defined our primary outcome variable as the six options the couples had to allocate the money including transfer to their own account and voucher for private consumption. Since the number of respondents who choose the option shared voucher and transfer to a third person is very less, we did not include them as the main outcome variable in our analysis.

We also mentioned that we will include both binary and continuous variable for share towards different expenditures. However, we include only the continuous variables in our analysis for avoiding redundancy in results as both the type of variables gave similar results.

### **Comparing female and male responses**

The empirical strategy in the pre-analysis plan describes that we would compare the female and male responses using Fishers exact test following the empirical strategy of Ashraf (2009). However, since we have a higher number of observations than Ashraf (2009), we use a linear Wald test to compare the female and male coefficients.