

Spousal Control and Intra-Household Decision Making: An Experimental Study in the Philippines *

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Abstract

Using an experimental design I elicit causal effects of spousal observability and communication on financial choices of married individuals in the Philippines. Making choices public moves men from putting money into their own account to consumption; communication with their spouse drives men to put income in their wives' account. The strong effect on men but not women of information and communication appears to be driven not as much by gender as by control: men whose wives control household savings are much more likely to exhibit this treatment effect and women whose husbands control savings exhibit the same pattern as men. These results suggest that existing household models and policies are incomplete without taking into account the bargaining process and, in particular, the way in which this process interacts with underlying control structures in the household.

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1 Introduction

Household outcomes depend on decisions made by spouses who may often disagree. Given these potential differences in preferences, the particular conditions under which intra-household decisions are taken may matter a great deal for household outcomes. A large and growing literature in economics provides evidence from several countries that household savings and investment are significantly affected by how decision-making power is allocated between women and men. In particular, when intra-household financial decisions are made by women, savings and investment are often greater and repayment of debt is more likely.¹

Theoretical and empirical work in economics has generally overlooked the range of factors that influence intra-household decisions. Most models of household decisions have either treated the household as an individual decision maker—ignoring intra-household decisions completely—or modelled household decisions as a bargaining process between agents who are able to make binding commitments, have full information, and are able to communicate.² These models, all of which predict that outcomes will be Pareto optimal, are contradicted by empirical evidence against Pareto optimality (Udry, 1996) and complete information (Goldstein and Udry, 1999; Boozer and Goldstein, 2003; Pahl, 1983). More realistic assumptions, such as the possibility of private information and limited communication between spouses, may be needed.³

¹For example, income given to women is more likely to be used for investments in education, children's nutrition, and housing than income in the hands of men (Thomas, 1990, 1994; Hoddinott and Haddad, 1995; Khandker, 1998; Duflo, 2003). Lundberg, Startz and Stillman (2001) find that households where a woman's bargaining power rises through her husband's retirement raise their savings rate. Hossain (1988), Hulme (1991), Gibbons and Kasim (1991), Khandker et al. (1995), and Armendariz de Aghion and Murdoch (2003) all find that microfinance loans made to women are significantly more likely to be repaid.

²See, for example, Manser and Brown (1980), McElroy and Horney (1981) and Lundberg and Pollak (1992). Chiappori (1992) and Browning and Chiappori (1998) do not make assumptions about the specific bargaining process or structure, but assume that the bargaining outcome will be efficient.

³As Bardhan and Udry (1999) argue, "If the efficient household model cannot adequately account for the intra-household allocation of resources, it appears that it will be necessary to move towards more detailed, culturally and institutionally informed non-cooperative models of the interaction between household members".

Empirical work on intra-household bargaining has increasingly used exogenous shocks to one spouse's income to identify its effect on household outcomes and infer individual preferences.⁴ However, who receives the income is only one factor which may affect the household outcome. Indeed, there is a substantial sociological literature on the processes of intra-household decision making, which emphasizes the importance of financial management structures in the family and the role that information and communication can play in making decisions within a marriage (see, for example, Dwyer and Bruce, 1988), but factors like privacy of information have not been widely incorporated into household models of decision making⁵; even within these models, it is not clear how information asymmetries affect outcomes, beyond a standard prediction of decreasing efficiency. Understanding how spouses adjust strategically when information about their income and subsequent financial decisions is private, or when elements of the bargaining process, such as communication, change, is important to understanding household decision outcomes—but requires exogenous variation to identify.

In order to identify how information and communication affect intra-household decisions, I use an experimental approach. I observe intra-household financial decisions in a randomized field study. These experiments were explicitly designed not to treat households as a unit, but to allow for as much individual decision making as possible while varying the degree of privacy of information and ability to bargain.

Experiments have recently emerged as a method for getting inside the household (Peters et al., 2004; Bateman & Munro, 2006; Iversen et al., 2006).⁶ These experimental papers

⁴See, as examples in a growing literature, Duflo (2003), Duflo and Udry (2004), Rangel (2004).

⁵Exceptions include Dubois and Ligon (2004).

⁶In "Free-Riding and the Provision of Public Goods in the Family: A Laboratory Experiment", Peters, Unur, Clark and Schulze play public goods games and conclude that there is more contribution to the public good fund when the group consists of family members. In "Testing Economic Models of the Household: An Experiment", Bateman and Munro found that overall, couples are more risk averse and follow predictions of income pooling when making choices jointly compared to when they make choices individually. In "What's love got to do with it? An experimental test of household models in East Africa", Iversen, Jackson, Kebede, Munro and Verschoor play variants of a public goods game and find that couples do not maximize surplus

have focused on testing predictions of existing (usually unitary) models of the household, similar to the empirical work in economics cited above. I use experiments rather as a method to tell us what existing economic models might be missing, by exogenously varying factors in household decision making that are difficult to measure or vary empirically: private information and communication. Using experiments to understand decision making within the household can be challenging: subjects have an ongoing relationship with each other, so behavior within the experiments can often be undone when spouses go home. I thus design outcomes that are difficult to undo, like time-limited, person-specific gift certificates. In addition, and similar to challenges facing experiments in other applications, one worries about subjects behaving differently under the "artificial" conditions of the laboratory. To overcome this, I ran the experiments in a familiar setting to all subjects (a local bank that they had contact with) and designed treatment conditions that mimic real world conditions under which couples made decisions. These conditions were decided upon through focus groups on couple decision making, where conditions of private information and conditions of communicating with one's spouse before decision making emerged as key situations; in debriefing, subjects talked about how much the treatment condition to which they were assigned reminded them of situations in which they had to make decisions.

In the experiments reported in this paper, subjects were given a sum of money, approximately a day's wage, and asked to either directly deposit the money or take consumption in the form of committed consumption or cash. The experiments were carried out with a sample of existing or previous clients—and their spouses—of a rural bank in the Philippines. Each subject was randomly assigned, along with his or her spouse, to one of three settings that had different limitations placed on the privacy of information and the possibility of spousal communication.

In the first condition (denoted "Private"), subjects are separated from their spouses at

from cooperation.

the onset of the experiment and do not know what their spouse is doing, whether their spouse has received any income, what decisions their spouse is making, or what outcomes he/she receives; as much information as is possible is kept private from the spouse. In the second condition ("Public"), subjects and their spouses enter the room together, learn about their own and each others' payoffs and choice sets, and make simultaneous decisions; however, they cannot communicate or see the decisions the other is making until after their decisions have been made. In the third condition, ("Negotiation"), subjects and their spouses follow the same procedure as "Public", but they communicate before making their decisions and their decisions are immediately observable to each other. Due to random assignment, the distribution of individual and household characteristics is approximately the same across all treatment conditions. Any significant difference in outcomes, therefore, can be attributed to the difference in treatment condition.

I find that men are more likely to deposit the money into their own account in Private and commit it to consumption in Public, and that this effect is mainly driven by men whose wives make the savings decisions in the household. Although initially it does not appear that women exhibit such behavior, women whose husbands control the savings decisions in the household behave as the men whose wives control the savings decisions. Finally, men are more likely to turn their money over to their spouse's account in the Negotiation condition, an effect which is greater for men who don't control the savings decisions in their household and also holds for women whose husbands control the savings decisions in their household.

Underlying the effect of information and communication appears to be the mechanism of monitoring; in my sample, women monitor the behavior of their husbands. This is consistent with the cultural setting of these experiments; in the Philippines, most men are expected to turn their earnings over to their wives for budgeting and allocation, but women often complain that their husbands do not turn over all their income. The pattern of women as financial managers who monitor their husband's use of income is found in many developing

countries and in low-income U.S. and U.K. households.⁷ Such a financial management system can be seen as a contract, agreed to at the time of marriage, which the wife is expected to enforce.⁸

I propose a framework of income monitoring within the household, where observability of income and communication at the time of decision making make a significant difference in the monitor's ability to enforce a contract. This has implications for future research in household decision making and for policy. It implies that limited commitment and imperfect contractibility are more realistic assumptions in household decision making models. My results suggest that husbands and wives respond strategically to changes in information and communication, but what initially looks like differences in response by gender appear to be driven by underlying household control structures that create incentives to change behavior in face of changes in monitoring. This has important implications for program design as discussed in the Conclusion.

The remainder of the paper is organized as follows. Section 2 describes the experimental design: the setting, outcomes and conditions. Section 3 describes a conceptual framework of monitoring, through which we can view the experimental conditions and interpret the results. Section 4 then summarizes the main experimental results, and Section 4.1 discusses the implications of the results. Section 5 concludes.

⁷In 70% of British low-income families, and in only 25% of higher-income families, Pahl (1993) found that wives manage the finances in the family; husbands are expected to turn over their income to their wives to manage. In 70.5% of Indonesian couples, the wife decided all money matters (Papanek & Schwede, 1988). In supplementary surveys of my subjects in the Philippines, I find that 80% of households have the wife hold the income and do the budgeting; in 49% of households the wife also makes the major decisions about saving or spending money. This is not necessarily a source of rents in the household: budgeting and deciding about saving can be an onerous task when money is short.

⁸The following quote, from a homemaker in Mauswagon, illustrates the degree to which financial management and turning over income can be part of a marriage contract, particularly in cultural settings like the Philippines: "I give him his daily allowance. His cigarette and liquor consumption is part of our budget because he buys them on credit at the store. I am the one in-charge of paying our debts every payday. I believe that husbands should turn over their earnings to their wives. At the marriage ceremony the coins are turned over by the groom to the bride. What is the significance of the marriage rights if husbands won't turn over their earnings to their wives?" (Echavez, 1996)

2 Experimental Design

2.1 Experimental Setting

The experiments were run with 146 married couples in the conference rooms of Green Bank, a rural private bank in Mindanao, the Philippines. The subject pool was drawn from previous and existing clients of Green Bank and their spouses. Recruiters went door-to-door and invited subjects and their spouses to a study for which they would receive a 40 pesos show up fee each and the opportunity to earn more money.⁹ For approximately 100 of these households, who had been involved in a large scale randomized field experiment (Ashraf et al., 2006), I have extensive baseline survey data regarding level of household income, individual income, and all savings, loans, and financial assets information. Using this data, I find that subjects who took up the invitation to come to the experiment were not significantly different in most characteristics from those who were in the original sample but did not take up the invitation (Appendix Table A1).¹⁰

Once the couples were recruited, they arrived at the laboratory at a pre-arranged time for the experimental session. Experimental sessions were randomly assigned across days and session times.¹¹ After the experiment was completed, individual-level surveys were conducted with each subject either directly after the experiment was finished in the lab or in the subsequent two to three days in the homes of the subjects. These surveys were conducted with each spouse separately and privately. The questions included measures of education, occupation, income variability, immediate money needs, how income is received

⁹50 pesos=approx. \$1USD. Recruiters did not specify amount of additional money that could be earned.

¹⁰58% of the approximately 200 households invited to take part in the experiment took up the invitation. Subjects who took up the experiment were not significantly different from those who did not on the domains of age, education or place of residency. Female clients were slightly less likely to take up the invitation and, when total household income is controlled for, own contribution to household income has a negative effect on take-up of the experiment.

¹¹Recruiters did not know what this schedule was.

and how much, if any, is given to the spouse. Additional questions were asked about decision making and conflict in the household, including perceptions of patience, impulsiveness, and responsibility of one's spouse and problems with liquor and gambling .¹²

Table 1 provides summary statistics of the sample from both the individual-level surveys. This was a broad sample of married couples, with substantial heterogeneity: subjects ranged from newlyweds to married for more than 50 years, from relatively poor for this region to relatively well off, from having completed only one year of education to those having graduated from college. Not all subjects were bank clients: only 39% of men and 47% of women had accounts at Green Bank. Both husband and wife work in the majority of these couples (approximately 70%); in 60% of all couples the husband brings in more income than the wife. Consistent with the sociology literature cited in Section 1, the wife is the one who holds the income in the family and does the budgeting in more than 80% of these couples. Half of all couples respond "wife" or "jointly" (with wife's decision being "tie-breaker") when asked who makes the savings decisions in the household; approximately 25% respond "only wife", which I code as "wife controls savings decisions", and approximately 15% respond only husband, which I code as "husband controls savings".¹³ Finally, almost 40% of couples in the sample reported having conflict over money issues in the household.¹⁴ Appendix Table A2 shows these summary statistics by treatment condition, for both households and for women and men separately; all but two variable means are statistically indistinguishable across conditions, one at 10% significance.¹⁵

¹²Surveys were conducted after the experiment so that the survey questions would not prime subjects in the experiment. There is no evidence that the reverse happened: survey responses to questions about conflict in the household or decision making did not differ significantly by treatment condition.

¹³Husbands and wives are asked separately and privately about who dominates the savings decisions; as the summary statistics by gender show there was some small discrepancy between who each person reported dominated the savings decisions in the household. In the analysis, I use own reports about who dominates in the household, since what is important for the theoretical framework is personal perception of who controls the finances in the household.

¹⁴Interestingly, conflict over money is significantly and negatively correlated with wife makes savings decisions.

¹⁵"Education" and "Spouse has bank account" are significantly different across treatment conditions;

2.2 Experimental Conditions

Subjects, upon arriving at the laboratory with their spouses, were randomly assigned to one of three conditions under which they made decisions about saving or spending an endowment. Figure 1 provides a schematic diagram of the experimental design.

In the first condition, ("Private"), subjects were separated from their spouses upon arrival and told that the women were to be in one room and the men in a different room. Once the subjects were settled into their respective rooms, they were registered and told about how much money they were getting and which decisions they were going to be asked to make. Subjects are explicitly told at the beginning of the experiment that their spouse does not know whether they received any income or what choices they had, that their choices will be kept private and that they would be paid based on their choices before reuniting with their spouses. Outcomes and choices were obscured, and subjects were provided "plausible deniability" for their choices.¹⁶ Contrary to the other conditions, subjects were given their outcomes separate from their spouse. Although spouses could attempt to learn the information when they went home, the outcomes were not fully verifiable and perfectly observable the way they were in the other two conditions. Several important facts were purposely obscured in the Private condition: whether the spouse was receiving income, whether the spouse had the same choices available to them, what the spouse actually chose, and what the spouse actually got. These were designed to mimic situations in which spouses might receive temporary shocks to income and choices about what to do with that income that

subjects in Negotiation have, on average, two years less education than subjects in the Private or Public conditions. Subjects in Negotiation are also slightly more likely to have a spouse that has a bank account at Green Bank. Appendix Table A2 reports these specifications.

¹⁶This was provided through the luck of the draw mechanism. In all three conditions, subjects had a 1/9 probability of getting an outcome in which any decision they made was irrelevant: they received what was called "luck of the draw". This was done so that it was very difficult to know from the outcome what someone received and what their decisions had been, unless one saw all the decisions. The probability was the same across all three treatment conditions, but created plausible deniability only in the Private condition, since in the other two conditions spouses saw each other's entire range of choices.

their spouse may not find out about. Spouses' choices and outcomes were not revealed to the spouse after the experiment. Moving from Public to Private can therefore only tell us the net effect of obscuring information about spouse's income and choices, but cannot tell us definitively which aspect of the information was most important.

In the second condition, ("Public"), subjects and their spouses enter the room together, and each subject sits at a different table from his/her spouse in the same room. They both learn about their own and each others' payoffs and choice sets, and make simultaneous decisions; however, they cannot communicate or see the decisions the other is making until all decisions have been made. They know that their choices will be fully revealed to their spouse once the experiment is over. At the end of the decision making process, subjects meet with their spouse, show each other all the decisions they made, and discuss. They are not allowed to change any decision at this point. When the couple returns together to compare responses, local researchers fill a supplement detailing each subject's decision and their response to their spouse's decision, as well as any discussion or conflict between the spouses that ensued. This condition is analogous to the real world situation in which one spouse has received extra income at work or elsewhere and can put it aside or spend it – but with the foreknowledge that their spouse will find out what they did with it.¹⁷

In the third condition, ("Negotiation"), subjects and their spouses follow the same procedure as "Public", but they are required to communicate before making their decisions and their decisions are immediately observable to each other. Couples are instructed to tell each other what they would like to do for each decision, discuss what would be best to do, and then to make their final (individual) decisions.¹⁸ This condition is analogous to standard co-

¹⁷One subject compared it to going to the bar on the way home from work: his wife would know that he spent his money on drink but by then it would be too late and he would already be drunk.

¹⁸A qualitative supplement for each couple is coded by local researchers for each decision, including a measure of which spouse appeared to dominate the negotiation process and arguments used for persuasion. Analysis on these measures shows that who dominates the majority of decisions in the negotiation is significantly correlated (at 5%) with who is older (corr coefficient=0.21) and who has more education (0.23). These supplements were gathered discreetly; experimental assistants were instructed to be available to help

operative or collective household models where couples with full information decide together what would be best. Although couples were not required to come to agreement after talking, evidence suggests that subjects saw this condition as a coordination exercise: correlation among spouse's choices was significantly higher in this condition, averaging a correlation coefficient of 0.8 compared to 0.3 and 0.2 in the Public and Private conditions, respectively.

2.3 Experimental Outcomes

In addition to a 40 pesos show up fee, subjects earned the equivalent of a day's wage (200 pesos=\$4), which they received at the end of the experiment, and another 200 pesos in 3 months' time, given to them in the form of a post-dated check from the bank. They are fully informed about their payment only once they enter their particular experimental condition. During the experiment, subjects were asked to make several decisions in advance about what they would like to do with both their earnings today and their earnings in 3 months' time. One of these decisions is randomly chosen to be implemented at the end of the experiment.

This paper reports on outcomes involving the choice of committing money to consumption or directly deposit money into own or spouse's/joint account, described in Figure 2. Subjects could choose to deposit it into their own account (if they did not have an account, into a new account on their name) or their spouse's/joint account. Other outcome measures are reported in Appendix Table A6 but are not the focus of this paper.¹⁹ Comparing these two types of choices - direct deposit versus committed consumption - allows for outcomes which vary in observability based on the treatment condition: redeemed gift certificates, particularly for apparel, would be more observable, whether they are chosen in Private or

translate individually for any couple who asked, but otherwise kept to their own table on the side.

¹⁹The experimental choices reported in the Appendix include cash against different values of gift certificates, accounts in the name of a child, and short and long horizon time preferences, evaluated using certified bank post-dated checks (with transaction costs equalized by requiring all subjects to come back 3 more times to the bank to "sign in" and receive 20 pesos (more than twice their fare to the bank) when they return: once in 2 weeks' time, once in 3 month's time, and once in 3 months + 2 week's time.)

Public, whereas money put into a private savings account is more "hidden" when chosen in Private, but not when it is chosen in Public.

Subjects traded off consumption that was pre-committed in the form, in one decision, of a Gift Certificate for a "Special Good for Self" ²⁰ worth 200 pesos against receiving 200 pesos directly deposited into an account of their choosing and, in another decision, of a Gift Certificate for Food worth 200 pesos redeemable at a number of stores against 200 pesos directly deposited into an account of their choosing. Both types of gift certificates expired within 1-2 weeks of the experiment, and could only be used by the person whose name was on the certificate; they were thus were a way of committing the income to a particular consumption good.²¹

3 Theoretical Framework

3.1 Basic Setup

This section presents a simple organizing framework for predicting and interpreting impact of the treatment conditions on the decisions of spouses. Consider a marriage between two players, a man (Player M) and a woman (player W). I will assume that at the beginning of marriage W and M contract about financial management in the household, and that the contract takes the following form: M will turn over his income to W and W will allocate it

²⁰This gift certificate is only redeemable in the women's apparel department for female subjects, and in the men's apparel department for male subjects. After several trials using different "private goods", this was what appeared to appeal to the broadest variety of both men and women as special, indulgent goods for themselves.

²¹This was done by ensuring that the gift certificates for self (for a large department store called Gaisano) were produced by the national department store head office and would not be accepted if they were after the expiry date or if the person using them was not the same person as the name on the certificate (verified through national identification cards and numbers); store employees were trained on these certificates. Similarly, the managers of a small number of stores that sold food and foodstuffs consented to be part of the project and produced and monitored the food gift certificates to ensure both that they were not used after expiry and that they were only used by the intended recipient (again verified through national identification cards).

according to the family's needs and give M an allowance for his needs. This contract could have arisen because W has a comparative advantage in budgeting, because M uses W as a commitment device²², or for some other reason, but I will take its existence as given in this setting. Let any non-regular income shock which M receives in a given period (such as a bonus, a gift, unusually high number of clients in one day, or earnings received in an experiment) be Y . M has three available strategies: $\{T, H, C\}$, where T is to turn over all the income to W, H is to hide all the income from W and use it for private consumption, and C is to commit the income to a form of private consumption, which has valuation βY , where $0 \leq \beta \leq 1$. The parameter β captures the idea that M is weakly worse off by constraining his consumption set.

I am interested in the following type of contract. If M turns the money over to W then she allocates a fraction θ to household consumption and M keeps fraction $1 - \theta$ for private consumption. The parameter θ can be thought as W's tax rate on M's income. If M plays H then, with probability p , W finds this out, performs the allocation as before, and imposes a punishment whose monetary equivalent is P . If M plays C then the probability of being caught is \hat{p} , which is not necessarily equal to p . If he gets caught after playing C then W imposes punishment P and tries to reallocate the budget to undo his consumption commitment. W may not be able to fully reallocate the budget, which is captured by parameter α , where $0 \leq \alpha \leq 1$. Hence, in this circumstance, M gets $(1 - \alpha\theta)Y$ for private consumption. For the moment, I take P to be exogenous. For simplicity I assume that both M and W are risk-neutral. Under this contract, M's expected utility is as follows:

²²In my surveys, the majority of men, when asked why it is that their wife holds the income in the family, respond that they would spend it if they held the money.

$$\mathbb{E}[U_M] = \begin{cases} (1 - \theta)Y & \text{T, if turns over income} \\ (1 - p)Y + p((1 - \theta)Y - P) & \text{H, if hides income} \\ (1 - \hat{p})\beta Y + \hat{p}((1 - \alpha\theta)Y - P) & \text{C, if commits income} \end{cases}$$

M's decision about which strategy to play will depend on the parameters.

(1) M prefers strategy *H* to strategy *T* if and only if

$$p \leq \frac{\theta Y}{\theta Y + P} \quad (1)$$

(2) M prefers strategy *C* to strategy *T* if and only if

$$\hat{p} \leq \frac{Y(\beta + \theta - 1)}{Y(\beta + \alpha\theta - 1) + P} \quad (2)$$

(3) M prefers strategy *H* to strategy *C* if and only if

$$p \leq \frac{\hat{p}(\theta\alpha Y + P - Y) + Y - (1 - \hat{p})\beta Y}{\theta Y + P} \quad (3)$$

Men who face higher tax rates θ , who receive larger income shocks Y , who perceive a lower probability of getting caught, and who get lower punishments P will be more likely to hide money or commit to consumption rather than turning over their money to their wives, since the disutility for getting caught is low if punishment, P , is low, and the benefit from hiding or committing consumption is higher if θ is higher. Men prefer hiding to committing consumption if the value of the available consumption good as compared to cash, parameterized by β , is relatively low and the ability to reallocate the budget, parameterized by α , is relatively high. Reformulating Conditions (1) to (3) in terms of cutoff levels of punishment P , we can see that the threshold punishment level P for M to prefer hiding to turning over is increasing in the tax rate θ , the size of the income shock Y , and decreasing

in probability of getting caught p .

3.2 Experimental Treatments

I interpret the experimental treatments as varying two parameters: p and P . In the Private condition, spouses lack information about the other spouse’s income received, choices made, and outcomes. Thus, in Private the income shock Y was at least partly unobserved such that $p < 1$. In Negotiation and Public, the income shock Y and all choices are fully observed and hence $p = 1$.

In the Negotiation condition spouses were forced to communicate and discuss their preferences throughout the decision-making process. Communication could have many effects.²³ In this framework, we focus on the effect of stating preferences explicitly on expected punishment. The difference between the Public and Negotiation condition captures the difference between explicit defiance and tacit defiance, the former of which might invoke greater punishment because it implies greater guilt. In the Public condition, without full certainty about the spouse’s preferences or willingness to punish, the husband could plausibly deny guilt about knowingly breaking the contract.²⁴ For any given sample of households with a distribution of P (which could be based on prior history and existing characteristics), the imposition of Negotiation acts to shift upwards *the entire distribution*.

The following table summarizes the values for p and P under the three experimental conditions:

Parameters	Private	Public	Negotiation
P	\underline{P}	\underline{P}	$\bar{P} > \underline{P}$
p	< 1	1	1

²³See McGinn and Croson (2003) for an overview of the role of communication and communication media on enhancing "social awareness" in bargaining situations.

²⁴In addition, the punisher may have an aversion to punishing when guilt is not certain: i.e., she is averse to committing a Type II error.

As stated, there is a distribution of the other exogenous variables (θ, β, α) among the population, but random assignment ensures that the expected distribution of these variables is the same across treatment conditions. Therefore, the different treatments make conditions 1 to 3 *more or less easy to satisfy*, given the distribution of parameters (θ, β, α) in the population. I discuss each pair of treatment conditions separately.

Case 1: Private to Public

Increasing p , while holding all other parameters constant, will lead to a larger proportion of men who commit income to consumption, rather than try to hide their money or turn it over, in the Public condition than in the Private condition. This would also predict that in households where wives make the savings decisions, or men have less bargaining power, (higher θ) men would be more likely to either try to consume income they receive, unless to do so would be in explicit defiance, or hide it, if they are given the opportunity. It also makes a parallel prediction for women whose husbands make the savings decisions.

Case 2: Public to Negotiation

The key difference between the Negotiation condition and the Public condition lies in the extent of communication. As described above, we may expect that communication can lead to greater expected punishment if the husband does not comply with turning over his income. Increasing P , while holding all other parameters constant and with $p=1$, will lead to a larger proportion of men turning over income in the Negotiation condition as compared to the Public condition, rather than committing it to consumption. Hiding money was not an option in these two conditions because all income and choices were revealed to the spouses.

Case 3: Private to Negotiation

In the Negotiation condition, both observability p and the level of punishment P increases in comparison to the Private condition. W 's ability to monitor improves with both

parameters and therefore combines the effects discussed in Case 1 and Case 2. Thus a larger proportion of men will choose turning over money rather than hiding income or committing it to consumption.

4 Results

Table 2 and Appendix Table A3 describe the main results for direct deposit decisions, by the three treatment conditions and for men and women separately, comparing means through t-tests; subsequent tables present the results controlling for observables and for interaction effects with underlying financial control structure. In the body of the paper, I focus on the results from the decision to commit 200 pesos to consumption in the form of a gift certificate for apparel, which could only be used for oneself (labeled “Gift Certificate for Self”), or to put 200 pesos into one’s own account (either existing or can open new account) or that of one’s spouse; the results from decisions for gift certificate for committing to food versus direct deposit is presented in the appendix tables and exhibits the same patterns. I find that men are more likely to deposit the money into their own account in Private and commit it to consumption in Public, and that this effect is mainly driven by men whose wives make the savings decisions in the household. Although initially it does not appear that women exhibit such behavior, women whose husbands control the savings decisions in the household behave as the men whose wives control the savings decisions, consistent with the theoretical framework above. Finally, men are more likely to turn their money over to their spouse’s account in the Negotiation condition, an effect which is greater for men who don’t dominate the savings decisions in their household and also holds for women whose husbands dominate the savings decisions in their household (although this treatment interaction loses significance in the full specification).

Result 1: Men prefer to put money away in their own accounts when information is Pri-

vate but when information is made Public, they switch to committing money to consumption. Women choose to put money away rather than committing it to consumption regardless of treatment condition.

Comparing Columns (3) and (4) to Columns (1) and (2) in Table 2, we can observe the effect of obscuring information, moving p from 1 to <1 in the above framework, on husbands and wives. In the Private condition, 51% of men prefer to directly deposit money into their own account (2/3 opening new accounts in their name) rather than putting it into their spouse's account (23%) or committing it to consumption (25%). However, when information about the outcomes is made Public, 60% of men choose to commit their money to consumption rather than putting the money into their own account (21%) or into their spouse's account (19%), a change that is significant from the Private condition at the 1% level. The same pattern and significance levels repeat in the decision for the Gift Certificate for Food²⁵, described in Appendix Table A3 Panel 1. Women, in contrast, do not vary across treatment conditions in their desire to deposit money into an account rather than commit it to consumption; they change from depositing into their own accounts in Private to their spouse's account in Public.

Adding controls, in Table 3, shows that, as would be expected, having an account at Green Bank has a positive and significant effect on choosing to deposit into own account and spouse having an account has a negative effect on depositing into spouse's account, but these controls do not alter the treatment effects.²⁶ Men are much more likely to save in their own accounts in Private, controlling for having an account, whether their spouse has an account, their daily wage, and education dummies. Women, in contrast, do not vary in

²⁵Although food can be shared, and is thus not a strictly selfish good, it is a highly desirable consumption good among men in the Philippines. Other studies in the Philippines (Ligon and Dubois, 2004) have shown the strong degree to which husband's receive better quality, and quantity, of food in the household when their wages increase.

²⁶Since almost all variables in the regression are dummy variables, Ordinary Least Squares functions similarly to probit and logistic regression, but imposes the least structure on the data. The results do not change with probit or logistic specifications.

their desire to save their earnings in an account, rather than spend them. However, on the dimension of which account to deposit into, making information private moves women from saving in their spouse’s account to saving in their own account, an effect which remains generally robust controlling for account dummies.

Result 2: Both men and women whose spouses control savings decisions in the household are more likely to put money away in Private and commit it to consumption in Public.

Table 4 describes the interaction between treatment conditions and underlying household control over financial decisions. Men whose wives control the savings decisions are 61 percentage points more likely to commit money to consumption in Public rather than putting money away (Panel 1, Column 1).²⁷ Women whose husbands control the savings decisions are 65 percentage points more likely to commit money to consumption in Public rather than putting money away (Panel 2, Column 1). Men whose wives control the savings decisions are also 68 percentage points more likely to put money away into their own accounts in Private (Panel 1, Column 2) and women whose husbands control savings are 63 percentage points more likely to put money away into their own accounts (Panel 2, Column 2). The same pattern, with even greater significance, holds for food, described in Appendix Table 4.

Thus what looks like differences in gender in responding to treatment conditions, from Result 1, appear in fact to be driven by differences in underlying household control structure. This is consistent with the theoretical framework above which predicts that subjects whose spouses control the savings decisions (higher θ) would be more likely to commit money they receive to consumption, or hide it if they are undetected— unless to do so would be in explicit

²⁷The effect of the Private treatment on men whose wives control savings is the addition of the straight coefficient on Private (-0.233) plus the interaction coefficient on Private*WifeControlsSavings (-0.451), plus the straight coefficient on WifeControlsSavings (0.295), which equals -.389. To calculate the change for men whose wives control savings in going from public information to making information private, subtract the straight coefficient for the base case of WifeControlsSavings (0.295) from the above, yielding (-0.389-0.295)= - 0.607. Thus men are 61 percentage points less likely to choose committed consumption in Private, or 61 percentage points more likely to choose it in Public. The same procedure is used to calculate the other treatment interaction effects described in Result 2.

defiance of their spouse's preferences.

Result 3: Communicating with their wives at the moment of decision making makes the majority of men put money into their spouse's account, rather than consume or put it into their own account, when compared to a condition of Public information. Women whose husbands make the savings decisions exhibit this same pattern.

Table 2 Columns (5) and (6) describe outcomes in the Negotiation condition, once husbands and wives are able to bargain and communication is enforced: only 30% of men and 28% of women now choose the committed consumption. Rather, Negotiation inspired the majority of men to directly deposit into their spouse's account and the majority of women to directly deposit into their own accounts (consistent with the high degree of coordination between couples in choosing which account to deposit into, observed in Negotiation). The effect for men of going from a condition where information is revealed to their spouse (Public) to one in which they communicate with their spouse before making their decision (Negotiation) on changing from committing to consumption to depositing into their spouse's account is significant at the 1% level. The effect loses significance when adding controls for committed consumption for self but remains robust to controls for committed consumption for food (at 1% significance level), described in Appendix Table 3 Panel 1 (Columns 7, 8, 9). Women whose husbands make the savings decisions exhibit the same pattern as men in Negotiation; they are 28 percentage points more likely to deposit money into their spouse's account in Negotiation, although this interaction effect is not statistically significant (Table 4, Column 8).

4.1 Discussion

The results above are consistent with the monitoring framework in which making information public (increasing p) leads to a larger proportion of men who commit income to consumption,

rather than try to hide their money or turn it over – and in which these information changes act most strongly on those men whose wives control the savings decisions (higher θ) rather than simply doing the budgeting, for example. The experimental means appear to show little effect on women’s behavior of changing p in taking consumption for themselves, but this masks heterogeneous treatment effects: women whose husbands control the savings decisions do indeed behave very similarly to the men in our sample. This suggests that what initially looks like gender differences in treatment responses in the experiment is really about differences in control in the household.

Under a standard unitary household model, even one in which spouses specialize in different types of labor (including financial management) in the household, one should not see such differences arising by changing information conditions. If anything, spouses who are not responsible for the financial management should be more likely to turn over their earnings to the other spouse if they don’t know what they should do with it, rather than trying to put it into their own account (particularly opening a new account in their name), or committing it to a form of consumption that is difficult to undo.

Similarly, under a nonunitary bargaining model, exogenous bargaining power should matter for the outcomes chosen but observability of outcomes should not. The fact that putting money away into one’s own account versus committing it to consumption appears to take on such different value depending on whether it is observable or not suggests that the decision of what is done with money has possibly as much to do with opportunities and incentives for enacting one’s preferences than with one’s bargaining power.

Indeed, the apparent preference for putting away the endowment into one’s own account in Private but committing it to consumption in Public suggests there is a first stage of bargaining that household models have missed: one in which it is decided how much will be bargained over. Once information is made public, subjects can try to impose preferences on *type* of consumption but possibly more important is how much is given over.

Simply making information public does not seem to solve the incentive problem, rather than affecting the extensive margin of how much to turn over, it affects the intensive margin of what the money is spent on and what it can be committed to, even if the spouse will find out afterwards.

The differences in results between this condition of public information and where spouses have to communicate before deciding is striking. This is consistent with the prediction from the monitoring framework, whereby communication is used to explicitly state preferences and reinforce the contract. Indeed, the supplements on the Negotiation condition revealed strong statements women made to persuade their husbands to turn over their income by saving it in the wife's account, often repeating "remember you have a family" and sometimes saying a child's name repeatedly until the husband made his decision. These tactics, in many cases, appear to have worked: men overwhelmingly chose to deposit the income into their wives' accounts, rather than into their own account or a new account opened in their own name. The negotiation also does cause the small proportion of women whose spouses control the savings decision to turn over their money, but communication seems to be a monitoring technology that particularly favored women.

4.1.1 Inefficient Outcomes?

The treatment effects of information and communication, and the way in which these effects interact with spousal control, have implications for our understanding of household decision making and, specifically, for unitary and nonunitary household models, as discussed above. It is difficult to argue definitively that choosing to put money away into one's own account or committing it to consumption is necessarily an *inefficient* choice for the household (and therefore strong evidence against collective or cooperative bargaining models which assume

or predict efficiency).²⁸ However, supporting evidence from a separate outcome in the full experiment suggests that the motivation to rend control back by putting money away in private may lead to inefficiencies. As Appendix Figure 1 shows, subjects traded off receiving 200 pesos in cash against varying amounts put into direct deposit in a savings account of their choosing. Subjects answered each of the tradeoffs (200 cash vs 225 in account, 200 cash vs 200 in account, 200 cash vs 175 in account, 200 cash vs 150 in account, 200 cash vs 125 in account), providing a measure of willingness to pay to deposit into an account of one's choosing. As Table A5 shows, men were again more likely to choose to put money away into their own accounts in Private (33% in Private, compared to 19% in Public). However, the additional information this outcome provides us is the extent to which a subject was willing to pay to deposit the money into an account of their choosing. Twenty-one percent of subjects were willing to give up some money (i.e., they choose direct deposit amounts below 200 pesos).²⁹ These subjects were thus essentially sacrificing money that cannot be regained in order to make sure it is deposited into the savings account.³⁰ As Table A5 shows, men were willing to give up more money in Private to have money deposited into an account (an average of 21 pesos in Private, compared to 9 pesos in Public)³¹. Regression analysis (not

²⁸In part, this is based on how much one believes that the gift certificates, which were designed to be large in amount, personalized, expire quickly, and committed to a specific good, were difficult to undo and therefore a pareto dominated choice compared to having more flexible cash in an account.

²⁹Subjects displayed monotonicity in their responses (that is, for example, if they chose 175 pesos in their account over 200 cash, they also chose 200 pesos in their account over 200 cash and 225 pesos in their account over 200 cash).

³⁰In debriefing surveys after the experiments, subjects who responded in this way explained that direct deposit made sure their money was "segurado" (secured); they used the popular Filipino expressions "Inig ang kuarto" (the money is hot) and "paxi, paxi" (the money will get divided, divided") to describe why they felt that once there was cash in hand, they did not trust (themselves or their spouse, as the case may be) to deposit the cash into the savings account later on their own. They thus preferred to have it directly deposited during the experiment even if it meant a lower amount went into their account.

³¹Subjects who always chose cash, or chose 225 in account or 200 in account over 200 cash were coded as willing to give up 0 pesos in order to have money directly deposited into an account. Subjects who preferred to receive (minimum) 175 pesos direct deposit over 200 cash were coded as being willing to give up 25 pesos in cash for direct deposit; 50 pesos if subject answered (minimum) 150 in account vs 200 cash; and 75 pesos if subject answered (minimum) 125 pesos into account vs 200 cash. Since subjects were not asked for tradeoffs below 125 pesos, this may be an underestimate of the actual willingness to give up cash for direct deposit.

shown) interacting treatment conditions with underlying control in the household shows a familiar pattern: both men and women whose spouses control the savings decisions are 1) more likely to put money into their own accounts in Private, and 2) more likely to give up money to have some portion of their income put away for them into an account.

5 Conclusion

Using an experimental design I am able to elicit causal effects of spousal observability and communication on household choices. I find that making information public moves men from putting money away into their own accounts to committing it to consumption. This effect appears to be driven not as much by gender as by control: men whose wives control savings decisions in the household are much more likely to exhibit this treatment effect, consistent with a framework in which information serves a monitoring role in enforcing a contract in which one spouse controls the finances. Although women in the Philippines are traditionally in charge of budgeting, there is heterogeneity among households in degrees of control. Indeed, women whose husbands dominate the savings decisions exhibit the same type of behavior as the men, providing further evidence that the effect of privacy of information - and of communication - is heterogenous, and depends critically on existing household roles. These roles are not just an efficient division of labor as they have been primarily presented in the intra-household literature in economics, but rather can create a system of incentives which make hiding money desirable and committing it to consumption necessary to enforce one's preferences.

Ultimately how prevalent hiding is an empirical question³² but my experiment suggests that conditions of asymmetric information interact with underlying household control struc-

³²Anecdotal evidence suggests it is relatively common. A survey conducted by British online bank Cahoot.com found that approximately 75% of women and 53% of men admitted to hiding money at some point in their marriages.

tures to create greater incentives for hiding and thus any interventions that change public information should also be very aware of what underlying roles are. There are many interventions and policies which can have asymmetric effects on information within the household: making prices of certain goods (that only one spouse sells in a nearby market, for example) public or giving subsidies to the household versus loans only to women without her husband's knowledge. Migration provides a particularly stark example of altering information asymmetries. De Laat (2005) shows that migrant men in Kenya go to great lengths to monitor the activities of the wives who receive remittances, because of their concern that the wives will take advantage of the asymmetric information created; indeed, in Kenya, a culture which has the opposite gender norms for financial management from the Philippines, many women form "secret savings societies" to keep extra income they earn in the workplace out of their husband's knowledge.³³ Looking at migrant sending families, Chen (2005) finds that migrant-sending households in China respond strongly to the efficacy of monitoring through adjusting intra-household allocation.

These papers both present frequent visits as a monitoring technology for enforcing contracts in the face of private information. My paper suggests that even when information is public, monitoring technologies make a difference through influencing decision making. In particular, communication at the moment of decision making appears to significantly change particularly men's choices. The theoretical framework I have presented suggests that the effect of communication is due to disincentives for explicit defiance, rather than the tacit defiance that occurs in a condition of full information but no communication, a suggestion supported by the qualitative evidence on spousal interactions in the experiment.

I provide evidence of why we may see gender differences when looking at means—

³³ K-Rep Development Agency in Kenya, who manages a number of village banks across the region, reports several cases of women's group savings accounts, where the identity and exact contribution amount of each member to the group's savings are kept secret. Individual women have also asked bank managers to keep their individual account passbooks at bank, rather than taking them home, in order to hide the information from their husbands.(personal correspondence with village bank managers and female clients)

differences in preferences that in fact aren't immutable, based on gender alone, but rather are due to the roles the genders have taken on, and the structure of household financial management that have created incentives for behavior. When we observe strong gender differences in outcomes or treatment effects - whether in empirical or experimental data - it is important to know where such differences are coming from, particularly before advancing programs and policies that serve one spouse versus the other because we believe one gender's preferences are more closely aligned with those of the policy maker's. In particular, it is critical to ask what effect this program will have in creating, exacerbating, or mitigating information asymmetries within the households, and what are the existing household management roles which may create incentives for one party to take advantage of the changes in information created through the program.

Previous empirical work which observes household outcomes and changes in members' incomes to draw conclusions about underlying gender preferences should be interpreted with caution: such results are not necessarily reflective of intrinsic or immutable preference differences between women and men. Further emphasis on the bargaining process in which men and women interact - in particular the effects of information and communication - and the way in which this process interacts with underlying control structures in the household, can shed greater light on how individual incomes turn into household outcomes.

6 Figures

Figure 1: Diagram of Experimental Design

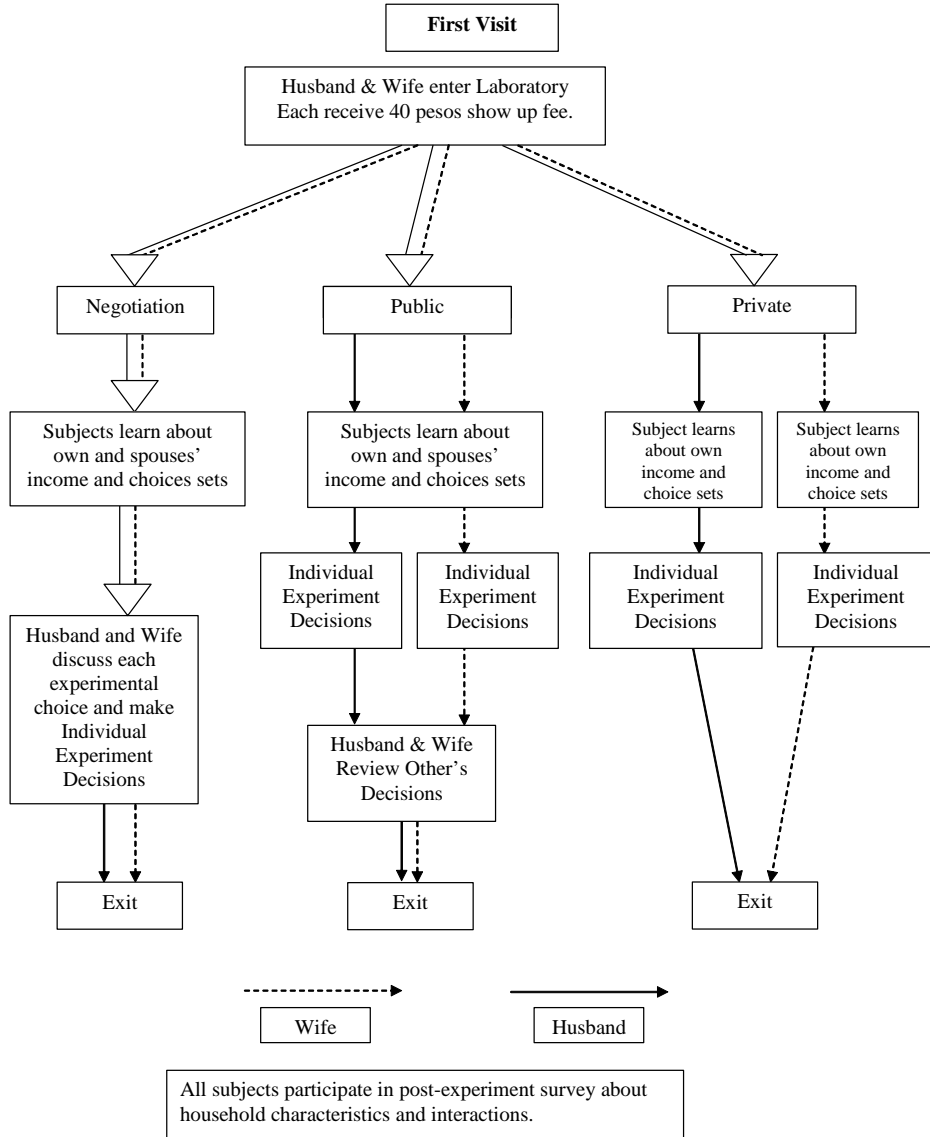


Figure 2: Experimental Choices

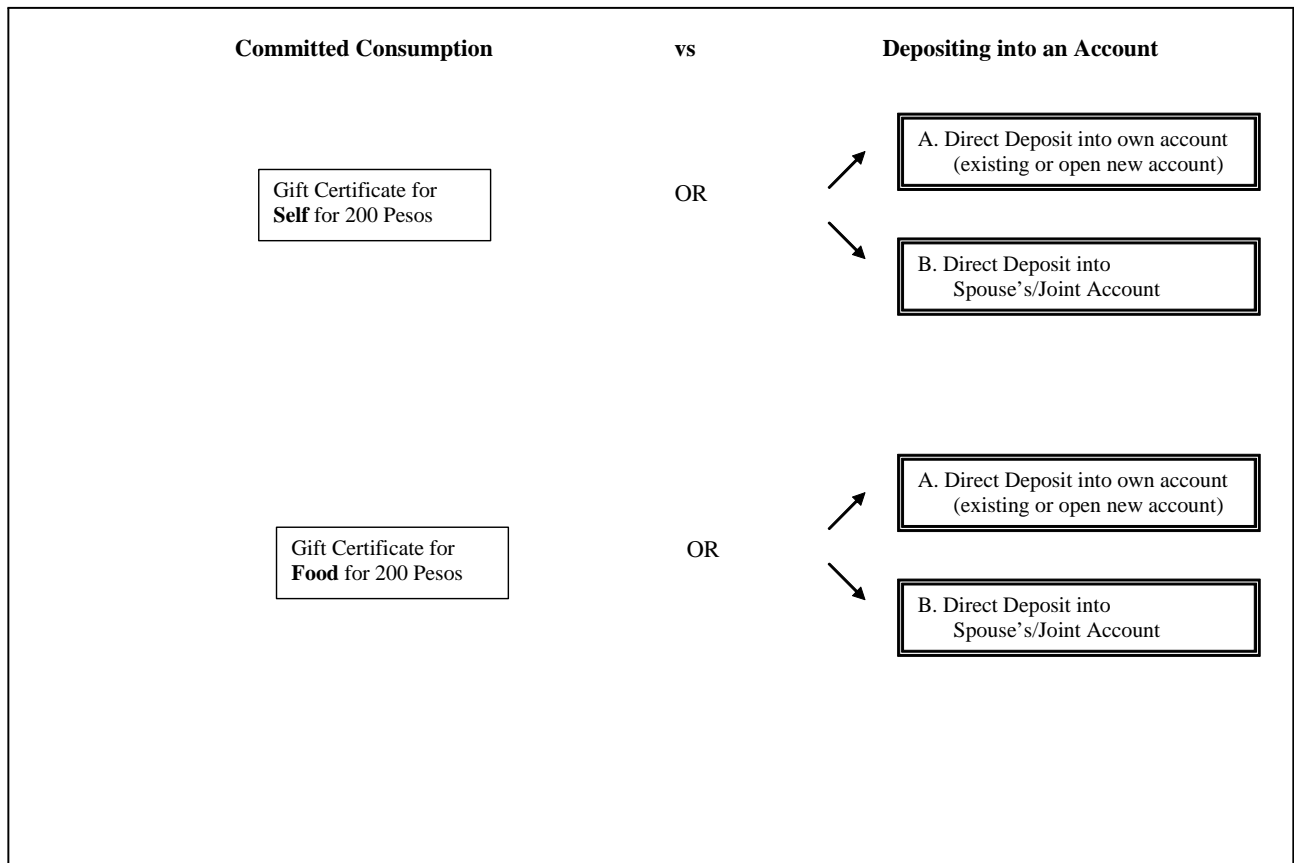


Figure 3: Experimental Choice Form

Today, as part of your compensation, you will receive 200 pesos. The following choices ask you to compare gift certificates to each other, to see which one you prefer. They are all of the same value—200 pesos.

The Special Men's/Women's Good refers to a good just for yourself. If you are a man, it is a gift certificate to Gaisano for Men's Clothing or Shoes. If you are a woman, it is a gift certificate for Gaisano for Women's Clothing or Shoes. It expires within 2 weeks and can only be used by you alone (you can only redeem it with your identification).

The gift certificate for food can be redeemed for food at a number of stores. It also expires within 2 weeks and can only be used by you alone (you can only redeem it with your identification).

If you choose savings you can choose to deposit the money into your own savings account or, if you don't have a savings account here, we can create one and deposit directly into it. If you want to deposit the account to the account of your spouse or into a joint account, then, we will do so.

Would you prefer:

1. 200 gift certificate for **special good for self**
(200 gift certificate **para sa imong kaugalingon**)
OR
 200 gift certificate **for food** (200 gift certificate
para sa pagkaon)

Would you prefer:

2. 200 gift certificate **for special good for self** (200 gift certificate **para sa gamit sa kaugalingon**)
OR
 200 gift certificate **for own savings account at Green Bank** (200 gift certificate **para sa imong savings account sa Green Bank**)
(Choose one:)
 deposit the gift certificate in your existing account
 deposit the gift certificate in a newly opened account in your name
 deposit to the account of your spouse
 deposit to existing joint account or newly opened joint account

Would you prefer:

3. 200 gift certificate **for food** (200 gift certificate
para sa pagkaon)
OR
 200 gift certificate **for own savings account at Green Bank** (200 gift certificate **para sa kaugalingon nga account sa Green Bank**)
(Choose one:)
 deposit the gift certificate in your existing account
 deposit the gift certificate in a newly opened account in your name
 deposit to the account of your spouse
 deposit to existing joint account or newly opened joint account

7 Tables

Table 1: Sample Summary Statistics

	Males (<i>N</i> =146)	Females (<i>N</i> =146)
Age	44.222 (11.598)	41.993 (10.955)
Years Married	18.995 (11.096) <i>[N=131]</i>	19.025 (10.944) <i>[N=131]</i>
Number of Children	3.708 (2.092)	3.740 (2.137)
Highest Grade Completed	10.379 (3.262)	11.411 (3.369)
Daily Wage	370.475 (1013.785)	401.990 (1509.505)
<i>Median Daily Wage</i>	<i>175</i>	<i>175.000</i>
Both Husband and Wife Work	0.738 (0.441)	0.724 (0.448)
Husband Makes More Income than Wife	0.628 (0.485)	0.614 (0.489)
Wife Holds Income in Household	0.834 (0.373)	0.841 (0.367)
Wife Does Budgeting in Family	0.801 (0.400)	0.717 (0.452)
Wife Dominates Savings Decisions*	0.248 (0.434)	0.276 (0.448)
Husband Dominates Savings Decisions**	0.179 (0.385)	0.130 (0.338)
Couple has conflicts over money	0.356 (0.481)	0.393 (0.490)
Has an Account at Green Bank	0.384 (0.488)	0.466 (0.501)
Spouse Has Account at Green Bank	0.425 (0.496)	0.301 (0.460)
Couple Has Joint Bank Account	0.072 (0.212)	0.072 (0.212)

Notes:

Means are in bold and standard deviations are in parentheses. The number of observations for variables with less than the total observations is shown in brackets.

**Wife Dominates Savings*: Variable = 1 if, in response to the question: "Who decides whether money will be saved or it would be spent on something?", the subject answers "wife" and not "husband" or "husband and wife together".

***Husband Dominates Savings Decisions* = 1 if the subject answers "husband" and not "wife" or "husband and wife together".

Table 2: Main Experimental Outcomes

Main Experimental Outcomes: Gift for Self vs. Direct Deposit in Own or Spouse's Account						
	Private		Public		Negotiation	
	Male N=48 (1)	Female N=48 (2)	Male N=48 (3)	Female N=48 (4)	Male N=50 (5)	Female N=50 (6)
Gift for Self ^a	25.5%	38.3%	59.57%***	42.2%	30%+++	28.0%
Direct Deposit in Own Account ^b	51.1%	53.2%	21.3%***	31.1%**	30%**	54%++
Direct Deposit in Spouse or Join Account ^c	23.4%	8.5%	19.2%	26.67%**	40%*++	18.0%

***Significant at 1%; **significant at 5%; *significant at 10%, when compared to Private condition.

+++Significant at 1%; ++significant at 5%, when compared to Public condition.

Notes:

^aPercent of individuals who preferred gift certificate for self over direct deposit of 200 pesos into their own account or 200 pesos deposited into spouse's/joint account

^bPercent of individuals who preferred direct deposit for 200 into their own savings account over either a gift certificate for self worth 200 pesos or over deposit of 200 pesos into their spouse's account

^cPercent of individuals who preferred direct deposit for 200 into their spouse's or a joint savings account over gift certificate for self worth 200 pesos or over deposit of 200 pesos into their own account

Table 3: Gift for Self over Direct Deposit: Controls

Panel 1: Male						
	Self over any Savings		Own Savings over Self or Spouse's Savings		Spouse Savings Over Own Savings or Gift for self	
	(1)	(2)	(3)	(4)	(5)	(6)
Private	-0.335*** (0.097)	-0.337*** (0.103)	0.287*** (0.096)	0.295*** (0.095)	0.048 (0.092)	0.043 (0.089)
Negotiation	-0.296*** (0.095)	-0.303*** (0.104)	0.107 (0.094)	0.153 (0.095)	0.189** (0.090)	0.149* (0.090)
Have Account at Green Bank		-0.036 (0.087)		0.308*** (0.079)		-0.272*** (0.075)
Spouse has Account at Green Bank		-0.096 (0.093)		-0.164* (0.086)		0.260*** (0.080)
Have Joint Account		-0.211 (0.214)		0.101 (0.196)		0.11 (0.185)
Daily Wage		0.055 (0.040)		-0.054 (0.037)		-0.001 (0.035)
Constant	0.596*** (0.068)	0.334 (0.489)	-0.456 (0.448)	0.411*** (0.092)	0.191*** (0.065)	1.123*** (0.421)
Education Group Dummies	NO	YES	NO	YES	NO	YES
Observations	143	140	143	140	143	140
R-squared	0.09	0.2	0.06	0.29	0.03	0.29

Panel 2: Female						
	Self over any Savings		Own Savings over Self or Spouse's Savings		Spouse Savings Over Own Savings or Gift for self	
	(1)	(2)	(3)	(4)	(5)	(6)
Private	-0.039 (0.100)	0.01 (0.105)	0.221** (0.103)	0.145 (0.099)	-0.182** (0.080)	-0.155** (0.077)
Negotiation	-0.142 (0.099)	0.017 (0.109)	0.209** (0.101)	0.008 (0.103)	-0.067 (0.079)	-0.024 (0.080)
Have Account at Green Bank		-0.190** (0.095)		0.455*** (0.090)		-0.265*** (0.070)
Spouse has Account at Green Bank		-0.065 (0.097)		-0.058 (0.091)		0.124* (0.071)
Have Joint Account		-0.039 (0.212)		-0.016 (0.200)		0.055 (0.156)
Daily Wage		-0.042 (0.027)		0.035 (0.026)		0.007 (0.020)
Constant	0.422*** (0.072)	0.689* (0.361)	0.311*** (0.074)	-0.107 (0.342)	0.267*** (0.057)	0.418 (0.266)
Education Group Dummies	NO	YES	NO	YES	NO	YES
Observations	142	138	142	138	142	138
R-squared	0.020	0.160	0.040	0.310	0.040	0.320

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Gift for Self over Direct Deposit: Treatment Interactions

Panel 1: Male			
	Self over any Savings	OwnSavings over Self or Spouse's Savings	Spouse Savings over Own Savings or Gift for Self
	(1)	(2)	(3)
Private	-0.233** (0.117)	0.196* (0.108)	0.036 (0.103)
Negotiation	-0.174 (0.117)	0.085 (0.108)	0.089 (0.103)
Wife Controls Savings*Private	-0.451* (0.245)	0.411* (0.226)	0.040 (0.215)
Wife Controls Savings*Negotiation	-0.572** (0.245)	0.322 (0.226)	0.250 (0.215)
Wife Controls Savings Decisions	0.295* (0.173)	-0.172 (0.160)	-0.123 (0.152)
Daily Wage	0.054 (0.040)	-0.054 (0.037)	0.000 (0.035)
Constant	0.473 (0.499)	-0.536 (0.461)	1.062** (0.438)
Account and Education Dummies	YES	YES	YES
Observations	140	140	140
R-squared	0.24	0.32	0.30

Panel 1: Female			
	Self over any Savings	OwnSavings over Self or Spouse's Savings	Spouse Savings over Own Savings or Gift for Self
	(1)	(2)	(3)
Private	0.092 (0.109)	0.084 (0.105)	-0.176** (0.082)
Negotiation	0.095 (0.114)	-0.029 (0.110)	-0.066 (0.086)
Husband Controls Savings*Private	-0.745** (0.317)	0.549* (0.306)	0.196 (0.239)
Husband Controls Savings*Negotiation	-0.740** (0.306)	0.306 (0.295)	0.346 (0.230)
Husband Controls Savings Decisions	0.648*** (0.238)	-0.392* (0.229)	-0.256 (0.179)
Daily Wage	-0.044 (0.027)	0.037 (0.026)	0.007 (0.020)
Constant	0.577 (0.356)	-0.027 (0.344)	0.451* (0.269)
Account and Education Dummies	YES	YES	YES
Observations	138	138	138
R-squared	0.21	0.33	0.34

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: Wife Controls Savings*Negotiation is the interaction between Wife Dominates Savings Decisions and Negotiation.

Note: Husband Controls Savings*Negotiation is the interaction between Husband Dominates Savings Decisions and Negotiation.

Wife Controls Savings Decision: Variable = 1 if, in response to the question: "Who decides whether money will be saved or it would be spent on something?", the subject answers "wife". Variable=0 if subject answers "husband" or "husband and wife together".

Husband Controls Savings Decisions=1 if the subject answers "husband" in response to "Who decides whether money will be saved or it would be spent on something?". Variable=0 if subject answers "wife" or "husband and wife together".

Account dummies consist of: Have Account at Green Bank, Spouse has Account at Green Bank, and Have Joint Account

Treatment and interaction results are robust to excluding controls.

A Appendix

A.1 Appendix Figures

Appendix Figure 1: Cash versus Direct Deposit Experiment Form

Today, as part of your compensation, you will receive 200 pesos. In this decision you will get the opportunity to decide about whether you would like to receive the 200 pesos as cash or if you would like to receive a gift certificate instead for deposit into a savings account here at Green Bank. Each question asks you about getting 200 cash, but the amount of the gift certificate for savings varies. Please answer *each* question.

You can choose to deposit the money into your own savings account or, if you don't have a savings account here, we can create one and deposit directly into it. If you want to deposit the account to the account of your spouse or into a joint account, then, we will do so.

Would you prefer:

1. **200** cash

OR

225 gift certificate for your savings account at
Green Bank (**225 balor** nga gift certificate **para sa imong savings
account o bank account** sa Green Bank)

Would you prefer:

2. **200** cash

OR

200 gift certificate for your savings account at
Green Bank (**200 balor** nga gift certificate **para sa imong savings
account o bank account** sa Green Bank)

Would you prefer:

3. **200** cash

OR

175 gift certificate for your savings account
at Green Bank (**175 balor** nga gift certificate **para sa imong savings account o
bank account** sa Green Bank)

Would you prefer:

4. **200** cash

OR

150 gift certificate for your savings account at Green Bank (**150 balor** nga gift
certificate **para sa imong savings account o bank account** sa Green
Bank)

Would you prefer:

5. **200** cash

OR

125 gift certificate for your savings account at Green Bank (**125 balor** nga gift
certificate **para sa imong savings account o bank account** sa Green
Bank)

If you choose a gift certificate for your savings at Green Bank in any of the line above, please check if you want (Choose one):

deposit the gift certificate in your existing account

deposit the gift certificate in a newly opened account in your
name

deposit to the account of your spouse

deposit to existing joint account or newly opened joint account

A.2 Appendix Tables

Table A1: Experiment Sample Selection

Dependent Variable: Take-up of Experimental Offer						
	(1)	(2)	(4)	(5)	(6)	(7)
Age	0.001 (0.003)	0.002 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)
Highest grade completed	-0.001 (0.014)	0.005 (0.013)	-0.002 (0.014)	-0.008 (0.013)	-0.009 (0.013)	-0.008 (0.013)
Total household income	0.177* (0.078)		0.173* (0.079)	-0.004 (0.028)	-0.001 (0.028)	-0.007 (0.028)
Female	-0.200* (0.080)	-0.157* (0.079)	0.009 (0.220)	-0.167* (0.081)	-0.152 (0.083)	-0.167 (0.091)
Total self reported savings	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.002 (0.004)	-0.002 (0.004)	-0.002 (0.004)
Own labor and pension income	-0.234* (0.100)	-0.044 (0.047)	-0.228* (0.099)			
Barangay						
Bading Pob	-0.020 (0.109)	-0.024 (0.108)	-0.026 (0.110)	-0.004 (0.110)	-0.002 (0.110)	-0.002 (0.110)
San Vincente	0.120 (0.088)	0.137 (0.087)	0.111 (0.089)	0.133 (0.088)	0.127 (0.088)	0.124 (0.089)
Pagatpatan	0.125 (0.132)	0.124 (0.132)	0.099 (0.137)	0.092 (0.135)	0.092 (0.135)	0.089 (0.137)
Pangabugan	-0.155 (0.146)	-0.152 (0.145)	-0.162 (0.147)	-0.177 (0.147)	-0.170 (0.147)	-0.175 (0.149)
Woman decides whether she can work outside the house						0.004 (0.049)
Woman decides about large family purchases					-0.032 (0.052)	
Woman decides about buying expensive items				0.015 (0.045)		
Score of female decisionmaking power in Female x Score of female decisionmaking power			0.488 (0.281)			
			-0.396 (0.345)			
Observations	203	203	203	194	194	193

Standard errors in parentheses

* significant at 5%; ** significant at 1%

Notes: This table shows the results from a dprobit regression on dummy variable for showing up to the experiment conditional on being offered to take part.

Mean Dependent Variable=0.58

Table A2: Summary Statistics by Treatment Condition

	Private N=96	Public N=96	Negotiation N=100	F-Stat P-Value
Age	42.083 (9.677)	42.198 (9.551)	45.770 (12.978)	0.1643
Years Married	18.426 (9.919)	18.275 (10.348)	21.180 (13.329)	0.3990
Number of Children	3.427 (2.176)	3.865 (2.090)	3.930 (2.181)	0.4584
Highest Grade Completed	11.396 (2.980)	11.469 (2.393)	9.890 (2.970)	0.0079
Daily Wage	436.93 (891.21)	289.30 (473.87)	431.30 (1191.11)	0.6628
<i>[Median Daily Wage]</i>	<i>200.00</i>	<i>170.00</i>	<i>150.00</i>	
Both Wife and Husband Work	0.750 (0.399)	0.740 (0.425)	0.700 (0.452)	0.8283
Wife Does the Budgeting	0.760 (0.342)	0.760 (0.399)	0.870 (0.332)	0.5533
Wife Makes More Income than Husband	0.292 (0.410)	0.302 (0.446)	0.260 (0.407)	0.8755
Wife Holds Income	0.885 (0.296)	0.719 (0.398)	0.800 (0.364)	0.1561
Wife Dominates Savings Decisions	0.292 (0.457)	0.211 (0.410)	0.280 (0.451)	0.3876
Husband Dominates Savings Decisions	0.158 (0.367)	0.146 (0.355)	0.160 (0.368)	0.958
Couple has Conflicts Over Money	0.344 (0.402)	0.406 (0.395)	0.370 (0.402)	0.7424
Account at Green Bank	0.427 (0.326)	0.365 (0.322)	0.490 (0.294)	0.1457
Has an Account at Green Bank	0.417 (0.496)	0.365 (0.484)	0.490 (0.502)	0.2044
Spouse Has Account at Green Bank	0.313 (0.466)	0.323 (0.470)	0.450 (0.500)	0.0825
Couple Has Joint Bank Account	0.104 (0.228)	0.042 (0.173)	0.070 (0.225)	0.1216

Standard errors in parentheses

Note: T This table shows summary statistics of the sample across three treatment conditions and reports F statistics of whether these measures were significantly different across treatment conditions.

Education level is significantly different across treatment conditions, and spouse has bank account is significantly different at 10% level. Table 3 controls for all education levels, and for spouse having bank account and finds little to no difference in treatment outcomes.

Table A3: Main Experimental Outcomes: Food over Direct Deposit

Panel 1: Main Experimental Outcomes: Food Gift Certificate vs Direct Deposit in Own or Spouse's Account						
	Private		Public		Negotiation	
	Male N=47 (1)	Female N=47 (2)	Male N=47 (3)	Female N=47 (4)	Male N=50 (5)	Female N=50 (6)
Food Gift Certificate for Self ^a	39.6%	48.9%	74.5%***	59.6%	46%+++	44.9%
Direct Deposit in Own Account ^b	41.2%	44.7%	17%***	21.28%**	20%**	47%+++
Direct Deposit in Spouse or Join Account ^c	18.8%	6.4%	8.5%	19.15%*	34%*+++	8.1%

***Significant at 1%; **significant at 5%; *significant at 10%, when compared to Private condition.

+++Significant at 1%; ++significant at 5%, when compared to Public condition.

Notes:

^aPercent of individuals who preferred gift certificate for food over direct deposit of 200 pesos into their own account and 200 pesos deposited into spouse's/joint account

^bPercent of individuals who preferred direct deposit for 200 into their own savings account over either a gift certificate for food worth 200 pesos and over deposit of 200 pesos into their spouse's account

^cPercent of individuals who preferred direct deposit for 200 into their spouse's or a joint savings account over gift certificate for food worth 200 pesos and over deposit of 200 pesos into their own account

Table A4: Food over Direct Deposit into Savings Account

Panel 1: Male									
	Food over any Savings			Own Savings over food or Spouse's Savings			Spouse Savings over Own Savings or Gift for food		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Private	-0.340*** (0.099)	-0.359*** (0.107)	-0.234* (0.121)	0.234*** (0.089)	0.236** (0.096)	0.079 (0.106)	0.106 (0.081)	0.123 (0.082)	0.155 (0.095)
Negotiation	-0.285*** (0.098)	-0.288*** (0.109)	-0.232* (0.122)	0.050 (0.088)	0.060 (0.097)	0.013 (0.107)	0.235*** (0.080)	0.228*** (0.083)	0.220** (0.096)
Wife Controls Savings*Private			-0.508** (0.255)			0.648*** (0.224)			-0.140 (0.200)
Wife Controls Savings*Negotiation			-0.286 (0.255)			0.259 (0.224)			0.026 (0.200)
Wife Controls Savings Decisions			0.103 (0.181)			-0.146 (0.159)			0.042 (0.142)
DailyWage		0.032 (0.042)	0.032 (0.042)		-0.030 (0.038)	-0.031 (0.036)		-0.002 (0.032)	0.000 (0.033)
Constant	0.745*** (0.070)	0.348 (0.520)	0.482 (0.530)	0.170*** (0.063)	-0.128 (0.465)	-0.210 (0.464)	0.085 (0.057)	0.780* (0.399)	0.728* (0.415)
Account Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
Education Group Dummies	No	YES	YES	No	YES	YES	No	YES	YES
Observations	144	141	141	144	141	141	144	141	141
R-squared	0.09	0.16	0.21	0.05	0.14	0.22	0.06	0.23	0.24

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: Wife Controls Savings*Negotiation is the interaction between Wife Dominates Savings Decisions and Negotiation.

Note: Husband Controls Savings*Negotiation is the interaction between Husband Dominates Savings Decisions and Negotiation.

Account dummies consist of: Have Account at Green Bank, Spouse has Account at Green Bank, and Have Joint Account

Panel 1: Female									
	Food over any Savings			Own Savings over food or Spouse's Savings			Spouse Savings over Own Savings or Gift for food		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Private	-0.106 (0.103)	-0.064 (0.112)	-0.034 (0.119)	0.234** (0.098)	0.188* (0.101)	0.084 (0.105)	-0.128* (0.067)	-0.123* (0.069)	-0.176** (0.082)
Negotiation	-0.147 (0.102)	-0.074 (0.117)	-0.048 (0.125)	0.236** (0.097)	0.153 (0.106)	-0.029 (0.110)	-0.089 (0.066)	-0.080 (0.072)	-0.066 (0.086)
Husband Controls Savings*Private			-0.371 (0.350)			0.549* (0.306)			0.196 (0.239)
Husband Controls Savings*Neg			-0.341 (0.338)			0.394 (0.295)			0.346 (0.230)
Husband Controls Savings			0.476* (0.262)			-0.392* (0.229)			-0.256 (0.179)
DailyWage		-0.064** (0.030)	-0.061 (0.030)		0.047* (0.027)	0.037 (0.026)		0.016 (0.018)	0.007 (0.020)
Constant	0.596*** (0.073)	0.721* (0.392)	0.655* (0.393)	0.213*** (0.069)	0.044 (0.354)	-0.027 (0.344)	0.191*** (0.047)	0.235 (0.241)	0.451* (0.269)
Account Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
Education Group Dummies	No	Yes	No	No	Yes	No	No	Yes	No
Observations	143	139	139	143	139	139	143	139	139
R-squared	0.02	0.10	0.13	0.05	0.21	0.33	0.03	0.21	0.34

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: Wife Controls Savings*Negotiation is the interaction between Wife Dominates Savings Decisions and Negotiation.

Note: Husband Controls Savings*Negotiation is the interaction between Husband Dominates Savings Decisions and Negotiation.

Account dummies consist of: Have Account at Green Bank, Spouse has Account at Green Bank, and Have Joint Account

Table A5: Cash over Direct Deposit into Savings Account

	Private		Public		Negotiation	
	Males N=48	Females N=48	Males N=48	Females N=48	Males N=50	Females N=50
Prefer Cash Always	50.00%	56.25%	66.67%*	54.55%	54.00%	48.00%
Direct Deposit in Own Account	33.00%	39.58%	18.75%*	22.73%*	14%**	42%++
Direct Deposit in Spouse or Joint Account	16.70%	4.17%	14.58%	22.73%***	32%*++	10%+
How Much Cash willing to Give up for Direct Deposit?						
<i>Mean (in pesos)</i>	20.74	11.97	9.37*	10.87	13.5	17
<i>(Standard Deviation)</i>	(32.27)	(26.29)	(25.07)	(24.52)	(28.22)	(31.31)
<i>[Minimum, Maximum]</i>	[0,75]	[0,75]	[0,75]	[0,75]	[0,75]	[0,75]

***Significant at 1%; **significant at 5%; *significant at 10%, when compared to Private condition.

+++Significant at 1%; ++significant at 5%, when compared to Public condition.

Notes:

In this decision, subjects traded off receiving 200 pesos in cash against varying amounts put into direct deposit in a savings account of their choice (See Appendix Form). Subjects gave an answer for each of the tradeoffs ("Would you prefer 200 cash vs 225 in account", 200 cash vs 200 in account, 200 cash vs 175 in account, 200 cash vs 150 in account, and 200 cash vs 125 in account). If they chose direct deposit in any of the tradeoffs, they designated the account into which the money should be deposited. "Prefer Cash Always" is the percentage of subjects who always preferred 200 cash to any amount put into an account. "Direct Deposit into Own Account" is the percentage of subjects who chose to put the money into an account in any of the tradeoffs rather than receive 200 cash, and chose own account as the designated account. "Direct Deposit into Spouse or Joint Account" is the percentage of subjects who chose to put the money into an account in any of the tradeoffs rather than receive 200 cash, and chose their spouse's or joint account as the designated account. Because the subjects gave answers for a range of direct deposit amounts, we are able to measure how they valued direct deposit into an account as compared to 200 pesos cash. Subjects displayed monotonicity in their responses (that is, if they chose 175 pesos in their account over 200 cash, they also chose 200 pesos in their account over 200 cash and 225 pesos in their account over 200 cash). The variable "How much cash willing to give up for direct deposit?" is assigned a value of "0" pesos if subject always chose cash, or chose 225 in account or 200 in account over 200 cash; "25" pesos if subject preferred to receive (minimum) 175 pesos direct deposit over 200 cash; "50" if subject answered (minimum) 150 in account vs 200 cash; and "75" pesos if subject answered (minimum) 125 pesos into account vs 200 cash. Note that this is an underestimate of the actual willingness to give up cash for direct deposit as tradeoffs were not asked for below 125 pesos.

Table A6: Full Experimental Outcomes

	Private		Public		Negotiation	
	Males	Females	Males	Females	Males	Females
	N=48	N=48	N=48	N=48	N=50	N=50
<i>Cash vs Direct Deposit</i>						
Cash for Self ^a	50.00%	56.25%	66.67%*	54.55%	54.00%	48.00%
Direct Deposit in Own Account ^b	33.00%	39.58%	18.75%*	22.73%*	14%**	42%++
Direct Deposit in Spouse or Join Account ^c	16.70%	4.17%	14.58%	22.73%***	32%*++	10%+
<i>Gift Certificate for Self vs Cash</i>						
200 pesos Cash always	65.96%	60.87%	72.34%	72.92%	86%**+	83.67%**
Gift Certificate ?200 over 200 cash	21.28%	26.09%	19.15%	22.92%	12.00%	14.29%
GC < 200 over 200 cash	12.77%	13.04%	8.51%	4.17%	2.00%**	2.04%**
<i>Child's Savings Account vs Cash</i>						
Cash	61.70%	43.75%	52.08%	56.25%	58.00%	54.00%
Gift Certificate Greater Than 200	12.77%	35.42%	29.17%*	18.75%*	24.00%	30.00%
Take GC of less than 200 pesos into child's saving account over 200 pesos cash	25.53%	20.83%	18.75%	25.00%	18.00%	16.00%
<i>Gift Certificate for Food</i>						
Cash	56.25%	41.67%	58.33%	52.08%	61.20%	50.00%
Gift Certificate Greater Than 200	31.25%	41.67%	28.08%	43.75%	34.69%	44.00%
Take GC valued at less than 200 pesos over 200 pesos cash	12.50%	16.67%	14.58%+	4.17%**	4.00%	6%*
Willingness to Pay for Food						
Gift Certificate worth 200 pesos for Food over Gift Certificate worth 200 pesos for Self	77.10%	89.60%	70.80%	91.70%	86%+	88.00%
Direct Deposit worth 200 pesos into Child's Savings Account over Gift Certificate worth 200 pesos for Self	53.20%	79.20%	54.20%	68.80%	60.00%	58.00%**
Direct Deposit into Child's Savings Account over Gift Certificate for Food	54.10%	65.90%	52.10%	56.30%	46.00%	50.00%*
Direct Deposit into Child's Savings Account over Direct Deposit into Own Savings Account	54.20%	72.90%	52.10%	59.60%	46.00%	48.00%
Time Preference for Spouse Patient ^(d)	65.90%	65.90%	66.70%	60.40%	59.20%	56.00%
	66.70%	64.60%	60.40%	79.20%*	64.00%	74.00%
Impatient	6.30%	8.30%	10.40%	4.20%	6.00%	6.00%
Impatient Now, Patient Later	37.50%	35.40%	37.50%	37.50%	40.00%	32.00%

***Significant at 1%; **significant at 5%; *significant at 10%, when compared to Private condition.

+++Significant at 1%; ++significant at 5%, when compared to Public condition.

Note: This table shows the full set of experimental outcomes.

^(d) Patient, Impatient, Impatient Now, Patient Later refer to time preference questions that were asked in near term and in far term. To ensure that subjects trusted that they would receive the money if they waited, we used certified bank post-dated checks (with transaction costs equalized by requiring all subjects to come back 3 more times to the bank to "sign in" and receive 20 pesos (more than twice their fare to the bank) when they return: once in 2 weeks' time, once in 3 month's time, and once in 3 months + 2 week's time. Almost 90% of all subjects returned for these sign-in's and received their additional 20 pesos each time) Those who were willing to wait for a sum larger than 200 pesos in near term (2 weeks from now vs now) and in far term (14 weeks from now vs 12 weeks) were classified as patient. Those who always opted for the 200 pesos both now, in near term, and in 12 weeks, in long term, were classified as impatient. Those willing to wait in long term, but wanting the 200 pesos now in near term, were classified as Impatient Now, Patient Later.

*Subjects were asked, through a series of discrete choices, for what amount of money should the spouse be willing to wait for two weeks, rather than getting the 200 pesos cash today. Subjects were told that if this decision was the one chosen, these choices would actually be implemented for their spouse. This decision, therefore, elicits a combination of the subject's desire for and their expectations of their spouse's behavior.

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