ONLINE APPENDIX

A Additional Tables and Figures

Table A1: Lab sample: Balance on baseline observables between UCT treated and control

	No UCT		UCT		
Variable	Mean	SE	Mean	SE	p-value
Age of household head	40.984	(1.039)	42.817	(1.075)	0.174
Age of wife	30.063	(0.912)	30.952	(0.858)	0.382
HH Head can read and write	0.390	(0.051)	0.401	(0.047)	0.814
Polygamous marriage	0.207	(0.030)	0.218	(0.032)	0.642
Any HH member involved in farming	0.546	(0.040)	0.563	(0.042)	0.665
Number of HH Plots	0.693	(0.063)	0.655	(0.057)	0.529
Wife is involved in farming	0.316	(0.045)	0.308	(0.040)	0.821
Wife owns HH or farm assets	0.592	(0.048)	0.658	(0.037)	0.144
Wife is empowered (based on A-WEAI)	0.090	(0.021)	0.128	(0.032)	0.183
Decision-making index of wife (0-7)	1.809	(0.170)	1.980	(0.131)	0.286
Number of Observations	251		252		

Notes. 'Wife is empowered' takes the value of 1 if adequacy is achieved in 2 or more A-WEAI domains, otherwise 0. See Malapit et al. (2019) for details on A-WEAI. The decision-making index is obtained by summing answers to 7 decision-making questions. Higher values of the A-WEAI index and weighted score, the empowerment indicator, and the decision-making index indicate higher levels of empowerment in household decision-making for the wife. P-value shown is for the test that the difference between the two averages is significantly different from zero. Robust standard errors in parentheses, clustered by session. *** p<0.01, ** p<0.05, * p<0.1

Table A2: Accommodating spouse's choices when revising after being informed of their choice

Wife's behaviour: / **Panel I: Choice B**	Contrarian	No revision diff. choice	No revision same choice	partial accomm.	Full accomm.	Over-accomm.	Total
	Husband's behaviour:						
Contrarian	0	11	1	0	0	0	12
No revision, different choice	1	37	0	0	5	0	43
No revision, same choice	1	1	9	0	1	0	12
Partial accomm.	0	9	0	0	3	0	12
Full accomm.	2	89	5	0	15	2	113
Over-accomm.	1	3	0	0	1	0	5
Total	5	150	15	0	25	2	197
Panel II: Choice C							
Contrarian	1	13	0	0	1	0	15
No revision, different choice	4	35	1	2	6	0	48
No revision, same choice	0	2	14	0	0	0	16
Partial accomm.	1	8	0	0	0	0	9
Full accomm.	2	109	5	1	16	1	134
Over-accomm.	0	1	0	0	0	0	1
Total	8	168	20	3	23	1	223
Panel III: Choice D							
Contrarian	0	19	3	1	2	0	25
No revision, different choice	1	25	0	0	1	0	27
No revision, same choice	0	0	8	0	1	0	9
Partial accomm.	2	9	0	1	0	0	12
Full accomm.	1	44	0	0	1	0	46
Over-accomm.	0	1	1	0	0	0	2
Total	4	98	12	2	5	0	121

Notes: The table shows the number couples in different cells based on their behaviour. Only observations from control subjects are used to construct this Table. The number of observations varies because some decisions were only introduced in later experimental sessions. behaviour is defined as follows. Each subject first makes a split choice on B, C, and D, is told the communication of their spouse, and allowed to revise their split. Full accommodation means replacing one's original split by the split communicated by their spouse. Partial accommodation means revising one's original split in the direction of the spouse's choice, but only partly. Over-accommodation means revising one's original split by overshooting the spouse's choice. No revision, different choice means that the subject does not revise their original split even though they have been informed their spouse chose a different split. No revision, same choice means the subject does not revise their original split knowing that it is identical to the split communicated by their spouse. Contrarian means that the subjects revises their original split to be further away from the spouse's communicated split than it was originally.

Table A3: Material allocations with executive or consultative agency

Chosen allocation (in Naira)		Within subject:			
Spouse is:		Agency of spouse is:		t-test	Correlation
Wife:	N. obs.	Executive	Consultative	p-value	coefficient
Household vs male items	394	1388	1326	0.027	0.107
Household vs female items	450	1169	1217	0.073	0.098
Cash for wife vs for husband	245	1264	1060	0.000	-0.077
Husband:					
Household vs male items	394	1316	1341	0.278	0.421
Household vs female items	450	1214	1155	0.006	0.419
Cash for wife vs for husband	245	1063	1233	0.000	0.132

Notes: The budget is 2500 Naira and the reported amounts are the amount spent on the first of the two listed alternatives. Executive agency is measured by c_w^w and consultative agency is measured by $k_h c_w^{h\_accom} + (1 - k_h)c_w^h$. The t-test of the difference (and associate p-value) compares the sample average outcomes and the correlation coefficient compares the two values for each pair. Although the difference is small on average, this hides large differences as shown by the fact that executive and consultative agency are not highly correlated, particularly for women.

Table A4: Treatment effects on split decisions

Dependent Variable is Split Decision by the Wife for choice:	A	B	C	D
UCT/no-Secret	116.4**	69.27	-11.80	87.31*
	(2.067)	(1.386)	(-0.228)	(1.710)
no-UCT/Secret	47.56	51.16	4.099	-16.69
	(1.039)	(0.907)	(0.070)	(-0.275)
UCT/Secret	66.31	81.58	-17.50	34.15
	(1.221)	(1.562)	(-0.382)	(0.606)
Constant	1,387***	1,372***	1,166***	1,273***
	(45.08)	(34.72)	(36.15)	(30.00)
Observations	503	503	502	503
R-squared	0.012	0.006	0.000	0.010
p-value of marginal effect‡	[0.222]	[0.550]	[0.882]	[0.653]
Dependent Variable is Split Decision by the Husband				
for choice:	A	B	C	D
UCT/no-Secret	-40.84	41.84	-29.66	-53.45
	(-0.914)	(0.848)	(-0.564)	(-1.288)
no-UCT/Secret	-67.24	55.65	-87.81	-70.77
	(-1.376)	(0.970)	(-1.388)	(-1.349)
UCT/Secret	-41.26	23.29	-74.98	-23.22
	(-0.763)	(0.370)	(-1.340)	(-0.430)
Constant	1,330***	1,289***	1,256***	1,096***
	(33.07)	(39.47)	(28.17)	(42.14)
Observations	503	503	503	503
R-squared	0.004	0.002	0.007	0.005
p-value of marginal effect‡	[0.273]	[0.361]	[0.557]	[0.117]

Notes: The dependent variable is the initial split decision (between 0 and 2500) made by each subject in each of the four domains: A: female v. male goods; B: household v. female goods; C: household v. male goods; D: female v. male money. Each regressor corresponds to a different treatment category with the intercept corresponding to the no-UCT/no-secret category.
‡ is the p-value of the F-test that UCT / Secret = UCT + Secret and tests the marginal contribution of the combined treatments compared to the sum of the contributions.
Robust t-statistics in parentheses, clustered by session. *** p<0.01, ** p<0.05, * p<0.1

Table A5: Treatment effects on consultative agency

Dependent variable is consultative agency index						
	Wife			Husband		
	B	C	D	B	C	D
UCT/no-Secret	0.004	0.014	-0.006	0.021	0.012	-0.041
	(0.122)	(0.190)	(-0.351)	(0.271)	(0.699)	(-0.695)
no-UCT/Secret	-0.018	-0.078	-0.001	0.030	0.017	-0.105
	(-0.553)	(-0.994)	(-0.062)	(0.364)	(0.550)	(-1.573)
UCT/Secret	-0.060**	-0.104	-0.016	-0.079	-0.006	-0.097
	(-2.679)	(-1.429)	(-0.828)	(-1.137)	(-0.271)	(-1.194)
marginal effect (p-value)‡	[0.244]	[0.703]	[0.748]	[0.232]	[0.193]	[0.648]
Constant	0.071***	0.445***	0.038**	0.412***	0.021	0.381***
	(3.591)	(7.768)	(2.364)	(7.820)	(1.186)	(8.713)
Observations	355	355	415	415	219	219
R-squared	0.013	0.011	0.002	0.008	0.004	0.009

Notes: ‡ is the p-value of the F-test that UCT or Secret = UCT + Secret and tests the marginal contribution of the combined treatments compared to the sum of the contributions. Robust t-statistics in parentheses, clustered by session. *** p<0.01, ** p<0.05, * p<0.1

Table A6: Treatment effects on material allocations

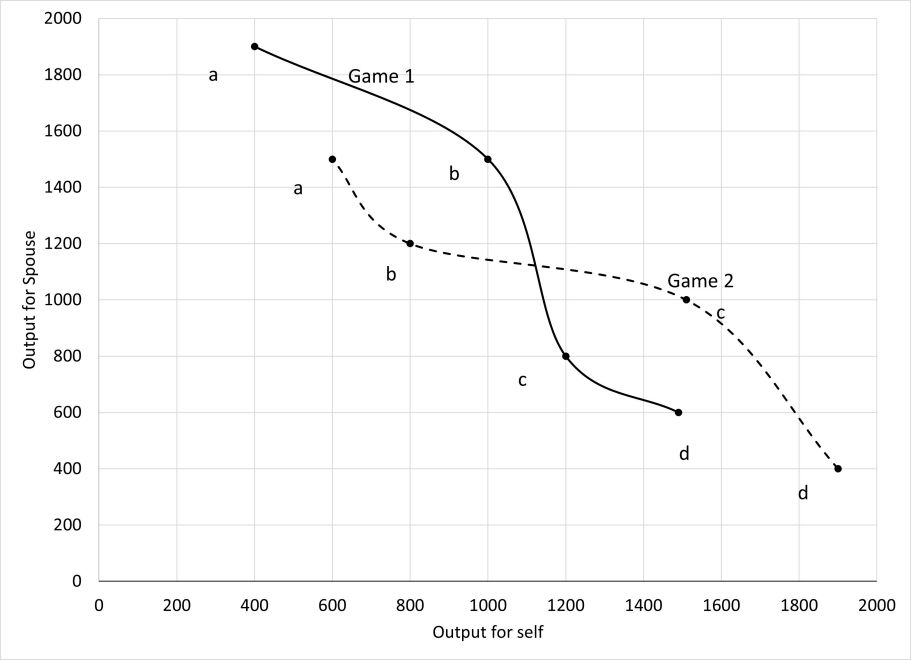
Material allocations	Wife			Husband		
	B	C	D	B	C	D
UCT/no-Secret	51.7	-13.2	-52.5	-23.6	-73.2	115.1
	(0.874)	(-0.258)	(-0.871)	(-0.415)	(-1.307)	(1.461)
no-UCT/Secret	67.4	14.3	-99.1	-46.4	-77.2	-22.6
	(1.108)	(0.242)	(-1.395)	(-0.735)	(-0.824)	(-0.306)
UCT/Secret	3.8	48.8	-88.6	-56.1	-96.9	116.2
	(0.060)	(0.859)	(-1.501)	(-1.061)	(-1.303)	(1.638)
marginal effect (p-value)‡	[0.190]	[0.508]	[0.462]	[0.859]	[0.556]	[0.818]
Constant	1,297***	1,327***	1,276***	1,186***	1,122***	1,180***
	(43.330)	(34.141)	(26.850)	(31.733)	(37.297)	(21.649)
Observations	394	394	450	450	245	245
R-squared	0.005	0.003	0.008	0.003	0.008	0.024

Notes: ‡ is the p-value of the F-test that UCT or Secret = UCT + Secret and tests the marginal contribution of the combined treatments compared to the sum of the contributions. Robust t-statistics in parentheses, clustered by session. *** p<0.01, ** p<0.05, * p<0.1

B A model of decision-making in the production game

There are four ways to make choices in the production game, graphed in Figure B1. This

Figure B1: The production games in output space



game design serves four objectives: First, it shows whether subjects choose an efficient allocation, and whether they do so even when it is against their individual interest. Second, the fact that Game 1 is a mirror image of Game 2 allows us to test whether both spouses choose the same joint allocation. For instance, choosing a in Game 1 for self is equivalent to the spouse choosing d in Game 2. This tells us whether spouses share a focal division of inputs or income within their household. Third, Games 1 and 2 are identical in the input domain. Hence if subjects base their selection purely on the input domain, they should pick the same option in both games. This tells us whether spouses put input fairness considerations above considerations of efficiency or intrahousehold distribution of income. Fourth, each game has a choice that is dominated in the output domain, that is, a choice that violates any reasonable (altruistic or selfish) utility function over *income*. This choice, however, is not dominated if subjects evaluate choices exclusively in the input domain. This tells us whether subjects make production decisions based purely on input fairness considerations, irrespective of their income consequences.

Households may choose the most efficient allocation in each game. Efficiency makes the most sense in households no matter what sharing rule is used. Even if unearned income is allocated more to the person who receives it (the philosophy of the cash transfer program), the individual should choose the efficient payoff and then insist on allocation after the fact.

Alternatively, households might choose the allocation that best matches their preferences, ignoring efficiency. This suggests that redistribution after the fact is difficult, so it is better to pick a distribution that most neatly matches the desired final allocation. This might coincide with the efficient allocation, but not necessarily. This should be similar to the allocation of

cash observed earlier. Even though the game is different, the solution will follow the same principle.

Since payoffs are determined solely by outputs, subjects who are consequentialists should ignore input values. It is nonetheless conceivable that subjects made choices partially or wholly based on the input domain. Since the framing of the experiment encourages subjects to think of inputs as being shared and outputs being produced by inputs, subjects who follow an 'equality of opportunity' reasoning may allocate inputs according to a particular welfare function, and consider the fact that inputs produced different outputs as irrelevant for making a choice. This is equivalent to viewing the mapping between inputs and outputs (i.e., the 'production function') as an entitlement that the subject is justified to benefit from since 'it is not their choice' (e.g. Fafchamps and Kebede, 2022).

Fourth, a household might blend the output and input model. Note that this fourth type is not efficient, but could end up choosing an allocation which is efficient.

There is a straightforward test for each of the three models: An efficient household should be efficient in both versions of the game. An output based decision maker will never choose the 'interior' allocation. An input based household will make the same decision in both games. Our tests show that, the average husband or wife (in either treatment or control or in secret or observable decisions making domains) does not adhere to any of these three models alone, suggesting a model in which people balance both inputs and outputs.

We now examine the behavioural predictions made by either of these choice domains, before aggregating them into a unified model.

Efficiency There is only one choice in each game associated with efficient outcomes at the household level. Thus, any efficient individual should choose these options in both games and any efficient household should have both partners choosing these outcomes in both games.

The data show that for households in the control treatment 30% of men and 35% of women always make the efficient choice, which is higher than random, but not by much. Only 10% of husband/wife pairs both make the efficient choice, a similarly low number.

Output Domain Assume that each subject has other-regarding preference of the standard altruistic type:

$$W_{im} = \omega_{im} U_i(x_i) + (1 - \omega_{im}) U_j(x_j)$$

where $i \in \{\text{husband, wife}\}$, m denotes a treatment or treatment combination, ω_i is a welfare weight specific to i, and $j \neq i$.[1] We further assume that $U_i(x) = U_j(x)$ for all x – which is equivalent to saying that subjects believe their spouse to enjoy the financial payoff as much as they do –[2] and we allow function $U(.)$ to be concave to capture satiation/risk aversion, e.g., $U(x) = x^\beta$. As we will show below, the value of β does not, in fact, matter for our main test of interest.

When choosing between different $\{x_i, x_j\}$ pairs, each subject picks the one that gives the highest welfare value:

$$argmax_{\{x_i, x_j\}} \left(\omega_{im} x_i^\beta + (1 - \omega_{im}) x_j^\beta \right)$$

[1] There is no point assuming a more complex other-regarding welfare function since we cannot identify it from our experimental data.

[2] Again, this is a simplification but we cannot falsify this assumption with our data.

For each value of β, the above function defines intervals of values of ω_{im} for which each of the four possible choices available in the two games would be optimal. For instance, for $\beta = 1$ (utility linear in payoffs), the intervals are as shown below:

Table B7: Altruism bounds in the output domain

$\beta = 1$	Game 1		Game 1	
Choice	lower bound	upper bound	lower bound	upper bound
A	0.6	1.0	0.643	1
B	0.357	0.6	n.a.	n.a.
C	n.a.	n.a.	0.4	0.643
D	0	0.357	0	0.4

Similar tables can be produced for other values of β. They produce different interval bounds, but choice C is never optimal in Game 1 and choice B never optimal in Game 2. This is illustrated on Figure B1 where we plot the payoff for self on the x axis and the payoff for the spouse on the y axis. Indifference curves for linear or concave preferences would themselves be linear or concave. Since choice 3 in Game 1 is below the line joining the payoffs from choices 2 and 4, it can only be optimal for a limited set of unlikely indifference curves which can be ruled out by checking choices in the other game.[3]

Eighteen percent of women and 16 percent of men in the control treatment chose one of the dominated points in these games, which suggests a statistically significant number of people are not playing only in the output domain.

Input domain We now write a similar welfare function for the different input choices, assuming that subjects judge the equity of their choice by only considering the input domain. We have:

$$argmax_{\{z_i,z_j\}} \left(\theta_{im} z_i^{\alpha} + (1-\theta_{im}) z_j^{\alpha}\right)$$

where z_i is the input share allocated to self, z_j is the input share allocated to the spouse, θ_{im} is the welfare weight parameter for individual type i in treatment m, and α is a curvature parameter.

As earlier, we can identify the interval of θ_{im} values for which each of the four possible choices is optimal. We start by noting that these intervals are identical for Games 1 and 2 since the input value pairs to choose from are the same. Next, we observe that for linear utility ($\alpha = 1$), choices 2 and 3 are not optimal – except in the knife-edge case where $\theta_{im} = 0.5$, in which case all four choices are equivalent).

Things are different when utility is concave: in this case, there exist values of θ_{im} at which choices 2 and 3 are optimal. One such case is illustrated in the table below, which shows that, in the input domain, choice 3 in Game 1 and choice 2 in Game 2 are not always dominated: they can be optimal.

This implies that subjects who pick choice 3 in Game 1 or choice 2 in Game 2 *must* be playing (at least partly) in the input domain. We also note that if subjects make a choice

[3]For example, a Leontief utility function could lead the subject to choose B in Game 1, but then they would always choose B in Game 2, which we can easily reject.

Table B8: Altruism bounds in the Input game

$\beta = 0.9$	Both games	
Choice:	lower bound	upper bound
A	0.551	1
B	0.5	0.551
C	0.449	0.5
D	0	0.449

purely based on the input domain, these choices should be identical for Games 1 and 2 – something we can test: if subjects pick different choices in Games 1 and 2, they *must* be playing (at least partly) in the output domain. The data clearly reject the hypothesis that subjects make the same input choices in each game because over 50% of women chose the efficient outcome in each game even though it requires different input choices.

Under the maintained assumption that subjects play in the input domain, we can use the above approach to test whether the altruism of husbands and wives varies by treatment and treatment combination. This is done by estimating, for different values of α, an interval regression in which the bounds of the intervals are those given in a Table like Table 2 and the regressors are treatment dummies. Observations from the two games are pooled and the model is estimated separately for husbands and wives.

Recall that, the input game is the same in both versions, so if someone was playing only in that domain they would make the same choice in both versions. Twenty-seven percent of women and 25% of men in the control treatment make the same input choice in both versions, suggesting that most people are not playing solely in the input domain.

Combining both domains We now consider the situation in which we can reject that subjects play exclusively in the output domain, and also reject that they play exclusively in the input domain. Our approach is to start from the output domain, since it determines payoffs directly, but adjust it for the distance from equal sharing of inputs. The reasoning is that subjects may wish to deviate from a selfish division of payoffs if it results in a very unequal division of inputs. In that case, they may be willing to sacrifice some of their own payoff to achieve a more equitable division of inputs.

We first examine whether it is possible to obtain all four choices if we set $\omega_i = \theta_i$ and $\alpha_i = \beta_i$, i.e., utility functions in the two domains are identical. The issue then is whether there is a blending parameter value that can account for all choices. The objective function now is:

$$W_{im} = b\left(\omega_{im} x_i^{\beta} + (1-\omega_{im}) x_j^{\beta}\right) + (1-b)\left(\omega_{im} z_i^{\beta} + (1-\omega_{im}) z_j^{\beta}\right)$$

where b is a blend parameter capturing the weight subjects put on the two objective function, and where the input variables z_i and z_j have been multiplied by the mean of x_i over both games. The purpose of this transformation is to make the two utility functions have the same approximate weight in forming welfare function W_{im}.

By choosing values for β and b and then testing whether the model can explain the behaviour of individuals in the control group, we find (through grid search) optimal values of approximately 0.63 and 0.3 respectively. This suggests that the average person is indeed

blending an output and input model with a heavier weight on the output domain, but a significant though smaller weight on the input domain.

C Experimental Instructions and Materials

Note that the full script – which is repetitive and long – is available in this online appendix. Here we outline the experiment and provide the representative scripts.

C.1 Introduction

Upon arrival, subject pairs (i.e., married couples) were assigned to their respective gender-specific room. This means that all the husbands were put in one room, while all the wives were put be in a separate room. Thus, husbands and wives could not directly interact with each other during the sessions.

The plan was to conduct two experimental sessions for each experimental site on the same day. However, this depended on the size of the impact evaluation sample in the nearby villages. If there were enough participants to have two sessions, we conducted both sessions consecutively, allowing no possibility for interaction between experimental subjects in the different sessions. We ensured this by having the subjects from the first round leave the premises of the experiment immediately after their session ended, without providing any opportunity to interact with subjects from the following round, who would wait in a separate room. Research Assistants at the site implemented this "no interaction" protocol between subjects in consecutive sessions.

Experimental subjects were seated in compartments separated by curtains made of opaque clothing material. Thus, subjects were not able to see each other or observe each others' experimental decisions. This ensured the privacy of decisions during the experiment. Any contact between subjects during the session was strongly discouraged. Moreover, subjects were not allowed to verbally communicate any of the experimental decisions to their assigned enumerators. Rather, they communicated all their decisions using experimental prompts, e.g, envelopes and pictures that denoted binary choices and (laminated) cash prompts to allocate between binary choices. This further protected privacy and subdued any mimicking effort.

Subjects were thanked for coming to the session and were handed the participation fee: "Thanks for coming today. Before we start, we would like to give you 250 NGN as a compensation for your time. This amount is not part of today's activities and is yours to keep. You and your spouse, who is in a different room now, will make a number of decisions today, through which your household can earn additional money. At the end of this session, only one of the decisions that you and your spouse make will be chosen via a lottery, which is likely to be implemented as final pay-off for your household. Since any of your decisions can be chosen, you should take each of your decisions seriously and carefully. In addition to the participation fee, the pay-off for your household can be between 2,100 NGN and 2,500 NGN, in cash or in kind, depending on which round is chosen from the lottery for pay-off. Again, only one decision of all the decisions that both you and your spouse make today will be chosen through a lottery as final pay-off for your household."

A visual demonstration was then shown which demonstrated how one decision - from all the decisions made by the husband and the wife in the experimental session - was going to be chosen by a lottery as final pay-off for the household. The decision rounds for female experimental subjects were represented with white numbered balls while the decision rounds

for male subjects were represented by orange numbered balls. The numbers on the balls denoted different rounds. In the demonstration, subjects were told that at the end of all the decisions by the husband and the wife, all the white and orange numbered balls would be put in a basket. One ball would be taken out and the corresponding decision was likely to be implemented as the final pay-off for the household. The following script was used:

"I will now give examples of the type of decisions that you and your spouse will make today. This will also clarify how your household will likely get paid for one of your or your spouse's decisions. Let me give some examples. [Enumerator: Please show cash prompts]. Consider a decision in which you will choose how to divide 2,500 NGN between rice and millet [Enumerator: Please show pictures of rice and millet. Also, please show rice and millet packets/pouches in the room]. We will represent your, i.e., female [male] participants' decisions with this white [red] ball with "1" written on it. Once you make the decision, I will put this ball in this bag. Similarly, the decision by your spouse, who is in the other room, is represented by this red [white] ball with "1" written on it - my colleague in the other room will put it in another bag. Every time you make a decision today, I will put in a white [red] numbered ball representing that decision. Similarly, every time your spouse makes a decision today, my colleague in the other room will put in a red [white] numbered ball representing that decision. At the end of all the decisions, all the white [red] balls representing your own decisions and all the red [white] balls representing your spouse's decisions will be put in the same box. And they will be thoroughly mixed. If then a white [red] ball with "1" written on it is taken out of the box, your household is likely to get rice and millet amounts, based on the money you, i.e., female [male] participant decided to allocate for each item. If I take out the red [white] ball with "1" written on it, your household is likely to get rice and millet amounts, consistent with the money/Naira your husband [wife] decided for each item."

Participants had the opportunity to engage in several practice rounds where they distributed 2,500 Naira across binary choices. One practice round involved deciding between maize and guinea corn, two agricultural products that are commonly found in this region.

C.2 Plausible deniability ("secret-keeping"):

The pay-off process was designed to ensure that the individual, private choices made during the experiment were not revealed to the subject's spouse (or anyone else), unless warranted by the experimental treatment (i.e., in 'no-secret' sessions). Recall that at the end of a session, based on which numbered ball was randomly drawn out of the basket, a particular decision round would be chosen as pay-off for each household. This decision round could be either the husband's or the wife's. The session supervisor would then find out the recorded decisions and write the response on a piece of paper and insert it in an envelope. The envelope would then be put in a tin box.

One envelope (called the 'secret-keeping' envelope) randomly chosen from a bag that contained all the possible allocations written inside different envelopes, would also be put in the tin box. The tin box would then be shaken several times and one of the envelopes would be taken out, based on which the household would receive a pay-off. Script is as follows:

"Until told otherwise, the decisions that you will make today are completely secret. Even if one of your own decisions is chosen at the end, your spouse or anyone else will not know exactly what your choice was. Let me explain how we will ensure this.

Say, the white [red] Ball 1 is chosen from the bag, which means how much of rice and millet you decided to buy is selected for final pay-off for your household. This bag is full of envelopes [please show bags], with all combinations of decisions written on it, for both the options, i.e., rice and millet. For example, there is an envelope with 0 NGN for rice and 2,500 NGN for millet. Similarly, there is an envelope with 1,300 Naira for rice and 1,200 Naira for millet. There is also an envelope with 2,000 NGN for rice and 500 for millet and another with 2,000 NGN for millet and 500 for rice, written inside it. There is also an envelope with 0 for millet and 2,500 Naira for rice, and so on. So, basically, all combinations, with increments/reductions of 100 NGN.

Since, White Ball 1 is chosen. I will write down your decision for rice and millet in this paper and put it in this envelope. The envelope will be put in this box. Now, we will take an envelope from the bag full of envelopes (with all combinations of decisions). We will call this the "Secret-Keeping" choice. We will now put the envelope from the "Secret-Keeping" choice in the same box. Notice that the box has two envelopes: one with your choice written on it and another with any random allocation written in it. Any of these two will now be chosen for your household. Why the "Secret-Keeping" choice? We are adding this to ensure that your choice remains secret, from your spouse or anyone else. We do this so that you can be assured that your choices are known only to you and no one else. The same applies for your spouse; there is no way for you to know his/her choices - unless we let you know otherwise beforehand. We will not share any information about what you choose in private with your spouse - unless we tell you beforehand. I will now take one of the envelopes from the box.

We will let you know beforehand if any decision round will NOT remain private or secret. Until we tell you so, assume that your decisions are private and secret.

At the end of the session, if a money round is chosen for pay-off, you and your spouse will get separate envelopes. If a round involving in-kind/items round is chosen both you and your spouse will be brought together and you will get tokens which you can use to get the items."

C.3 Description of the Different Experimental Blocks

C.3.1 Block 1 - Allocating a budget across different types of items or payments (split and resplit)

Individual preference elicitation is carried out on experimental subjects in different decision domains in the very beginning, i.e., in Block 1. The decisions in this block involve dividing an endowment (either 2,500 Naira or 2,100 Naira) between two options. For the 2,500 Naira endowment, experimental subjects use plastic laminated and colored photocopies of four 500 NGN bills, four 100 NGN bills and two 50 NGN bills (adding up to 2,500 NGN) as cash prompts. The preference elicitation decisions using 2,500 Naira endowment are made across four domains:

- **split**A: female vs male items
- **split**B: household items vs male items
- **split**C: household items vs female items

- **split**D: cash allocation - husband vs. wife

Subjects also split 2,100 Naira in domains A and D:

- **resplit**A: female vs male items
- **resplit**D: cash allocation - husband vs. wife

In preparatory fieldwork before carrying out the experiments, we carried out market and consumer surveys to make sure that the male and female items used in the experiment are indeed identified as distinctly male and female items respectively in the study area. Similarly, "household items" consist of materials that are not typically assigned to any gender and are usually used by everyone in a household.

In the first three decisions above, subjects are asked to divide an experimental endowment between binary choices of commonly used household items (e.g., between men's items vs. women's items). A 'lab shop' is set up for the experiment and if any of the decisions in A, B or C is chosen through the end-of-the-session lottery as the final pay-off for the household, participants can choose items from the 'lab shop' according to either their endowment choices they made earlier or a randomly chosen allocation from all possible allocations (which gives participants plausible deniability). Either way, depending on the round chosen (or a random alloation) for pay-off, participants are given tokens with a type of good (e.g., female items) and a Nigerian Naira amount written on it which they can show at the lab shop. Suppose, a female participant chooses to allocate 2,100 NGN for women's items and 400 NGN for men's items using a 2,500 NGN endowment (in **split**A) and this decision is chosen for final pay-off through the lottery at the end of the session (i.e., a white ball numbered '1' is randomly drawn in the lottery). Assume, further, that her own decision is chosen instead of a random allocation (i.e., 'secret-keeping' option is not selected in the lottery). Then, the female participant gets a token for "Men's items" with 400 NGN written on it and another token for "Women's items" with 2,100 NGN written on it. Since, the female round is chosen, the wife is given the tokens. The subject can herself visit the 'lab shop' with the tokens, she can go together with her husband. An example script for this round (**split**A) is: "For this decision round, you are given 2,500 NGN [Enumerator: Please, give participant the cash prompts]. You will need to decide how much you want to spend for items in Picture A vs. items in Picture B. The items in Picture A and Picture B are ... [Enumerator: Please, describe the items]. As you can see, these items are also displayed in the middle of the room. These are just sample items. Varieties/options in fashion and color are available in the shop we have set up outside. You will need to make a decision NOW on how much to spend. You can decide LATER which items you want to pick. [Enumerators: Please use two envelopes: one envelope for "Items in A" which you put near picture A and the other envelope for "Items in B" which you put near picture B] Remember that this decision is private. No one else, including your spouse, will know what your exact decision is. This is because of the "secret-keeping" choice explained earlier. How much of this 2,500 NGN will you spend for items in A vs. items in B?"

The scripts for **split**B, **split**C and **resplit**A are similar to above. For **split**D, participants allocate 2,500 Naira between themselves and their spouses. While for **resplit**D, participants split 2,100 Naira between themselves and their spouse. The script for **split**D is provided

below: "For this decision round, you are given 2,500 NGN. [Enumerator: Please, give participant the cash prompts]. You will need to decide how much you want to keep for yourself and how much you would like to give to your spouse? [Enumerators: Please put two envelopes in front of the participant] Please use these two envelopes. One envelope, the one near you, is for "Yourself" while the other envelope is for "Your Spouse". Remember that this decision is private. No one else, including your spouse, will know what your exact decision is. This is because of the "secret-keeping" choice explained earlier." The script for **resplit**D is similar to above (the only difference being a 2,100 Naira endowment). As indicated in the script, irrespective of the secret/no-secret treatment status of an experimental session, all decisions in this round remain shrouded.

C.3.2 Block 2 - *Choosing whether to allow one's spouse to make the decision instead of making one's own [defer]*

For each of the different decision domains from Block 1, participants are reminded of their previous allocation choice (**split** and **resplit**) and that their spouse made a similar decision in another room. Participants are then told that - for this new decision - they can now choose whether they would like to use their previous choice, or change their choice to their spouse's choice (i.e., whether they would like to defer to their spouse's choice or not). In Block 2, the deferral decision for the different domains will be elicited in the same order as the original preference decisions. The script for the "Secret" Treatment is:

"Recall the decision that you made earlier on _____. Your spouse has also been asked to make the same decision in the other room. You can choose to either: (a) use the choice you made earlier or (b) change your choice to your spouse's choice Put the matchbox on the envelop near you to suggest that you will use the choice you made earlier. Put the matchbox on the envelop away from you to suggest that you will change your decision to your spouse's choice. [Enumerator, please show the experimental subject the two envelopes representing each of the two choices. Placing the matchbox on one of the envelopes, represents making a particular choice. At no point should the subject relay his/her response verbally] This round is represented by this white ball with a number [Enumerator, please mention number] on it that I am putting in this basket. At the end of the session today, if this ball is picked from the bag, then your decision now may determine the final pay-off. For example, if you decide to use your spouse's choice then your spouse's choice will be chosen as your household's final pay-off. Otherwise, your previous choice will be chosen as your household's final pay-off.

However, you can also get the "Secret-keeping" choice. Thus, from this decision, your spouse will not know whether you used your own choice or his choice."

The script for the "No-Secret" Treatment will have the following line, instead of the last line in the "Secret" Treatment script:

"If this round is selected, your spouse will be told whether you decided to use your earlier choice or your spouse's choice. However, your earlier allocation choice on how to divide the money will still remain private/secret, due to "secret-keeping" option."

C.3.3 Block 4 *Communicating preferences, consulting over preferences and revising decisions [communicate, consult, revise]*

Communicate For each of the decision domains B-D, participants are asked to communicate their preferences to their spouse for the different allocation decisions he or she would be making again. The script for this round will be:

"Remember the previous decision in which you were given 2,500 Naira to divide between _____. [Show the pictures and describe some of the items to remind her].

Your spouse is going to make a similar decision again, in the other room. We are going to pass on information about what you choose now to your spouse BEFORE he/she makes the decision.

Since this decision that your spouse will make, can be chosen at the end for your household, you should think about what choice you would like your spouse to see, BEFORE he/she makes the decision.

For the purposes of showing to your spouse, how much of this 2,500 NGN will you put for Items in Picture B (women's items) vs. Items in Picture C (everyone's items) ?

You made the following allocation earlier, which you can pass on to your spouse: _____. Or, you can decide to send him/her a different choice. _____" [Enumerator, please use cash prompts and envelopes to collect information on their communication for their spouse. No verbal communication, please.]

While the above is a script for **communicateC** (i.e., for decision domain C), it is similar for the other domains. Irrespective of the secret/no-secret treatment status of an experimental session, none of decisions in this **communicate**B-D is shrouded.

Consult For each decision domain B through D, participants are asked whether they would like to use their previous decision (in **split**A-D) as the final decision in this new round, or whether they would like to see their spouse's communication before making the decision. The script for this round is:

"Recall the decision that you made earlier on _____. You made the following allocation: _____. Your spouse has also been asked to make the same decision in the other room. You can choose to either: (a) still use the choice you made earlier or (b) see your spouse's choice before making the choice again."

For "Secret" Treatment, the following line is added: "No one will know exactly what your decision is going to be. This means that your spouse will not know if you decide to see your spouse's choice before making the choice again." The "No-Secret" Treatment will have the following line added: "If this round is selected, your spouse will be told whether you decided to see her choice or not before making the final decision. However, your earlier allocation choice still remains private and secret. "

Revise: For each of the decision domains B-D, participants are informed of their spouse's communication and were given the option to redo each of the decisions or keep their original decision. Participants are reminded what their original decision was as well as the communication choice from spouse. The script for this round is:

" Remember the previous decision in which you were given 2,500 Naira. You decided how much you want to spend on items in Picture B (Women's items) vs. items in Picture C (everyone's items).

Earlier you chose: [see automatic prompt on SurveyCTO] for women's items ____ and ____

for everyone's items. [Enumerator: Please show the pictures and rearrange the cash prompts to remind own decision].

Your spouse in the other room has also made a choice he/she shared with you which is ____. [use cash prompt]

How much of this 2,500 Naira will you put for Items in B (women's items) vs. Items in C (everyone's items)?"

For "Secret" Treatment, the following line is added: "This round is represented by this white ball with a number [Enumerator, please mention number] on it that I am putting in this basket. At the end of the session today, if this ball is picked from the bag, then your decision now may determine the final pay-off. For example, if you decide to use your spouse's choice then your spouse's choice will be chosen as your household's final pay-off. Otherwise, your previous or a new choice will be chosen as your household's final pay-off. However, you can also get the "Secret-keeping" choice. Thus, from this decision, your spouse will not know whether you used your own choice or his choice."

The "No-Secret" Treatment will have the following line added: "If this round is selected, your spouse will be told what your choice was. However, your earlier allocation choice still remains private and secret. "

While the above is a script for **reviseC** (i.e., for decision domain C), it is similar for the other domains. Also, note that **communicate-consult-revise** is jointly implemented if chosen in the final lottery.

C.3.4 Block 5 - *Food and drink choices* [deferF]

We identified popular food and drink items in the study area which have similar market prices. For drinks, subjects has a choice between a plastic cup of Coke or Fanta, valued locally at around 150 NGN. For food, two different types of cookies are be offered, again of similar market prices. Subjects are asked to choose which food and drink pair he/she wants to consume in the experimental session. It is explained that he/she can only have it before the session ends and is not be allowed to take the food and drink outside. The script is as follows:

"You will now be offered to taste and then consume within the session, a food and a drink item from several options. At any point of this round, you can refuse to taste or consume the items you are being offered.

We have two types of drinks available for you, i.e., Coke and Fanta, with the same market price. We also have two types of cookies available for you, all valued locally at the same price.

You must drink and eat these items here. You cannot take them outside.

- Which drink do you want to consume?
- Which food do you want to consume?
- Which drink do you want your spouse to consume?
- Which food do you want your spouse to consume?

You made a decision on the food and drink you want to consume. We have also asked your spouse to select a food and drink for you to consume. You can choose to either: (a) use the choice you made earlier or (b) change your choice to your spouse's choice.

Put the matchbox on the envelop near you to suggest that you will use the choice you made earlier. Put the matchbox on the envelop away from you to suggest that you will change your decision to your spouse's choice. [Enumerator, please show the experimental subject the two envelopes representing each of the two choices. Placing the matchbox on one of the envelopes, represents making a particular choice. At no point should the subject relay his/her response verbally]"

For "Secret" Treatment, the following line is added: "Your spouse will not know whether you used your own choice or decided to consume what your husband chose for you. " The "No-Secret" Treatment will have the following line added: "Your spouse will be told at the end of today' session whether you used your own choice or decided to consume what your husband chose for you. "

Note that for some sessions, the cost of deferring this decision-making to spouse was lowered by offering half the amount for choice (a). In other words, subject's choice was between "(a) use the choice you made earlier but you have only half a glass of drink and one cookie you choose or (b) change your choice to your spouse's choice - you get to consume full glass of juice and two cookies."

C.3.5 Block 6 - *Allocating inputs across two production functions* [efficiency]

The focus of this block is not consumption but production. Subjects are asked to pick one of four possible input allocations between themselves and their spouse, where each input allocation maps into a cash income for themselves and a cash income for the spouse. The script is below:

[Supervisor: please explain this round after enumerators place the four pictures related to this round before subjects, along with cash prompts in front of each picture]

"In this scenario, you have an income generating activity and your spouse also has an income generating activity, both of which involve production using an input. The income generating activity can be production of a crop, for example. Examples of input can be manure or fertilizer needed for the income-generating production activity.

You are now given 10 units of input (shown as green balls in the pictures in front of you) that you can divide between your own income-generating production activity and your spouse's income-generating production activity.

The four pictures in front of you are four possible ways to divide the 10 units of input between yourself and your spouse. The different ways of dividing the input can produce different income amounts for yourself and your spouse, as well as the total household income, as can be seen through the cash prompts under each picture.

You must choose one picture. If this round is chosen for pay-off, you and your spouse will likely receive income in the way it is explained in the pictures and the cash-prompts under each picture.

[In "SECRET" room, please mention: "Because of "secret-keeping" option, no one will know what decision you will make now. So, your decision will remain completely private from anyone else, including your spouse.]

[In "NO SECRET" room, please mention: "If this round is selected as final pay-off, your spouse will be told the decision that you will make."]"

Note that subjects answer two versions of the game. Each game has an efficient choice that maximizes the total income of the household. In Game 1, the efficient choice implies less output is assigned to self and in Game 2, the efficient outcome assigns less to the spouse. For each version of the game, subjects are shown pictures for the different input/output scenarios as shown in the table in Section 2.3. Given that there are four potential scenarios, participants are presented with a set of four illustrative images from which they are expected to select one. One of the four images is shown in Figure C2. Cash prompts are put on top of each image so that subjects understand the potential pay-off/output in each scenario.

Figure C2: Production game prompt

Figure C3: Women's Items Prompt: typical women's items

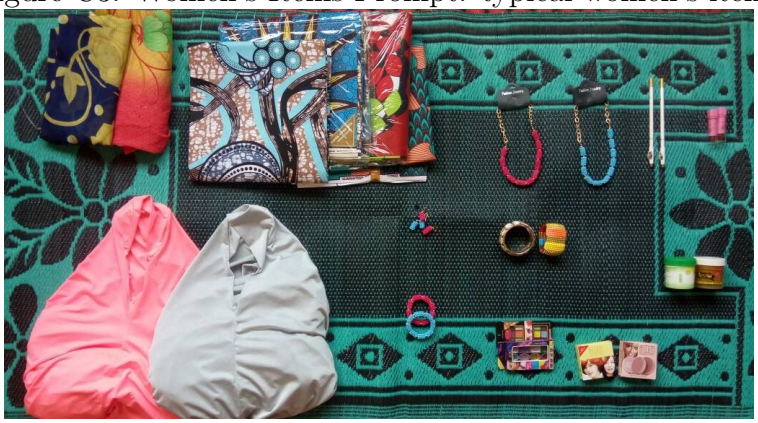
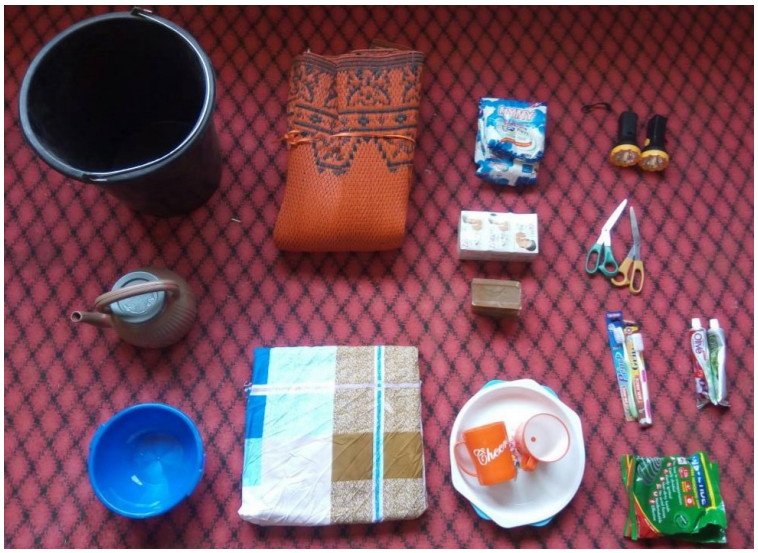


Figure C4: Men's Items Prompt: typical men's items

Figure C5: Household Items Prompt: example of typical household items available in the shop



C.4 Allocation selection and shrouding

At the end of the experiment, the enumerator determines the cash or voucher allocation that is given to each couple, partly determined by the choices made by both spouses in Blocks 1 to 4 and Block 6, but also shrouded for secrecy. In order that subjects understand how their decisions are implemented (and therefore their incentives) the following process was demonstrated to all subjects before any decisions were made.

The enumerator starts by drawing a ball indicating whether it is the choices of the wife or husband that will be implemented. The enumerator then draws a ball from a bag that contains one ball for each of the relevant decisions made by subjects, namely: four **split** balls and two **resplit** balls from Block 1; four **defer** balls from Block 2; two balls for **defercost** and one for **deferbenefit** from Block 3; three **revise**B-D balls from Block 4; and two efficiency balls from Block 6 (one for each game) — in total, 18 balls. If a ball is drawn from Block 1 or Block 4, the allocation made by the subject is selected for implementation. When the subject chooses to defer in Block 2 or Block 3, the selected allocation is the corresponding choice made by the spouse in Block1.[4]

After an allocation has been selected for a couple, it is *shrouded* as follows. If the selected decision is **split**, the experimenter randomly draws a number x between 0 and 2500 in 100 Naira increments. This number determines the allocation going to the first option in **split** and 2500-x is allocated to the second option. If the decision is **resplit**, the process is the same but the randomly drawn number x ranges from 0 to 2100. The experimenter then puts two envelopes in a box and randomly draws one of them. One envelope contains the subject's choice selected as indicated in the previous paragraph; the second envelope contains the random allocation implied by the randomly drawn number x. This implies that the spouse whose choices are not selected cannot infer with certainty the choice made by his or her

[4]For instance, if the subject does not defer in Block 2, the selected allocation is their own **split** choice from Block 1; if the subject defers, the selected allocation is the **split** choice of their spouse from Block 1.

spouse, ensuring credible deniability.

If the selected allocation is in the cash domain D or Block 6, each spouse is given their assigned monetary amount separately, *but not privately*. This is explained to all subjects at the beginning of the experiment. For selected allocations in domains A, B, and C, couples are brought together and are given the corresponding stall-specific tokens for items they can purchase from the lab. We make no attempt to influence couple's choices of items within each stall — i.e., a husband can impose his selection of female goods or let his wife choose.

For Block 5, subjects who do not defer, receive the food and drink of their choice and those who defer, receive the food and drink chosen for them by their spouse. If a subject chooses to not defer and there is a cost for retaining own choice, they only receive one cookie and half a glass of the selection they made earlier for themselves.

We divided the sessions equally (by random selection) into a secret treatment and a no-secret treatment. Block 1 is identical in both treatments, in that we continue to shroud the **split** and **resplit** decisions made in Block 1 to ensure credible deniability.

In Blocks 2 and 3, in the no-secret condition, subjects are told that their *deferral* decisions will be revealed to their spouse. If at the end of the experiment the experimenter draws a ball for Block 2 or 3 for subject i, the spouse of subject i is told *whether* i deferred the decision to the spouse in that game. The chosen allocation, however, remains shrouded as before, i.e., by using two envelopes as explained in the previous sub-section. The only revealed deferral decision is that for the chosen subject in the chosen domain and Block. This means that each deferral decision is fully incentivized in the sense that, in the no-secret treatment, it is disclosed to the spouse with strictly positive probability.

Block 4 is where the difference between the secret and no-secret treatments is the largest. In the no-secret treatment, there is no random selection of two envelopes. If Block 4 is selected for subject i at the end of the session, i's spouse is first told whether i chose to consult the spouse's communicated choice (**communicate**B-D) and is then told i's revised allocation **revise**. Given that the spouse knows his or her own communicated allocation (**communicate**B-D), this enables the spouse to observe how closely subject i accommodates these communicated preferences. The spouse, however, is *not* told whether subject i modified his or her allocation after seeing the spouse's communicated preferred allocation (**communicate**B-D). Consequently, the spouse cannot determine whether i's **revise** choice is identical to — or different from — i's secret preferences **split** revealed in Block1. Hence the secrecy of i's **split** allocation to the spouse is maintained. All this is made clear to subjects, i.e., in the no-secret treatment each subject is told that the decisions **consult**B-D and **revise**B-D that they make for domain j in Block 4 will be revealed to their spouse if the selected ball corresponds to domain j in Block 4.

In Block 5, with food and drink, the decision to defer is revealed to the spouse in the no-secret treatment, and never revealed in the secret treatment. In both treatments, subjects only learn what their spouse chose for them if they defer, but the selected food and drink are still consumed in private.

In Block 6, the input allocation is revealed in the no-secret treatment but not in the secret treatment.