

Agency and Female Entrepreneurs: Evidence from a field experiment in Pakistan*

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Abstract

We investigate the role of social and intra-household norms in women's decision to hide money from their male household members by conducting laboratory experiments in the field. The sample comprises of female microfinance clients in urban and peri-urban areas of Punjab, Pakistan, participating in an RCT for microenterprise start-ups, and their spouses or male relatives. Despite access to finance and training, less than 15% of these women had started a business one year later. A wide range of activities, such as taking a loan or investing in a business, can be restricted if women fear appropriation of resources by household members, as they may prefer concealing or spending them on items that are not as easy to monitor. We find that hiding within the laboratory games is positively correlated with women's sense of entitlement over their own earnings and with their male household members' lack of respect over their earned property, and negatively correlated with their agency within the household. Finally, we find that these dimensions of female empowerment are positively influenced by women's experiences outside the household, namely by their treatment status (receiving a loan) within the RCT.

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1 Introduction

Household decisions are the result of individual members' preferences and social norms regulating appropriate behaviour, which may differ along gender or other dimensions. When there is disagreement or imperfect information sharing between household members, the efficiency of household decision-making is lower than that resulting from cooperative decision processes. While most models of intra-household decision making assume that bargaining occurs between household members who have perfect information and the resulting intra-household bargaining is efficient (Chiappori, 1992; Browning and Chiappori, 1998), a large body of empirical evidence has documented the presence of pareto inefficiencies in household allocations and imperfect information between members (Goldstein and Udry, 1999; Udry, 1996).

Hiding is an expression of such information asymmetries and resulting inefficiencies. Studies demonstrate that spouses are willing to incur costs to maintain control over resources (Castilla and Walker, 2013; Hoel, 2015). This makes sense particularly when a person's bargaining power within the household is so low, that any resource she is known to own is subject to appropriation. Allocating unobservable income towards goods difficult to observe can take many forms. However, unlike hiding of earnings provided in a controlled experiment setting, getting a loan or investing money in a business is likely to make resources visible to other household members. Women may refrain from such easy to observe activities to avoid capture of their resources.

Existing literature shows the limited impact of programs aimed at fostering female entrepreneurship and suggests a link between appropriation of female resources and women's business outcomes. The impact of microcredit on female business creation and profits is found to be limited. In measuring the impact of a group-lending programme in Hyderabad, India, Duflo et al. (2013) find that fifteen to eighteen months later, profits of pre-existing businesses had increased but access to finance lead to an insignificant number of females starting their own enterprise. Similar results are found in Mexico (Angelucci et al., 2015), Mongolia (Attanasio et al., 2015), Morocco (Crepon et al., 2015), Ethiopia (Tarozzi et al., 2014) and in Bosnia and Herzegovina (Augsburg et al., 2015). de Mel et al. (2009) and de Mel et al. (2012) find that the same microenterprise support program in Sri Lanka

had a lower impact on female than male-owned businesses, but that male and female business outcomes similar in more 'cooperative' households, where the women were also involved in household decision making. [Ngo and Wahhaj \(2011\)](#) also show that the empowerment enhancing potential of a loan provided to a woman depends on whether her spouse has an incentive to capture her resources for personal or household use. Capture is less likely to happen if the woman has an autonomous activity and her spouse does not have an alternate activity that can provide comparable returns.

In this study, we ask two main questions. First, we investigate how individual, household and social preferences and norms affect hiding within the laboratory. We conduct behavioural games with men and women from the same household, where we collect measures of hiding, entitlement over one's earned income, and social and intra-household norms on female agency. We combine these data with survey questions on women's decision making autonomy within the household, and examine how hiding is influenced by these experimental and survey measures of empowerment.

Second, we ask how women's experiences shape these preferences and norms. We exploit the fact that our sample is drawn from women who were part of a randomised control trial (RCT) on microenterprise start-ups. In order to apply for the loan, each applicant had to present a business plan for a new enterprise where they would oversee and be largely responsible for management and production. The RCT selected half of these women to receive funding and training for enterprise development. Consistent with other findings in the microfinance literature, less than 15% of the women had set up their own enterprise one year later, despite access to finance and training. We explore whether being treated has an effect on experimental and survey measures of empowerment.

The research was conducted in Pakistan - an ideal setting to study how gender-specific norms and preferences affect intra-household decisions. Social and cultural norms affect women's role in society and often confine them to serve as caregivers inside the home ([Zaman et al., 2006](#)). Some would argue the society and requirements of *purdah* frown upon women engaging in work outside the home. Abuse and violence against women within the domain of the household is not unheard of due to cultural norms and legal oversight ([Bari and Pal, 2000](#); [Rabbani et al., 2008](#); [Ali and Gavino, 2008](#)). Norms of behaviour can be enforced by peer pressure or fear of condemnation or through

internalized shame or guilt over a broken social rule. When these standards are enforced, they can also limit the discretion females have, for instance, over taking loans or investing resources in a business activity (Ginè et al., 2011). As a result, women in this setting can be discouraged from pursuing ownership of resources when they cannot be protected from appropriation.

Labour market data gives us a sense of the limiting role that gender norms may be playing. In a country with already low labour force participation,¹ female participation rates are one-third that of males at 22%. The disparity between male and female participation is greater in paid employment (13% amongst females vs. 43% amongst males) and formal microenterprises (19% amongst females vs. 41% amongst males). In the informal sector, gender ratios are more equitable (albeit low) at 38% for females and 42% for males. This may be explained by the fact that informal businesses typically consist of home-based production, a more socially acceptable and easier to monitor income generating activity for women than employment outside the home.

We find that hiding of income within the laboratory by women is correlated with their level of empowerment, measured by women's feeling of entitlement over earned resources, their decision autonomy within the household and their partners' respect for their earned property. These dimensions of female empowerment are positively influenced by treatment status in the microfinance RCT. That is, within a sample of women who applied for and were found eligible to receive a loan, those who were randomly selected to receive funding and training for developing their business are more empowered one year later. Instrumental variable analysis suggests this improvement to be driven by women who start a business as a result of the program.

Our results are consistent with a growing literature using experimental games and field experiments to study efficiency of intra-household decision making. Beside the studies cited above, other experiments testing the prediction of Pareto-efficient allocations made by unitary and bargaining models of the household reject such predictions because they find that household members are willing to

¹ Pakistan has had a long-standing trend of low labour participation rate - the national rate of active labour participation stands at a little less than 46%. All figures here are from the Labour Force Survey (LFS) 2013 - 14 Annual Report, prepared by the Pakistan Bureau of Statistics. It is worth noting, the LFS employs a liberal definition of currently active - it includes all employed and unemployed individuals aged 10 and above, who are either looking for work or are involved in paid employment, trade of good and services at the market, for own-consumption or for barter.

sacrifice efficiency in order to gain or maintain control over resources (Castilla, 2014; Kebede et al., 2013; Popov et al., 2008; Munro et al., 2008, 2014). Inefficiency is also correlated with individual preferences over gender-specific consumption items, such as tobacco and alcohol (Castilla, 2015). Results on information asymmetries demonstrate that spouses frequently hide resources from each other, and that hiding is correlated with individual control over household spending (Ashraf, 2009; Castilla and Walker, 2013; Castilla, 2015; Hoel, 2015), and social norms (Kebede et al., 2013). We contribute to this literature by investigating the correlation between hiding and novel measures of empowerment and social norms, as well as by showing how women's experiences, in terms of access to finance and training, affect empowerment.

We also contribute to a small literature that combines laboratory and field or natural experiments to show causal impact on preferences and norms that cannot be easily measured outside of the laboratory (Jakiela and Ozier, 2015; Burns et al., 2015; Fisman et al., 2015). In particular, (Jakiela, 2015) study how respect for earned property, measured through behavioural games similar to the ones we conduct in our study, is influenced by human capital. Exogenous variation in human capital within the sample is provided by treatment status in an RCT aimed at improving individuals' academic achievement. To the best of our knowledge, ours is the first study combining an RCT targeted at encouraging female microenterprise start-ups and laboratory games to examine causal impact of finance and training on women's tendency to hide income from their spouses.

In the remainder of the paper, we sketch a theoretical framework to think of hiding behaviour within the household (Section 2). We then describe the setting, RCT, and the design and implementation of the laboratory experiment (Section 3). We provide descriptive statistics of the sample and discuss the results in Section 4 and then conclude (Section 5).

2 Conceptual framework

We present here a simple conceptual framework underlying our analysis. We start from the standard utility model of intra-household allocation by Chiappori (1997) and the collective bargaining model

tested by [Castilla \(2014\)](#).

Consider a two-member household, with wife f , and her husband, m .² Men and women earn income I_m and I_f , respectively. Under the standard assumptions, this income is known to both men and women. They consume one household public good, Q and private goods, x_i , that are non-rival in utility. Assume that prices of public and private goods have been normalised to p and 1, respectively and the individual utility function, U_i , is separable in x_i and Q such that for $i = f, m$:

$$U_i = U(Q, x_i) = u_i(x_i) + v(Q) \quad (1)$$

where $u' > 0, v' > 0, u'' < 0, v'' < 0, u'(0) = \infty$ and $v'(0) = \infty$. Suppose now that spouse f has additional endowment E that is not known to m unless f informs him about it.³ Then according to [Chiappori \(1997\)](#), the Pareto-efficient outcome can be represented as the following social welfare problem:

$$\max_x \theta U_f(Q, x_f) + (1 - \theta)U_m(Q, x_m) \text{ subject to } (x_f + x_m + pQ) = Y \equiv I_m + I_f + E \quad (2)$$

In a society where females are often the subordinate members of the household, as is the case in Pakistan, a woman's bargaining power, θ , is a function of the outside options available to her. Theoretically, her bargaining power increases if she can demand support from parents and her relatives ([Bloch and Rao, 2002](#)), if customary divorce laws are favourable to women ([Dercon and Krishnan, 2000](#)), if the distribution of income or household sharing rule is skewed towards women ([Browning et al., 2006, 2013](#)) and if there is symmetric information between household members ([Chen, 2012](#)). [Browning et al. \(2014\)](#) define the bargaining power of a spouse as a function of relative income and distributional factors, z , such as cultural and household norms regarding the role of the spouse:

$$\theta = \theta(I_f, I_m, z, E) \text{ for spouse } f \text{ and} \quad (3)$$

$$(1 - \theta) = (1 - \theta(I_f, I_m, z, E)) \text{ for spouse } m \quad (4)$$

² This framework can be extended to other members of the household e.g. household head and an unmarried female.

³ We also assume that m does not incur monitoring costs to find out about such endowments.

Then the household welfare maximisation problem in equation (2) becomes:

$$\max_{Q, x_f \geq 0} \theta(I_f, I_m, z, E)\{u(x_f) + v(Q)\} + (1 - \theta(I_f, I_m, z, E))\{u(I_f + I_m + E - x_f - pQ) + v(Q)\} \quad (5)$$

Based on household and cultural factors, represented by z , the subordinate spouse, f , may face pressures from household members to share E with the rest of the household, i.e. funds may be captured and spent on investment or consumption that benefits the household or individual members, rather than on items that reflect the woman's preferences, such as investment in her own business. For example, if a husband finds out that his wife has extra financial resources, he can veto the wife's decision to use them as she wants, expropriate them or direct them to use by the household. The threat of capture can explain why female-run enterprises may not benefit from availability of funding, unless the female hides her extra resources (Ashraf, 2009).

In terms of the bargaining model shown in equation (5), hiding additional endowment E in response to potential capture is more likely for women who lack sufficient bargaining power at home. Castilla (2014) posits the existence of a threshold change in bargaining power, $\Delta\bar{\theta}$ such that for any $\frac{\partial\theta}{\partial E} < \Delta\bar{\theta}$, the marginal utility from from hiding E exceed the marginal utility from revealing E . Conversely, if E is revealed to the household then the marginal utility from revealing exceeds the marginal utility to be had from hiding E and the following holds:

$$\begin{aligned} \frac{\partial x_f}{\partial E} &> 0 \\ \frac{\partial x_m}{\partial E} &< 0 \\ \frac{\partial Q}{\partial E} &> 0 \end{aligned} \quad (6)$$

In contrast, when E is kept private from the household:

$$\begin{aligned} \frac{\partial x_f}{\partial E} &> 0 \\ \frac{\partial x_m}{\partial E} &= 0 \\ \frac{\partial Q}{\partial E} &= 0 \end{aligned} \quad (7)$$

Equation (7) shows that hiding in itself may lead to inefficient outcomes - the consumption of

public good is unambiguously lower when E is hidden.⁴ Moreover, captured funds may be directed to other more profitable businesses owned by the household (Kazianga and Wahhaj, 2015), so that total household income may increase as a result of capture. Hiding prevents this from happening and can strictly benefit the woman and not necessarily the household through public goods.

We hypothesize that individuals who lack bargaining power are more likely to fear capture and, therefore, more likely to hide additional resources. Decisions like obtaining a loan, starting a business and investing in it are hard to conceal from family members. Women whose resources are frequently captured by other household members are thus less likely to invest their resources in setting up enterprises, either because whatever resource they obtain gets captured, or because they decide to hide their resources or spend them in ways that are not as easy to monitor. We measure hiding by comparing the share of endowment participants allocate to self when the allocation is revealed to a household member and when the allocation is kept private or anonymous. In the context of this study, we expect women who are less empowered to be more likely to hide their experimental earnings.

Furthermore, we use data from behavioural games and survey questions to generate indicators of female and household preferences, intra-household and social norms that we expect to be correlated with hiding. These include awareness of one's right over one's own earned resources, decision autonomy within the household, and a surrounding social and cultural environment favourable to female agency. We discuss each of these in turn next.

First, we expect participants to exhibit greater entitlement over an income that they have earned (EI) than over unearned money (UEI) that has been provided to them. Fahr and Irlenbusch (2000) call this the 'earned property rights' effects. Although women may feel entitled to have greater control over their earned resources, they may nevertheless not be granted control by their house-

⁴ We assume that θ is an increasing function of E . If E increases when it is revealed, then for the increase in relative bargaining power of the female and the decreasing bargaining power of the male translates into an increase in x_f and a decrease in x_m . This is not the case when the male can expropriate E . However, equation (6) only discusses the case when marginal utility from revealing exceeds that from hiding. In addition, by construction, when E is hidden, it cannot be used on goods for household consumption that are by definition observable and therefore Q is unaffected by E . In this case, the household consists of just the male and his spouse, but we can extend this to include more members, for instance, children. Q includes observable spending on children and such expenditures will not be made out of E if the female wishes to hide this additional endowment.

hold members. In such situations, women may have a pent-up demand for agency and resentment over not being given decision power that they may wish to express within the relatively safe and innocuous setting of the experiment. These women would also be more likely to hide to be able to exercise control over resources that would otherwise be captured. On the other hand, women may have internalised their lack of agency, and not feel entitled to their earnings. If this were the case, then we would expect women who are more aware of their rights, i.e. more likely to exert control over their earnings within the experiment to be also less fearful of capture, and thus less likely to hide.

While we expect a significant correlation between hiding and feelings of entitlement over earned property, we cannot a priori predict the sign of such correlation. We thus test whether pent-up demand for agency or internalised lack of agency drive the sign of the correlation between hiding and entitlement over earned property. This is predicted to be positive under the former hypothesis, and negative under the latter. We define entitlement as the difference in share of an endowment that participants allocate to self (s_i) when the endowment has been earned by them and when it is a windfall. That is, we define entitlement over earned property as:

$$Entitled = I_E = \begin{cases} 1 & s_{EI,i} - s_{UEI,i} > 0 \\ 0 & otherwise \end{cases}$$

Second, we expect that vulnerability to capture will result in higher rates of hiding. We assume that individuals who face capture in intra-household decisions will face it in the context of the experiment as well, and thus construct a variable to proxy an individual's respect for his or her partner's earned property. Namely, we compute the difference between the amount partner s_j allocates to self from partner's earnings (EH) versus his or her own earning (EI):

$$Low\ respect = I_{LR} = \begin{cases} 1 & s_{EH,j} - s_{EI,j} > 0 \\ 0 & otherwise \end{cases}$$

We interpret allocating more to self when taking than giving as a sign of low respect for the partner's

earned property and expect this to be positively correlated with hiding by individual *i*.

Third, we expect hiding to be negatively correlated with an individual's agency within the household. The more a woman has a say over household outcomes and control over her life, the less likely she is to fear capture and thus feel the need for hiding. We measure agency by combining two pieces of information. First, survey questions on the autonomy granted to a woman when making a series of decisions, ranging from choices over small purchases, social visits or healthcare, to the decision to make an investment or get a loan. We count the number of decisions, which the woman reports taking on her own, with no need for consultation with or permission from other household members. Second, we exploit questions on whether women are getting an education or seeking employment outside the home and the reasons why they are not. We generate an indicator variable for women who claim they are not seeking employment outside the home because they are not allowed to by the household head. We construct an index from these two variables, and test in the analysis its correlation with hiding.

Fourth, we expect hiding to be also affected by the social perception of independent decision making by women, both within and outside the household. If, for instance, a woman knows that she will face disapproval, criticism and possibly sanctions if she takes decisions without consulting her spouse or other household members, she may be more reluctant to disclose any resources she wants to control. Even if retaliation is not a possibility, individuals may choose to give up agency if they feel society regards this as a measure of good moral character.⁵ We distinguish between norms within and outside the household. We expect the former, through their influence on intra-household decision making, to affect hiding from spouses and household members. Social norms outside the household may not only influence interactions with strangers, but also affect household members' reaction to women's desire for autonomy. Even though an individual may have liberal views on female agency, he may still forbid it on the grounds that it would attract social disapproval on the family. We capture social norms using the methodology introduced by [Krupka and Weber \(2013\)](#). This entails

⁵ It is also possible that individuals have no desire for agency at all. This may be because they have no desire for the responsibility that comes with taking such decisions. We do not explicitly measure if the lack of agency within the experiment stems from low demand for it or from a fear of retaliation if agency is exhibited, but we recognize the importance of this distinction.

asking subjects how socially appropriate it would be for a woman to make an autonomous decision concerning her own business, and incentivising subjects to match the answer of another person. Intra-household and social norms are elicited by incentivising subjects to match the spouse or a stranger's answer, respectively.

Finally, it is possible that hiding behaviour is also affected by more general preferences for risk. In order to control for risk loving behaviour within the experiment, we elicit risk aversion and control for it when analysing results.

All the factors discussed above, which we expect to be correlated with hiding, are likely to be influenced by access to finance and business training. Having access to resources and information on successful business practices may increase women's awareness of their rights over their earned property, increase women's bargaining power within the household and thus their decision autonomy. This may as a result reduce the tendency of other household members to appropriate a woman's resources and relax negative perceptions of social norms on female agency. In the analysis, we will thus also examine the effect of treatment on the different measures of empowerment identified here as correlated with hiding behaviour.

This section has sketched a framework to structure our thoughts on hiding and on its potential determinants. Next, we describe in more detail the experimental protocol that we used to elicit them.

3 Experiment setting and design

3.1 Setting and implementation

The experiment sample was drawn from a pool of women participating in a RCT. The RCT was conducted in collaboration with Kashf Foundation and involved enterprise loans provided to women for setting up a new business. The loan size was between PKR 10,000 and 30,000 (\$1,000 - \$3,000), to be repaid over a 12 month period. To be eligible for the loan, applicants had to present

a plan for a business that would be run and managed by themselves. Local Kashf branch staff evaluated viability of the business plan and determined if the applicant is eligible for the loan. Eligible applicants were then randomly assigned to receive the loan and training by the researchers. Out of a total RCT sample of 689 women, 353 were assigned to the treated group. Every member of the treatment group was provided a three hour long training consisted of planning, finance and marketing in the month of loan disbursement. Both treatment and control groups members were surveyed approximately one-year after the product was offered to study the short to medium-term impact of the product on outcome variables. It was at the time of this survey that we also conducted the lab-in-field experiments.

The RCT was conducted in 13 Kashf branches across three districts of Punjab - Bahawalpur, Gujrat and Sialkot.⁶ The district of Bahawalpur, located in the south of Punjab, is one of the poorest performing districts in the province in terms of educational attainment (access, gender parity and enrollment). It is ranked 31st out of 36 districts in Punjab (Memon et al., 2014) in terms of educational attainment. Gujrat and Sialkot, located in the north of the province, perform relatively better in terms of educational attainment, ranked 19th and 13th, respectively (Memon et al., 2014). Average monthly household income in Gujrat, Bahawalpur and Sialkot are PKR 51,854 (\$520), PKR 30,294 (\$300) and PKR 29,110 (\$290), respectively.⁷ All branches are located in peri-urban areas and each branch caters only to the population that falls within its' specified, non-overlapping radius.

Our experiment sample consisted of 267 couples (female respondent plus a male member of the household) randomly selected from the RCT sample. Married respondents were invited along with their husbands. In case the respondent was unmarried or the husband did not live with the respondent (e.g. separated, migrant worker) we invited the main male decision maker in the household.⁸ 70.5% of the participants attended the sessions with their husband and 29.5% of the respondents attended with other male members of the household.

⁶ These were all the branches in the three districts that had been identified for roll out of the enterprise loan product as of the end of the design phase (March, 2014). Our sample includes 5 branches in Bahawalpur and 4 each in Gujrat and Sialkot.

⁷ Inflation adjusted estimates from PSLM 2010-11.

⁸ This individual was identified during the survey and invited at the same time as the female respondent.

Invited respondents were guaranteed PKR 1,000 (\$10) if they participated in all activities in the session. In addition, each participant could earn up to PKR 1,000 from his or her decisions in the activities. In keeping with the local norms as well as to avoid couples influencing each other, male and female sessions were held in separate rooms. However, activities were run simultaneously and no interaction was allowed between participants until a session was completed. Experiments were implemented using pen, paper and tokens representing currency notes. Participation fee and activity earnings were privately and individually paid at the end of each session.

Survey questionnaires administered to female applicants provide detailed information on the basic demographic composition of the household, assets, average monthly household income and expenditure, several dimensions of female decision-making, information on any loans taken by the household or recipient and the use microenterprise loan amounts were put to. A short questionnaire was also administered to the male participants at the end of each experiment session.

We consider two main measures of empowerment constructed from survey questions, as mentioned in section 2: the decision autonomy measure and the *not allowed to work outside the house* indicator. In the analysis, we construct an index of agency within the household from these two variables using principal component analysis⁹ The enumerators conducting the experiment sessions had a detailed script to follow, ensuring that the same instructions were provided at exactly the same times in all sessions. Appendix B provides the script that was followed.

3.2 Experimental design

Participants played a series of tasks: a public and a private round of the dictator game, a taking and a dictator game with earned endowments, a norm elicitation and a risk preferences elicitation task. Apart from the norm elicitation activity, which was always conducted last, the order of tasks and rounds within each task was randomised.¹⁰ At the end of the session, a random draw determined

⁹ Appendix D shows the full list of empowerment questions asked in the survey and describes how each proxy of empowerment used in the analysis is constructed.

¹⁰ The norms activity was always conducted last because it had the potential to reveal the goal of the experiment, and could influence decisions in other activities if conducted earlier.

which task would determine subjects' earnings. Appendix C provides a time line of the experiment sessions.

Participants were paired with an individual of the opposite gender for the dictator and taking games. Half of the participants in the session were randomly selected to be paired with their household member; the remainder were paired with a stranger. Partners were seated in separate rooms and could not observe each other's decisions. The difference of decisions made in household member and stranger pairings is a measure of whether, on average, individuals behave differently when paired with a household member than when paired with someone they had not interacted with outside the experiment. Moreover, the difference between household and stranger matching will reveal whether gender differences in behaviour are driven by intra-household norms or by more general social norms.

In the dictator activity, we provided each individual in a pair with an endowment of PKR 1000 and asked him or her to divide the money between him/herself and the partner. Either the subject or the partner's decision could be randomly selected to be implemented. Participants made this decision twice: in one case, subjects were informed before making the decision that their allocation would be revealed to their partner at the end of the session (public round); in the other case, subjects knew that their partner would not find out the exact share of the endowment allocated to each other (private round). To keep earnings hidden in the private round, we introduced uncertainty that would allow each participant to *plausibly deny* the exact amount allocated to the partner (as in Hoel (2015)) if confronted by their partner after the session. Participants were informed that the experimenter would either add or subtract an unspecified amount to the allocation they made to their partner. They were told that the amount had been set in advance by the researchers and was not known by anyone but the experiment assistant entering the data and calculating their winnings at the end of the session. A coin toss at the end of the session determined whether the amount would be added or subtracted; however, it was not revealed whether the outcome of the coin toss meant an amount had been added or subtracted to the allocations. Piloting reassured us that participants would consider this protocol sufficient for concealing the exact allocation made.

We used standard protocols, adapted to the local context, for taking and dictator games with earned endowments. Each individual conducted a simple sorting activity according to which he/she could earn an endowment of up to PKR 1000. The activity involved sorting black chickpeas from white chickpeas for two minutes.¹¹ In the taking game, participants decided how to divide their partners' earnings between themselves and the partners, while in the dictator game the decision concerned how much to give to the partners of their own earned endowments (List, 2007). In both cases, the strategy method was used: out of every possible sum earned through the sorting task - 0, 100, 200, up to 1000 PKR - subjects were asked how much they would take from, or give to, the partner in the taking and dictator game respectively.

The last activity of the session followed Krupka and Weber (2013)'s norms elicitation procedure. Specifically, respondents were told of a hypothetical situation where a female entrepreneur re-invests profits from her business without consulting her husband. Participants were asked to rank the appropriateness of this decision from 1 - 'very socially inappropriate' to 4 - 'very socially appropriate' (see Appendix B for details). Participants were paired with a partner and earned PKR 300 (\$3) each time their answer matched that of their counterpart in that round. This allowed us to elicit perceptions of *social* rather than personal norms. Three rounds of the activity were conducted, each corresponding to a different pairing. Participants were paired once with their household member, once with a stranger of the opposite gender and once with a stranger of the same gender. The comparison of appropriateness ratings across pairings will give us an indication of the relative perception of norms within and outside the household.

For the risk preference elicitation, we used the standard Binswanger (1980) lottery game design (based on options given in Barr et al. (2008) and Cameron and Shah (2015)). This activity involved presenting participants with 6 different options that represent 'low' or 'high' earnings events. The events were equally likely to occur (with 50% probability) under each option; however, the options were increasing in expected value and deviation between possible earnings. Table 1 lists the options

¹¹ Pre-testing of this activity provided us with the upper bound for chickpeas sorted. The endowment assigned to this upper bound was 1000 PKR, to ensure comparability with the tasks with unearned endowments. Then, we assigned a payoff to each possible range of outcomes: 0 PKR for output below 20 black chickpeas, 100 PKR for output between 20 and 35, 200 PKR for output between 35 and 50, and so on.

provided. A randomly drawn coloured ball ('red' or 'yellow') determined if low or high earning were realized.¹² Under this design, the selection of an option with a greater standard deviation represents lower levels of risk aversion (lower coefficient of relative risk aversion). In the analysis, we rank the six options from the least to the most risky, and proxy risk preferences with the option number chosen by the participant. For instance, choosing option 6 reveals lower risk aversion than choosing option 1.

Table 1: Options provided to participants in the risk aversion elicitation experiment

Choice	Low (PKR)	High (PKR)	Expected value	Deviation	CRRA
1	250	250	250	0	(7.51, ∞)
2	225	475	350	50	(1.74, 7.51)
3	200	600	400	80	(0.81, 1.74)
4	150	750	450	120	(0.32, 0.81)
5	50	950	500	180	(0, 0.32)
6	0	1000	500	200	(- ∞ , 0)

In the next section, we provide summary statistics for the survey and experimental variables described here, before discussing the main results.

4 Results

4.1 Descriptive statistics

Table 2 shows descriptive statistics for the female and male samples. Men are slightly younger than women: 16.5% of women who come with their sons and a lower share of men than women is married. Due to our recruitment strategy for the experiments, that is, randomly selecting RCT

¹² Given the literacy level and the cultural norms, the [Binswanger \(1980\)](#) design involves event probabilities that can be easily understood. Further, keeping religious norms in mind, we were able to avoid references to chance or gambling: for instance, drawing balls out of a bag, as opposed to tossing a coin, helped in removing association with gambling. None of the options involved a personal loss that could be incurred by participants.

participants to take part in the experiments, the RCT and experiment samples are balanced on observables. Appendix Table A1 reports summary statistics of the RCT sample.

Table 2: Descriptive statistics of the experiment sample

	Male		Female		Total		<i>p-value</i>
	Mean	Sd	Mean	Sd	Mean	Sd	
Age	36.32	(11.91)	37.20	(9.328)	36.76	(10.69)	0.341
Married	0.801	(0.400)	0.865	(0.342)	0.833	(0.373)	0.046
<i>Education</i>							
Illiterate	0.303	(0.461)	0.513	(0.501)	0.408	(0.492)	0.000
Primary	0.270	(0.445)	0.210	(0.408)	0.240	(0.427)	0.108
More than primary	0.225	(0.418)	0.210	(0.408)	0.217	(0.413)	0.664
<i>Occupation</i>							
Housewife	0.0112	(0.106)	0.479	(0.501)	0.245	(0.431)	0.000
Self-employed	0.0936	(0.292)	0.356	(0.480)	0.225	(0.418)	0.000
Labourer	0.539	(0.499)	0.0974	(0.297)	0.318	(0.466)	0.000
<i>Empowerment</i>							
Decide alone			4.85	(3.042)			
Not allowed work			0.165	(0.372)			

Respondents are married and 37 year old on average. Around 40% of participants are illiterate, 51.3% of women and 30.3% of men. As a result of using the RCT sample to recruit for the experiment, we obtain a sample where self employed women (36%) outnumber self employed men (9%) and the proportion of self employed women in the sample is higher than the national average (as discussed in section 1). On the other hand, the gender imbalance in paid employment is biased towards males: 53.9% of them are employed as daily labourers, against only 9.7% of women.

Table 2 also reports summary statistics for the two measures of empowerment constructed from survey answers described above. Out of nine types of decisions featured in the survey, women on average report to decide alone on average in 4.85 cases. 16.5% of women in the sample are forbidden by their spouse or household head to seek employment outside the home. In the analysis, we will take the principal component from these two indicators as our main proxy of female agency within the household, but will show that the results are robust to using the two variables independently in

Appendix A.

Table 3 presents summary statistics for decisions in each of the dictator and taking tasks, and indices constructed from these choices that will be used in the analysis. The first six columns of the table show the mean and standard deviation of each variable for men, women and the overall sample. In the last column, we report p-values of the female dummy's coefficient from a regression of each variable on gender and session fixed effects. For each variable, the rows report the overall means of the amounts kept for self and the standard deviation. These are then broken down by matching treatment to give a sense of differences in behaviour in these tasks when subjects were matched with a stranger or with a household member.

In the public dictator game (*Public DG*), subjects on average keep just below half of the unearned endowment. The amount kept is higher when matched with strangers. Women keep more on average, and the difference between men and women is largest in the partner matching, due to men keeping on average less than 400 PKR. A similar overall allocation pattern can be observed in the private dictator game (*Private DG*). This gender difference in behaviour is consistent with results from similar games in the literature (Castilla, 2015; Hoel, 2015), where women are found to transfer less to their spouses than men. In Castilla (2015), the amount sent to spouses in a trust game is found to be negatively correlated with women's control over household expenses and prior non-cooperative behaviour of husbands.

In spite of these differences in amounts given across the two genders, the same share of men and women (22.8%) hide earnings, by keeping more in the private than in the public dictator game (*Hide*). Hiding is significantly different from zero for both men and women ($p = 0.0000$). More women than men hide when matched with strangers, while the opposite is true in the household matching treatment, though none of these differences is statistically significant. It thus appears that women hide as much as men on the extensive margin, but less on the intensive one. We will discuss possible reasons for this in the next section.

When the endowment is earned (*Earned DG*), the overall pattern is similar to that of the dictator game with unearned endowment: subjects keep on average about 50% of the endowment, more

Table 3: Summary statistics of game behaviour

		Male		Female		Total		<i>p-value</i>
		Mean	Sd	Mean	Sd	Mean	Sd	
Public DG	<i>All</i>	433.0	(222.0)	543.4	(189.3)	488.2	(213.4)	0.000
	<i>Stranger</i>	474.8	(225.4)	580.2	(183.3)	527.5	(211.7)	0.000
	<i>HH</i>	392.6	(211.7)	508.1	(189.0)	450.4	(208.5)	0.000
Private DG	<i>All</i>	456.9	(223.9)	530.7	(191.2)	493.8	(211.3)	0.000
	<i>Stranger</i>	483.2	(226.7)	576.3	(190.5)	529.8	(214.1)	0.000
	<i>HH</i>	431.6	(219.0)	486.8	(182.1)	459.2	(202.9)	0.025
Earned DG	<i>All</i>	45.43	(17.40)	52.91	(10.32)	49.17	(14.77)	0.000
	<i>Stranger</i>	47.87	(16.36)	55.00	(10.43)	51.43	(14.15)	0.000
	<i>HH</i>	43.08	(18.11)	50.89	(9.819)	46.99	(15.05)	0.000
Earned TG	<i>All</i>	44.88	(16.07)	51.64	(12.14)	48.26	(14.63)	0.000
	<i>Stranger</i>	44.51	(15.20)	53.46	(10.75)	48.99	(13.89)	0.000
	<i>HH</i>	45.24	(16.92)	49.88	(13.14)	47.56	(15.30)	0.012
Hide	<i>All</i>	0.228	(0.421)	0.228	(0.421)	0.228	(0.420)	1.000
	<i>Stranger</i>	0.206	(0.406)	0.244	(0.431)	0.225	(0.419)	0.461
	<i>HH</i>	0.250	(0.435)	0.213	(0.411)	0.232	(0.423)	0.477
Entitled	<i>All</i>	0.322	(0.468)	0.266	(0.443)	0.294	(0.456)	0.155
	<i>Stranger</i>	0.305	(0.462)	0.267	(0.444)	0.286	(0.453)	0.496
	<i>HH</i>	0.338	(0.475)	0.265	(0.443)	0.301	(0.460)	0.188
Low respect	<i>All</i>	0.281	(0.450)	0.213	(0.411)	0.247	(0.432)	0.071
	<i>Stranger</i>	0.244	(0.431)	0.214	(0.412)	0.229	(0.421)	0.558
	<i>HH</i>	0.316	(0.467)	0.213	(0.411)	0.265	(0.442)	0.054

Note: *Stranger* refers to the sub-group paired with a stranger of the opposite gender. *HH* refers to the sub-group paired with the household member. All amounts refer to the amount that the participant keeps for self when allocating endowment or earnings. 'DG' are allocations in the dictator games. *Earned DG* is the share of own earnings allocated to self (over amount PKR 0 - 1000) on average in the dictator game, *Earned TG* is the share of partner's earning taken for self on average in the taking game. *Hide* is a dummy variable that is 1 if the participant keeps more for self in the private round than in the public rounds of the dictator game, and 0 otherwise; *Entitled* is the difference in the share of an endowment that participants allocate to self when the endowment has been earned by them and when it is a windfall; and finally, *Low respect* is a dummy variable that is 1 when the participant allocates more to self when taking from the partner's earning than when giving from own earning, and 0 otherwise.

when matched with strangers and less when matched with household members. Here as well, women keep on average significantly more than men. Overall, subjects keep a larger share of earned than unearned endowments. On the extensive margin, the share of subjects who keep more on average when the endowment is earned than unearned (*Entitled*) is 29.4% overall. A larger share of men than women feel entitled to keep earned more than unearned endowment, although this difference is not statistically significant. We also observe higher entitlement over earnings in the household than stranger matching treatment for both men and women.

When the decision is that of taking part of the partner's earned endowment (*Earned TG*), subjects on average assign to themselves a smaller share than the one kept in the earned endowment dictator game, although not significantly so ($p = 0.1462$). As with dictator games, subjects take more from strangers ($p = 0.2601$), and women take significantly more than men ($p = 0.0000$). Women tend to take less than they keep with respect to men, although the difference between men and women is never statistically significant. Consistent with this, the share of subjects who take more than what they keep from themselves (*Low respect*), equal to 24.7% overall, is lower among women than men, especially in the household matching treatment.

Table 4: Summary statistics of risk and norms elicitation activities

	Male		Female		Total		<i>p-value</i>
	Mean	Sd	Mean	Sd	Mean	Sd	
Risk preferences	3.700	(1.312)	3.558	(1.346)	3.629	(1.330)	0.216
<i>Perceived appropriateness when matched with:</i>							
Household member	0.742	(0.439)	0.610	(0.489)	0.676	(0.468)	0.001
Stranger, same gender	0.745	(0.437)	0.622	(0.486)	0.684	(0.466)	0.002
Stranger, opposite gender	0.730	(0.445)	0.633	(0.483)	0.682	(0.466)	0.015
Observations	267		267		534		

Note: We code response as *appropriate* if the response is either 'Appropriate' or 'Very appropriate'.

Table 4 reports summary statistics for the other experimental tasks, namely the norms and risk elicitation. The risk elicitation activity was conducted without a partner and we find risk aversion is on average 3.63, on a scale from 1 to 6, where lower values denote higher aversion to risk. Men and

women do not display significantly different risk preferences.

On average, 67.6% of subjects think that their household partner finds a woman taking economic decisions independently appropriate. This share is significantly larger among men than women (74.2 versus 61%), meaning that men are perceived to be more conservative by women.¹³ A similar pattern can be observed for norms outside the household where women perceive strangers of either gender to be more conservative than the men do.

If we look at the share of subjects who think that strangers of both genders would find female agency appropriate,¹⁴ and compare it with that of subjects who think the same about their spouse or household member, we see that both women and men perceive norms as more conservative outside than within the household ($p = 0.004$ and $p = 0.001$, respectively). This is consistent with findings from another study conducted in Pakistan, where women are shown to be less willing to exert agency when facing a male stranger than a household member, thus suggesting the existence of more binding social norms outside the household (Afzal et al., 2016).

The discrepancy between average male and female responses is mostly due to the 20 - 25% of women who believe that strangers and household members view independent decisions taken by a woman as ‘Very inappropriate’, as opposed to only 6 - 9% of men who think so about women’s perceptions.¹⁵ On the other end of the spectrum of responses, between 37 and 44% of men believe women find female agency as appropriate, against only 25 - 29% of women who think men would approve of an independent woman. These results highlight an important aspect of norms within the household: there is little consensus on norms between men and women. Indoctrination would imply that social and household norms have been ingrained in women (and men) and are, therefore, similar. However, this does not seem to be the case here.

¹³ We interpret answers to the norm elicitation questions as reflecting the beliefs subjects hold of their counterpart’s normative views on what is socially appropriate or not. An alternative interpretation of these answers, as reflecting subjects’ own normative judgement, relies on lack of understanding of the experimental instructions, which we don’t believe took place in our study.

¹⁴ We construct this variable as a dummy equal to one if both the response is ‘Appropriate’ or ‘Very appropriate’ when response is to be matched with that of a stranger of the same gender, or a stranger of the opposite stranger.

¹⁵ Appendix Table A2 reports the disaggregated norms ratings by men and women.

4.2 Correlates of hiding in the experiment

We begin by looking at our measure of hiding as laid out in Section 2. This means investigating how the amount kept for oneself differs if the allocation can be kept hidden from one's partner. Table 5 shows the results from linear regressions of *Hide*, defined as dummy equal to 1 if keep more in the private than in the public dictator game, on a set of individual and household preference measures and their interaction with the matching treatment: the *Entitled* dummy as defined in (also as defined in Section 2); an index representing agency show in the household; indicators for whether the woman thinks her household member and men in general find female agency appropriate (; the partner's 'Low respect' dummy; an indicator for whether the woman's household member perceives both men and women outside the household as thinking that female agency is appropriate; and the woman's risk preferences.

We also use interactions of household matching dummy with these indicators of individual, household and social preferences. The underlying hypothesis is that variables that capture a woman's status within the household, such as her feeling of entitlement or her agency within the household, should matter only when the woman's partner is a household member. On the other hand, social norms should have influence on hiding when the woman is matched with a male stranger. Column 1 of Table 5 focuses on the individual and intra-household variables, column 2 on social norms, while column 3 pools all the independent variables together. Since these regressions involve multiple interaction terms, we address the issue of multiple comparisons by adjusting the p-values for the false discovery rate (Anderson, 2012), the outcome of this procedure are sharpened q-values, reported in brackets. All regressions control for individual characteristics - age, marital status, education, occupation and household assets- and include session fixed effects.

We find that feeling entitled to keep one's earnings increases the likelihood of hiding by 19.5 percentage points when matched with a stranger, while no other female characteristic, such as her level of agency or her risk preferences, nor her household member's view on female agency or tendency to take from her earnings, are significantly correlated with hiding in the stranger matching. The coefficients on the woman and her household member's perceptions of social norms are also

Table 5: Regression of hiding on individual and social preferences and norms

<i>Dependent variable: Hide</i>	(1)	(2)	(3)
Dummy: partner is a household member	0.214 (0.175)	0.213 (0.159)	0.315 (0.194)
Dummy: Entitled	0.195** (0.0947)		0.194** (0.0953)
Agency in household (index)	0.0497 (0.0307)		0.0479 (0.0307)
Dummy: household member thinks female agency is appropriate	-0.0582 (0.0821)		-0.0453 (0.0897)
Dummy: Partner has low respect	-0.0670 (0.0914)		-0.0629 (0.0900)
Preference for risk	0.0137 (0.0288)		0.0141 (0.0293)
Dummy: Opp. gender stranger thinks female agency is appropriate		-0.0248 (0.0879)	-0.0325 (0.0958)
Dummy: Partner thinks strangers find female agency is appropriate		0.0787 (0.0785)	0.0402 (0.0768)
Dummy: Partner is a household member and participant feels entitled	0.302** (0.125)		0.315** (0.125)
Agency in household index and partner is a household member	[0.034] -0.134*** (0.0433)		[0.039] -0.133*** (0.0436)
Preference for risk and partner is a household member	[0.012] -0.0564 (0.0357)		[0.019] -0.0593 (0.0362)
Dummy: household member thinks female agency is appropriate and partner is a household member	[0.096] 0.0795 (0.101)		[0.169] 0.0918 (0.114)
Dummy: Partner has low respect and is a household member	[0.17] 0.206* (0.118)		[0.269] 0.185 (0.117)
Dummy: Opp. gender stranger thinks female agency is appropriate and partner is a household member	[0.09]	-0.0514 (0.113)	[0.169] -0.0257 (0.120)
Dummy: Partner thinks female agency is appropriate and is a household member		[1] -0.119 (0.110)	[0.312] -0.134 (0.0958)
Session F.Es.	Y	Y	Y
Observations	267	267	267
R ²	0.254	0.042	0.263

Note: All regressions include controls for age, marital status, education, occupation and household assets. Robust standard errors are in parentheses and sharpened q-values in square brackets for interaction terms only. ** *p < 0.01, * *p < 0.05, *p < 0.1.

statistically insignificant when the woman is matched with a stranger.

When matched with a household member, women who feel entitled to keep their earnings are more likely to hide by an additional 30.2 percentage points. This result suggests that the *entitled* dummy captures pent-up demand for agency on the part of women who feel they are entitled to it, and potentially express their resentment for not being granted control over their resources through their decisions in the games. Consistent with this, women who have more agency within the household hide significantly less in the games when matched with a household member. Also in line with this story is the sign on the variable representing low respect by the partner: women whose spouse or relative shows low respect for their earned property within the games are also more likely to hide, although this result is statistically significant only when focusing on intra-household determinants of hiding (column 1). Social norms do not significantly affect behaviour in the household member matching treatment either (column 2).

When we pool all independent variables together (in column 3), we still find that feeling of entitlement over earnings and agency within the household correlate with hiding at standard levels of statistical significance, when the woman's partner is a household member. This coefficient is still significantly different from zero when looking at FDR-adjusted q-values. These results are not driven by husband and wife pairs: regressions including only women matched with other male relatives show qualitatively the same patterns, although statistical significance is reduced due to the smaller sample size.¹⁶ We find qualitatively similar results when we replace dummy variables for *hide* and *entitled* dummies with differences in allocations between private and public, and between earned and unearned dictator games.¹⁷

Overall, these results suggest that women who are aware of their right to control their own resources; who live in households where they are granted decision power; whose ownership of their earned resources is respected; and where norms on female agency are perceived as favourable, are less likely to hide resources from their partners. It is possible that experiences of the women and their

¹⁶ Results available upon request.

¹⁷ The main difference is in the effect of entitlement, which is not statistically significant in the household matching. The results are reported in Appendix Table A3.

households affect these measures of preferences and empowerment. We explore this possibility next.

4.3 Sources of empowerment and demand for agency

Does having access to finance, working outside the home or having to make decisions over one's own earnings and business affect a woman's empowerment and preferences? Since the decision to become an entrepreneur or to get a loan are endogenous to women's preferences and normative environment, we address this question by taking advantage of the fact that women in our sample were part of an RCT for micro-enterprise start-up.¹⁸ Namely, we examine whether being randomly selected to receive a loan and business training influences a woman's decision autonomy within the household and her feeling of entitlement over her own earnings.

Recall that all the women in the sample applied to receive a loan and, as part of the application, submitted a proposal for a business start-up. Women who, on the basis of their proposals, were deemed eligible to get a loan, form our sample. Thus, for this self-selected sample of aspiring business entrepreneurs, we investigate the effect actually receiving the funding (and training) that they applied for has on women's empowerment. Of course, we do not know if women applied for a loan because of a genuine aspiration to start their own business, or because they were pushed by other household members, who would then use the funds for their own activities. The low share of business start-ups resulting from the treatment suggests that some diversion of the funds is likely to have taken place. For this reason, we look at *intention-to-treat* (ITT) estimates in the present analysis.¹⁹

Table 6 shows these results. The dependent variable in column (1) is the *entitled* dummy, capturing feelings of ownership over one's earned income. The second dependent variable is the household

¹⁸ We also run random effects regressions of amount kept for self on indicators for private decision and earned endowment and heterogeneity by female occupation. Self-employed women hide lower amounts of resources in the games and keep for themselves more of an earned than of an unearned endowment, relative to housewives (see Appendix A Tables A4 and A5 for these results).

¹⁹ Note that there was no difference in the household agency index at baseline between the treatment and the control group (p-value of 0.806) and the two groups were balanced across other characteristics as well (at 5% level of significance. See Appendix A Table A6).

agency dummy, which we interpret as indicator of decision power in the family (column (2)). That is, we consider the effect of treatment on the two variables that we find to be significantly correlated with hiding in Table 5. Finally, to address the issue of multiple testing, we follow Anderson (2012) and construct an index of empowerment combining *entitled* and *agency in household*.²⁰ Regressions where the outcome was collected through behavioural games include session fixed effects, replaced by branch fixed effects when the outcome is constructed from survey questions.

Table 6: Effect of finance and business training on empowerment

	(1)	(2)	(3)
<i>Dependent variable:</i>	<i>Entitled</i>	<i>Agency in household (index)</i>	<i>Weighted index</i>
Dummy: ITT	0.0265 (0.0540)	0.324** (0.128)	0.256** (0.123)
Constant	0.429*** (0.165)	-1.091** (0.427)	-0.416 (0.363)
Session F.Es.	Y	N	Y
Branch F.Es.	N	Y	N
Observations	267	267	267
R^2	0.066	0.241	0.117

Note: The dependent variable in column (3) is a weighted index of the entitled and HH agency indicators, based on Anderson, 2012. ITT is a dummy equal to one if the respondent was part of the RCT treatment group. All regression include controls for age, marital status, indicator variables for whether the respondent was a housewife and literate, and an asset index. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Regression results show that, in general, being exposed to the treatment has a positive effect on empowerment, which is statistically significant when we use agency in the household as a proxy: the index increases by almost 0.32, on a scale from -2.7 to 1.9. When looking at the aggregate weighted index of empowerment, the positive effect of having access to finance and training is confirmed (statistically significant at the 5% level). Overall, while the effects are limited and imprecisely measured, as one would expect from a treatment that consisted in three hours of training and a

²⁰ Besides its robustness to over-testing, the index has other advantages. First, it provides a statistical test for whether the treatment has a general effect on a set of outcomes: in this case the two dependent variables capture different aspects of a woman's empowerment, defined as desiring and exercising agency. Second, the index may be more powerful than its individual components, reaching statistical significance where each single variable does not. These arguments are made extensively in Anderson (2012).

micro-loan (\$1,000 - \$3,000), it is striking that these effects are positive and detectable one year after the treatment. Providing women with funding and training makes them more empowered within their household, by increasing their decision autonomy and work possibilities.²¹

We test whether these results are due to the experience of having successfully started a business one year after the treatment, by instrumenting it with treatment status and regressing it on the entitled dummy, the household agency index and the index of empowerment constructed from them. The first stage shows that treatment increases the likelihood that a woman starts a business over the year, since she was deemed eligible to receive a loan, by 12 percentage points (F = 18.64). Qualitatively, the effect of having started a business, instrumented by treatment, is the same as that of treatment status in the reduced-form regression (Table 7).²² However, only the effect on household agency is significantly different from zero. Taken together, the results seem to suggest that success in starting a business affects the ability of the treatment to influence female agency.

Table 7: IV regression of starting a business on empowerment

<i>Dependent variable</i>	(1) <i>Entitled</i>	(2) <i>Agency in household (index)</i>	(3) <i>Weighted index</i>
Dummy: Respondent starts a business	0.120 (0.459)	2.624* (1.396)	1.851 (1.207)
Constant	0.411 (0.376)	-2.468** (1.144)	-1.391 (0.989)
First stage F-stat	18.64	18.64	18.64
Session F.Es.	Y	Y	Y
Observations	240	240	240
R^2	0.060	.	.

Note: The dependent variable in column 3 is a weighted index of the entitled and HH agency indicators, based on Anderson, 2012. Business is the instrumented value for effect of RCT treatment (getting a loan and training) on the likelihood of starting a business. All regressions include controls for age, marital status, indicator variables for whether the respondent was a housewife and literate, and an asset index. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Note that the effect of the RCT treatment and instrumented business dummy on the individual prox-

²¹ These results are robust to replacing the index for female’s agency in the household with the two variables composing it, decision autonomy and being allowed to work, as Appendix Table A7 shows.

²² The magnitude of all the coefficients on instrumented business activity are larger than those on the treatment dummy in the reduced-form regression.

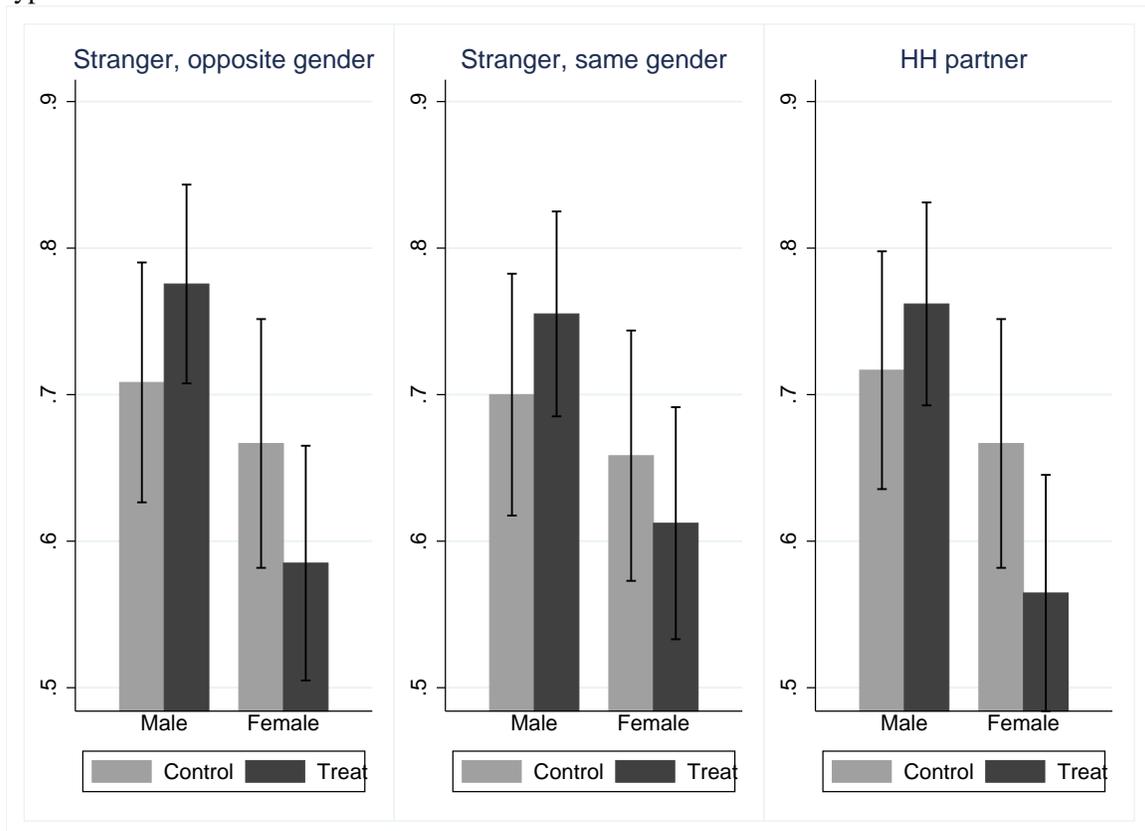
ies of empowerment in Table 6 and Table 7, respectively, is statistically significant only for measure of agency household constructed from survey answers, and not on the measure of entitlement generated in the laboratory. It is possible that the decision environment between the laboratory and the field make the link between the former and the latter less than direct. As List (2009) points out, the laboratory differs from the field in crucial dimensions - the size of the stakes, the time horizon, the available choices and the extent of scrutiny - that prevent generalizability from laboratory to field behaviour. Consistent with this, when we regress hiding on being treated in the RCT, as well as when we instrument the empowerment index with treatment and regress hiding on instrumented empowerment, we do not find any statistically significant effects (Table A8 in Appendix A shows the regression results).

The lack of overall significant effects of treatment on game behaviour may be also due to the difference that the treatment has on norms perceptions by men and women. While receiving funding and training has a positive effect on perceived norms among men – who think their household members and strangers find independent decision making on the part of women more appropriate if their wife or relative was exposed to the treatment – the opposite holds for women. Figure 1 shows these differences. One explanation for this result is that women who receive funding and training actually experience situations where norms against female agency and enterprise play a role, for instance in influencing their ability to purchase supplies, rent a space for their business, or find customers. These real world experiences may negatively affect women’s perceptions of norms on independent business decisions made by women.²³ On the contrary, men and women who do not have the opportunity to start a business may not have direct experience of the practical implications of social norms in limiting female agency. Men in treated households may simply become aware of the loan program and of the contents of training, thus updating their beliefs on the appropriateness of female agency from this information. It is important to note that this negative effect of RCT treatment on perceived norms by women may temper its positive effect on other dimensions of empowerment.

Overall, the results from the combination of laboratory and field evidence suggest that hiding income

²³ We regress women’s perception of spouse’s norms on having started a business, instrumented by treatment, and find, as we did with in Table 7, that the magnitude of the effect is larger for treated women who started a business than for treated women in general, but we lose statistical significance. Results available upon request.

Figure 1: RCT treatment effect on the share of 'socially appropriate' answers, by gender and partner type



Note: *Stranger, opposite gender* refers to response that is matched to a stranger of the opposite gender; *Stranger, same gender* refers to response that is matched to that of a stranger of the same gender; and *HH partner* is response matched to that of the household member.

among women within the games is negatively correlated with measures of household members' norms and preferences, and female agency within the family. These preferences and norms are, in turn, positively influenced by women's access to finance and training to set up their own business. We show suggestive evidence that this effect may be driven by women who actually start a business as a result of the treatment. However, we don't find evidence of a direct link from the RCT treatment to hiding, and we observe heterogeneous effects of treatment on perceived norms on agency between men and women.

5 Conclusions

In this paper, we attempt to explicitly measure social and household norms that can affect the decisions women make about money, specifically the choice to hide money from their spouses or household members. We use a sample of women who participated in a microenterprise loan RCT. In addition to expressing a desire to set up their own enterprise when applying for the loan by defining a business plan, half of these applicants were randomly provided with the microenterprise loan and training. Despite access to finance, only 15% of the RCT sample actually set up a business in one year. We hypothesize that the choice of taking a loan or setting up a business is affected by women's fear of appropriation and desire to control their resources by hiding them from household members. Hiding thus seems a relevant indicator of whether women will engage in less easy to monitor, but potentially productive and welfare-enhancing, production activities or consumption choices.

Within this sample, we then test this hypothesis by investigating the correlates of hiding within laboratory games, one year after the provision of the loan. We conduct a standard dictator activity with public and private rounds; dictator and reverse-dictator (or taking) activities with earned endowments; a norms elicitation activity; and a risk preference elicitation activity. We test if hiding is correlated with women's feeling of entitlement over their own resources and decision autonomy within the household, with their spouses' tendency to appropriate their earned resources and perception of social norms on female agency outside the household, and with women's perceived social

norms. We then test if these dimensions of empowerment are influenced by women's experiences, namely access to finance and training.

We find that hiding within the games is positively correlated with women's sense of entitlement over their own earnings, a sign of pent-up demand for agency among women, and with their household members' lack of respect over their earned property; and negatively correlated with their agency within the household. On the other hand, there is no significant correlation with perceived norms of both women and their spouses. Women who were randomly selected to receive funding and training as part of the RCT, are more likely to feel entitled to keep their earnings within the experiment and have more agency within the household one year later. This effect is likely to be driven by the actual experience of starting a business. Finally, while the perception of how socially appropriate it is for women to exercise agency is improved among men, the opposite holds for women, suggesting that the actual experience of setting up a business exposes women to, and thus makes them more aware of, norms unfavourable to their independent decision making.

Our results are consistent with those of the literature on the effect of asymmetric information on intra-household decision making. Women allocate higher amounts to themselves within the relatively harmless environment of the games, hide more than men, and such hiding behaviour is linked to decision making power within the household. We contribute to this literature by showing similar decision patterns using novel measures of female empowerment and social norms, and by showing how women's experiences shape empowerment.

The particular nature of our sample, made by women who self-selected into applying for a loan to start their own business, leaves open the question of how these results generalise to a more representative population of women. This is an interesting avenue for further research. However, our results are still pertinent to policy makers and microfinance institutions alike that, by virtue of their own agenda, often attempt to promote enterprise and empowerment amongst women through access to finance.

References

- Afzal, U., d'Adda, G., Fafchamps, M., and Said, F. (2016). Gender and agency within the household: Experimental evidence from Pakistan. *CEPR Discussion Paper*.
- Ali, P. A. and Gavino, M. I. B. (2008). Violence against women in Pakistan: A framework for analysis. *Journal of Pakistan Medical Association*, 54:198 – 203.
- Anderson, M. L. (2012). Multiple inference and gender differences in the effects of early intervention: A reevaluation of the abecedarian, perry preschool, and early training projects. *Journal of the American statistical Association*.
- Angelucci, M., Karlan, D., and Zinman, J. (2015). Microcredit impacts: Evidence from a randomized microcredit program placement experiment by Compartamos Banco. *American Economic Journal: Applied Economics*, 7(1):151–182.
- Ashraf, N. (2009). Spousal control and intra-household decision making: An experimental study in the Philippines. *American Economic Review*, 99(4):1245–1277.
- Attanasio, O., Augsburg, B., Haas, R. D., Fitzsimons, E., and Harmgart, H. (2015). The impacts of microfinance: Evidence from joint-liability lending in Mongolia. *American Economic Journal: Applied Economics*, 7(1):90–122.
- Augsburg, B., Haas, D., R., H., H., and Meghir, C. (2015). The impacts of microcredit: Evidence from Bosnia and Herzegovina. *American Economic Journal: Applied Economics*, 7(1):183–202.
- Bari, F. and Pal, M. S. (2000). Women in Pakistan. Technical Report July, Asian Development Bank Programs Department and the Office of Environment and Social Development.
- Barr, A., , and Genicot, G. (2008). Risk sharing, commitment, and information: An experimental analysis. *Journal of the European Economic Association*, 6(6):1151–1185.
- Binswanger, H. P. (1980). Attitudes toward risk: Experimental measurement in rural India. *American Journal of Agricultural Economics*, 62(3):395–407.
- Bloch, F. and Rao, V. (2002). Terror as a bargaining instrument: A case study of dowry violence in rural India. *American Economic Review*, 92:1029 – 1043.
- Browning, M., Chiappori, P.-A., and Weiss, Y. (2014). *Economics of the Family*. Cambridge University Press.
- Browning, M., Chiappori, P., and Lechene, V. (2006). Distributional effects in household models: Separate spheres and income pooling. *University of Oxford, Department of Economics Discussion Paper Series No. 293*.
- Browning, M. and Chiappori, P.-A. (1998). Efficient intra-household allocations: A general characterization and empirical tests. *Econometrica*, pages 1241–1278.
- Browning, M., Chiappori, P. A., and Lewbel, A. (2013). Estimating consumption economies of scale, adult equivalence scales, and household bargaining power. *Review of Economic Studies*, 80(4):1267–1303.
- Burns, J., Lucia, C., and Eliana, L. (2015). Interaction, prejudice and performance. evidence from south africa. *BREAD Working Paper*.
- Cameron, L. and Shah, M. (2015). Risk-taking behavior in the wake of natural disasters. *Journal of Human Resources*, 50(2):484–515.

- Castilla, C. (2014). *What's yours is mine, and what's mine is mine: Bargaining power and income concealing between spouses in India*. Unpublished Manuscript.
- Castilla, C. (2015). Trust and reciprocity between spouses in india. *The American Economic Review*, 105(5):621–624.
- Castilla, C. and Walker, T. (2013). Is ignorance bliss? Gender differences in the effect of asymmetric information on intrahousehold allocation. *American Economic Review: Papers and Proceedings*, 103(3):263–268.
- Chen, J. J. (2012). Identifying non-cooperative behavior among spouses: Child outcomes in migrant-sending households. *Journal of Development Economics*, 100(1):1–18.
- Chiappori, P.-A. (1992). Collective labor supply and welfare. *Journal of political Economy*, pages 437–467.
- Chiappori, P. A. (1997). Introducing household production in collective models of labor supply. *Journal of Political Economy*, 105(1):191–209.
- Crepon, B., Devoto, F., Duflo, E., and Parientè, W. (2015). Estimating the impact of microcredit on those who take it up: Evidence from a randomized experiment in morocco. *American Economic Journal: Applied Economics*, 7(1):123–150.
- de Mel, S., M., D., and Woodruff, C. (2009). Are women more credit constrained? Experimental evidence on gender and microenterprise returns. *American Economic Journal: Applied Economics*, 1(3):1–32.
- de Mel, S., M., D., and Woodruff, C. (2012). One-time transfers of cash or capital have long-lasting effects on microenterprises in Sri Lanka. *Science*, 335:962–966.
- Dercon, S. and Krishnan, P. (2000). In sickness and in health...risk-sharing within households in rural Ethiopia. *Journal of Political Economy*, 108(4):688–727.
- Duflo, E., Banerjee, A., Glennerster, R., and Kinnan, C. G. (2013). The miracle of microfinance? Evidence from a randomized evaluation. *NBER Working Paper Series No. 18950*.
- Fahr, R. and Irlenbusch, B. (2000). Fairness as a constraint on trust in reciprocity: Earned property rights in a reciprocal exchange experiment. *Economic Letters*, 66(3):275 – 282.
- Fisman, R., Jakiela, P., and Kariv, S. (2015). How did distributional preferences change during the great recession? *Journal of Public Economics*, 128:84–95.
- Ginè, X., Bank, W., Mansuri, G., and Jel, C. (2011). *Money or Ideas? A Field Experiment on Constraints to Entrepreneurship in Rural Pakistan*. The World Bank Policy Research Working Paper Series, (September).
- Goldstein, M. and Udry, C. (1999). *Gender and land resource management in southern Ghana*. University of California.
- Hoel, J. B. (2015). Heterogeneous households: A within-subject test of asymmetric information between spouses in Kenya. *Journal of Economic Behavior and Organization*, 118:123–135.
- Jakiela, P. (2015). How fair shares compare: Experimental evidence from two cultures. *Journal of Economic Behavior and Organisation*, 118(October):40–54.
- Jakiela, P. and Ozier, O. (2015). Does Africa need a rotten kin theorem? experimental evidence from village economies. *The Review of Economic Studies*.
- Kazianga, H. and Wahhaj, Z. (2015). Norms of allocation within nuclear and extended family households. *2015 AAEA and WAEA Joint Annual Meeting, Paper No. 205534*.

- Kebede, B., Tarazona, M., Munro, A., and Verschoor, A. (2013). Intra-household efficiency: An experimental study from ethiopia. *Journal of African Economies*, page ejt019.
- Krupka, E. L. and Weber, R. A. (2013). Identifying social norms using coordination games: Why does dictator game sharing vary? *Journal of the European Economic Association*, 11:495 – 524.
- List, J. A. (2007). On the interpretation of giving in dictator games. *Journal of Political Economy*, 115:482–493.
- List, J. A. (2009). Social preferences: Some thoughts from the field. *Annu. Rev. Econ.*, 1(1):563–579.
- Memon, A. S., Naz, S., Abass, H., Zahid, J., Tabbasum, R., and Zeshan, M. (2014). Alif Ailaan Pakistan District Education Rankings. Technical report, Alif Ailaan in collaboration with Social Development Policy Institute.
- Munro, A., Bateman, I. J., and McNally, T. (2008). The family under the microscope: An experiment testing economic models of household choice. *MPRA Paper No. 8974*.
- Munro, A., Kebede, B., Tarazona-Gomez, M., and Verschoor, A. (2014). Autonomy and efficiency. an experiment on household decisions in two regions of india. *Journal of the Japanese and International Economies*, 33:114–133.
- Ngo, T. M. P. and Wahhaj, Z. (2011). Microfinance and gender empowerment. *Journal of Development Economics*, 99(1):1–12.
- Popov, D., McNally, T., and Munro, A. (2008). Taking it in turn: An experimental test of theories of the household. *Available at SSRN 1125264*.
- Rabbani, F., Qureshi, F., and Rizvi, N. (2008). Perspectives on domestic violence: Case study from Karachi, Pakistan. *East Mediterranean Health Journal*, 14:415 – 426.
- Tarozzi, A., Desai, J., and Johnson, K. (2014). The impacts of microcredit: Evidence from Ethiopia. *American Economic Journal: Applied Economics*, 7(1):54–89.
- Udry, C. R. (1996). Gender, agricultural production, and the theory of the household. *Journal of Political Economy*, 118:1010–1046.
- Zaman, R. M., Stewart, S. M., and Zaman, T. R. (2006). Pakistan: culture, community, and familial obligations in a Muslim society. In Georgas, J., Berry, J. W., De Vijver, F. R. V., Kagitcibasi, C., and Poortinga, Y. H., editors, *Families a cross cultures: A 30 nation psychological study*, pages 427–434. Cambridge University Press, Cambridge.

Appendix A Tables

Table A1: Descriptive statistics of the RCT and experiment samples (females only)

	RCT		Experiment		p-value
	Mean	Sd	Mean	Sd	
Age	37.076	(9.071)	37.202	(9.328)	0.849
Married	0.871	(0.336)	0.865	(0.342)	0.816
<i>Education</i>					
Illiterate	0.456	(0.498)	0.513	(0.501)	0.111
Primary	0.235	(0.424)	0.210	(0.408)	0.402
More than primary	0.221	(0.415)	0.210	(0.408)	0.715
<i>Occupation</i>					
Housewife	0.525	(0.499)	0.479	(0.501)	0.202
Self-employed	0.319	(0.467)	0.356	(0.480)	0.281
Laborer	0.084	(0.278)	0.0974	(0.297)	0.518
<i>Empowerment</i>					
Decide alone	5.16	(3.017)	4.85	(3.042)	0.150
Not allowed work	.161	(.368)	0.165	(0.372)	0.890
No. of Obs.	689		267		

Table A2: Norms elicitation response by gender

Matched with:	Stranger opposite gender (%)	Stranger same gender (%)	Household member (%)
<i>Female</i>			
Very inappropriate	22.01	20.9	24.63
Inappropriate	16.04	16.04	14.55
Appropriate	29.48	29.1	25
Very appropriate	32.46	33.96	35.82
<i>Male</i>			
Very inappropriate	8.58	7.09	6.72
Inappropriate	16.79	19.4	18.66
Appropriate	44.03	40.67	37.69
Very appropriate	30.6	32.84	36.94

Table A3: Regression of amount hidden on individual and social preferences and norms

	(1)	(2)	(3)
<i>Dependent variable: Difference in allocation to self in private DG - public DG</i>			
Dummy: Partner is a household member	127.2* (72.10)	117.2 (72.38)	117.2 (72.38)
Allocation to self in earned DG - unearned DG	0.282*** (0.0843)	0.283*** (0.0841)	0.283*** (0.0841)
Agency in household (index)	9.714 (11.50)	10.75 (11.76)	10.75 (11.76)
Dummy: household member thinks female agency is appropriate	-29.21 (27.18)	-20.95 (31.51)	-20.95 (31.51)
Dummy: Partner takes more than he gives	-0.612 (0.765)	-0.724 (0.724)	-0.724 (0.724)
Dummy: Opp. gender stranger thinks female agency is appropriate		-23.85 (30.69)	-23.85 (30.69)
Dummy: Partner thinks strangers find female agency appropriate		-19.16 (27.43)	-19.16 (27.43)
Preference for risk	-0.448 (9.346)	-0.703 (9.276)	-0.703 (9.276)
Dummy: Allocation to self in earned DG - unearned <i>and</i> partner is a household member	0.00439 (0.119)	0.00750 (0.120)	0.00750 (0.120)
Dummy: Agency in household (index) and partner is a household member	-38.28** (15.06)	-39.71** (15.34)	-39.71** (15.34)
Dummy: Preference for risk and partner is a household member	-15.03 (13.68)	-15.74 (13.64)	-15.74 (13.64)
Dummy: Household member thinks female agency is appropriate and partner is household member	57.41 (40.57)	35.05 (52.40)	35.05 (52.40)
Dummy: Partner takes more than he gives and partner is a household member	0.395 (1.274)	0.526 (1.268)	0.526 (1.268)
Dummy: Opp. gender stranger thinks female agency is appropriate and partner is a household member		43.01 (47.94)	43.01 (47.94)
Dummy: Partner thinks female agency is appropriate and is a household member		-1.921 (36.48)	-1.921 (36.48)
Session F.Es.	Y	Y	Y
Observations	267	267	267
R ²	0.273	0.279	0.279

Note: All regressions include controls for age, marital status, education, occupation and household assets. Robust standard errors are in parentheses and sharpened q-values in square brackets for interaction terms only. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A4: Participant response to public and private treatments of the dictator activity

	Overall	Women	Women, paired w/ hh member (Housewives)	Men, paired w/ Paired w/ (Self-employed)	Men, paired w/ Paired w/ (Paired w/)	Men, paired w/ Paired w/ (self employed)
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy: Private round	5.618 (7.187)	-12.734 (10.972)	-42.187 (17.445)**	-4.167 (18.472)	65.625 (21.967)***	31.250 (31.833)
Constant	488.202 (11.413)***	543.446 (17.320)***	521.875 (20.435)***	472.917 (22.881)***	371.875 (29.060)***	402.083 (40.581)***
Observations	1068	534	128	96	128	96

Columns (3) - (6) are regressions for participants paired with household members
Standard errors in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5: Participant response to earned and unearned endowments in dictator activity

	Overall	Women	Women, paired w/ hh member (Housewives)	Men, paired w/ Paired w/ (Self-employed)	Men, paired w/ Paired w/ (Paired w/)	Men, paired w/ Paired w/ (self employed)
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy: Earned endowment	15.768 (11.809)	2.247 (16.668)	10.156 (29.944)	43.750 (24.172)*	58.594 (24.121)**	44.167 (43.132)
Constant	488.202 (11.413)***	543.446 (17.320)***	521.875 (20.435)***	472.917 (22.881)***	371.875 (29.060)***	402.083 (40.581)***
Observations	1068	534	128	96	128	96

Columns (3) - (6) are regressions for participants paired with household members
Standard errors in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A6: Descriptive statistics of RCT treated and control groups at baseline (females only)

	Treated		Control		Total		p-value
	Mean	Sd	Mean	Sd	Mean	Sd	
Age	36.685	(10.135)	38.172	(10.072)	37.351	(10.114)	0.240
Married	0.878	(0.329)	0.858	(0.350)	0.869	(0.338)	0.645
<i>Education</i>							
Illiterate	0.483	(0.501)	0.525	(0.501)	0.501	(0.501)	0.497
Primary	0.231	(0.423)	0.225	(0.419)	0.228	(0.421)	0.904
More than primary	0.197	(0.399)	0.167	(0.374)	0.184	(0.388)	0.522
<i>Occupation</i>							
Housewife	0.252	(0.435)	0.283	(0.452)	0.266	(0.443)	0.562
Self-employed	0.177	(0.382)	0.267	(0.444)	0.217	(0.413)	0.072*
Labourer	0.115	(0.321)	0.092	(0.290)	0.105	(0.307)	0.527
<i>Empowerment</i>							
Decide alone	0.293	(1.351)	0.292	(1.33)	0.292	(1.34)	0.996
Not allowed work	0.007	(0.082)	0.017	(0.129)	0.011	(0.106)	0.449
Observations	147		120		267		

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: Effect of finance and business training on empowerment (replacing agency index with its components)

<i>Dependent variable</i>	(1) <i>Entitled</i>	(2) <i>HH decide</i>	(3) <i>Not allowed work</i>	(4) <i>Weighted index</i>
Dummy: ITT	0.0265 (0.0540)	0.593* (0.327)	-0.0979** (0.0458)	0.280** (0.124)
Constant	0.429*** (0.165)	1.218 (1.291)	0.294** (0.132)	-0.526 (0.367)
Session F.Es.	Y	N	N	Y
Branch F.Es. N	Y	Y	N	
Observations.	267	267	267	267
R^2	0.066	0.328	0.173	0.122

Note: The dependent variable in column 1 'entitled' is a dummy capturing feelings of ownership over one's earned income, in column 2 the dependent variable is the number of household decisions the woman can make on her own (ranges from 0 to 9), in column 3 dependent variable is a dummy equal to one if woman is allowed to work outside the house and in column 4 the dependent variable is a weighted index of these two (based on Anderson ,2012). ITT is a dummy equal to one if the respondent was part of the treatment group and 0 if in the control group. All regression include controls for age, marital status, if the woman is a housewife, whether literate, asset index. Robust standard errors in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8: Effect of RCT treatment and instrumented empowerment on hiding

	(1)	(2)
<i>Dependent variable: Hide</i>		
Dummy: ITT	0.0385 (0.0541)	
Weighted index		0.150 (0.200)
Constant	0.293* (0.151)	0.356** (0.144)
Session F.Es.	Y	Y
Observations	267	267
R^2	0.035	0.071

Note: The dependent variable is hide which is a dummy equal to one when the respondent keeps more for self in the private round as compared to the public round and zero otherwise. ITT is a dummy equal to one if the respondent was part of the treatment group and 0 if in the control group. Weighted index is the instrumented value for effect of getting the treatment (getting a loan) on empowerment index. All regression include controls for age, marital status, if the woman is a housewife, whether literate, asset index. Robust standard errors in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix B Experiment protocol

The full protocol used in the experiment is as below. The entire script was administered to participants in Urdu and local languages - *Saraiki* for Bahawalur and *Punjabi* for Gujrat and Sialkot. Square brackets [] contain instructions for enumerators.

General instructions

Thank you all for taking the time to be here today. My name is [*experimenter's name*], and I will be facilitating this meeting. Helping me today, we also have here [*introduce everyone*]. Before we start, we would like to remind you that we will give you Rs. 1000 each as a compensation for your time, if you decide to participate for the entire duration of the session. These Rs. 1000 are not a part of the activity and are yours to keep. We will give each of you these Rs.1000 at the end of the meeting, together with any other sum you will earn through the activities.

Purpose

- Today, we will conduct a few activities. We are conducting these activities on behalf of Lahore School of Economics, a private university in Lahore.
- These activities are for research purpose only. The results of the study may eventually be published or part of a book.
- The purpose of these activities is to better understand how people in this community make decisions.
- The results of the study may eventually be published or part of a book.
- It is not part of a development project of any sort.

Activities

We will perform several activities here today. At the end of all the activities, we will determine your total payoff by randomly selecting one activity for payment. So you have to be very careful to

choose exactly what you want each time you take a decision, because that decision may determine your payment at the end. Is this clear to everyone? Do you have questions on this?

The participants will be performing some activities in exchange for real money that they will be able to take home. You should understand that this is not my money. It is money given to me by Lahore School, to use to conduct a research study. As we told you when we invited you to come her, the meeting may take 2 hours, so if you think you will not be able to stay that long without leaving please let us know now. Those of you who cannot stay may leave now. Thank you all for taking the time to come today.

[If more than 12 couples show up to participate:]

- We only need 24 individuals to participate in these activities. Thus, unfortunately, not all of you will be able to participate.
- We will have a lottery to determine who will participate.
- To complete the lottery, we will take the coupon you came with today, which has your name on it, and fold the coupon in half.
- Next, we will place your folded coupon of paper in this bag.
- This means that we need one coupon for each couple present here today.
- We will then ask one of you to draw 12 pieces of paper from this bag containing your coupons.
- Those whose names will be drawn will stay here and participate in the activities, while the others will go home.

Is this clear to everyone? Does anyone have any questions on how we will select the 24 participants?

[Enumerator: conduct ballot]

Those of you, whose names have not been called, can leave now. Thank you all for taking the time to come today.

[Pay show up fee to all subjects who have to leave (hand out pre-prepared envelopes containing Rs.1000 and have them sign a receipt). Then, after people have left, proceed]

We will now ask you to draw a number tag from this bag. This number tag will determine your ID for the activities. You are given an ID to preserve your anonymity: your name will not be kept anywhere in our records, only your ID.

Consent

Before we begin, I will explain the basic activities we will do together, and the rules that we will follow.

[Read Consent Statement] If you wish to participate, please say, 'I do' If you do not wish to participate, please advise us. You will be free to leave then. You will not be able to stay in the activity room(s) if you do not wish to participate.

We will now take all women to one room, and all men to another room. Please follow [Assistant's name] to Room 1 if you are a man, or [Assistant's name] to Room 2 if you are a woman.

[Take the selected participants into the rooms and have them sit. Assistants should direct each subject to her allocated seat. The room number should be displayed on the door so that it is clearly visible]..

[To the participants]

Introduction

Welcome, and thank you again.

- Before we proceed any further, let me stress something that is very important. Many of you were invited here without understanding very much about what we are planning to do today. If at any time you find that this is something that you do not wish to participate in for any reason, you are of course free to leave at anytime. If you do choose to leave, you won't be able to come back into the activity room(s) until everyone is finished performing all the activities.

- Before we start, please make sure your mobile phones are switched off, to avoid interruptions during the meeting.
- If you have heard about activities that have been conducted here in the past you should try to forget everything that you have been told. These are completely different activities.
- Please also be advised, there are no right or wrong choices, so you should choose whatever you think is best for yourself and not look at your neighbor's choices.
- It is important to remember that not everyone will win the same amount in the activities. Your final earnings will depend on your decisions and on the decisions of others. Everyone will still receive the Rs. 1000 payment for participation, regardless of how much you earn in the activities
- We are about to begin. It is important that you listen as carefully as possible to the instructions, because only people who understand the activities will actually be able to perform them. I will run through some examples to make sure you understand. The examples that we will show you are just to illustrate you the activities, they are in no way indications of how you should perform the activity.
- I will read through a script to explain all the activities that we will perform here today. As you may know, these activities are conducted on other days beside this, so it is very important that people every day receive exactly the same information, and this is the reason why I must read from this script.

NO TALKING

- I will now say something very important. You cannot ask questions out loud or talk about the activities with anyone else while we are here together.
- If you need to ask a question at any time, please raise your hand and I will come to you so I can answer your question privately.

- I will explain the activities, do demonstrations, and let you practice the activities before we perform them for real. These demonstrations and practices are to help you understand the rules and clarify any questions.
- Please be sure that you obey these rules because it is possible for one person to spoil the activities for everyone by talking in front of the group. If this happens, we will not be able to continue forward with the activities today.
- Is this clear to everyone? Does anyone have any questions so far about what will go on today?

[If anyone asks a question out loud, explain again that all questions must be asked in private.]

REAL PAYMENT

- In today's activities, you will have the opportunity to receive a cash payment. The amount that you will receive will depend on your decisions and on the decisions of others. It will also depend on what role is selected to be paid, a point I will explain in more detail shortly.
- Remember that at the end of all the activities, we will determine your total earnings by randomly selecting one activity for payment. This means that each activity that you will perform contributes to determining your final earnings.
- Remember also, that in addition to what you will earn from the activities, each of you will receive Rs.1000 for participating in today's meeting. This money is yours, regardless of what happens during the activities. It will be paid to you in cash together with your earnings from the activities.
- It is real money, which you will be allowed to keep for yourself or do what you wish. This money will be paid to you in cash at the end of the meeting.
- During the activities you will make your decisions using paper slips [show slips], each representing Rs. 100. These paper slips will be converted into cash when you get paid at the end of the meeting.

CONFIDENTIALITY

- Both your decisions and your payment will be private and confidential. Nobody, apart from a member of our team who will enter data and calculate payment will know what you earned, and he/she will not tell anyone.
- We will put up these partitions between you every time you have to take a decision. You will make your decisions behind the partitions, so that nobody else can see what you decide.

The first three activities or games will be conducted in a randomized order. The order of the games will be set by the research team and will be known by the enumerators before each session. [Enumerator: The order or information that the order was randomized is not disclosed to the participants].

We are now ready to begin with the first activity. Let me remind you that you may not ask questions or talk while you are here in the group. If you have any questions, you may raise your hand and I (*the enumerator*) or my assistant(s) will come answer your question privately. Please be sure to listen to the instructions carefully.

Risk Elicitation

Announcer:

I will now explain the next/first activity. Please pay close attention to the instructions. We will also do a demonstration, and let you practice the activity before we play. If anything is unclear, please raise your hand and ask.

This activity is individual, i.e. it is not played in pairs, nor is your earnings dependent on the decisions of others. The objective of this activity is to get the most payoff possible and the payoff is based on your own decisions alone.

[Assistant: distribute cards]

You have been given a card with 6 options. You will make a choice between these 6 options (1, 2, 3, 4, 5 or 6). I will explain what these options are in a minute. After you select an option, we will

draw a ball from this bag. It has an equal number of red and yellow balls [enumerator: draw out each ball one by one and count the number of red and yellow balls].

So this bag has 5 red balls and 5 yellow balls.

Now let me explain what these options are. Each option has the amount in front of it that you will get depending on if a red or a yellow ball is drawn out. You can see this on your card. [Enumerator: point out the options and the amounts on the card/poster].

Let us go over how much you will get from each option depending on if a red or yellow ball is drawn from the bag. Option 1 gives me Rs. 250 if a Red ball is drawn out and Rs. 250 if a yellowball is drawn out. Similarly, option 2 gives me Rs. 475 if a Red ball is drawn out and Rs. 225 if a yellowball is drawn out. Option 3 gives you Rs. 600 if a Red ball is drawn out and Rs 200 if a yellow ball is drawn. Option 4 gives you Rs. 750 if a Red ball is drawn out and Rs 150 if a yellow ball is drawn. Option 5 gives you Rs. 950 if a Red ball is drawn out and Rs 50 if a yellow ball is drawn. Finally, Option 6 gives you Rs. 1000 if a Red ball is drawn out and Rs 0 if a yellow ball is drawn. Notice that as we go from option 1 to 6 the difference between what we can get from when a red ball is drawn out and when a yellow ball is drawn out increases.

To summarize first you will chose from option 1 to 6 and then I will draw out a red or yellow ball the bag. This will determine the amount you will get.

Let us look at some examples. For instance, I choose option 2. My assistant will now draw a ball from the bag. [*Assistant: draw out a ball*] You can see that, because my assistant has drawn a [red/yellow] ball, I will get [X] points. Lets say instead, I choose option 5. My assistant will now draw a ball from the bag. [*Assistant: draw out a ball*] You can see that, because my assistant has drawn a [red/yellow] ball, I will get [X] points.

Does anyone have any questions? If you have any questions, please raise your hand and wait for my assistant to come to you.

Let's play a practice round together to make sure that everyone understands the activity. This practice round is to help your understanding of the activity, and it does not count towards your

earnings from this activity.

[Play the practice round. Distribute the sheets to everyone. Explain to them that they should mark the option that they want to choose. Draw a ball from the bag, then go to each person and help him or her identify what he or she has earned].

Does anyone have any questions? [After answering all questions] Okay, let's do the activity. [Distribute the cards].

As we have explained, once all activities have been played, we will randomly select one activity for which you will receive payment. If this activity is chosen, then your earnings from this activity will depend on the option that you selected and whether a red ball or a yellow ball was drawn out.

Please mark your choice from 1 to 6 on the card provided after which we will collect your cards. [Collect cards].

Now I will draw a ball out of this bag to determine what you will get if this activity is selected. [Draw out the ball].

Dictator with public and private (secret) rounds

We are now ready to begin another activity(if the second/third activity)/the first activity. Let me remind you that you may not ask questions or talk while you are here in the group. If you have any questions, you may raise your hand and I or my assistant(s) will come answer your question privately.

INTRODUCTION AND PARTNER MATCHING

- This activity is performed by pairs of individuals.
- Each of you will perform this activity with someone from the other room.
- Who your partner will be depends on the color of your number tag that was determined by a random draw earlier.

- Half of you were given a red number tag, the other half a blue number tag. Your partner for this activity is determined by the color of your number tag.
- Those of you who were given a red number tag will be paired with the person they came with to the session today in the other room.
- Those of you who were given a blue number tag will be paired with a stranger in the other room. None of you will know exactly with whom you are paired. Only [researcher's name] knows who is matched with whom, and she/he will never tell anyone.
- In the other room, your partner will be doing the same activities you are.

Do you have questions on who your partner will be in this activity? If you have questions, please raise your hand and I will come to you to answer your question privately.

First we will explain the decisions that you are required to make and it might be a little confusing. Please listen carefully, and if there is anything that you don't understand, please raise your hand and we will explain it again. You will also have a chance to ask any questions you have in private with me to be sure you understand.

I will give you 10 tokens that represent money in a white envelope. [Show the envelope]. Each token is worth Rs.100. We also give you a blue envelope which will be empty. [Show the envelope].

You will be asked to divide the tokens between yourself and a partner. I will explain shortly who this partner is. You can keep all tokens for yourself or you can give some or all to your partner.

For example, you can keep four tokens for yourself and give six to your partner. You will have to put the 4 tokens that you want to keep for yourself in the white envelope and put the rest of the 6 tokens in the blue envelope. [Enumerator: demonstrate this]. This will mean that you have kept Rs. 400 for yourself and given Rs. 600 to your partner.

Or you can keep 6 tokens for yourself in the white envelope and give the rest to your partner by putting them in the blue envelope. This will mean you keep Rs. 600 for yourself and give Rs. 400 to your partner.

We will now show you posters that will explain some of the choices that you can make [paste poster somewhere and go over each of them one by one]. In the first example, you keep 2 tokens for yourself and give 8 to your partner. This means that you have kept Rs. 200 for yourself and given Rs. 800 to your partner. In the second example, you keep 0 tokens for yourself and give all 10 to your partner. This means that you have kept nothing for yourself and given all of the Rs. 1000 to your partner. In the third example, you keep 10 tokens for yourself and give nothing to your partner. This means that you have kept Rs. 1000 for yourself and given nothing to your partner.

Lets practice this activity. I have with me 10 tokens. I decide to put 8 of these tokens in the blue envelope. Who is this money going to go to? [Check if answer is partner]. How much are these tokens worth to your partner? [Check if the answer is 800]. How much money have you kept for yourself? [Check if the answer is 200]. Are there any questions? Please raise your hand and I can come to you in private and explain the activity to you.

We will do this activity twice. Both rounds of the activity will be similar; the only difference is that once your decision will be made public and once kept private. That is, in the public round, your partner will know what amount you allocated to them whereas in the private round, your partner will not know what amount you allocated to them. We will let you know which round is public, which is private and how we will make sure your decisions are kept private in the private round.

As we have explained earlier, once all activities have been played, we will randomly select one activity for which you will receive payment by picking out a number from the bag. Once the activity is selected, we will then select a number again from the bag which will determine the round. Then we will select by again picking out a number from the bag whether payments decided in Room 1 or Room 2 will be made. So, this means that if this activity selected, there is an equal chance that you will be paid according to your choices or those made by your partner. Does anyone have any questions?

[To the enumerator: Randomise order of public/secret activities – you do not need to announce that we are now going to randomise order.]

Public round

Now lets do the first round (if the first round) /Now lets conduct the next round (if not the first round).Your partner in this activity is the same as in the last round. If this activity and round is selected, your choices in this round will be made public. That is, your choice will be told to your partner but not to anyone else here. In the other room, your partner will be doing exactly the same activities that you are.

Please note, only the amount you allocated will be made known to the partner. This means, that for those of you who are paired with strangers, will disclose the amount allocated but will not disclose your identity. For those paired with the person they came with to this venue, of course, your partner will know your identity as well.

Let me remind you who your partner is. Those of you who were given a red number tag are paired with the person who they came with to the session today in the other room. Those of you who were given a blue number tag are paired with a stranger in the other room. None of you know exactly with whom you are paired. Only researchers knows who is matched with whom, and she/he will never tell anyone. [To the enumerator: Now conduct the activity. Distribute envelopes].

Please open your white envelopes and count that you all have 10 tokens.

Now put the tokens back in the white envelope.

Remember, because this activity is public, your partner will know how much money you gave and how much you kept for yourself. Please put as many tokens as you want to give to your partner in the blue envelope and put the tokens you want to keep for yourself in the white envelope. Make sure your choice is hidden and do not discuss it with other participants in the room. We will then shortly collect both these envelopes from you. This will tell us how much you have given to your partner. Let me remind you that those of you who were given a red number tag will are paired with the person they came with to the session today in the other room. Those of you who were given a blue number tag are paired with a stranger in the other room.

Are there any questions? Please raise your hand and I can come to you in private and explain the

activity to you.

My assistant will now come to you one by one to collect the envelopes. Please keep seated as we do so. As we have explained, once all activities have been played, we will randomly select one activity for which you will receive payment. If this activity is chosen, we will select a number from this bag to select the round and the room according to which payment will be made. [Show numbers and bag].

Secret/private round

Now let us do the first round (if the first round) /Now let us conduct the next round (if not the first round). Your partner in this activity is the same as in the last round. Your choices in this round will be private. That is, your choice of amount to be allocated will not be told to your partner or anyone else here.

Let me now explain how we will make sure your choices are private. If this activity and round is selected at the end, the payment we will make to your partner will be determined by what you give him/her plus/minus a pre-decided amount selected by the researcher that neither I nor anyone else in the other room knows. How will the researcher know how much to add or subtract? He has a choice of a pre-decided amount. To determine whether to add or subtract an amount, I will toss a coin in front of you. I will then tell the researcher outside the result of the coin toss. He will add or subtract the amount corresponding to head or tail to your allocation in this room to calculate the payment that must be made to your partner. In this way, there is no way for your partner to know how much you allocated to him/her.

Are there any questions on how we keep your allocations secret? If you have questions, please raise your hand and wait for my assistant to come to you.

In the other room, your partner will be doing exactly the same activities that you are.

Let me remind you who your partner is. Those of you who were given a red number tag are paired with the person who they came with to the session today in the other room. Those of you who were

given a blue number tag are paired with a stranger in the other room. None of you know exactly with whom you are paired. Only researchers knows who is matched with whom, and she/he will never tell anyone.

[Now conduct the activity. Distribute envelopes]

Please open your white envelopes and count that you all have 10 tokens.

Now put the tokens back in the envelope.

Remember, because this activity is private, your partner will never know the money comes from you. S/he will not know how much money you gave and how much you kept for yourself. Please put as many tokens as you want to give to your partner in the blue envelope and put the tokens you want to keep for yourself in the white envelope. Make sure your choice is hidden and do not discuss it with other participants in the room. We will then shortly collect both these envelopes from you. This will tell us how much you have given to your partner.

Are there any questions? Please raise your hand and I can come to you in private and explain the activity to you.

My assistant will now come to you one by one to collect the envelopes. Please keep seated as we do so. As we have explained, once all activities have been played, we will randomly select one activity for which you will receive payment. If this activity is chosen, we will select a number from this bag to select the round and the room according to which payment will be made. [Show numbers and bag].

Taking and dictator with *earned* endowment

We are now ready to begin another activity (if the second/third activity)/the first activity. Let me remind you that you may not ask questions or talk while you are here in the group. If you have any questions, you may raise your hand and I (the enumerator) or my assistant(s) will come answer your question privately. [Only if dictator game has not been played first:] This is NOT the same activity that you just performed, so be sure to listen to the instructions carefully.

B.0.1 INTRODUCTION AND PARTNER MATCHING

- This activity is performed by pairs of individuals.
- Each of you will perform this activity with someone from the other room.
- Who your partner will be depends on the color of your number tag, that was determined by a random draw earlier.
- Half of you were given a red number tag, the other half a blue number tag. Your partner for this activity is determined by the color of your number tag.
- Those of you who were given a red number tag will be paired with their spouse in the other room.
- Those of you who were given a blue number tag will be paired with a stranger in the other room. None of you will know exactly with whom you are paired. Only [researcher's name] knows who is matched with whom, and she/he will never tell anyone.
- In the other room, your partner will be doing the same activities you are.

Do you have questions on who your partner will be in this activity? If you have questions, please raise your hand and I will come to you to answer your question privately.

First, we will explain one part of this activity that might be a little confusing. Please listen carefully, and if there is anything you don't understand, do not worry, since you will have a chance to ask questions in private with me to be sure that you understand how to play.

In this activity, you will have an opportunity to earn money. Everyone in this activity will earn money that will be divided between him or herself and his or her partner. You will earn money by sorting black chickpeas out of a box. The money that you earn by successfully completing this activity will then be divided between you and your partner in the other room. While we are playing the activity in this room, your partner in the next room will also be making decisions about how he or she would divide money between the two of you that you will earn in the activity.

After we finish playing all the activity, we are going to pick one of the two rooms, this one or the

other one. Only the decisions made in the room that we pick will count towards deciding your payment. So, either your decisions or your partners decisions, but not both, will determine how much both you and your partner take home at the end of the activity.

We will first describe how you and your partner will earn money by sorting chickpeas, and then we will describe how you and your partner will divide the other's earnings.

Earning money by sorting chickpeas

There is a large box in front of you. There is an identical box sitting in front of your partner in the next room. The box contains two different kinds of chickpeas: black chickpeas and white chickpeas. Each player has a box and a plate with their number on them.

After we finish explaining the instructions, we'll ask you to remove the lid from your box and place it on the floor. At that point, we will give you two minutes to collect black chickpeas from the box and place them into the plate. After you finish collecting black chickpeas, we will count the black chickpeas that you have in your plate. You will be paid according to the number of black chickpeas that you collect.

Please look at this poster to understand how we are going to pay you. The poster shows you ranges of chickpeas that you may collect. If you collect a number within one of these ranges, you will be paid the amount shown in the column next to it. For example, if you collect 50 black chickpeas, you will get Rs. 200. If you collect less than 20 chickpeas, you will get nothing. If you collect 35, you will get Rs. 100. Any questions? [Enumerator: read out all possible earnings from the poster put up as given in Table A9].

So, you will earn money in this activity by collecting chickpeas from the box. The more chickpeas you collect, the more money you earn. In the other room, your partner will follow the same procedure and earn money by counting chickpeas in exactly the same way. So the same holds for your partner: the more chickpeas your partner collects, the more money he or she earns.

You can spend up to two minutes collecting chickpeas. At the end of the two-minutes, we will ask

Table A9: Earnings corresponding to black chickpeas collected

Range (black chickpeas)	Earning (Rs.)
0-19	0
20-39	100
40-59	200
60-79	300
80-99	400
100-119	500
120-139	600
140-159	700
160-179	800
180-199	900
200 or more	1000

everyone to replace the lids on their boxes. However, you are free to stop at any time during the two-minute period. If you stop before the two-minutes are over, we will ask you to put the lid back on the box. You will then bring the black chickpeas you have collected up to the front of the room, where we will count them. Your partner in the other room will also have two minutes to collect black chickpeas, will be free to stop at any time during the two minutes period, and will bring the black chickpeas he or she has collected to be counted.

While you are collecting chickpeas from the box, you will follow these rules. These are the same rules that your partner will follow in the other room.

- No one is allowed to leave chickpeas on the floor. If a participant leaves chickpeas of any type on the floor (rather than in the box) at the end of the two minutes, that participant will not be paid anything for the chickpeas that have fallen on the floor.
- Also, you cannot empty out your box and pick the chickpeas off the floor. Any participant who empties out their box onto the floor will not be paid anything for the chickpeas he or she collected.
- In addition, everyone must make sure to only place black chickpeas into the plate that we will take to count and determine how much you earn. When each participant brings their chickpeas up to be counted, we will check if there is a white chickpea in the plate. If there is, we will

deduct Rs.50 for every white chickpea we find in your plate. For example, if a participant sorted out 20 black chickpeas, he would earn Rs. 100 but if the participant sorted 20 black chickpeas and also a white chickpea in the plate, he will receive Rs. 100 minus 50 i.e. Rs. 50.

- Finally, participants are not allowed to remove the box from the floor in front of them at any time while they are sorting out chickpeas. They may not tip or lift the box, as chickpeas could spill onto the floor.

So, both you and your partner will have two minutes to collect black chickpeas from the box. Both you and your partner can stop at any time, or work for the full two minutes. Both you and your partner will be paid according to the number of black chickpeas that you collect.

Before we explain the rest of the activity, we are going to let you try sorting chickpeas into the plate. Each of you can take the lid off of your box and place it on the floor. Please reach into the box and pull out one black chickpea. We will come around and verify that each of you understands the distinction between the different types of chickpeas.

We've finished explaining how you and your partner will earn money in this activity by collecting chickpeas from a box.

Before you can sort chickpeas, we are going to invite you outside to tell us how you want to divide your possible earnings between yourself and your partner in the next room. You will tell us how you would divide all of the possible amounts that you might end up being paid for sorting out chickpeas. In the other room, your partner will be asked to do the same. We will just explain what these possible amounts are.

We will ask you to decide how to divide each other's earnings twice. Please listen carefully as this may be confusing. Once we will ask you to divide your own earnings between yourself and your partner and once we will ask you to divide your partner's earnings between yourself and your partner. Please note the distinction, in one case you will be dividing your own earning and in the other you will be dividing yours partners earnings. Is this clear to everyone?

Dividing the earnings

[randomise order of dictator and taking allocation and then read instructions for whichever is chosen first]

Dictator:

In this round we will be asking you to divide your own earnings between yourself and your partner. We will now go through all of the possible amounts that you may earn. The smallest amount that you may earn is Rs. 0, which is what you would earn if you did not collect at least 20 black chickpeas. On the other hand, no matter how hard you work, you cannot earn more than a 1000. For each possible amount that you may end up earning, we'll ask you how you would divide that money between yourself and your partner.

In this round you are allowed to keep as much or as little of your earnings to yourself as you want, it is your decision. How much you want to leave your partner might depend on how much you earn. For each amount that you earn, we'll ask you how much of it you would like to keep for yourself. We will ask the same questions to your partners, finding out how much he/she or she would like to keep to him or herself for each possible amount that he/she might earn.

Let's look at a couple of examples.

Imagine that an individual comes to me. I will fill out this sheet with them [show sheet] by asking him or her about each possible earning. For example I will ask 'if you end up earning Rs. 400, how do you want to divide it between yourself and your partner?' A possible answer of the player could be: 'I will take Rs. 200 and leave the other Rs 200 for my partner'. Then I will ask him or her: 'I want you to tell me what you would do if you earned Rs. 800 instead. How would you like to divide it between yourself and your partner?' A possible answer of the player could be: 'I will give myself Rs 600 and I will leave my partner Rs 200.' Then I will ask him or her: 'I want you to tell me what you would do if you earned Rs 1000. How would you like to divide it between yourself and your partner?' A possible answer of the player could be: 'I will give myself Rs 400 and I will leave my partner Rs 600.'

Different people might make different decisions. Now imagine that another player comes to me. I will ask him or her: 'Now please tell me how you want us to divide your earnings if you earn 500.' A possible answer of this other player could be: 'I will give all of the money to my partner and take nothing for myself.'

Remember, you can divide the money that you earned any way you want, the decision is yours. You can leave your partner all of your earnings, or none of it. You can do whatever you want to do.

Remember, all of you are going to receive Rs. 1000 as participation fee for attending the activity session. As we have explained, in addition to the participation fee, once all activities have been played, we will randomly select one activity for which you will receive payment. If this activity is chosen, we will select a number from this bag to select the round and the room according to which payment will be made. [show numbers and bag]. The payment to you for this game will be after any penalties have been deducted. Let me also remind you who your partner is for this activity. For those of you who have a red tag, your partner is whoever you came with in the next room. For those of you who have a blue tag, your partner is a stranger in the other room. Only [researcher's name] knows who you are matched with if you have a blue tag, and she/he will never tell anyone.

Are we ready to begin? This may take some time, and you must sit quietly while you await your turn. [Answer any questions and then begin calling subjects to you by ID number on their tag whenever the enumerators recording the choices are ready. It is very important that one enumerator makes sure that everyone is seated and not talking at all.]

Taking:

In this round we will be asking you to divide your partner's earnings between yourself and your partner. We will go through all of the possible amounts that your partner may earn. The smallest amount that they may earn is Rs. 0, which is what they would earn if they collect at least 20 black chickpeas. On the other hand, no matter how hard they work, you cannot earn more than Rs. 1000. We have played this activity many times, and no one has ever earned that much. For each possible amount that they may end up earning, we will ask you how you would divide that money between yourself and your partner.

In this round you are allowed to transfer as much or as little of your partner's earnings to yourself as you want, it is your decision. How much you want to leave your partner might depend on how much your partner earns. For each amount that your partner might earn, we'll ask you how much of it you would like to transfer to yourself. We will ask the same questions to your partners, finding out how much he or she would like to transfer to him or herself for each possible amount that you might earn.

Let's look at a couple of examples.

Imagine that an individual comes to me. I will fill out this sheet with them [show sheet] by asking him or her about each possible earning. For example I will ask 'If your partner ends up earning Rs. 500, how do you want to divide it between yourself and your partner?'. A possible answer of the player could be: 'I will take Rs. 200 and leave the other Rs 300 for my partner.' Then I will ask him or her: 'I want you to tell me what you would do if your partner earned Rs. 900 instead. How would you like to divide it between yourself and your partner?' A possible answer of the player could be: 'I will give myself Rs 600 and I will leave my partner Rs 300.' Then I will ask him or her: 'I want you to tell me what you would do if your partner earned Rs 100. How would you like to divide it between yourself and your partner?' A possible answer of the player could be: 'I will give myself Rs 50 and I will leave my partner Rs 50.'

Different people might make different decisions. Now imagine that another player comes to me. I will ask him or her: 'Now please tell me how you want us to divide your earnings if you earn 500.' A possible answer of this other player could be: 'I will give all of the money to my partner and take nothing for myself.'

Remember, you can divide the money that you earn any way you want, the decision is yours. You can leave your partner all of their earnings, or none of it. You can do whatever you want to do.

Remember, all of you are going to receive Rs. 1000 as participation fee for attending the activity session. As we have explained, in addition to the participation fee, once all activities have been played, we will randomly select one activity for which you will receive payment. If this activity is chosen, we will select a number from this bag to select the round and the room according to which

payment will be made. [show numbers and bag]. The payment to you for this game will be after any penalties have been deducted. Let me also remind you who your partner is for this activity. For those of you who have a red tag, your partner is whoever you came with in the next room. For those of you who have a blue tag, your partner is a stranger in the other room. Only [researcher's name] knows who you are matched with if you have a blue tag, and she/he will never tell anyone.

Are we ready to begin? This may take some time, and you must sit quietly while you await your turn. [Answer any questions and then begin calling subjects to you by ID number on their tag whenever the enumerators recording the choices are ready. It is very important that one enumerator makes sure that everyone is seated and not talking at all.]

Now, you have two minutes to collect chickpeas from the box in front of you. Is everyone ready to begin?

[To the enumerator: conduct the sorting activity]

Norms elicitation

This is the last activity. Your partner in this activity is different from your partner in the activities we have conducted before. Please forget the activities you have done before this one, this activity and your partner in it, is completely different from what you have been doing before. I will just let you know who your partner is.

For this activity, I will read to you descriptions of situations. These descriptions correspond to situations in which one person, a woman, must make a decision. For each situation, you will be given a description of the decision faced by the woman. After I read to you the description of the decision, I will describe a choice that the woman might have made, and you should decide whether making that choice would be 'socially appropriate' and 'consistent with moral or proper social behaviour' or 'socially inappropriate' and 'inconsistent with moral or proper social behaviour'. By socially appropriate, we mean behaviour that most people agree is the 'correct' or 'ethical' thing to do. Another way to think about what we mean is that, if someone were to make a socially

inappropriate choice, then someone observing this behaviour might get angry at the person who made the choice for acting in that manner.

In each of your responses, we would like you to answer as truthfully as possible, based on your opinions of what constitutes socially appropriate or socially inappropriate behaviour.

To give you an idea of how the experiment will proceed, we will go through an example and show you how you will indicate your responses. I will now read to you an example of a situation. These cards that I am holding illustrate the situation and the decision sheet.

Someone is at a local grocery store. While there, the person notices that someone has left a wallet/bag on the counter. How appropriate would it be to take the wallet?

If this were the situation we asked you about today, you would indicate the extent to which you believe taking the wallet would be 'socially appropriate' and 'consistent with moral or proper social behaviour' or 'socially inappropriate' and 'inconsistent with moral or proper social behaviour'. Recall that by socially appropriate we mean behaviour that most people agree is the 'correct' or 'ethical' thing to do. You should indicate your choice by filling the decision sheet [Hold up a reproduction of the decision sheet, where the answers are pictured using thumbs up or down]. As you can see, the decision sheet has four symbols on it:

- 2 thumbs down, corresponding to 'very socially inappropriate'
- 1 thumb down, corresponding to 'somewhat socially inappropriate'
- 1 thumb up, corresponding to 'somewhat socially appropriate'
- and 2 thumbs up, corresponding to 'very socially appropriate'.

This is to help you recognize and remember what each of these options mean.

For example, suppose you thought that taking the wallet was socially inappropriate. Then, you would indicate your response by selecting the second symbol, the one with the one thumb down on the decision sheet. If you think that it is ok to take the wallet, then you may tick against socially appropriate, the one with one thumb up.

Are there any questions about this example situation or about how to indicate your responses?

I will now read to a situation, dealing with decision that a woman might have to make. I would like you to think whether making that choice is very socially inappropriate, somewhat socially inappropriate, somewhat socially appropriate, or very socially appropriate for a woman to make.

For example, imagine that a woman can buy a piece of clothing for herself, using money she has been given by her parents as a gift. She wants to buy a suit. Her husband offers to go and buy the suit for her. She can let the husband go shopping for her, or she can go herself. She decides to go shopping by herself. How appropriate do you think it is for the woman to buy the suit by herself? Do you think her decision is very socially appropriate, somewhat socially appropriate, somewhat socially inappropriate or very socially inappropriate? I think the decision is socially appropriate so I tick against this box, the one with the one thumbs up. Lets see now what my assistant thinks [assistant say that you think that is very socially inappropriate, and tick in the two thumbs down sign].

To indicate your response, you would place a check mark on the corresponding symbol on the decision sheet [Hold up reproduction of decision sheet again].

How will you get paid for this activity? If this activity is the one selected to be paid, we will pay you Rs. 300 every time your answer matches the answer of someone you are paired with in this or the other room, in addition to your participation fee. For instance, if the example situation above were part of this activity, and this activity were selected to be paid, you would receive Rs. 300 for this question if:

- your response were "somewhat socially appropriate,"
- AND the answer given by another person in the other room were also 'somewhat socially appropriate'.

Otherwise you would receive only the Rs. 1000 participation fee.

Who is the person in the other room, whose answers will be compared to your to determine your earnings from this activity? It will be a different person in different questions. We will explain

exactly who this person is when we ask each question.

Do you have any questions? If you have any questions, please raise your hand and wait for my assistant to come to you.

Ok, lets conduct the activity.

Question:

I will now tell you about a situation, also dealing with a decision that a woman might have to make. Again, I would like you to think whether making that choice is very socially inappropriate, somewhat socially inappropriate, somewhat socially appropriate, or very socially appropriate. To indicate your response, you would place a check mark on the corresponding symbol on the decision sheet. Imagine that a woman is running a business from her home. At the end of the month, she has some profits to re-invest. She can ask her husband to re-invest them for her, or she can choose herself, without consulting him. She decides to re-invest her profits in what she thinks best, without consulting her husband.

How appropriate do you think it is for the woman to make the investment decision on her own? Do you think her decision is very socially appropriate, somewhat socially appropriate, somewhat socially inappropriate or very socially inappropriate?

[randomize order of questions a-c]

Question a: Stranger in other room

I (again) will distribute sheets to you in which you must mark your answer [Enumerator: Distribute sheets].

You will receive Rs. 300 for this question only if your answer matches that of a randomly selected person in the other room, different from your who you came with today, and if this activity is selected for payment. Other than the stranger being in the other room, nor you nor I know who the

person you are matched with is today, only [researchers name] knows and s/he will not tell anyone.

To mark your answer, tick the corresponding box in the answer sheet in front of you.

Question b: Stranger in the same room

I (again) will distribute sheets to you in which you must mark your answer [Enumerator: Distribute sheets].

You will receive Rs. 300 for this question only if your answer matches that of a randomly selected person in the same room. So note the difference from previous activities: you are not matched with someone in the other room. You will get paid for this question if your answer matches that of a randomly selected person in the same room and if this activity is selected for payment. Other than the stranger being in this room, nor you nor I know who the person you are matched with is today, only [researchers name] knows and s/he will not tell anyone. To mark your answer, tick the corresponding box in the answer sheet in front of you.

Question 1c: who they came with today, in other room

I (again) will distribute sheets to you in which you must mark your answer [Enumerator: Distribute sheets].

You will receive Rs. 300 for this question only if your answer matches that of who you came with today in the other room and if this activity is selected for payment. To mark your answer, tick the corresponding box in the answer sheet in front of you.

Appendix C Experiment timeline

Two sessions were conducted in each of the 13 branches for a total of 26 sessions between August and September 2015. Both sessions in one branch area were held on the same day to minimize chances of information spill-over between participants.²⁴ Each session was held in a central location close to the local branch and to the residences of the participants. Given the location of Kashf branches, this could mean a distance of 10 to 15 km between participant residence and the site of experiments. The participation fee was set to be more than sufficient to cover transport costs by any means whether public or privately hired.

Participation was capped at a maximum of 12 couples per session to ensure that the logistics of each session were easily managed. In case more than 12 couples were present for a session, a ballot was conducted to select the 12 couples who would participate; others were asked to leave and paid the participation fee as promised.

The sequence of events during experiment sessions is as follows:

1. Upon arrival, subject pairs are seated in the main hall for the start of general instructions. At this point they are informed that they will be paid participation fee plus their earnings from the activities at the end of the session.
2. In case more than 12 pairs show up for the session, a ballot would be conducted to choose 12 pairs. 70.4% of the participants attended the sessions with their husband and 29.5% of the respondents attended with other male members of the household (son, father, brother, etc.)
3. Once 12 pairs have been selected to participate in the session, each pair would retrieve a token from an opaque bag that would be their session ID. Tokens 1-6 were red in color; 7-12 were blue (the purpose of this coloring was explained later).
4. Subject pairs were then taken to their respective rooms, men in one room and women in an-

²⁴ In each branch area, surveys were conducted during the week, with experiment sessions conducted only on Sundays. All sessions were held on a Sunday so that working participants, particularly the men, were able to easily attend. Further, separate sessions were held for control and treatment participants of the RCT to minimise the likelihood of participants of the two sessions communicating with each other. Morning and afternoon sessions were randomly allocated to control or treatment clients to avoid any time-of-the-day effects biasing results.

other. No contact is allowed between subjects of opposite genders during the entire experiment. Activities are conducted simultaneously in both rooms.

5. Subjects of the same gender are seated in sequence of their ID tags. There are two rows of chairs spaced apart. Contact between subjects in the same room is strongly discouraged. To help logistics and data entry, participants with ID 1 - 6 are seated on one side, while 7 - 12 are seated on the other.
6. 2 enumerators were solely responsible for entering participant decisions; one for each room. Data was entered on excel sheets designed by the research team and was done immediately upon the completion of an activity/round in each room.
7. The norms game is always played last. Dictator with public and private round (D), taking and dictator with earned endowments (TD) and risk (R) activities are played in random order, set beforehand by researchers. In addition, rounds of each activity (other than risk, which had just one round) were also played in random order. The order of play is shown in Table C1:

Table C1: Activity order

Game Order	Session No.
D-R-TD	11, 13, 14, 16, 25
D-TD-R	3, 9, 10, 17
R-D-TD	2, 6, 12, 26
R-TD-D	4, 5, 8, 15, 20
TD-D-R	1, 7, 22, 24
TD-R-D	18, 19, 21, 23

8. The first three activities are played. For dictator and taking activities (D and TD), each subject pair is randomly assigned to stranger and household member/spouse pairing. Earlier, individuals picked out their pair ID out of an opaque bag. Pairs with a red tag (tag ID 1 - 6), were partnered with their household member and those with blue tags were paired with strangers (of the opposite gender). Each pairing is done without replacement, which means all participants in the stranger pairing were paired with one partner only. 51% of the participants were paired with family member and 49.% are paired with a stranger.
9. The norms activity was always played last. Participants were asked to deem the appropriateness

Table C2: Order of norms question pairing

Answers Matched to:	Session No.
Stranger (opposite gender), Stranger (same gender), Household member	1, 10, 11, 14, 17, 22
Stranger (same gender), Household member, Stranger (opposite gender)	13, 15, 24
Household member, Stranger (opposite gender), Stranger (same gender)	3, 6, 7, 23, 26
Stranger (opposite gender), Household member, Stranger (same gender)	4, 5, 8, 12, 19
Stranger (same gender), Stranger (opposite gender), Household member	2, 21, 25
Household member, Stranger (same gender), Stranger (opposite gender)	9, 16, 18, 20

of a decision made by a woman in a hypothetical situation and earned money if their answer matched that of their partner in that round, where the pairing in each round was different. Three rounds were played. Individuals were paired once with household members, once with stranger of the opposite gender and once with stranger of the same gender. The order in which this pairing was done was randomly pre-set by the researchers and is shown in Table C2:

10. At the end of the session, in each room, the enumerator would invite one participant to pick a number from 1 - 4 from an opaque bag. The number drawn out would determine which activity of the day was picked for payment. Then, for activities with multiple round, another ballot would determine the round, and then which room's decision (e.g. self or partner's allocations in the dictator and taking games) would be implemented for payment.
11. A short questionnaire was administered to the male participants.
12. Show-up fee + pay off from randomly selected activity was paid to each participant, independently and privately. Participants were not informed what their partners or members of household have earned.

Appendix D Survey questions to measure empowerment

The variable '*Decide alone*' is constructed using the response to the following survey question:

Who in your household usually makes decisions about the following?

1. Clothing and footwear
2. Medical treatment
3. Recreation and travel
4. Visit friends in the neighbourhood
5. Make small purchases for yourself (e.g. clothes)
6. Make small purchases for others in the household (e.g. kitchen utensils)
7. Join a credit group/committee
8. Invest surplus money
9. Your marriage
10. Loan from an organisation

- Each item above is coded as 1 if the woman reports deciding alone and 0 otherwise and then added to form an equal weighted index.

The variable '*Not allowed work*' is constructed using the response to the following survey question:

Why are you not actively seeking paid work?

- '*Not allowed work*' takes on the value 1 if the woman reported not being allowed by husband or father; and 0 otherwise, in response to the following question: