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# Deadweight Losses or Gains from In-kind Transfers: Experimental Evidence

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## Abstract

Are in-kind transfers associated with deadweight losses? To answer this question, we conducted an incentivized field experiment in India and offered low-income respondents the choice between a free quantity of rice and varying amounts of cash to elicit their willingness to pay for rice. Contrary to expectation, we find evidence of deadweight gain on average, though with a striking contrast between a deadweight loss among women from female-headed households and a deadweight gain among women from male-headed households. After investigating alternative mechanisms, our results highlight that greater bargaining power of women within households increases the propensity to choose cash over rice.

**Keywords:** deadweight loss, in-kind transfer, cash transfer, food subsidy, field experiment, India

**JEL codes:** C93, D13, I38, J16, Q18

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## 1. Introduction

Supporting the poor is a central concern of the modern welfare state. There are essentially two ways to provide assistance to those who cannot afford to meet their basic needs. One is to provide basic goods to entitled poor households for free or at a subsidised price. Examples are food or fuel subsidies, free textbooks, and council housing. The other is to support the poor household's income directly with cash payments, which enables the beneficiaries to supply themselves with the goods from the market.

Which one is the better way to support poor households? Orthodox economic theory has a clear favourite. Suppose a household consumes  $x$  units of a basic good (say, grains) at a subsidised price  $p_s$  which is below the market price  $p_m$ . The government thus pays  $(p_m - p_s)x$  to facilitate the low price. Now imagine the government cancels the food subsidy and pays the household exactly the same amount in cash. For the government this move would be budget neutral, the same amount is spent in different ways. For the household the new situation is at least as good as the old. It now has to pay the higher market price, but has the means to do so. The household gains, however, an element of choice. It is no longer confined to consume the subsidised good, but can spend the money according to its preferences. A classic win-win situation, as it seems.

The welfare loss that in-kind benefits create is called the deadweight loss. It can be conceptualised in a straightforward way. In the above example the subsidy paid is  $(p_m - p_s)x$ . As seen above, the household would definitely accept a cash subsidy of  $s = (p_m - p_s)x$ , since this would enable it to exactly replicate the consumption bundle it had before. Unless the consumption of  $x$  is exactly the bundle the household would consume at market prices, it would likely also accept a cash transfer slightly smaller than  $s$ . Denote by  $s^*$  the cash transfer that makes the household exactly indifferent between a cash transfer of  $s^*$  and the option to buy at a subsidised price  $p_s$ . The difference between  $s$  and  $s^*$  is the deadweight loss of the in-kind benefit. This is the extra expense that the government incurs without benefitting the beneficiary.

Given the compelling case against in-kind benefits, why are they still so common? Many reasons have been put forward to explain this phenomenon. Some are paternalistic, e.g. the provision of free textbooks aims to ensure that the children benefit from the subsidy by making it harder for parents to divert an equivalent cash transfer for other purposes. Sometimes

equivalent cash transfers are politically unfeasible. While there are other reasons why in-kind benefits are so persistent (Currie and Gahvari 2008), our focus in this paper is to test the existence of the deadweight loss of in-kind benefits and quantify its magnitude through an incentivized field experiment. Such measurement of deadweight loss has not received much attention in the literature. Our experiment is located in the context of a mature food subsidy program in India, which has been in operation for decades. We conducted the experiment in selected low-income urban neighbourhoods in the state of Maharashtra, where we offered respondents the choice between a free quantity of rice and a cash transfer. In an incentive compatible procedure, we elicited the amount of cash the respondents considered equivalent to the rice. We repeated this procedure monthly over the course of three months. From this data we could then quantitatively calculate the deadweight loss associated with the food subsidy.

The results came as a surprise. Equivalent cash transfers were predominantly *above* the cash value of the rice. Thus, there appeared to be not a deadweight loss, but a deadweight *gain* from in-kind benefits, something that seems implausible by standard economic theory. To address this puzzle, we abandon the view of the household as a monolithic entity with uniform preferences, the traditional view in economic theory (Becker 1981), and turn our attention to the issue of intra-household bargaining (Chiappori 1992, Chiappori and Mazzocco 2017, Munro 2018). If the person who controls and makes decisions about the subsidised product is not the same as the one who controls the cash, then a bias in favour of in-kind benefits can indeed occur.

We test this mechanism by examining deadweight loss or gain among households headed by women where, as household heads, they have control over decisions related to both cash and the subsidized product. We contrast this with deadweight loss or gain among male-headed households. Our results show that despite evidence of overall deadweight gain in our data, there is a deadweight loss among female-headed households and a deadweight gain among male-headed households.

We develop a simple model of intra-household bargaining that can explain why decision-makers may make choices biased towards in-kind benefits. In the typical Indian setting of male-headed households, the woman is often in charge of managing the food supply out of a given food budget, while her husband controls the rest of household's finances. An in-kind benefit of rice can thus benefit the woman in this setting more than a cash transfer of similar value, as she can save money out of her food budget that otherwise would have had to be spent on rice.

This is the basis for expecting a higher likelihood of choosing rice among women from male-headed households relative to women from female-headed households. With the male-headed households being more ubiquitous, there is an overall observed bias towards in-kind benefits.

This mechanism relating to intra-household bargaining is also supported by the responses given by women for their choice of rice over cash. While many women report using rice as a *commitment device* (fearing that cash may be spent on other things), the proportion reporting this as the primary reason for their choice is significantly higher in male- than female-headed households. The greater need for a commitment device among male-headed households points to the role of intra-household bargaining power in influencing this choice.

Our study is also able to address alternative explanations for the choice of rice relative to cash. For instance, (i) transaction costs or trust in the implementation of the cash and rice options could be different, (ii) there could be differences in the quality of market and subsidized rice, or (iii) the quantity of additional rice offered in the experiment may not be infra-marginal. Our experiment precludes these possibilities by design. First, we made sure that transaction cost and/or trust considerations were the same for rice and cash by making both offers redeemable through an identical process at the same local shop. Second, the quality of the subsidized rice offered in the experiment was comparable to the market rice. Third, the quantity of rice we offered was infra-marginal (i.e., less than the quantity of rice the households were already buying from the market). This ensured that the rice offered through the experiment did not generate deadweight losses simply because the households had already met their total rice requirements.

Our study contributes to three main strands of the literature. First, it contributes to the literature on measuring deadweight loss of in-kind transfers or gifts. Using evidence from surveys, Waldfogel (1993), and Principe and Eisenhauer (2009) show that gift giving can lead to a deadweight loss, reflecting the sub-optimal nature of the gift selected by the gift-giver that does not match the recipient's preferences. On the other hand, surveys conducted by Solnick and Hemenway (1996) show evidence of substantial deadweight gain as respondents appreciated the thought that went into choosing a gift. List and Shogren (1998) compare survey-based results with incentivised auctions and report a deadweight loss using surveys and a modest deadweight gain using incentivised methods. Cunha et al. (2019) study the welfare effects of in-kind transfers, operating through a price effect, in the context of a program in Mexico that randomly assigned in-kind transfers, equivalently-valued cash, or no transfers to villages in the

sample. They find that in-kind transfers increased supply of the good in the recipient community, reduced price, and had a substantial (positive) welfare impact on poor villages. In contrast to these studies, our paper takes a different approach. We conduct an incentivised field experiment where households are offered a choice between cash and an in-kind transfer, for different amounts of cash, and the point at which they switch from in-kind to cash allows us to construct a more direct measure of their deadweight loss.

Second, our study connects with the debates around the Public Distribution System (PDS) in India, the world's largest safety net program based on in-kind transfers of highly subsidized food (mainly wheat and rice) with an estimated coverage of about two-thirds of the country's population or nearly 900 million people (Khera and Somanchi 2020). Historically, a major concern with the PDS has been the diversion of subsidized grains to the open market, with the estimates of such "leakage" ranging between 35 and 47 percent of the total grain offtake for 2011-12 (Jha and Ramaswami 2012, Himanshu and Sen 2013, Dreze and Khera 2015, Gulati and Saini 2015). This has led to calls for reforms to introduce the option of direct cash transfers in lieu of in-kind subsidy (Basu 2011, Kotwal, Murugkar and Ramaswami 2011, Muralidharan, Niehaus and Sukhtankar 2019). There is survey-based evidence on beneficiary preferences when presented with hypothetical choices between cash or in-kind transfers (Khera 2011, 2014, Muralidharan, Niehaus and Sukhtankar 2011, Satapathy et al 2022) or in the context of pilot programs that rolled out direct cash transfers to replace subsidized food (Muralidharan, Niehaus and Sukhtankar 2017).<sup>1</sup> However, incentivized experimental evidence on this important policy issue has been lacking.

Third, our paper also advances the research on decision-making within households. Researchers have used theoretical models, observational studies, experimental games and impact evaluations to understand intra-household behaviour. Baland and Ziparo (2017), Munro (2018) and Doss and Quisumbing (2020) present useful surveys of this literature. The main themes in this literature revolve around the idea that while many resources are owned and managed jointly by household members and several decisions are made jointly, not all parties necessarily have equal voice in these decisions. Further, households often do not reach efficient

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<sup>1</sup> Survey-based evidence from Muralidharan, Niehaus and Sukhtankar (2011) reports that the minimum value of cash for which respondents were willing to forgo their food ration was higher, on average, than the value of the food subsidy that they were receiving. Hirvonen and Hoddinott (2021) use Ethiopian survey data on beneficiary preferences between cash and in-kind and find that most beneficiaries stated they prefer their payments only or partly in food. Similarly, Ghatak, Kumar and Mitra (2016) using survey data from India find that a majority of beneficiaries prefer receiving in-kind benefits (bicycles) rather than cash transfers.

outcomes. For instance, for the United States, a higher propensity for food consumption out of food stamps than out of cash income has been explained in terms of intra-household allocations when there are multiple earning members, but only one of them contributes to food spending (Breunig and Dasgupta 2005). Closer to the context of our study, survey evidence suggests that heterogeneity in terms of class, caste, gender and political affiliation can influence preferences for the delivery mechanism of the food support system in India (Khera 2014, Pradhan et al. 2019). In contrast to this literature, we focus on eliciting willingness to pay for in-kind benefits in male- and female-headed households to provide an insight into how bargaining power differences influence household choices and deadweight loss.

## **2. The Experiment**

This section provides details of the sample, the baseline survey, and the experiment. The experiment was conducted in low-income urban neighborhoods (hereafter “slums”) of Nashik, a city in the western state of Maharashtra, India. The questionnaire modules and experiment rounds were designed and implemented using the World Bank’s Survey Solution suite of Computer Assisted Personal Interview (CAPI) software system.<sup>2</sup>

To identify the survey slums, we first extracted the list of all the slums in Nashik from the Census of India 2011 and randomly selected 10 slums from that list. For the selection of respondents in each slum, a two-step procedure was used. First, we conducted a listing operation where respondents from approximately 100 households were selected in each slum using a random route method. Thus, for a slum with  $N$  total number of households, the surveyors walked around the slum and listed every  $(100/N)$ -th household. Table A1 in the Appendix A provides the details of the listing operation. The listing operation provided us with the sample frame for each slum. In addition, the listing operation was designed to help us identify respondents from inframarginal households for our final sample selection. This was done by collecting data on the households’ monthly purchases of rice from the open market. As discussed below, our experiment involved offering the respondents a choice between cash and 5 kilos of subsidized rice. The inframarginal households were thus identified as those who bought at least 5 kilograms of rice in the open market. Hence, in the second step of our

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<sup>2</sup> Survey Solutions is an open-source software designed and developed by the World Bank that has been used extensively to conduct household surveys around the world.

sampling procedure, 25 households were randomly drawn from the list of inframarginal households in each slum. The resulting 250 households constitute our final sample for the experiment. Note that the five kilos of rice offered in the experiment represents approximately 30 percent of the average monthly consumption of rice for our sample households.

One individual was identified as the respondent from each of the 250 households. We do not randomize the gender of the respondents to ensure that our experiment captures the prevailing decision-making environment in relation to food spending. The surveyors were thus instructed to identify the member who usually made rice purchases for the household and ask that person to participate in the experiment. If such a person was absent, then they were instructed to identify any other adult. Unsurprising for our setting, nearly 90% of our respondents were women.

A baseline survey was conducted prior to the experiment which collected detailed information for sample households, including: household's social group and religion; member characteristics such as age, gender, relationship to the head, marital status, educational attainment, employment status, major source of income and disability if any; details about their dwellings and asset ownership; details about their grain purchases both from the public distribution system and the market; weekly purchase of food items and their prices; details of bank accounts and their usage; and decision-making within the household.

The experiment consisted of three rounds in which respondents were offered a choice between rice and varying amounts of cash ranging between values both below and above the market value of the rice. At the time of the experiment the going price of rice in the local markets was Rs 32 per kilogram with no significant variation across slums.<sup>3</sup> Hence, in each round of the experiment, a household was offered choices between (the inframarginal amount of) 5 kilograms of rice and nine alternative cash amounts. The choices ranged from the lowest cash value of Rs 50 increasing thereafter in 50 rupee increments up to Rs 400 and a final choice with the highest value of Rs 500. Given the market value of Rs 160 (for 5 kilos of rice), the end points of this range were selected to ensure that there was an unambiguous incentive to choose rice (cash) at the lower (upper) bound. In total, therefore, the households were offered

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<sup>3</sup> We observed very low temporal variation in rice prices during the period of the survey. In fact, the official government weekly retail rice price data for Nashik for the survey period shows no variation. For other urban markets in Maharashtra such as Aurangabad, Mumbai, Nagpur and Pune, the temporal variation is very low with the coefficient of variation between 0.03 to 0.05. This is consistent with our observation that common rice retail prices generally do not change much within a few months.



nine choices which correspond to our nine treatments. The specific parameters for the cash offers were based on data from a pilot run. While there was a logical lower bound of zero for cash offers, the pilot experimented with values of the upper bound below Rs 500. The pilot data showed a large number of respondents always choosing rice at these upper bounds, which was the main justification for raising the upper bound of the cash offers up to Rs. 500 (approximately three times the market value of 5 kilos of rice) in the final design.

As the respondents were offered increasing cash amounts against 5 kilos of rice, we expect the cash option to become increasingly attractive. Thus, for instance, if a household initially chose rice against, say, Rs 50 or Rs 100 as the cash option, they could be expected to switch to cash when offered sufficiently higher cash amounts. A key aim of the experiment is to identify for each household the switch point where the cash option becomes preferable. This switch point offers us a measure of the household's willingness to pay (WTP) for 5 kilos of rice, and hence a measure of deadweight loss (DWL) as  $DWL = 160 - WTP$ . It is important to note that the WTP measure is not based on hypothetical scenarios and is instead derived from household choices that were incentivized in the experiment as described below.

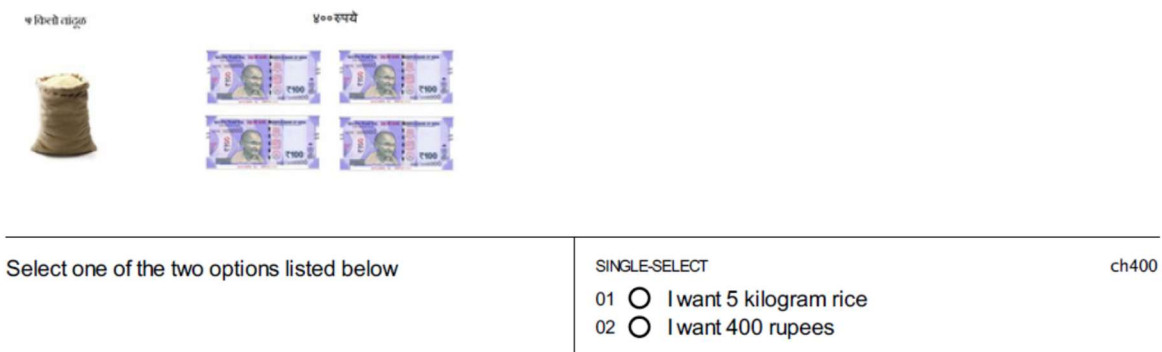
Specifically, the surveyor read the following statement explaining the experiment to the respondent.

*“We will now be asking you to make choices between receiving 5 kilos of rice or receiving different amounts of cash. We will be asking you to make a choice nine times. Each time, we will be asking you to tell us whether you would prefer to get a particular amount of cash or 5 kilos of rice. Please choose carefully because these are not just hypothetical choices. Later, one of these choices will become real when you draw a number from the lottery bag. The number you draw from the bag will tell us which of the nine choices is selected, and that will determine what you will get. For example, if you picked the number 300, then we will look at your preference between 300 rupees and 5 kilos of rice, and if you had chosen 5 kilos of rice, you will get 5 kilos of rice, not 300 rupees. Or instead, if you had chosen 300 rupees, you will get 300 rupees, not 5 kilos of rice. So, your choices will matter to what you can get. Hence, make your choice thoughtfully. So, let's now begin by asking you about your choices. Please note that at the current market price of about Rs 32 per kilo of rice, the value of 5 kilos of rice is about 160 rupees.”*

After this statement was read out, the respondents were shown the cash and rice choices one by one on the tablet. Figure 1 presents an example of the choice question shown to the respondent. Once all the choices were made, the respondent was asked to draw a number written on a piece of paper from a lottery bag, which contained nine pieces of paper bearing one of the nine cash amounts. For example, if the respondent drew the number 250 and for the choice option of Rs 250 versus rice the respondent had chosen rice, then the respondent was given a voucher for 5 kilos of rice; otherwise, they were given a voucher for Rs 250.

**Figure 1. Snapshot of the choice question**

*The image shows a sack of 5 kilograms of rice and 400 rupees in cash. Please look at the two images carefully and tell us which one do you choose.*



Notably, to rule out the influence of transaction costs on households’ choices of rice or cash, households were given a voucher for either choice to be redeemed in exactly the same location. The households could redeem their vouchers at their slum’s local shopkeeper. One shopkeeper per slum was selected and assigned the task of disbursing rice and cash to the selected households. The shopkeepers were instructed to first match the voucher number in the household list that we provided to them, and then distribute cash or grain as indicated on the voucher. Figure A1 shows images of the vouchers and the surveyors interviewing the households using the tablet.<sup>4</sup> We verified that all vouchers were successfully redeemed.

The timeline of the experiment is presented in Figure 2. The listing operation was completed and the final sample was selected by the second week of January 2019. A baseline survey was completed in the last week of January 2019. The pilot was conducted in the first week of February 2019, and the experiment procedures were revised based on the experience with the

<sup>4</sup> The full set of experimental instructions are shown in Appendix D.

pilot. Three rounds of the experiment were conducted in March, May and August 2019 during the first week of each month.

**Figure 2. Timeline of the experiment**

2019																																
January				February				March				April				May				June				July				August				
W e e k	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		Listing operation				Baseline				Pilot Experiment				Experiment round 1				Experiment round 2				Experiment round 3										

### 3. Initial Results

For nearly 90% of the households, the respondents were female. This is as expected since our experiment targeted adult members responsible for rice purchases who are mostly women in our setting. Table A2 presents summary statistics for the female respondent (full) sample. The average age of respondents was 37 years in both full sample and sub-sample of female respondents, and 29% (27%) of the households were female-headed in the female respondent (full) sample. The Table also shows that the average household consumption of PDS rice is far less than their total rice consumption. Consistent with the recruitment protocol for our experiment, the average consumption of market rice in our sample is well above the 5 kilos of rice offered. We present our main results for the sample of female respondents so as to mitigate any confounding effects related to the respondent’s gender; besides, the male respondents comprise only 10% of the full sample. Appendix B shows the corresponding results for the full sample which are very similar in magnitude and significance.

Table 1 presents the distribution of respondent choices against each of the cash offers pooled over all three rounds. As expected, at higher cash amounts, a greater proportion of households opt for cash rather than rice, ranging from 32% choosing cash when offered the minimum

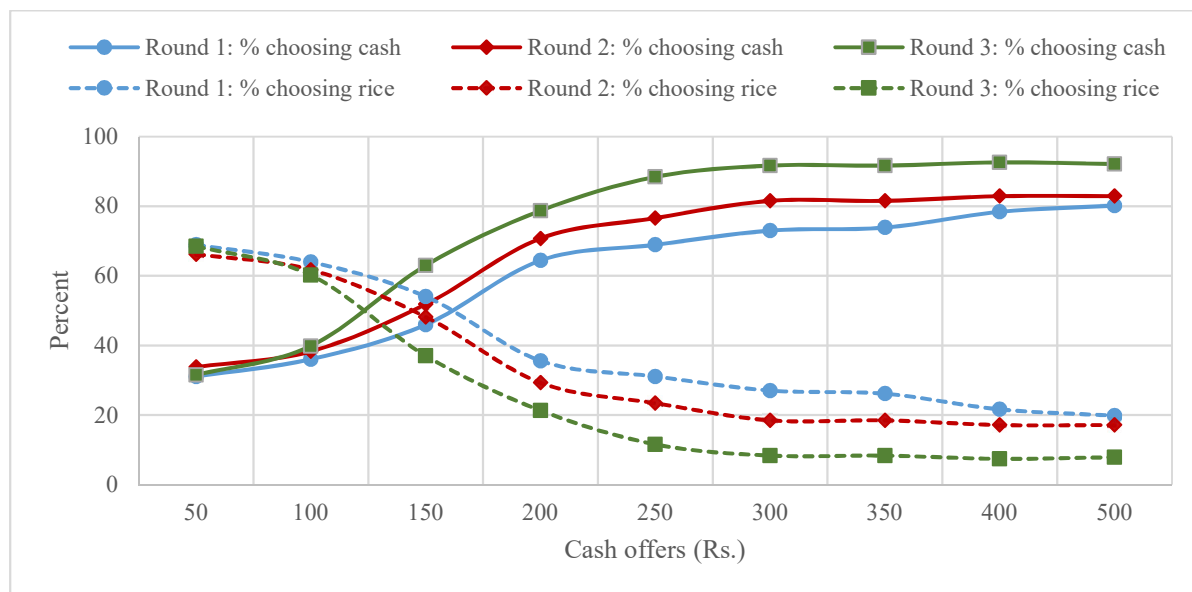
amount of Rs 50 to 85% when offered the maximum of Rs 500. This pattern holds for all three rounds (Figure 3).

**Table 1: Percentage of respondents choosing cash against each cash offer, pooled across rounds**

Cash offer (Rs.)	50	100	150	200	250	300	350	400	500
% of respondents choosing cash	32.1	38.0	53.5	71.2	77.9	82.0	82.3	84.5	85.0

Notes: The sample for this and all subsequent results reported in the main text relates to female respondents only. Appendix B reports the corresponding results for the full sample.

**Figure 3. Percentage of respondents choosing cash or rice against each cash offer across the three rounds**



Based on the type of choices made by respondents, we can distinguish three types: first, the “single-switch respondents” as those who made a single switch from rice to cash as higher cash amounts were offered; second, “rice-only respondents” as those who chose rice for all nine cash offers; and third, “cash-only respondents” as those who always chose cash. There were also a small number of respondents (3.5% of the pooled sample) who switched multiple times between rice and cash.<sup>5</sup> Multiple switches are hard to interpret and hence we exclude these

<sup>5</sup> Multiple switches are not uncommon in similar elicitation methods. For instance, in case of risk elicitation, multiple switches are reported for 8.5% of the subjects in Dave et al. (2010), 13% in Holt and Laury (2002) and over 50% in Jacobson and Petrie (2009) and Charness and Viceisza (2016).

respondents from our analysis. Thus, our final pooled sample consists of a panel with 660 observations (222, 222 and 216 respondents from rounds 1, 2 and 3 respectively). The proportions of single-switch, rice-only and cash-only respondents in the final pooled sample are 54, 14 and 33 percent respectively (Table 2).

**Table 2. Number and percentage of cases for each type of respondent**

Respondent type		Single-switch	Rice-only	Cash-only	>1 switch	Total
Round 1	Number	101	38	67	16	222
	% of sample*	45.5	17.1	30.2	7.2	100
	% of final sample	49.0	18.5	32.5		100
Round 2	Number	109	36	75	2	222
	% of sample*	49.1	16.2	33.8	0.9	100
	% of final sample	49.6	16.4	34.1		100
Round 3	Number	131	14	66	5	216
	% of sample*	60.7	6.5	30.6	2.3	100
	% of final sample	62.1	6.6	31.3		100
Combined	Number	341	88	208	23	660
	% of sample*	51.7	13.3	31.5	3.5	100
	% of final sample	53.5	13.8	32.7		100

Notes: \* including respondents with multiple switches, while the final sample excludes them. For instance, the final combined sample comprises 637 cases (660 minus 23 multiple-switch cases).

While WTP is in principle a continuous variable that cannot be elicited in an experiment with a finite number of treatments, our experiment allows us to observe an interval containing the WTP. For example, if a single-switch respondent opted for rice at Rs 100 but switched to cash at Rs 150, then its WTP lies in the switch interval [100, 150]. On the other hand, for rice-only respondents, their WTP is bounded below by Rs 500. Similarly, the WTP for cash-only respondents is bounded above by Rs 50. We thus construct our measure of WTP for the three types of respondents as follows: we approximate the WTP for single-switch respondents as the midpoint of their switch interval; for rice-only respondents, we assume their WTP to be Rs 550; and the WTP for cash-only respondents is assumed to be Rs 25. The deadweight loss for a respondent can then be defined as

$$DWL = \begin{cases} (160 - WTP) & \text{if single switch} \\ (160 - 550) & \text{if rice only} \\ (160 - 25) & \text{if cash only} \end{cases}$$

where Rs 160 is the market value of 5 kilograms of rice. The deadweight loss is thus not necessarily always positive, and a negative value of DWL indicates that the respondent's willingness to pay for rice exceeds its market value.

Table 3 presents the estimates of WTP and DWL by respondent type. By construction, DWL for cash-only respondents is positive and that for rice-only respondents is negative. It also turns out that cash-only respondents account for more than twice as many cases as rice-only respondents. However, since the positive DWL for the former (135) is dominated by the negative DWL for the latter (-390), the combined average DWL for these two types of non-switching respondents is notably negative. A more striking result is that the average DWL for single-switch respondents is also negative (-17). This further implies that for our sample as a whole, the average DWL is negative, i.e., a deadweight gain (DWG) overall.

It is worth noting that our measure of an overall DWG of Rs. 19 is an underestimate because we bound our cash choices at a maximum of Rs 500. At this upper bound, there are still 14% of respondent choices favoring rice. Had we gone on to offer higher cash amounts, it would have led to even higher amounts of DWG. The lower bound of cash offers in contrast has a natural limit of zero.

**Table 3. Distribution of Willingness to Pay (WTP) and Deadweight Loss (DWL) by respondent type**

Respondent type	Switch interval	WTP	DWL	Number of cases	Percent of cases
Cash-only	<50	25	135	208	32.7
Single-switch	50-100	75	85	37	5.8
	100-150	125	35	103	16.2
	150-200	175	-15	106	16.6
	200-250	225	-65	48	7.5
	250-300	275	-115	25	3.9
	300-350	325	-165	6	0.9
	350-400	375	-215	11	1.7
	400-500	450	-290	5	0.8
Rice-only	>500	550	-390	88	13.8
Average/Total for single-switch		177	-17	341	53.5
Average/Total for all types		179	-19	637	100

Notes: We define willingness to pay (WTP) for rice for a respondent as the midpoint of the cash choice interval at which the respondent switched to cash from rice. The deadweight loss for respondent  $i$  is defined as  $DWL_i = 160 - WTP_i$  where 160 rupees is the market value of 5 kilograms of rice. Respondents with multiple switches are not included. For rice-only respondents, we assume their WTP to be Rs 550. For cash-only respondents, we assume their WTP to be Rs 25.

#### 4. The puzzle of deadweight gain

The prevalence of deadweight gain is widespread in our sample and is observed for about 45% of all cases. A priori, this result appears puzzling. Deadweight gains associated with the choice of rice could potentially arise due to several factors, for instance, higher transaction costs

incurred by respondents for the cash option relative to rice, superior quality of rice offered in the experiment, or limited trust in redeeming the cash option. An additional dimension that deserves consideration relates to the role of intra-household bargaining in shaping respondent choices between cash or rice. We discuss these potential factors below.

#### **4.1 Transaction costs and rice quality**

The choice between cash or rice would be clearly influenced by the relative transaction costs for the respondents associated with each option. Cash transfers are typically delivered through deposits into respondent accounts with financial institutions (banks or post offices). Transaction costs for the cash option are thus determined by several factors such as the density and capacity of the financial network, the ease of operating bank accounts, and the financial literacy of respondents. Similarly, transaction costs for the rice option depend on the proximity to and familiarity with the local rice shop. In addition to transaction costs, respondent choice could also be influenced by the quality of subsidized rice, with higher willingness to pay for better quality rice. Our experiment by design controls for both these factors. Transaction costs for the cash and rice options are identical in our experiment since cash or rice are both delivered through vouchers redeemable at the same local shop. In our experiment, the respondents were offered rice vouchers for rice of a quality comparable to what the PDS provides. Thus, superior quality of rice offered cannot explain a higher willingness to pay for rice.

#### **4.2 Trust**

Lower trust in the delivery of the cash option is unlikely to explain deadweight gains in our experiment for three reasons. First, the experiment was preceded by a pilot, which was run as a practice round with the full sample of respondents. The pilot was implemented with full protocols of the experiment, and all vouchers for cash or rice issued in the pilot run were successfully redeemed. Thus, we believe that by end of the pilot the respondents trusted the implementation of the incentivization mechanism. Second, since the vouchers were given for both cash or rice, any potential trust issues would be similar for both cash and rice.<sup>6</sup> Third, none of the respondents in the three rounds reported any concerns or difficulties with redeeming the vouchers for cash or rice at the local shop.

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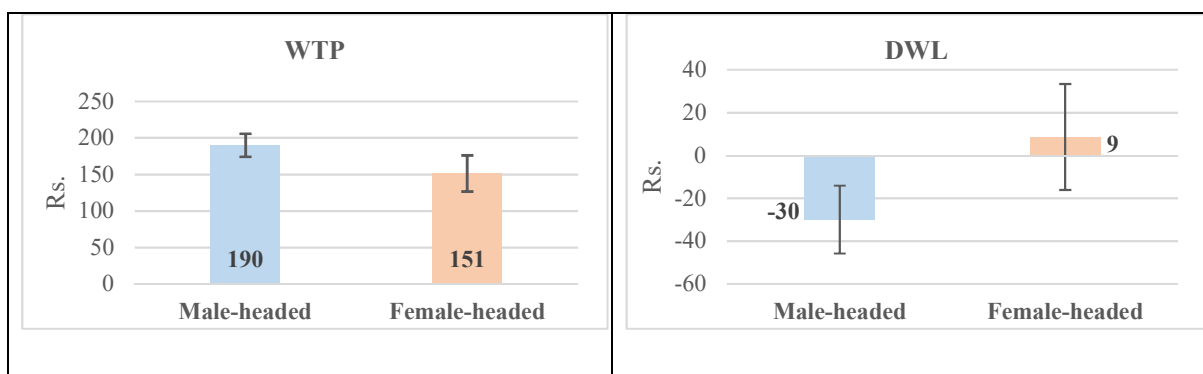
<sup>6</sup> Nor can they explain the differential willingness to pay for rice between respondents from male- and female-headed households, the evidence for which is presented in section 4.3.

### 4.3 Intra-household bargaining

Survey-based and qualitative evidence points to the potential role of intra-household inequality and gender in influencing the choice over in-kind transfers or cash (Khera 2011, 2014). Survey responses highlight that in-kind transfers provide some protection from intra-household disputes over cash: “*Sometimes her young children [may] sleep hungry as her husband drinks. Nobody will snatch rice*”; “*The ration we get is quite alright. Cash will be spent on alcohol, and nothing will remain for our children. If we get rice, everyone will share [eat] it*” (Khera, 2014).<sup>7</sup> Similarly, Dreze and Sen (2013) note that: “Cash is also more easily deflected towards the purchase of goods that are consumed mainly by adult members of the family, especially men, at the expense of undernourished girls and other children”.

We therefore look further into the “puzzle” of the deadweight gain by investigating if the results differ by some measure of gender differentials in control over the household budget. One such measure that we can identify in our data is the gender of the head of the household. In line with the survey-based evidence, we would expect female-headed household to favour cash over rice. This is indeed what we find in Figure 4, which shows that respondents in female-headed households have a significantly lower WTP for rice than those in male-headed households (Rs 151 as against Rs 190;  $p$ -value=0.006). As a result, in contrast to a deadweight loss for female-headed households on average of Rs 9 (5% of the value of subsidized rice), we observe a deadweight *gain* for male-headed households of Rs 30 (19% of the value of subsidized rice).

**Figure 4. Willingness to Pay (WTP) and Deadweight Loss (DWL) for respondents from male- and female-headed households (Rs)**



Note: The difference between male- and female-headed respondents is significant at  $p=0.006$ .

<sup>7</sup> A similar sentiment was echoed in an interview with a female respondent in Khera (2011): “...even if you give me Rs 1 lakh [one hundred thousand, approximately USD 2,190], I will opt for rice.”



Motivated by this finding, we present in the following section a simple conceptual framework that incorporates intra-household bargaining considerations to explain why women from male-headed households may be more likely to choose rice relative to cash.

## 5. Conceptual framework

Consider a household that makes a choice between receiving a cash benefit or the option to buy rice at a subsidised price  $p_s$  per unit. The market price is  $p_m > p_s$ .<sup>8</sup> We assume that the maximum quantity of subsidised rice  $R_s$  is smaller than the household's total rice consumption over a given time period, and that the household's demand for rice is perfectly inelastic, i.e. total rice consumption  $R$  is fixed. Thus, the subsidy is infra-marginal. We assume that market rice and subsidised rice are perfect substitutes. This was the case in our experiment since the subsidised rice we offered to the respondents was of comparable quality and sourced from the same local shops where the respondents bought their market rice. In practice, there may be quality differences between government-supplied subsidised rice and market rice, which may be a possible source of a deadweight loss, but this is ruled out by design in our experiment.

The household has a fixed budget of  $Y$  in the given time period, say, a month. We assume that in each household, the woman and the man of the household<sup>9</sup> have control over a certain part of the budget, but the woman is responsible for food spending. The woman controls a fraction of  $\alpha(b)Y$ , hence the man controls  $(1 - \alpha(b))Y$ . The parameter  $\alpha(b)$  is an increasing function of the woman's intra-household bargaining power ( $b$ ). The expenditure for food is taken from the woman's budget. The total expenditure for rice is  $E_R = p_m R_m + p_s R_s$ , where  $R_m$  is the quantity of rice purchased on the market, with  $R_s + R_m = R$ .

If the woman is asked to decide whether to accept a cash transfer  $T$  or the option to buy  $R_s$  units of subsidised rice at  $p_s$ , she seeks to maximise the fraction of the budget she has left after food expenditures,  $\alpha(b)Y - E_R$ . If she accepts the cash transfer, the total household income increases by  $T$  and she must buy all rice at market prices. We assume that the bargaining power is constant, hence the cash transfer increases her budget by  $\alpha(b)T$ . In-kind benefits do not expand her budget  $\alpha(b)Y$ , but lower the amount she must spend on rice taken from her share.

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<sup>8</sup> In our experiment,  $p_s$  is set to zero.

<sup>9</sup> We use the terms "woman/ man of the household" to refer to the key female or male figure in the household with decision-making authority, though such authority need not be equal.

The amount she saves is the price difference between the market rice and the subsidised rice, multiplied by the quantity of subsidized rice she can buy. Hence her savings are  $(p_m - p_s)R_s$ .

When deciding for in-kind benefits or cash transfers, the woman simply compares her savings from the subsidised rice against the budget expansion through a cash transfer. She is indifferent between subsidised rice and a cash transfer if  $(p_m - p_s)R_s = \alpha(b)T$ . Hence, only if the value of the cash transfer  $T$  is greater than  $T^* = \frac{p_m - p_s}{\alpha(b)}R_s$ , would she prefer cash over subsidized rice, where  $T^*$  represents her willingness to pay for subsidized rice. It is obvious that  $T^*$  is inversely related to  $\alpha(b)$ . Thus, in cases where the woman has lesser (greater) control of the budget, her willingness to pay for subsidized rice is higher (lower), in turn implying a lower (higher) deadweight loss. This is because the woman realises the full value of the subsidy if she receives subsidised rice, but only a fraction  $\alpha$  of it if she accepts the cash transfer.<sup>10</sup> Thus, this framework predicts that in male-headed households where  $\alpha(b)$  is low, we could expect a relatively greater likelihood of choosing rice and a lower deadweight loss or possibly even a deadweight gain, while in female-headed households with a high  $\alpha(b)$ , we would expect to observe larger deadweight losses. This should not be interpreted as a welfare-enhancing deadweight gain or loss for the *household* because such gains or losses only accrue to the decision maker. Any normative evaluation would need to address welfare aggregation across all household members.

This theoretical framework assumes that there are no intra-household transfers following the choice of rice or cash. However, insofar as there is some renegotiation of the control over the budget over time, the difference between women from male- and female-headed households in their choice of rice relative to cash could be smaller. We discuss this further in section 7.1. The next section reports our detailed results on the predictions for the respondents' choice between cash or rice and the implied deadweight loss or gain.

## 6. Detailed results

### 6.1 Cash-or-rice?

We utilize the dataset related to respondent choices for all the nine cash options across the three

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<sup>10</sup> If however the man of the household were to make the choice between subsidised rice and cash transfer, the framework predicts that he will always prefer any positive cash transfer over subsidised rice. Choosing the cash option expands his budget by  $(1 - \alpha)T$ , while the subsidised rice option leaves his budget unchanged and only benefits the woman by lowering what she needs to spend for the total quantity of rice  $R$  consumed by the household.

rounds to estimate the following model:

$$Y_{cist} = \beta_c + \gamma Female\_head_{is} + X_{is}\delta + \theta_s + \mu_t + v_i + w_{ist} \quad (1)$$

where subscript  $c$  denotes the cash option,  $i$  denotes the respondent,  $s$  denotes the slum and  $t$  denotes the round of the experiment.  $Y$  is a binary variable which equals 1 if the respondent chose cash instead of rice, and 0 otherwise.  $\beta_c$  are the parameters for the nine cash options representing the marginal effects on the probability of choosing cash as the amount of cash offered increases.  $Female\_head$  is a binary variable representing female headship of the household, while  $X$  is a vector of respondent and household controls at baseline.  $\theta_s$  and  $\mu_t$  represent slum and round effects respectively.  $v_i$  represent random effects for each respondent and  $w_{ist}$  is the white-noise error term of the regression. Equation (1) is estimated using the random effects estimator.<sup>11</sup> Our parameters of interest are  $\beta_c$  and  $\gamma$ . We expect  $\beta_c$  to be increasing in the cash amounts offered as the rice option becomes progressively less attractive. Further, in line with the foregoing discussion, we expect households with female heads to have a higher probability of choosing cash (i.e.,  $\gamma > 0$ ).

Table 4 report the estimates of equation (1). Column (1) presents estimates of  $\beta_c$  without any covariates, and essentially reproduces the findings in Table 1. Consistent with expectation, relative to the reference cash offer of Rs 50, all  $\beta_c$ 's are positive, significant, and increase monotonically as the cash offer increases. Columns (2) and (3) introduce female headship, while column (3) also introduces additional controls for baseline characteristics of the respondent (age, caste and religion) and the household (proportion of literate members, dependency ratio, the count of assets, monthly per capita expenditure, house ownership, whether the household has a ration card, and whether a female redeemed the voucher). The parameter for female headship ( $\gamma$ ) is found to be positive and statistically significant. Female headship increases the probability of choosing cash by 10-11 percentage points.<sup>12</sup> Insofar as women's bargaining power is likely to be higher in female-headed households relative to male-headed households, this result is in line with our theoretical framework, which predicts that with a greater control of the household budget, women are more likely to prefer cash.

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<sup>11</sup> Note that the ordinary least squares estimates with clustered standard errors are very similar to the random effects estimates.

<sup>12</sup> The additional controls introduced in column (3) turn out to be insignificant, and our parameters of interest remain unchanged both in magnitude and significance.

**Table 4. Random effects linear probability model of choice between cash and rice options**

Dependent Variable: 1 if respondent chose cash, 0 if they chose rice	(1)	(2)	(3)
Cash 100	0.06*** (0.01)	0.06*** (0.01)	0.06*** (0.01)
Cash 150	0.22*** (0.02)	0.22*** (0.02)	0.22*** (0.02)
Cash 200	0.39*** (0.02)	0.39*** (0.02)	0.39*** (0.02)
Cash 250	0.46*** (0.02)	0.46*** (0.02)	0.46*** (0.02)
Cash 300	0.50*** (0.02)	0.50*** (0.02)	0.50*** (0.03)
Cash 350	0.51*** (0.02)	0.51*** (0.02)	0.51*** (0.02)
Cash 400	0.53*** (0.03)	0.53*** (0.03)	0.53*** (0.03)
Cash 500	0.53*** (0.03)	0.53*** (0.03)	0.53*** (0.03)
Female head		0.11*** (0.04)	0.10** (0.04)
Round 2	0.06** (0.03)	0.06** (0.03)	0.06** (0.03)
Round 3	0.13*** (0.03)	0.13*** (0.03)	0.12*** (0.03)
Constant	0.17*** (0.04)	0.17*** (0.04)	0.02 (0.14)
Slum effects	Yes	Yes	Yes
Respondent/household-level controls	No	No	Yes
N	5733	5733	5724
R <sup>2</sup>	0.21	0.22	0.23

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Standard errors in parentheses are clustered at the household level. Respondent/household-level controls include: age of the respondent, binary variable =1 if the respondent is Hindu, binary variable =1 if the respondent belongs to a scheduled caste or scheduled tribe, proportion of literate members in the household, dependency ratio, the count of household assets, baseline monthly per capita expenditure of the household, binary variable =1 if the household owns their house, binary variable =1 if the household has a ration card, and binary variable =1 if a female redeemed the voucher.

This finding on the significance of female headship for the choice between cash or rice also suggests the possibility that the marginal effect of female headship varies by the amount of cash offered. We investigate this by interacting cash options with female headship as in the following regression:

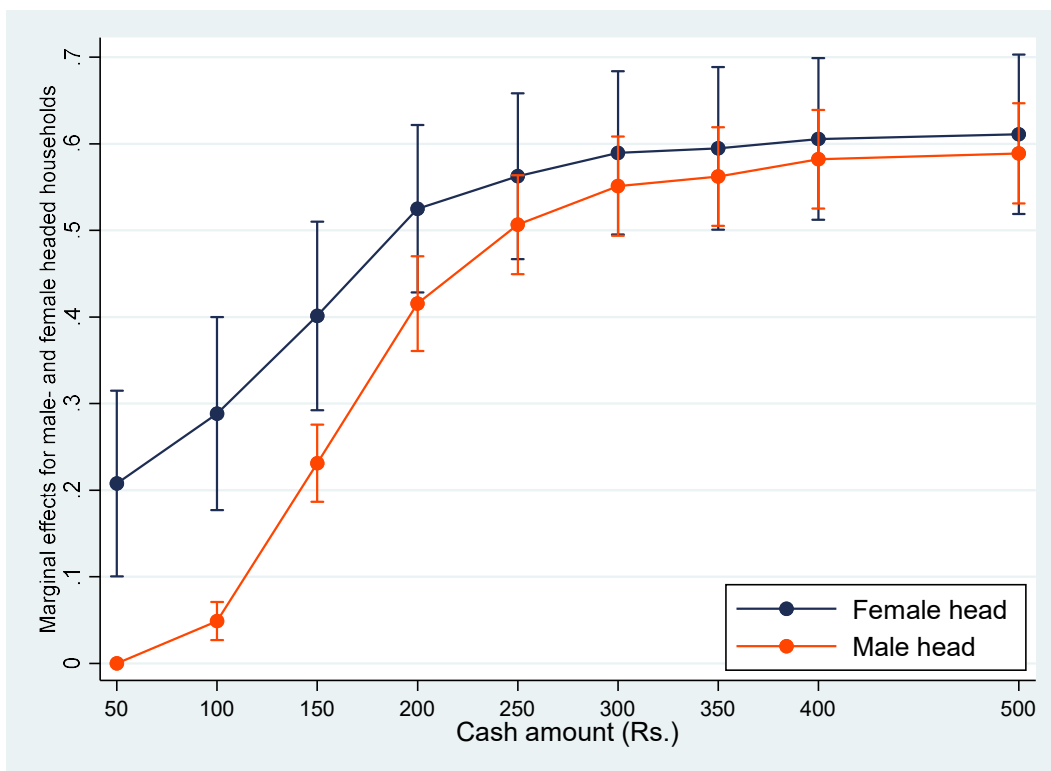
$$Y_{cist} = \beta_c^F Female\_head_{is} + \beta_c^M Male\_head_{is} + X_{is}\delta + \theta_s + \mu_t + v_i + w_{ist} \quad (2)$$

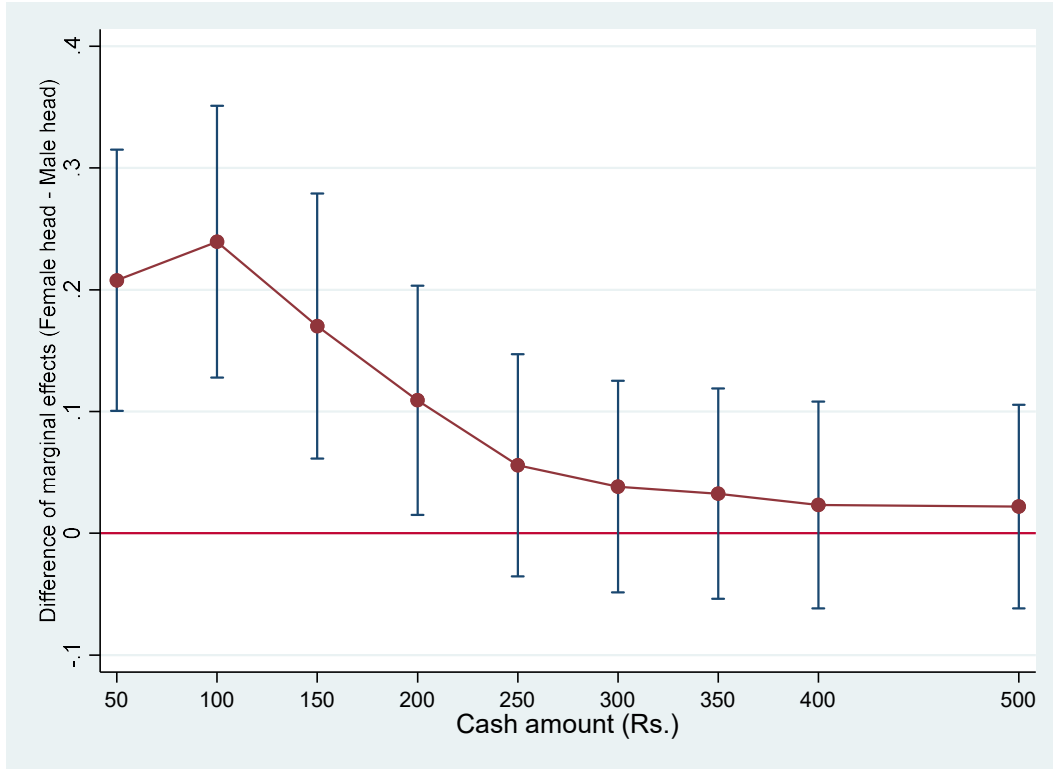
Figure 5 shows the results. The top panel shows that while  $\beta_c$  is increasing in the cash amount for both male and female-headed households,  $\beta_c$  is higher for female-headed households at every cash option ( $\beta_c^F > \beta_c^M$ ). The difference in the marginal effects, shown in the bottom panel

of Figure 5, is larger at lower cash offers and gradually reduces as cash offers increase, with the marginal effects eventually converging across male and female-headed households. For instance, the difference in marginal effects is about 21-24 percentage points at cash 50-cash 100, and it falls to 2 percentage points at cash 400-cash 500. Testing for statistical significance, we find that the marginal effects for female-headed households remain significantly higher up to cash 200, but not thereafter.

Our main findings thus indicate that women in male-headed households (in light of their lower bargaining power) are more likely to choose rice than women in female-headed households so long as the difference between the market value of rice and the cash offer is not too large. When subject to conditions of lower bargaining power, women are willing to forgo a certain amount of cash as a strategy to protect their share of the household budget. This is the basis of the deadweight gain we observe in our experiment.

**Figure 5: Marginal effects of the cash amount on the probability of choosing cash for respondents from male- and female-headed households**





Notes: Based on parameter estimates of an augmented version of equation (1) where the cash offer variable is interacted with female- and male-headed households.

In all specifications, we also control for round effects, and find that the probability of choosing cash increases in later rounds. This is consistent with survey-based evidence of an increasing preference for cash over time observed by Muralidharan, Niehaus and Sukhantar (2017) for a pilot program, which introduced cash transfers in lieu of food rations, in three Union Territories of India. They find that while initially 39% of beneficiaries preferred cash over food, by the end of their year-long survey this rose to 65%. The variation across rounds is discussed further in section 7.1.

## 6.2 Deadweight loss or gain?

We now take a closer look at the deadweight loss or gain for respondents estimated from their willingness to pay for rice, as explained above. The information on the switch points or the rice/cash-only choices by respondents allows us to construct measures of DWL for each respondent and each round. We estimate the following model:

$$DWL_{ist} = \gamma^{DWL} Female\_head_{is} + X_{is} \delta^{DWL} + \theta_s^{DWL} + \mu_t^{DWL} + v_i^{DWL} + w_{ist}^{DWL} \quad (2)$$

where  $DWL_{ist}$  is the deadweight loss for respondent  $i$  in slum  $s$  in round  $t$ , and the other parameters and variables are analogous to equation (1). Our parameter of interest again is that for *Female\_head*, which we expect to be positive in light of the foregoing discussion.

Columns (1) and (2) of Table 5 present random effects estimates of equation (2) with varying sets of controls as in Table 4. Consistent with what we noted above in Figure 4, in all these specifications of DWL, female headship is positive and highly significant. For the specification with the full set of controls (column 2), we find that female headship increases DWL by Rs 47, or about 29% of the market value of 5 kilos of rice. Put differently, relative to female-headed households, women in male-headed households put a 29% premium on subsidized rice.

**Table 5: Regressions of deadweight loss**

	Dependent variable: DWL				
	Random effects (RE)		Robustness checks		
	WTP=25 for rice only, WTP=550 for cash only, WTP=mid-point of switch interval for others		RE with different bounds for willingness to pay (WTP) for rice		
	(1)	(2)	(3)	(4)	(5)
Female head	49.97** (20.16)	46.53** (20.96)	55.18** (25.55)	45.15** (20.08)	41.88** (19.11)
Round 2	27.89* (15.18)	26.02* (15.47)	29.08 (18.92)	25.76* (14.80)	24.40* (14.17)
Round 3	66.45*** (14.76)	63.40*** (14.83)	74.49*** (18.09)	61.03*** (14.23)	60.35*** (13.55)
Constant	-91.17*** (19.20)	-155.74** (66.01)	-182.32** (79.83)	-177.44*** (63.63)	-117.66* (60.37)
Respondent/household controls	No	Yes	Yes	Yes	Yes
Slum effects	Yes	Yes	Yes	Yes	Yes
N	637	636	636	636	636
R <sup>2</sup>	0.08	0.10	0.10	0.10	0.10

Notes: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Standard errors in parentheses are clustered at the household level. Respondent/household-level controls include: age of the respondent, binary variable =1 if the respondent is Hindu, binary variable =1 if the respondent belongs to a scheduled caste or scheduled tribe, proportion of literate members in the household, dependency ratio, the count of household assets, baseline monthly per capita expenditure of the household, binary variable =1 if the household owns their house, binary variable =1 if the household has a ration card, and binary variable =1 if a female redeemed the voucher. RE Interval refers to estimates from random effects interval regression.

Table 5 reports additional specifications which explore the robustness of these results to how the DWL measure is constructed in our experiment. First, noting that the measures of WTP and

DWL are not well-defined for the cash-only and rice-only households, in column (3), we set the WTP for rice for the former at zero, and that for the latter at Rs 650 (about four times the market value of 5 kilos rice). Second, Table 5 also shows specifications where we set WTP using the bounds that are either most favorable to cash (i.e. lower bounds of WTP for rice) or most favorable to rice (i.e. upper bounds of WTP for rice) in columns (4) and (5) respectively. In all these specifications, columns (3)-(5), female headship continues to be positive and highly significant. The point estimates are similar to those in columns (1) and (2), indicating a 26-34% premium on rice among respondents in male-headed households.<sup>13</sup>

These results highlight the role of women’s bargaining power in how households may choose between cash and in-kind transfers. When women have limited bargaining power over the household budget, their willingness to pay for in-kind transfer is higher. Within our theoretical framework, it is possible to infer the implicit bargaining power of women ( $\alpha(b)$ ) from the revealed switch points from rice to cash, as the standardized ratio of the market value of rice to WTP (i.e.,  $160/WTP$ ). For single-switch households, the average value of  $\alpha(b)$  is 0.4. As expected, the average  $\alpha(b)$  for female-headed households (0.47) is significantly higher than that for male-headed households (0.38) with a  $p$ -value of 0.009 for the difference.

We also compare the deadweight loss for male-headed and female-headed households restricting the latter to those where female heads were widowed or separated or had an absentee husband.<sup>14</sup> Clearly, we can expect these female heads to be in charge of the household budgets. In line with this expectation, Appendix Table C1 shows that the DWL for this set of female-headed households exceeds that for male headed households by a magnitude similar to that in the case of the full set of female-headed households (as in Column 2 of Table 5). This is consistent with the interpretation of our results in terms of intra-household bargaining power.

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<sup>13</sup> Recognizing the discrete nature of all the cash options in our experiment that allow us to observe only an interval for WTP and DWL, we also estimated equation (2) using a random effects interval regression estimator (Stewart 1983; McDonald, Stoddard and Walton 2018). Female headship continued to be positive and highly significant. Similarly, female headship was also positive and significant when treating DWL as a binary dependent variable (1 for positive DWL, 0 otherwise).

<sup>14</sup> Female-headed households comprise 29% of our sample, of which 73% (19% of the total sample) reported the husband either dead, separated or not present in the household. The rest of the female-headed households report their marital status as currently married with a living husband, but in these cases the husband is either away (e.g. working on construction sites or as security guard) or is unable to work (likely due to disability). For the state of Maharashtra as a whole, the estimated proportion of female-headed households is 15% (the National Survey Sample Organization’s Time Use Survey 2019). The higher proportion of female-headed households in our sample reflects the relatively higher proportion of absentee or non-working husbands in the low-income urban neighborhoods which formed our sample frame.



## 7. Mechanisms underlying our results

In this section, we take a closer look at the interpretation of our results in terms of intra-household bargaining from two perspectives: (i) alternative explanations related to learning, renegotiation or the use of rice as a commitment device, and (ii) the relationship between female headship and bargaining power.

### 7.1 Learning or renegotiation

As noted above, our results show that the respondents' choice in favour of rice relative to cash declines in round 3 of the experiment, implying lower deadweight gains in round 3. This is also consistent with the respondents learning over time that cash offers above the value of 5 kilos of rice are attractive. We explore this by interacting female headship with round in regressions of deadweight loss reported in Table 6. Specifically, we test if female headship retains its significant positive effect on deadweight loss across rounds.

**Table 6: Regressions of deadweight loss (with interactions for rounds)**

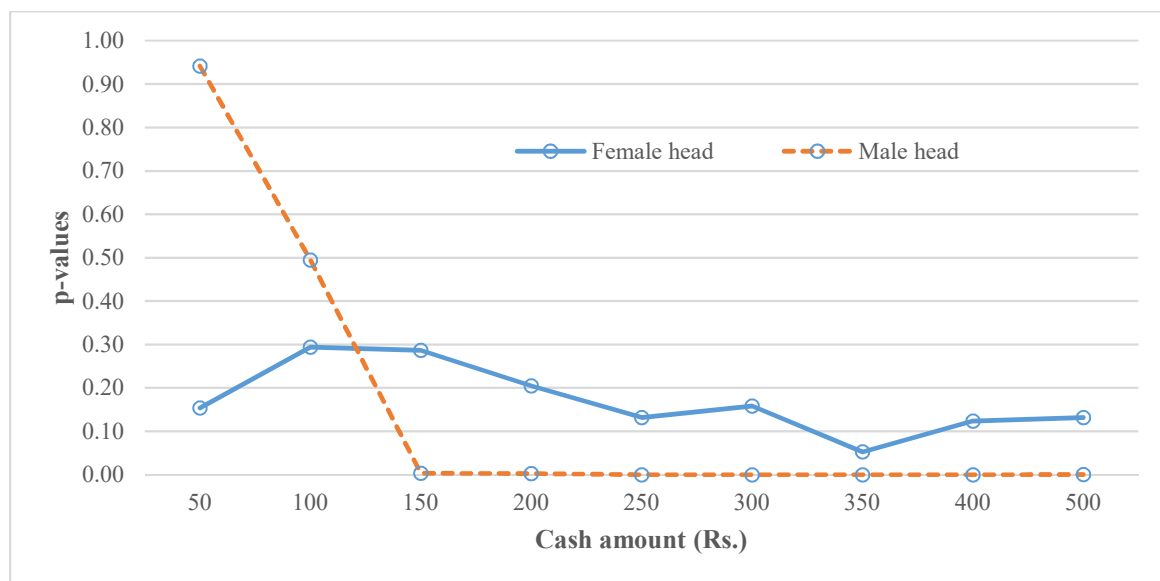
	Dependent variable: DWL	
	Random effects (RE)	
	DWL (1)	DWL=1 if DWL>0 (2)
Female head	55.74* (31.02)	0.16** (0.07)
Round 2	25.70 (18.64)	0.06 (0.05)
Round 3	71.95*** (17.04)	0.18*** (0.05)
Female head × Round 2	0.41 (33.19)	-0.02 (0.09)
Female head × Round 3	-29.14 (34.44)	-0.08 (0.10)
Constant	-157.02** (65.82)	0.07 (0.18)
Respondent/household controls	Yes	Yes
Slum effects	Yes	Yes
N	636	636
R <sup>2</sup>	0.10	0.14

Notes: \* p<0.10, \*\* p<0.05. \*\*\* p<0.01. Standard errors in parentheses are clustered at the household level. Respondent/household-level controls include: age of the respondent, binary variable =1 if the respondent is Hindu, binary variable =1 if the respondent belongs to a scheduled caste or scheduled tribe, proportion of literate members in the household, dependency ratio, the count of household assets, baseline monthly per capita expenditure of the household, binary variable =1 if the household owns their house, binary variable =1 if the household has a ration card, and binary variable =1 if a female redeemed the voucher. RE Interval refers to estimates from random effects interval regression.

We find that controlling for interactions with rounds, female headship continues to be positive and significant for deadweight loss regressions. The interactions with rounds 2 and 3 are not significant. The estimated marginal effect of female headship in round 1 is 55.7 (p-values of 0.07 and 0.04 in columns 1 and 2 respectively), 56.2 in round 2 (p-values of 0.05 and 0.06); it is 26.6 in round 3 (p-values of 0.26 and 0.27). Thus, the deadweight loss is higher for women from female-headed households in rounds 1 and 2, but not in round 3. This could be due to a change in respondent choices in either female- or male-headed households or both.

We therefore further test for the stability of marginal effects on the probability of choosing cash across the three rounds separately for female- and male-headed households. The results of these tests are shown in Figure 6. For female-headed households, the marginal effects are not statistically different across rounds for all cash offers (as indicated by the p-values higher than 10%) with the exception of cash 350. In contrast, the marginal effects for male-headed households are statistically different across rounds for all cash offers except cash 50 and cash 100. In other words, it is women from male-headed households that exhibit a change in behavior in round 3. Thus, the lack of a significant effect of female headship on deadweight loss in round 3 is attributable to a change in choices by women not from female-headed households, but to those from male-headed households.

**Figure 6. Significance level of the difference across rounds in marginal effects on the probability of choosing cash by respondents from male- and female-headed households (p-values)**



Notes: The figure plots the p-values of the test of equality across the three rounds of the marginal effects on the probability of choosing cash. The tests are done separately for female- and male-headed households. P-values below 0.05 (0.10) indicate rejection of equality at the 5% (10%) level of significance.

To interpret these results in terms of learning over time, one would have to assume differential rates of learning across women from male- and female-headed households. However, there is no a priori reason to expect this given that for our sample many socioeconomic characteristics are similar for female- and male-headed households (see Table 7, top panel). For instance, there are no significant differences by male or female headship with respect to the proportion of literate members, dependency ratio, per capita monthly expenditure, share of food expenditure, asset count and house ownership.<sup>15</sup> On the other hand, our data indicate systematic differences by male or female headship in a number of decision-making and intra-household bargaining variables (see Table 7, bottom panel). Female headship is associated with significantly higher proportion of decisions made by women.<sup>16</sup> Women in female-headed households are also significantly more likely to buy market grain, use bank account and be the food supply manager. Thus, for our sample female headship does not seem to represent adverse socio-economic circumstances of the household which may induce differential learning; instead, it is indicative of women’s greater bargaining power.

**Table 7: Are female-headed households different from male-headed households?**

	Female head		N
	Coefficient	Std. error	
<i>Socioeconomic variables:</i>			
Proportion of literate members	0.04	0.03	250
Dependency ratio	-0.05	0.09	249
Monthly per capita expenditure	53.44	109.2	250
Share of food in total expenditure	-0.01	0.01	250
Asset count	0.24	0.36	250
Own house	-0.05	0.05	250
Religion: Hindu	-0.04	0.07	250
Have a ration card	0.02	0.06	250
<i>Decision-making/bargaining power variables:</i>			
Proportion of decisions made by women	0.25***	0.07	248
Female buys market grain	0.27***	0.06	250
Female uses bank account	0.50***	0.06	233
Female is food supplies manager	0.55***	0.06	233

Notes: \* p<0.10, \*\* p<0.05. \*\*\* p<0.01. The coefficients and standard errors are based on regressions of each socioeconomic and decision-making/bargaining power variable on female headship.

<sup>15</sup> Similarly, data from the NSS Time Use Survey of 2019 indicates that female-headed households are not necessarily poorer; for instance, while the proportion of female-headed households for the bottom two quintiles of per capita expenditure is 14%, it is 17% for the top two quintiles.

<sup>16</sup> The baseline questionnaire specifically asked about whether the respondent or her spouse made the final decision on 16 major activities such as children’s schooling, use of contraception, spending on food and other major household items, selling assets, taking loans, migration for employment and obtaining healthcare for children or self during the last 12 months of the survey. The proportion of decisions made by women is calculated as the fraction of cases where the final decision on an activity was made by the female respondent.

In light of this, a plausible explanation could be that in male-headed households there is a renegotiation of the food budget allocated to the woman. The renegotiation occurs in response to the fact that the first two rounds of the experiment involved provision of free rice or a cash transfer. One can expect that the male head would reduce the woman’s allocation by an amount less than or equal to the value of the rice or cash received. Thus, there can be a reduced bargaining premium to choosing rice for women in these households over time. In female-headed households, such renegotiation is not relevant.

## 7.2 Rice option as a commitment device

One of the reasons for observing deadweight gains in our data could be that respondents want to use the rice option as a commitment device. In our experiment, we also collected data which allows us to examine this possibility. Once the choices for cash or rice were made against the nine cash offers and one of these was randomly selected through the lottery for implementation, we asked the respondent the primary reason for their choice in the implemented option. The possible reasons for choosing rice included: (i) I chose rice because the cash amount is less than the value of 5 kilos of rice, (ii) I chose rice because cash will get spent on less useful things than rice, (iii) I chose rice because we are running short of rice, (iv) I chose rice because it is hard to control how cash will get spent, and (v) others.<sup>17</sup> In our sample, the frequencies of these reasons were 27, 27, 30, 14 and 2 percent respectively.

**Table 8: Rice as commitment device**

	Dependent variable: Rice as Commitment Device (binary)	
	(1)	(2)
Female head	-0.066** (0.028)	-0.064** (0.028)
Lottery amount (=1 if lottery amount < 200)		0.100** (0.033)
Respondent/household controls	Yes	Yes
Slum effects	Yes	Yes
N	636	636
R <sup>2</sup>	0.08	0.1

Notes: \* p<0.10, \*\* p<0.05. \*\*\* p<0.01. Standard errors in parentheses are clustered at the household level. Respondent/household-level controls include: age of the respondent, binary variable =1 if the respondent is Hindu, binary variable =1 if the respondent belongs to a scheduled caste or scheduled tribe, proportion of literate members in the household, dependency ratio, the count of household assets, baseline monthly per capita expenditure of the household, binary variable =1 if the household owns their house, binary variable =1 if the household has a ration card, and binary variable =1 if a female redeemed the voucher.

<sup>17</sup> The possible reasons for the cash choice were also elicited, and are shown in the Appendix D.

Using this data, we define a binary variable, *Rice as Commitment Device*, which equals 1 if the respondent reported (ii) or (iv) as the primary reason for their choice of rice (0 otherwise). It is of interest to enquire whether commitment considerations are related to female headship. Column (1) of Table 8 shows that respondents from female-headed households are less likely to report commitment considerations for their choice of rice. This also holds when we further control for the lottery amount being less than Rs. 200 (in which case respondents would be more likely to choose rice because the value of rice is greater than the cash offer).<sup>18</sup> This begs the question why women from male-headed households feel more of a need to use rice as a commitment device relative to women from female-headed household. Given that there are no significant socioeconomic differences between male- and female-headed households, this we believe is indicative of underlying lower bargaining power of women in male-headed households.

## 8. Conclusion

Despite a significant interest amongst researchers and policymakers in understanding the relative merits of cash vs in-kind transfers, behavioral evidence on recipients' choices between these options and their underlying drivers remains scant. Our study fills this gap by designing an incentivized experiment which investigates this issue in the context of the world's largest food subsidy program in India. The experiment offered respondents, mostly women in our setting, a choice between varying amounts of cash and a fixed quantity of rice. The revealed choices are then used to construct estimates of the recipients' willingness to pay for rice and hence the associated deadweight loss.

Contrary to standard theory, instead of a deadweight loss of in-kind transfers, we find evidence of deadweight gain on average in our experimental data. While this may appear puzzling, our data reveal a striking contrast between respondents from male- and female-headed households, which sheds light on the underlying role of gender differences in bargaining power in influencing respondent choices. We find that the overall deadweight gain is the consequence of a deadweight loss among respondents in female-headed households and a deadweight gain

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<sup>18</sup> It is possible that the third reason for the choice of rice, viz. "I chose rice because we are running short of rice" could also reflect commitment concerns related to ensuring food security for the household, as cash could be diverted to other purchases. Upon including this reason in our definition of the commitment device variable, we find that female headship remains negative and significant.

among those in male-headed households. Given that most households are male-headed, the deadweight gain dominates.

Our results also show that respondents' choice of in-kind transfers can act as a commitment device. We observe this motivation for the choice of in-kind transfers for many respondents in both male- and female-headed households, and this offers a partial explanation for deadweight gains. However, this motivation is more salient for women from male-headed households relative to female-headed households, which is again indicative of the role of intra-household bargaining power considerations.

Most welfare programs are designed to provide either only cash or only in-kind transfers. The existence of deadweight gains associated with in-kind transfers as in our experiment does not necessarily imply that in-kind transfers are the preferred policy option. Rather, a key policy insight of our study is that there is a case for offering respondents a choice between cash or kind. The offer of such a choice can be important for those with weaker bargaining power to sustain a measure of control over the household budget, even if for a limited period of time.

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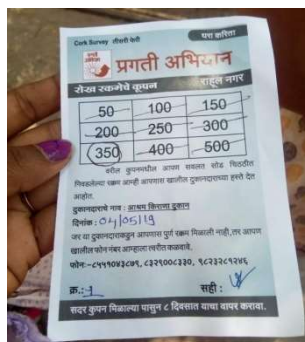
## Appendix A

This Appendix presents (i) the details of the sample for the listing operation conducted to select respondents for the experiment, (ii) photos of vouchers used in the experiment, and (iii) summary statistics for our sample.

**Table A1: Listing operation sample**

	Slum	Household population census 2011	Number of households listed
1	Lekha Nagar (CIDCO)	307	81
2	Indira Gandhi Nagar (Upnagar, Nasik Road)	457	103
3	Sant Kabir Nagar (Dwarka Poona Road)	252	102
4	Rahul Nagar (Golfclub, West)	133	93
5	Sahjeevan Nagar (Ganesh Wadi, Panchavati)	147	111
6	P. C. Tolls Prabudha Nagar (Mahindra Front Satpur)	1333	100
7	Sant Kabir Nagar (Canal Satpur Bhosala)	767	99
8	Kolivada (Nashik East)	208	101
9	Mahatma Phule Nagar (Peth Road, Panchavati)	1985	101
10	Wadarvadi, Nagar (Phule Nagar)	155	100
	Total	5744	991

**Figure A1: Vouchers for cash and rice and the surveyors interviewing households**



**Table A2: Summary statistics for sample households**

Variable	Overall		Female respondents	
	Mean	SD	Mean	SD
Female respondent	0.88	0.32	1.00	0.00
Age of the respondent	37.18	12.11	36.91	12.23
Female head	0.27	0.44	0.29	0.46
Total household consumption of rice per month (kg.)	17.23	16.04	18.01	16.85
Household consumption of PDS rice per month (kg.)	4.98	4.42	5.06	4.40
Household consumption of market rice per month (kg.)	12.23	15.67	12.93	16.44
Proportion of literate members	0.70	0.20	0.70	0.20
Household size	5.24	2.49	5.34	2.59
Dependency ratio	0.69	0.62	0.71	0.63
Social group: scheduled castes	0.51	0.50	0.49	0.50
Social group: scheduled tribes	0.13	0.34	0.14	0.34
Social group: other backward castes	0.31	0.46	0.33	0.47
Social group: general	0.05	0.21	0.05	0.22
Religion: Hindu	0.65	0.48	0.67	0.47
Owned house	0.84	0.36	0.85	0.36
Ration card	0.82	0.38	0.84	0.37
Asset count	7.09	2.50	7.13	2.58
Monthly per capita consumption expenditure (Rs)	1932.71	763.85	1963.63	763.28
Female respondent used the voucher	0.59	0.49	0.67	0.47

## Appendix B: Results for the sample including both female and male respondents

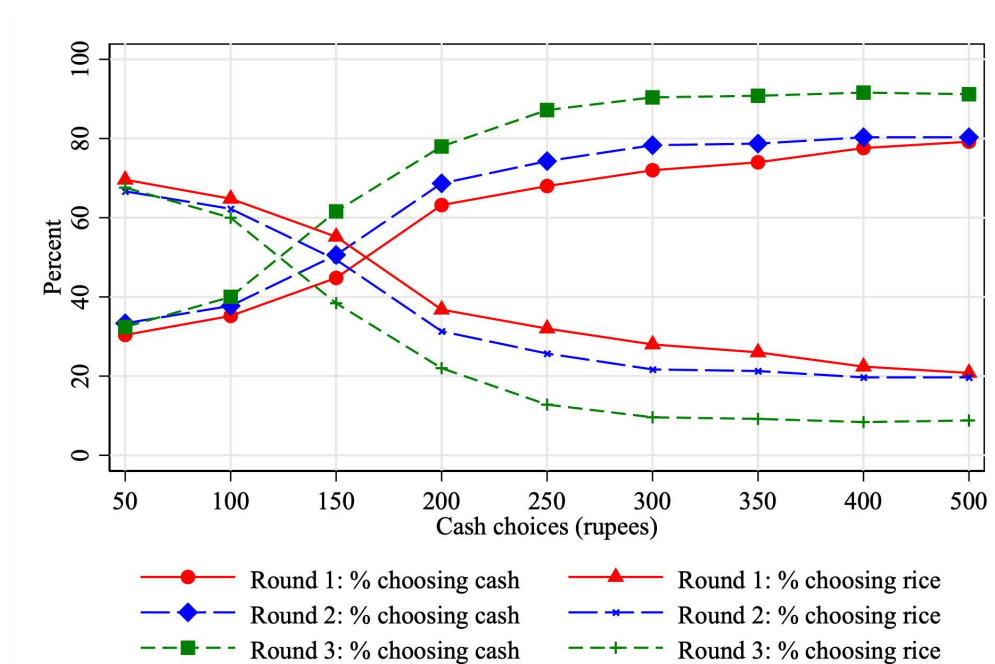
The main paper presents results for the sample of female respondents, who comprise nearly 90% of all respondents who participated in the experiment. This Appendix presents corresponding results for the full sample. In particular, Table B1 corresponds to Table 1 in the main text, Table B2 to Table 2, Table B3 to Table 3, Table B4 to Table 4 and Figure 5, Table B5 to Table 5, respectively. Figure B1 corresponds to Figure 3, Figure B2 to Figure 4, and Figure B3 to Figure 5, respectively.

The tables and figures in this Appendix confirm the robustness of our results for the sample including both female and male respondents.

**Table B1: Percentage of households choosing rice for each cash choice, pooled across rounds (corresponds to Table 1)**

Cash choices (Rs)	50	100	150	200	250	300	350	400	500
% of households choosing cash over rice	32.0	37.7	52.3	70.0	76.5	80.2	81.2	83.2	83.6

**Figure B1: Percentage of households choosing cash or rice against each cash amount across the three rounds (corresponds to Table 1)**



**Table B2: Number and percentage of cases for each type of household (corresponds to Table 2)**

Respondent type		Single-switch	Rice-only	Cash-only	>1 switch	Total
Round 1	Number	113	45	74	18	250
	% of sample*	45.2	18.0	29.6	7.2	100
	% excluding single switch	48.7	19.4	31.9		100
Round 2	Number	117	46	83	3	249
	% of sample*	47.0	18.5	33.3	1.2	100
	% excluding single switch	47.6	18.7	33.7		100
Round 3	Number	147	19	79	5	250
	% of sample*	58.8	7.6	31.6	2.0	100
	% excluding single switch	60.0	7.8	32.2		100
Combined	Number	377	110	236	26	749
	% of sample*	50.3	14.7	31.5	3.5	100
	% excluding single switch	52.1	15.2	32.6		100

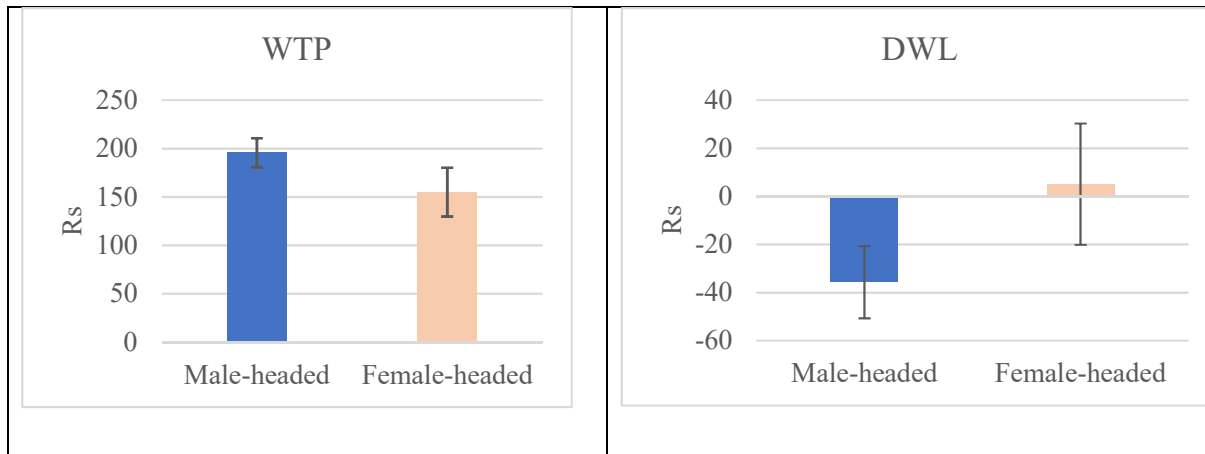
Note: Distribution for overall sample including both male and female respondents. \* including respondents with multiple switches, while the final sample excludes multiple-switch respondents.

**Table B3: Willingness to Pay (WTP) and Deadweight Loss (DWL) by household type (corresponds to Table 3)**

Household type	Switch interval (Rs)	WTP (Rs)	DWL (Rs)	Number of cases	Percent of cases
Cash-only	<50	25	135	236	32.6
Single-switch	50-100	75	85	40	5.5
	100-150	125	35	110	15.2
	150-200	175	-15	121	16.7
	200-250	225	-65	51	7.1
	250-300	275	-115	28	3.9
	300-350	325	-165	10	1.4
	350-400	375	-215	12	1.7
	400-500	450	-290	5	0.7
Rice-only	>500	550	-390	110	15.2
Average/Total for single-switch		178	-18	377	52.2
Average/Total for all types		185	-25	723	100

Notes: We define willingness to pay (WTP) for rice for a household as the midpoint of the cash choice interval at which the respondent switched to cash from rice. The deadweight loss for household  $i$  is defined as  $DWL_i = 160 - WTP_i$  where 160 rupees is the market value of 5 kilograms of rice. Households with multiple switches are not included. For rice-only households, we assume their WTP to be Rs 550. For cash-only households, we assume their WTP to be Rs 25.

**Figure B2: Willingness to Pay (WTP) and Deadweight Loss (DWL) by the gender of household head (Rs) (corresponds to Figure 4)**



**Table B4: Random effects linear probability model of choice between cash and rice options (corresponds to Table 4 and Figure 5)**

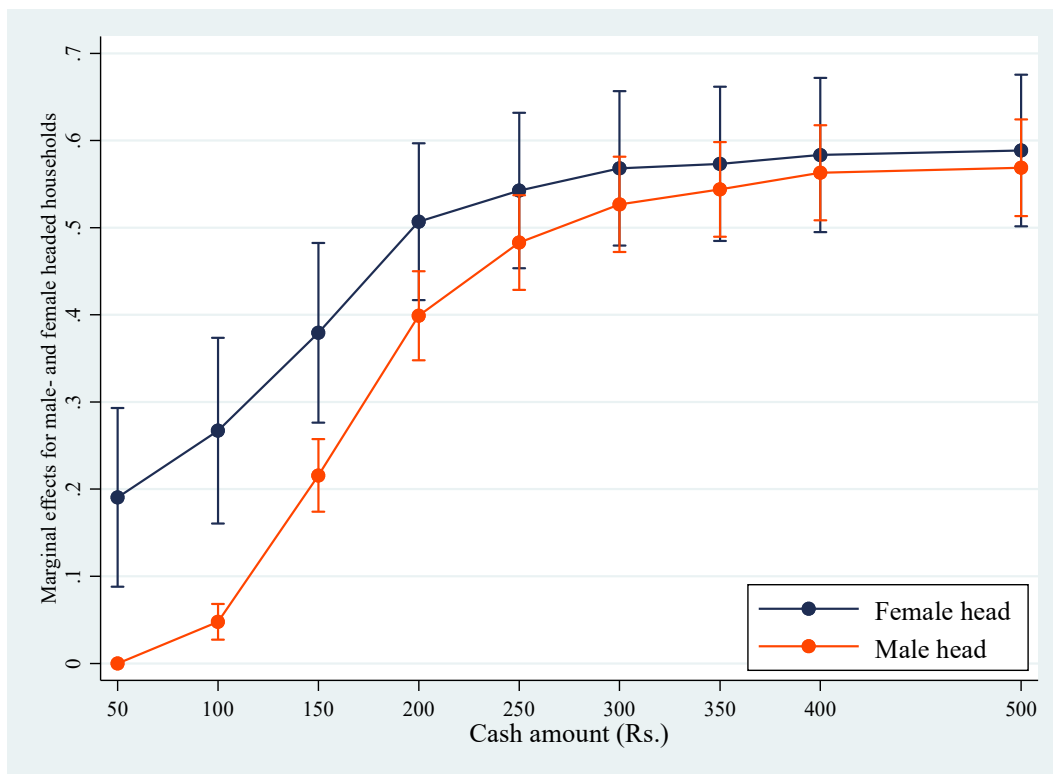
Dependent Variable: 1 if household chose cash, 0 if they chose rice	(1)	(2)	(3)	(4)	(5)
Cash 100	0.06*** (0.01)	0.06*** (0.01)			
Cash 150	0.21*** (0.02)	0.21*** (0.02)			
Cash 200	0.37*** (0.02)	0.37*** (0.02)			
Cash 250	0.45*** (0.02)	0.45*** (0.02)			
Cash 300	0.48*** (0.02)	0.48*** (0.02)			
Cash 350	0.50*** (0.02)	0.50*** (0.02)			
Cash 400	0.51*** (0.02)	0.51*** (0.02)			
Cash 500	0.52*** (0.02)	0.52*** (0.02)			
=1 if female head 0 otherwise		0.08** (0.04)			
Male head # Cash 100			0.05*** (0.01)	0.05*** (0.01)	0.05*** (0.01)
Male head # Cash 150			0.21*** (0.02)	0.21*** (0.02)	0.22*** (0.02)
Male head # Cash 200			0.40*** (0.03)	0.40*** (0.03)	0.40*** (0.03)
Male head # Cash 250			0.48*** (0.03)	0.48*** (0.03)	0.48*** (0.03)
Male head # Cash 300			0.52*** (0.03)	0.52*** (0.03)	0.53*** (0.03)
Male head # Cash 350			0.54***	0.54***	0.54***

			(0.03)	(0.03)	(0.03)
Male head # Cash 400			0.56***	0.56***	0.56***
			(0.03)	(0.03)	(0.03)
Male head # Cash 500			0.56***	0.56***	0.57***
			(0.03)	(0.03)	(0.03)
Female head # Cash 50			0.18***	0.18***	0.18***
			(0.05)	(0.05)	(0.05)
Female head # Cash 100			0.25***	0.26***	0.25***
			(0.05)	(0.05)	(0.05)
Female head # Cash 150			0.37***	0.37***	0.37***
			(0.05)	(0.05)	(0.05)
Female head # Cash 200			0.49***	0.50***	0.49***
			(0.04)	(0.05)	(0.05)
Female head # Cash 250			0.53***	0.53***	0.53***
			(0.04)	(0.04)	(0.05)
Female head # Cash 300			0.56***	0.56***	0.56***
			(0.04)	(0.04)	(0.04)
Female head # Cash 350			0.56***	0.56***	0.56***
			(0.04)	(0.04)	(0.04)
Female head # Cash 400			0.57***	0.57***	0.57***
			(0.04)	(0.04)	(0.05)
Female head # Cash 500			0.58***	0.58***	0.58***
			(0.04)	(0.04)	(0.04)
=1 if respondent female 0 otherwise				-0.04	-0.04
				(0.05)	(0.05)
Round 2	0.05*	0.05*	0.05*	0.05*	0.05*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Round 3	0.13***	0.13***	0.13***	0.13***	0.12***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Constant	0.19***	0.19***	0.16***	0.19***	0.12
	(0.04)	(0.04)	(0.04)	(0.06)	(0.13)
Slum effects	Yes	Yes	Yes	Yes	Yes
Respondent/household-level controls	No	No	No	No	Yes
N	6507	6507	6507	6507	6480
R <sup>2</sup>	0.20	0.21	0.21	0.21	0.22

Notes: \* p<0.10, \*\* p<0.05. \*\*\* p<0.01. Standard errors in parentheses are clustered at the household level. Respondent/household-level controls include: age of the respondent, binary variable =1 if the respondent is Hindu, binary variable =1 if the respondent belongs to a scheduled caste or scheduled tribe, proportion of literate members in the household, dependency ratio, the count of household assets, baseline monthly per capita expenditure of the household, binary variable =1 if the household owns their house, a binary variable =1 if the household has a ration card, and a binary variable =1 if a female redeemed the voucher.



**Figure B3: Marginal effects of the cash amount on the probability of choosing cash for male- and female-headed households (corresponds to Figure 5)**



Notes: Estimated from sample including male respondents.

**Table B5: Regressions of deadweight loss (corresponds to Table 5)**

	Dependent variable: DWL				
	Random effects (RE)		Robustness checks		
	WTP=25 for rice only, WTP=550 for cash only, WTP=mid-point of switch interval for others		RE with different bounds for willingness to pay (WTP) for rice		
			WTP=0 for rice only, WTP=650 for cash only, WTP=mid-point of switch interval for others	WTP=lower bound of switch interval	WTP=upper bound of switch interval
	(1)	(2)	(4)	(5)	(6)
Female head	48.05** (20.00)	44.44** (20.50)	52.34** (25.00)	43.16** (19.66)	40.16** (18.67)
Round 2	19.34 (14.02)	19.77 (14.37)	21.47 (17.54)	19.83 (13.76)	18.49 (13.15)
Round 3	65.30*** (13.83)	64.25*** (14.04)	75.57*** (17.12)	61.86*** (13.47)	60.93*** (12.79)
Constant	-86.69*** (18.38)	-140.03** (67.45)	-161.18** (81.95)	-163.33** (64.83)	-102.39* (61.69)
Respondent/household controls	No	Yes	Yes	Yes	Yes
Slum effects	Yes	Yes	Yes	Yes	Yes
N	723	720	720	720	720
R <sup>2</sup>	0.08	0.09	0.09	0.09	0.09

Notes: \* p<0.10, \*\* p<0.05. \*\*\* p<0.01. Standard errors in parentheses are clustered at the household level. Estimates from the overall sample including male respondents. Respondent/household-level controls include: age of the respondent, binary variable =1 if the respondent is Hindu, binary variable =1 if the respondent belongs to a scheduled caste or scheduled tribe, proportion of literate members in the household, dependency ratio, the count of household assets, baseline monthly per capita expenditure of the household, binary variable =1 if the household owns their house, binary variable =1 if the household has a ration card, and binary variable =1 if a female redeemed the voucher. RE Interval refers to estimates from random effects interval regression.

## Appendix C: Additional results

**Table C1: Comparison between male-headed households and female-headed households restricted to female heads who are widowed/ separated/ with an absentee husband (corresponding to column 2 of Table 5)**

	Dependent variable: DWL Sample with only female respondents
Female head	44.43* (23.33)
Round 2	28.54* (16.02)
Round 3	64.05*** (15.27)
Constant	-119.86* (66.80)
Slum effects	Yes
Household effects	No
Respondent/household-level controls	Yes
N	589

Notes: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Standard errors in parentheses are clustered at the household level. Respondent/household-level controls include: age of the respondent, binary variable =1 if the respondent is Hindu, binary variable =1 if the respondent belongs to a scheduled caste or scheduled tribe, proportion of literate members in the household, dependency ratio, the count of household assets, baseline monthly per capita expenditure of the household, binary variable =1 if the household owns their house, binary variable =1 if the household has a ration card, and binary variable =1 if a female redeemed the voucher.

## Appendix D

### Experimental instructions

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STATIC TEXT

We will now be asking you to make choices between getting 5 kilos of rice or getting different amounts of cash. We will be asking you to make a choice nine times. Each time, we will be asking you to tell us whether you would prefer to get a particular amount of cash or 5 kilos of rice.

Please choose carefully because these are not just hypothetical choices. Later, one of these choices will become real when you draw a number from the lottery bag. The number you draw from the bag will tell us which of the nine choices is selected, and that will determine what you will get. For example, if you picked the number 300, then we will look at your preference between 300 rupees and 5 kilos of rice, and if you had chosen 5 kilos of rice, you will get 5 kilos of rice, not 300 rupees. Or instead, if you had chosen 300 rupees, you will get 300 rupees, not 5 kilos of rice.

So, your choices will matter to what you can get. So, please choose thoughtfully. So, let's now begin with asking you about your choices. Please note that at the current market price of about Rs. 32 per kilo of rice, the value of 5 kilos of rice is about 160 rupees.

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#### CHOICE 500

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STATIC TEXT

The image shows a sack of 5 kilograms of rice and 500 rupees in cash. Please look at the two images carefully and tell us which one do you choose.



---

Select one of the two options listed below

SINGLE-SELECT

ch500

- 01  I want 5 kilogram rice  
02  I want 500 rupees
-

CHOICE 400

STATIC TEXT

The image shows a sack of 5 kilograms of rice and 400 rupees in cash. Please look at the two images carefully and tell us which one do you choose.

₹ Rice 5kg



₹ 400



Select one of the two options listed below

SINGLE-SELECT

ch400

- 01  I want 5 kilogram rice  
 02  I want 400 rupees

[C] EXPERIMENT  
CHOICE 350

STATIC TEXT

The image shows a sack of 5 kilograms of rice and 350 rupees in cash. Please look at the two images carefully and tell us which one do you choose.

₹ Rice 5kg



₹ 350



Select one of the two options listed below

SINGLE-SELECT

ch350

- 01  I want 5 kilogram rice  
 02  I want 350 rupees

[C] EXPERIMENT  
CHOICE 300

STATIC TEXT

The image shows a sack of 5 kilograms of rice and 300 rupees in cash. Please look at the two images carefully and tell us which one do you choose.

₹ Rice 5kg



₹ 300



Select one of the two options listed below

SINGLE-SELECT

ch300

- 01  I want 5 kilogram rice  
 02  I want 300 rupees

## CHOICE 250

STATIC TEXT

The image shows a sack of 5 kilograms of rice and 250 rupees in cash. Please look at the two images carefully and tell us which one do you choose.

₹ २५० का नोट

५ किलो



Select one of the two options listed below

SINGLE-SELECT

ch250

- 01  I want 5 kilogram rice  
02  I want 250 rupees

## [C] EXPERIMENT CHOICE 200

STATIC TEXT

The image shows a sack of 5 kilograms of rice and 200 rupees in cash. Please look at the two images carefully and tell us which one do you choose.

₹ २०० का नोट

५ किलो



Select one of the two options listed below

SINGLE-SELECT

ch200

- 01  I want 5 kilogram rice  
02  I want 200 rupees

## [C] EXPERIMENT CHOICE 150

STATIC TEXT

The image shows a sack of 5 kilograms of rice and 150 rupees in cash. Please look at the two images carefully and tell us which one do you choose.

₹ १५० का नोट

५ किलो



Select one of the two options listed below

SINGLE-SELECT

ch150

- 01  I want 5 kilogram rice  
02  I want 150 rupees

CHOICE 100

STATIC TEXT

The image shows a sack of 5 kilograms of rice and 100 rupees in cash. Please look at the two images carefully and tell us which one do you choose.

5 किलोग्राम



100 रुपये



Select one of the two options listed below

SINGLE-SELECT

ch100

- 01  I want 5 kilogram rice
- 02  I want 100 rupees

[C] EXPERIMENT  
CHOICE 50

STATIC TEXT

The image shows a sack of 5 kilograms of rice and 50 rupees in cash. Please look at the two images carefully and tell us which one do you choose.

5 किलोग्राम



50 रुपये



Select one of the two options listed below

SINGLE-SELECT

ch50

- 01  I want 5 kilogram rice
- 02  I want 50 rupees

STATIC TEXT

Now we will draw a chit

What number came up in the lottery?

NUMERIC: INTEGER

lottery

-----

The lottery resulted in

SINGLE-SELECT

lotteryresult

- 01  Cash
- 02  Rice

<p>What is the primary reason for choosing cash?</p> <p>E lotteryresult=1</p>	<p>SINGLE-SELECT <span style="float: right;">choiccash</span></p> <p>01 <input type="radio"/> I chose cash because the cash amount is more than the value of 5 kilos of rice</p> <p>02 <input type="radio"/> I chose cash because already have rice at home</p> <p>03 <input type="radio"/> I chose cash because I can use it to buy other things or rice itself</p> <p>04 <input type="radio"/> I chose cash because I can use it to buy a different quality of rice</p> <p>05 <input type="radio"/> Others</p>
<p>What is the primary reason for choosing rice?</p> <p>E lotteryresult=2</p>	<p>SINGLE-SELECT <span style="float: right;">choicerice</span></p> <p>01 <input type="radio"/> I chose rice because the cash amount is less than the value of 5 kilos of rice</p> <p>02 <input type="radio"/> I chose rice because cash will get spent on less useful things than rice</p> <p>03 <input type="radio"/> I chose rice because we are running short of rice</p> <p>04 <input type="radio"/> I chose rice because it is hard to control how cash will get spent</p> <p>05 <input type="radio"/> Others</p>
<p>Who will go to the shop to collect cash/rice?</p>	<p>SINGLE-SELECT <span style="float: right;">shpcollect2</span></p> <p>01 <input type="radio"/> Me</p> <p>02 <input type="radio"/> My husband</p> <p>03 <input type="radio"/> My wife</p> <p>04 <input type="radio"/> Other male family member</p> <p>05 <input type="radio"/> Other female family member</p>
<p>In the last experiment, what did you win?</p>	<p>SINGLE-SELECT <span style="float: right;">1astoutcome</span></p> <p>01 <input type="radio"/> Cash</p> <p>02 <input type="radio"/> Rice</p>
<p>In the last round, who went to the shop to collect cash/rice?</p>	<p>SINGLE-SELECT <span style="float: right;">shpcollect1</span></p> <p>01 <input type="radio"/> Me</p> <p>02 <input type="radio"/> My husband</p> <p>03 <input type="radio"/> My wife</p> <p>04 <input type="radio"/> Other male family member</p> <p>05 <input type="radio"/> Other female family member</p>