The Targeting Performance and Short-Term Welfare Effects of Female Income Support Programs: Evidence from Pakistan

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Abstract

This paper uses panel household-level data from the years 2011 and 2013 to study the targeting performance and the short-term welfare effects of Pakistan's Benazir Income Support Program (BISP). The BISP is an unconditional cash transfer for poor, ever-married female heads of the household, and it relies on a proxy means test (PMT) to identify its recipients. I employ a difference-in-difference comparison across beneficiary and control households to evaluate the treatment effect of the BISP on household consumption, saving, and debt; indicators of child welfare; and female empowerment. I find that the BISP's PMT model is now outdated and that its execution has been ineffective in identifying the targeted recipients. Moreover, the BISP has had no significant effect on household consumption of food and other non-durable goods, household saving and debt, the anthropometric status of children, or the incidence of child labor. However, the BISP has significantly increased non-food expenditures on health, housing, apparel, and other relatively inexpensive durable goods, implying that its quarterly nature has helped in mitigating households' saving and credit constraints, and smoothened their consumption over time. It has also improved women's outcomes on most indicators of empowerment, particularly being able to access small amounts of cash in cases of emergencies, and voting in national, provincial and local body elections.

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Introduction

In the interest of equity, unconditional cash transfers (UCT) have long been a popular tool for alleviating poverty, especially due to their unique ability to address the heterogeneous needs of diverse households (Aguero 2006; Barrientos et al. 2010; Baird et al. 2012; Blattman et al. 2013; Haushofer and Shapiro 2016). However, recent improvements to the UCT framework have emphasized the significance of efficiency in addition to equity in the disbursement of these transfers (Alderman 2002; Coady et al. 2004; Galasso and Ravallion, 2005; Soares et al. 2010; Banerjee et al. 2010). Thus, the discourse regarding who to target, and how to most effectively identify this target group has gained increasing significance, with the gender of the recipient, and the targeting performance of the identification strategy becoming frequent subjects of heated debate.

Findings from scholarship on intra household bargaining, and unitary decision making (or lack thereof) often imply that the impact of cash transfers may be mediated through the gender of their recipient. This is because permanent and positive exogenous shocks to female rather than male income – particularly due to their tendency to trickle down to the children – are likely to cause a more preferable reallocation of resources within the household (Duflo 2000; Dulfo and Udry 2004; Qian 2008; Karlan 2010). Thus, one of the considerations in designing a cash transfer program is not just the equity but also the added efficiency of using gender as a targeting criterion for the allocation of social protection funds.

Once the target group has been ascertained, there remain numerous mechanisms for effectively identifying worthy recipients within this group. In the absence of perfect information about the relative levels of poverty within each target group, and given the prohibitive costs of collecting comprehensive data on all indicators of poverty, policy makers are often susceptible to errors of inclusion (over-coverage) – mistakenly extending the program to non-poor persons or households – and errors of exclusion (under-coverage) – mistakenly withholding the program from poor persons or households (Kidd et al. 2011). Thus, in order to improve the effectiveness of the targeting intervention, governments are tasked with the challenge of designing an identification strategy that minimizes the probability of over and under coverage.

In 2011, as its flagship social insurance program, the Government of Pakistan launched an unconditional cash transfer that, through its proxy-means-tested cash grants to ever-married female heads of the household, aspires to address many of the aforementioned considerations (Cheema et al. 2014). Using panel, household level data of 8,221 treatment and control households that were interviewed at baseline in 2011, and then again at endline in 2013, this paper seeks to evaluate the targeting performance, and the short-term welfare effects of the BISP on household consumption, saving, and debt; child welfare; and female empowerment. To this end, the following paper first replicates BISP's proxy means test (PMT) on this representative sample of 8.221 Pakistani households, and then it uses a difference-in-difference approach to assesses the extent to which the BISP improves its recipients' outcomes – relative to those of non-recipients – across the baseline and endline surveys.

This study finds that design features inherent to the PMT model may now be outdated, leading to substantially high but avoidable rates of exclusion and inclusion errors. Moreover, administrative shortcomings in the execution of the PMT have further exacerbated the magnitude of the program's under and over coverage, thereby widening the gap between the Intent to Treat (ITT) and the Treatment on the Treated (TOT).

Upon those who either rightfully or mistakenly receive the program, the BISP has had mixed impacts: it has failed to improve their consumption expenditure on non-durable goods –

particularly food – but it has significantly increased their expenditure on health, apparel, and housing, and their non-food consumption of moderately inexpensive durable goods. In doing so, the BISP highlights that poor households face saving and credit constraints that are being mitigated – at least partially – by the BISP's quarterly, lump-sum payments. Additionally, receiving the BISP significantly improves most indicators of female empowerment: it increases the likelihood for women of voting in the national and provincial elections, and having quick access to short amounts of cash in cases of emergency. However, the BISP fails to improve child welfare by reducing the incidence of child labor, or by improving the anthropometric status of children.

The paper that follows is divided into six sections: Section 1 provides an overview of the cash transfer program; Section 2 engages with existing literature on the efficacy of the BISP; Section 3 evaluates the targeting performance of the BISP; Section 4 reviews the data and presents descriptive statistics; Section 5 addresses my empirical strategy for assessing the impact of this program; Section 6 discusses the results of this strategy and offers a conclusion.

1. Background

The BISP was originally launched in 2008 as the primary social safety net for households in Pakistan. It consisted of a monthly cash transfer of PKR 1,000 (\$12) to 3.4 million ever-married female beneficiaries (Gazdar 2011). Despite being titled as a monthly cash grant, BISP payments are made quarterly. Therefore, in theory, each BISP recipient should get four quarterly payments of PKR 3000 each, adding up to a total of PKR 12,000 per year.

For its first two years, Members of the National Assembly (MNAs) were deemed responsible for nominating recipients from their constituencies (Khan and Qutub 2010). Each constituency consists of approximately 300,000 registered voters, and each MNA was given 8000

forms to register underprivileged members of their constituency based on characteristics that could easily be verified using the National Database and Registration Authority (NADRA): recipients should not have a monthly income greater than PKR 6,000, agricultural land larger than 3 acres, an overseas Pakistani identity card or an overseas passport, an account with a foreign-owned bank, or a household member employed in the public sector (Haseeb and Vyborny 2016; Nayab and Farooq 2014).

By default, an overwhelming number of Pakistani households qualified for the program under these conditions, which effectively gave politicians complete agency to cherry-pick recipients at their own discretion. Using the Pakistan Panel Household Survey (PPHS) of 2010, an independent household survey, the Pakistan Institute of Development Economics (PIDE) found that 16.1 percent of the BISP beneficiaries were in fact ineligible for the program based on these prescribed criteria (Nayab and Farooq 2014). Unsurprisingly, donor agencies and scholars soon started to raise a hue and cry about the long-term sustainability of a UCT design that was so blatantly lacking in transparency and objectivity (World Bank 2013).

In view of this criticism, in 2009, the Government of Pakistan – with assistance from the World Bank – employed a PMT to construct a poverty scorecard that would henceforth be used as the primary targeting mechanism for BISP recipients (Hou 2009). The poverty score's threshold for eligibility was set to target the poorest 25% of the population. This amounted to a score of 16.17 out of 100; with everyone below this score qualifying for the program, and everyone above this score deemed to be ineligible for the BISP (Cheema et al. 2014). As a product of this exercise, more than 7.7 million households were identified as eligible for the BISP, and payments to these households have since been made through one of three mechanisms: the Pakistan Postal Service, the BISP debit or smart card, and mobile money.

BISP's theory of change is twofold: in the short term, it seeks to provide a sustained cash grant that supports basic consumption needs, and that insulates households against fluctuations in prices. In the longer run, it aspires to encourage households to make desirable investments in nutrition, education, health, and productive assets amongst other things. The objective is that ultimately, these investments in human and physical capital will allow households to permanently graduate out of poverty (Cheema et al. 2016).

Before delving into the following empirical analysis of BISP's merits and demerits, it is worthwhile to appreciate that its roll out marks the first instance of the Pakistani state electing to construct its relationship with the household around a female rather than a male nexus. This represents not only an acknowledgment of the doubly compounding disadvantage of gender and class, but also a cognizance of the fact that the traditional notion of a unitary, male-headed nuclear family may fail to holistically capture the meaning of the term "household" in Pakistan. By extending income support to ever-married female heads of the household, the BISP makes allowances for the fact that a poor household where a widowed mother, a wife, and a divorced sister co-reside is worthy of three distinct cash transfers for each of the three ever-married women, as opposed to a single cash transfer for their male head of the household. Thus, at least 8% of the BISP households have more than one direct BISP beneficiary (Cheema et al. 2014).

2. Literature Review

Since its adoption of the PMT, the most eminent set of impact evaluations of the BISP have been conducted by the Oxford Policy Management (OPM) on behalf of the Government of Pakistan. Over the course of three evaluation reports, OPM has relied on a fuzzy regression discontinuity

design (RDD) – predicated upon the assumption of a continuous relationship between the outcome variable and the poverty score – to compare households within a narrow bandwidth of 5 points just above and just below the eligibility cut off (Cheema et al. 2014; Cheema et al. 2015; Cheema et al. 2016). OPM's study has since been replicated, using the same methodology and data, by the World Bank (World Bank 2017).

The use of a fuzzy rather than a sharp discontinuity is an admission of the fact that the actual treatment status of the households does not perfectly match the predicted treatment status; that is, there is a disparity between the TOT and the ITT. In some cases, this is due to legitimate exceptions that were actively stipulated in the framework of the program. For instance, if someone suffers from a disability but has a poverty score slightly higher than 16.17, she may still qualify for the program on grounds of social justice and equity. In other cases, for reasons of administrative mismanagement, nepotism, corruption or simply, measurement error, people who truly do not deserve to be beneficiaries of the program have managed to slide under the radar (Gishkori 2016; Express Tribune 2016).

OPM is also mindful of the fact that there may be structural differences across the treatment and control groups, despite their proximity to each other within a small neighborhood of the eligibility cut-off. Thus, OPM combined its RDD methodology with a difference-in-difference strategy to deliver difference-in-discontinuity estimates. Assuming common trends, and relying upon the paneled nature of its household data, OPM's approach seeks to estimate the extent to which differences between the treatment and control groups for a given outcome variable have changed pre and post treatment. To this end, their model estimates the boundary points of four regressions – two on each side of the eligibility cut-off, at baseline and at endline – for a given outcome variable (Grembi et al. 2013; Cheema et al. 2014). After two years of the BISP's post-reform operation, OPM found an increase of PKR 318 in the per-adult equivalent monthly expenditure of households (Cheema et al. 2014). However, it found no impact at the national level on food consumption (except in one of Pakistan's four provinces), and an ambiguous impact of the BISP on household and child nutrition (Cheema et al. 2014). OPM also found mixed results for the impact of the BISP on indicators of female empowerment: the female BISP beneficiaries seem to be able to retain control of their cash transfers, and are more likely to vote in national, provincial and local body elections, but they are not more likely to easily access cash – even small amounts of it – in cases of emergency. Using the same data and empirical strategy but to assess the impact of the BISP only on indicators of women's empowerment, the World Bank, found that the BISP has significant positive effects on women's decision-making power (Ambler and De Brauw 2017).

By virtue of exclusively using a subsample of households within a five-point range of the eligibility cut-off, OPM's estimates correspond to a local average treatment effect (LATE). LATE's strength lies in its internal validity, that is, in its ability to rigorously estimate the impact of the BISP on households that are located right around the eligibility cut-off. However, its shortcoming rests in its weak external validity, and thus, in the limited room that it offers for extrapolation to households that are not situated in this narrow bandwidth.

LATE's shortcoming is particularly acute if households that were excluded from the RDD sample have a systematically differential response to the treatment, relative to households that were included in the RDD sample. This is not implausible because households that scored within the 11.17 to 16.17 range of the treatment group – that is, households who are included in OPM's sample – are likely to be more affluent than households that scored less than 11.16 and that were, hence, excluded from the analysis.

To empirically check for systematic differences between these two groups, Table 1 reports the mean values at baseline of a range of different household characteristics, and assesses whether these characteristics are on average significantly different across the treatment households that were excluded from the OPM analysis, and the treatment households that were included in the analysis.

Table I shows that on all reported covariates of welfare, households whose poverty score falls short of OPM's RDD bandwidth – Sample I – are significantly different, and worse off, compared to households included in OPM's treatment subsample – Sample II. This gives credibility to the idea that although OPM's results are valid for their own subsample, they may fail to hold for households outside of this 5-point window if the structural differences between these households lead these households to respond differentially to the same treatment. By using a difference-in-difference approach instead, I attempt to address this problem of external validity.

	Sample I:	Sample II:	
	(Poverty Score) <	11.17 < (Poverty Score) <	
	11.17	16.17	P-Values
Number of children	4.39	3.58	0.000
Number of Household Members	9.33	8.20	0.000
Proportion of children in the household			
attending school	1.50	1.98	0.000
Number of Rooms in the House	1.47	1.57	0.000
Agricultural land size (Acres)	0.14	0.36	0.005
Total Monthly Per Adult Equivalent			
Expenditure on Non-Durables (PKR)	1,879.48	2,626.13	0.003
Monthly Per Adult Equivalent Expenditure on			
Health (PKR)	57.16	68.08	0.0009
Monthly Per Adult Equivalent Expenditure on			
Education (PKR)	11.32	20.96	0.000
Household Savings (PKR)	262.07	525.74	0.000
Proportion of Households that have a			
Refrigerator, Freezer, or a Cooler	0.08	0.21	0.000
Proportion of Households that have a stove, a			
cooking range or an oven	0.02	0.09	0.000
Proportion of Households that own a			
Television	0.16	0.30	0.000

Table 1: Treatment Household Characteristics at Baseline by Poverty Score

Source: BISP Survey, 2011

While external validity constraints are intrinsic to the design of any RDD, other limitations of OPM's study are a product of the specific choices that were made in the execution of this RDD. First, in the empirical analysis presented by OPM, it is unclear which, if any, controls were used to ensure the unbiasedness of the RDD estimator. Second, no mention is made of accounting for time invariant unobservable characteristics of households, or of the regions from which those households originate. Third, OPM takes the targeting mechanism of the BISP as a given, and evaluates only the impact of the program, without commenting on its targeting performance. Fourth, OPM made an arbitrary decision to drop Balochistan - Pakistan's largest but most neglected province - from its analysis. The OPM justified this choice by arguing that Balochistan's relatively small number of recipients may undermine the statistical power of the study, and may therefore erroneously attribute no effect to the program (Cheema et al. 2014). However, it should be considered that an inability to detect the effect of the BISP after Balochistan's inclusion in the sample may not necessarily and exclusively be due to the sample size of Balochistan. Instead, it may be due to a genuine absence of any program effect in Balochistan, where people are on average worse off than in other provinces, and where stories of mismanagement, neglect, and corruption are more rampant than anywhere else in Pakistan. Excluding the most impoverished region from the sample may thus misleadingly overstate the impact of a program that seeks to be national, and not provincial, in its coverage and theory of change.

3. Data

3.1 BISP Survey, 2011-13

This paper uses panel household-level data of the BISP beneficiaries and non-beneficiaries – referred to henceforth as the BISP Survey – from the years 2011 (the baseline year), and 2013 (the

endline year). It was collected by OPM for the exclusive purposes of evaluating the BISP, and it covers households from four target provinces: Balochistan, Khyber Pakhtunkhwa, Punjab, and Sindh. The national and provincial sample sizes for each of these provinces across both the baseline and the endline are reported below:

	Baseline Survey (2011)		Endline Surv	Endline Survey (2013)		
	Beneficiary	Control	Beneficiary	Control	Rate	
Balochistan	251	718	251	718	9.3%	
Khyber					7 20/	
Pakhtunkhwa	833	1,075	820	1,088	1.370	
Sindh	1,346	981	1,303	1,024	9.9%	
Punjab	819	2,198	802	2,215	14.1%	
Pakistan	4,972	3,249	5,045	3,176	9.5%	

Table 2: Final Sample Size

Source: BISP Survey (2011-13)

The final sample size consists of 8,221 households. Of these, only 5,435 households were successfully matched with the official NADRA database that contains their state-assigned poverty scores. Because the households in OPM's dataset were matched based on their National Identity Card (NIC) numbers, the absence of an official BISP score or status implies one of two things: either the household surveyed by OPM did not possess an NIC, in which case the household is by default a control household because possession of an NIC is a precondition for registering for the BISP; or errors were made in the process of reporting and recording the 14-digit NIC numbers which prevented these households from being matched with the official NADRA record. In such cases of unmatched households, I replace the official BISP household status (treatment or control) with the status reported by the household at endline.¹

¹ I could have replaced the missing status with the predicted status of the household as per the PMT-generated poverty score that was replicated by both the OPM, and by me. However, since there is a fuzzy discontinuity, the PMT poverty score does not always predict treatment status accurately. The underlying assumption behind using household responses instead is that there is unlikely to be a sizeable response bias – households who are not beneficiaries of the BISP have no incentive to misreport their status. If anything, it is likely that these households would rather make their non-beneficiary status known so that they may qualify for the program in the future. Meanwhile, households who are

A complex multi-staged sampling strategy was used by OPM to identify beneficiaries and non-beneficiaries of the BISP (Cheema et al. 2014). First, primary sampling units (PSUs) in the PSLM 2007-8 were stratified at the provincial and rural-urban levels. Simple Random Sampling (SRS) was then used to sample evaluation PSUs from these strata. Next, in each evaluation PSU, a household listing exercise was conducted to create a sampling frame. Communities were then segmented into subsamples of households, from which a segment was randomly chosen using SRS. From the household listing exercise, a fixed number of households were subsequently chosen using SRS. On average, 100 households were chosen per PSU, and the poverty scorecard was applied to them. Thereafter, a pre-determined number of households from the eligible and non-eligible groups – as per the BISP poverty score – were selected from each PSU using SRS.² To account for this sampling strategy, sampling weights – the inverse of the probability of being selected – are applied where appropriate, over the course of this paper. A full discussion of these sampling weights is contained in Appendix A.

A large part of the empirical analysis that follows is based on monetary values in general, and consumption expenditures, in particular. For analyzing these expenditures, consumption is often adjusted in this paper to account for adult equivalent household sizes by applying a weight of 0.8 upon household members that are younger than 18 years, and a weight of 1 upon household members who are 18 or older. This adjustment can be stated as follows:

already beneficiaries also have no incentive to misreport their status since they're already getting the treatment. If they have been declared eligible by the state to receive a BISP payment, misreporting their status will not make them eligible for another payment given that their status – independent of their response to the OPM survey – is already recorded by the state in NADRA's database. Thus, the analysis reported in Section VI uses the full sample size of all 8,221 households.

 $^{^{2}}$ This information is obtained from Annex D of Cheema et al. 2014.

Adult equivalent household size = 0.8 × (Number of household members under 18) + 1 × (Number of household members over 18)

After dividing expenditures by the relevant adult equivalent household size, these nominal expenditures are subsequently adjusted to account for inflation. To this end, a regional and intrasurvey temporal price deflator is computed using the following Paasche Index:

$$p_i^p = \sum_{k=1}^n w_{ik} \{ {p_{ik}}/{p_{0k}} \}$$

where w_{ik} is the budget share of item k in PSU *i*, while p_{ik} is the median unit value of item k in PSU *i*, and p_{0k} is the national median unit value of item k. This deflator, which was originally employed by OPM in its RDD analysis, remains critical to the study that follows because the BISP surveys at both baseline and endline were conducted at different times across different regions, which means that within a given survey, households located in different regions faced different prices. However, most households within a PSU were interviewed at the same time, and are thus likely to have faced similar prices. Given this, the Paasche Index stated above is computed at a PSU level, and the nominal per-adult equivalent consumption expenditure of each household is divided by the Passche index of the relevant PSU. This allows nominal values across different regions to be converted into real values that can then reliably be compared. Having adjusted prices within each survey, inflationary discrepancy in prices between the two surveys (2011 and 2013) remains because prices may have changed at endline relative to baseline. This problem is accounted for by including time fixed effects that control for the end-line year in each of the empirical models that are used henceforth.

3.2 Outcome Variables

To evaluate the impact of the BISP on households' spending patterns, two kinds of consumption expenditures are analyzed: first, per-adult equivalent consumption of non-durables is examined, and then, annual consumption expenditure on durable goods is assessed with a view to understand whether there is a preference for one kind of commodities over the other. Then, to assess the extent to which an exogenous shock such as the BISP affects household borrowing and saving patterns, the BISP's effect on household saving and debt is estimated.

Since it is often argued that providing a cash grant to female rather than male heads of the household improves children's outcomes, this paper uses two main indicators of child welfare to test whether the BISP has a welfare effect on children. First, it estimates the impact of the BISP on children's nutritional status using a standardized weight for height index of children aged between 0 to 59 months. This is an anthropometric approximation for children's nutrition, and it borrows substantially from Duflo (2000). Second, this paper examines the effect of the BISP on the incidence of child labor to assess whether alleviating some of the financial pressures of a poor household reduces the likelihood of children working instead of attending school. A significant impact of the BISP on child labor would imply that child labor is mainly due to the financial strain that poor households face, but no impact of the BISP on child labor would suggest that child labor is a more multi-faceted and intractable problem, and it may therefore be overly simplistic to reduce it to a mono-causal financial phenomenon.

Finally, to assess the extent to which a cash transfer targeted at female heads of the household actually contributes to female empowerment, a range of different outcome variables are used. First, I estimate whether the BISP improves women's ability to access different amounts of cash, especially in cases of emergencies. If access to cash for BISP beneficiaries increases by more

than the access to cash for non-beneficiaries, it may be safe for us to assume that women retain at least a part of the cash grant, and that it consequently improves their financial wellbeing. Second, I estimate whether the BISP has a treatment effect on the opinions that BISP women uphold regarding women's decision making and socio-economic freedoms. This is motivated by the idea that while the influx of cash may improve women's ability to access cash, it may not improve their tendency to think of themselves autonomous and independent. Third, I assess whether the BISP has had a significant effect on women's probability of voting. This metric should reflect the relative levels of political engagement of BISP eligible, and NIC holding ever-married female heads of the household.

3.2 Descriptive Statistics

Summary statistics on outcome variables and household characteristics are reported below:

J		
Variable	Mean	SD
Panel A: Household Characteristics		
Number of dependents aged under 18 or over 65	4.49	2.33
Number of household members	8.90	3.88
Number of Children 5 to 16 in the Household that currently attend school	1.89	1.82
Proportion of household working age adults in the labor force	0.64	0.37
Age	21.56	17.95
Number of female children	1.47	1,18
Number of female household members	8.72	4.30
Proportion of household adults with National ID cards	0.83	0.43
Proportion of Household heads who have ever attended school	0.40	0.66
Panel B: Consumption, Saving, Debt (PKR)		
Monthly Per-Adult Equivalent Consumption of Non-Durables	3,326.39	5,912.72
Annual Consumption Expenditure on Durables	4,263.46	34,459.10
Annual Per-Adult Equivalent Expenditure on Health	84.78	121.46
Annual Per-Adult Equivalent Expenditure on Education	37.51	67.54
Annual Per-Adult Equivalent Expenditure on Housing	48.05	118.07

Table 3: Summary Statistics

Annual Per-Adult Equivalent Expenditure on Transport	9.89	13.05
Annual Per-Adult Equivalent Expenditure on Food	1,263.25	587.34
Annual Per-Adult Equivalent Expenditure on Apparel	25.22	22.72
Annual Per-Adult Equivalent Expenditure on Recreation	0.31	0.91
Total Savings	887.76	3,747.13
Total Household Debt	6,984.60	12,660.40
Panel C: Women's Empowerment: Proportion of Women who		
Voted in the National/Provincial/Local body Election	0.40	0.49
Can access PKR 50 within a week	0.84	0.37
Can access PKR 100 within a week	0.73	0.44
Can access PKR 200 within a week	0.55	0.50
Can access PKR 400 within a week	0.41	0.49
Can access PKR 600 within a week	0.31	0.46
Can access PKR 800 within a week	0.26	0.44
Can access PKR 1000 within a week	0.25	0.43
Think decisions in family should be made by men Think husband should help with household chores if the wife is working outside the	0.82	0.38
home	0.75	0.44
Think a married woman should be allowed to work outside the home	0.78	0.41
Think the wife has a right to express her opinion Think a wife should tolerate being beaten by her husband in order to keep the family together	0.86	0.35
Think It is better to send a son to school than it is to send a doughter	0.01	0.39
Panel D: Child Welfare	0.21	0.41
Proportion of girls in the household involved in child labor	0.057	0.21
Proportion of boys in the household involved in child labor	0.11	0.28
Standardized weight for height of children 0 to 59 months ³	0.12	0.16
Panel E: BISP Operational Performance		
Distance travelled to collect the BISP (kilometers)	21.39	28.54
Time taken to travel to the BISP point of collection (minutes)	48.28	39.02
Proportion of beneficiaries who have unwillingly paid money to access the BISP	0.35	0.48
Amount unwillingly paid to access the BISP	224.31	324.23

Source: BISP Survey (2011-13)

$$re_i = \begin{cases} \frac{(weight for height)_i - meatah(weight for height)_i}{standard deviation (weight for height)} \end{cases}$$

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³ In order to assess the anthropometric status of children, this study computes a weight for height statistic for each 0 to 59 month old child *i*, and then normalizes this weight for height using the following z-score for each child: $zscore_{i} = \left\{ \frac{(weight for height)_{i} - median(weight for height)}{standard deviation (weight for height)} \right\}$

To communicate a general sense of the relative poverty statuses of households that are to be analyzed in the following study, Figure 1 shows the distribution of the official poverty scores that were assigned to each household in the BISP survey by the national census of Pakistan. The dotted line represents the 16.17 eligibility cut-off.



Figure 1: Official BISP Poverty Score

Figure 2 shows the methods used by different households to collect the BISP. As of 2013, the BISP debit card appears to be the most popular way for most households to receive the BISP cash transfers. Meanwhile, Figure 3 shows the proportions of all beneficiary women who are able to retain control over some, all, or none of their cash transfers after having qualified for the BISP. It suggests that most women retain control over the full amount of cash that is paid to them by the BISP. While this is encouraging, it may also be misleading given the high likelihood of response biases in this case.



4. Targeting Performance

4.1 Context

The BISP uses a weighted index of 23 proxies of welfare – that, in theory, should be easily observable – to approximate the household poverty status. While the need for the BISP to transition away from a targeting mechanism that is fully reliant on political leaders may immediately be obvious, why an income cut-off did not suffice instead may be less self-explanatory.

The limitation of using income as a targeting mechanism stems from the fact that income represents a measure of "welfare opportunity," while consumption speaks to a measure of "welfare achieved" (The Economic Survey of Pakistan, 2014). Economics literature often discusses how income, especially in agrarian societies, is more given to seasonal fluctuations than consumption expenditures are, because households with volatile incomes tend to smooth their consumption over time (Deaton 1997; World Bank, 2009; World Bank 2015). Given this, consumption expenditures instead of income may be better equipped to reflect the true economic status of a household at any given time.

Moreover, household surveys are better suited to measuring consumption expenditures than income. This is because first, respondents may be more inclined to reveal their consumption patterns than their incomes, and second, households' sources of income may include home-based production. Thus, the response biases in the values that households attribute to their own produce may distort measures of household income (Banerjee et al. 2010). For these reasons, income is deemed to be an unreliable metric for gauging the poverty status of a household.

In light of this, the BISP adopted the PMT as a more reliable alternative to income cut-offs for the identification of beneficiaries. Designing a PMT requires a few pre-requisites: an appropriate dataset, a measure of household welfare to act as a dependent variable, an efficient combination of poverty correlates to act as independent variables, and a mechanism for converting regression coefficients to a simple scoring system (AusAID 2011). In keeping with these requirements, the Government of Pakistan, assisted by the World Bank, picked the Pakistan Social and Living Standards Measurement Survey 2005-6 (PSLM) – the most recently available round of the PSLM at the time. The PSLM consists of a nationally representative sample of 15,000 Pakistani households, using which the BISP team predicted the per-adult equivalent monthly consumption expenditure on non-durable goods and services, to proxy for welfare. After running a series of OLS regressions of this consumption expenditure on varying combinations of welfare covariates, the BISP team settled upon 23 correlates of poverty (shown in the Table 2) that it deemed to be the best predictors of households' consumption – and hence by extension – their welfare (Vishwanath et al. 2009).

The coefficients on these independent variables were then re-scaled to generate a poverty score that ranges between 0 and 100. Having ascertained that subject to Pakistan's budgetary constraints, targeting 25% of the country's poorest is the most effective way to minimize errors of

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exclusion and inclusion, the BISP picked a cut-off of 16.17, which it believes is high enough to encapsulate this target population, that is. 25% of Pakistan's poorest hosueholds (Hou 2009). Once the PMT model was developed, the Government of Pakistan first piloted it in 16 representative districts of Pakistan, and then in 2011, it conducted a national poverty census by visiting all households in Pakistan and assigning each of them a poverty score based on the weights calculated for each of the 23 covariates of welfare, using the 2005-6 PSLM PMT design (Channa 2012). Figure 4 uses the BISP Baseline Survey (2011) to illustrate on average, the relationship between the per-adult equivalent monthly consumption expenditure on non-durables, and the PMT poverty score.



Figure 4: PMT Poverty score and Consumption Expenditure⁴

⁴ This is a binned scatterplot that illustrates the relationship between consumption and the poverty score by using a non-parametric visualization of the conditional expectation function. It is created by binning the poverty score into equal-sized bins and computing the means of the poverty score and consumption expenditures within each bin. Because of the large number of households, a conventional scatterplot that shows every data point would have been difficult to interpret.

4.2 PMT Design

One consideration regarding the PMT is whether the six-year dissonance between the data used for designing the PMT, that is, the PSLM 2005-6, and the data collected to execute the PMT, that is the national census of 2011, has any implications for the effectiveness of the PMT. If variables that were good predictors of consumption expenditure in 2005 are no longer relevant in explaining current consumption, then BISP's failure to update the PMT since its initial design can lead to a misidentification of the target group. Moreover, even if these determinants of welfare continue to be statistically significant in 2011, the magnitudes of the coefficients, and thus, their marginal effect on consumption expenditure may have changed over the years. Since the coefficients on these predictors are used as weights in the determination of the poverty score, ignoring an increase or a decrease in the magnitude of these coefficients will lead to an under or an over weighting of these indicators in the poverty index. Even if the predicted poverty scores using the 2005 weights vis-à-vis the 2011 weights end up within a small margin of error, since the negligible difference between 16.15 and 16.18 can make the very real difference between treatment and control for some households, it is worthwhile to investigate whether or not the original PMT is now outdated in any meaningful way.

In Table 4, I replicate the PMT model designed by the BISP team on the BISP Baseline Survey of 2011. Column 1 reports the nominal logged per-adult equivalent monthly consumption expenditure on non-durables, as estimated using the BISP Survey of 2011. Conversely, Column 2 contains estimates from the original PMT that was designed by the BISP team, and was based on the PSLM 2005-6. These estimates have been obtained from Hou (2009).

For most variables, the updated PMT returns different magnitudes for each of the coefficients relative to the original PMT, but these coefficients remain within close proximity of

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	(1)	(2)
Variables	Replication of BISP (2011)	BISP Model (2005-6)
		0.0011
Less than or equal to 2 dependents	0.38***	0.33**
	(0.019)	(0.010)
3 or 4 Dependents	0.21***	0.22***
	(0.015)	(0.008)
5 or 6 Dependents	0.11***	0.11***
Henry held hard attended on the share C	(0.014)	(0.008)
Household head attended up to class 5	0.010	0.02**
Havashald has dotten dad alass 6 to 10	(0.012)	(0.010)
Household head attended class 6 to 10	(0.012)	0.00^{+++}
Household head attended along 11 or more	(0.013)	(0.007)
Household head attended class 11 of more	(0.02())	0.22**
	(0.036)	(0.010)
All 5 to 16-year-olds attend school	0.059***	0.0/***
	(0.013)	(0.006)
Not all 5 to 16-year-olds attend school	0.0/1***	0.1**
	(0.013)	(0.013)
$0.2 < (\text{Ratio of rooms to household members}) \le 0.3$	0.061***	0.04***
	(0.011)	(0.007)
$0.3 < (\text{Ratio of rooms to household members}) \le 0.4$	0.081***	0.08***
	(0.017)	(0.009)
0.4 < (Ratio of rooms to household members)	0.21***	0.26***
	(0.017)	(0.009)
Flush connected to public sewerage, pit or open drain	0.077***	0.08***
	(0.012)	(0.008)
Dry raised latrine or dry pit latrine	0.12***	0.04***
	(0.014)	(0.008)
At least one refrigerator, freezer or washing machine	0.12***	0.08***
	(0.013)	(0.007)
At least one AC, cooler, geyser or heater	0.13***	0.2***
	(0.022)	(0.009)
At least one cooking stove, range, or microwave oven	0.077***	0.12***
	(0.015)	(0.007)
At least one TV	0.043***	0.05***
	(0.011)	(0.006)
One car or one car with one motorcycle	0.16***	0.53**
	(0.048)	(0.015)
One motorcycle but no car	0.14***	0.16***
	(0.018)	(0.008)
At least one buffalo or buffock	0.11^{***}	0.12^{***}
	(0.014)	(0.007)
No buffalo or buffock but at least one cow or goat or sneep	(0.012)	0.05***
A subsultural land < 12.5 sources	(0.012)	(0.009)
Agricultural land ≤ 12.5 acres	(0.015)	(0.09^{***})
A grigultural land > 12.5 games	(0.013)	(0.007)
Agricultural lanu / 12.3 acres	(0.054)	(0.014)
Constant	(0.034) 7 20***	(0.014)
Constant	(0.018)	
Observations	8 575	
R-squared	0.181	0.574

Table 4: Log Per-Adult Equivalent Monthly Consumption Expenditure on Non-Durables

Robust standard errors are in parentheses: *** p < 0.01, ** p < 0.05, * p < 0.1. Note: Coefficients in Column 1 are estimated using the 2011 Baseline BISP dataset. Coefficients in Column 2 consist of BISP's PMT, as reported in Hou (2009).

each other. The exception to this is that the coefficient on the dummy that equals 1 if the household head had attended up to class 5 is now insignificant. Given that never having attended school is the omitted category, this result implies that there is an insignificant difference between the consumption expenditure of a household whose head only completed education up to grade 5, relative to a household whose head never went to school. This is potentially because given increasing labor market competition and unemployment over time, the marginal reward for a few extra years of primary education relative to no education has become statistically insignificant.

While most covariates of welfare are still significant predictors of the consumption expenditure, the model overall explains a smaller proportion of the variation in the dependent variable in 2011 than in 2005. Hou (2009) reports an R-squared of 57.4% for the model shown in column 2, but using the 2011 BISP dataset, the same model explains only 18.1% of the variation in the logged per-adult equivalent monthly consumption expenditure. This raises serious questions about whether the existing 23 poverty correlates that were originally chosen using the 2005-6 dataset continue to offer adequate insight into the poverty status of a given household in 2011.

4.3 PMT Implementation

Having addressed the design component of the PMT, the next objective is to understand whether the execution of the PMT was effective. To this end, I used the weights reported in Column 2 of Table 2, to replicate the poverty score at baseline for each household in the BISP 2011 dataset. If the PMT were correctly implemented, these replicated scores would exactly match the BISP scores officially assigned to households in the aftermath of the 2011 national census. Exploiting the fact that the BISP data this paper uses contains the official poverty scores of each the household, I compare my replicated score with the official scorecard in Figure 5. This figure reveals glaring disparities between the official score assigned to each household, and the predicted score that should have been assigned to each household using the BISP's own 2005-6 PMT weights. In order to corroborate that the discrepancies shown in Figure 5 are due largely to shortcomings in the execution of the PMT rather than to errors in the replication of the poverty score, in Figure 6, I compare the distribution of my replicated poverty score against the poverty score that OPM generated for its RDD, using the official 2005-6 PMT weights.



Figure 5: Predicted Poverty Score versus Official Poverty Score

Figure 6 shows that my replicated score has a strikingly similar distribution to the scorecard generated by OPM, and since it is unlikely that both replications made the same errors, Figure 6 confirms that the replicated poverty score shown in Figure 5 is a good yardstick against which to evaluate the effectiveness of the PMT's execution. Moreover, Figure 6 reveals that in both variants of the replication, there exist households whose poverty score is less than 16.17, but that are officially assigned to the control group, and households whose poverty score is greater than 16.17, but that are officially assigned to the treatment group. While the targeting performance of the

program is left unquestioned by OPM's studies, this figure points unambiguously to the persistence of errors of exclusion and inclusion, and therefore, to the need to evaluate the targeting performance of the BISP in light of these errors.



Figure 6: Replicated Poverty Index versus OPM's Poverty Index

4.4 Errors of Exclusion and Inclusion

Table 3 reports the errors of exclusion and inclusion. The rows represent whether a household is deemed eligible or ineligible by the poverty score, and the columns represent whether or not the household belongs to the target group – which in this case corresponds to 25% of Pakistan's poorest households. Using the treatment or control status officially assigned by the national census to each household in the BISP Baseline Survey of 2011, and the 25^{th} percentile of per-adult

equivalent consumption expenditure on non-durables, the following table reports BISP's errors of exclusion and inclusion:⁵

Table 5: Errors of Exclusion and Inclusion				
	Target Group	Non-Target Group		
Treatment Group: Predicted by the scorecard	857	2392		
Control Group: Predicted by the scorecard	970	4002		
Source: BISP Baseline Survey, 2011.				

The errors of exclusion consist of the 970 households that are in the target group but that were officially assigned to control, while the errors of inclusion consist of the 2392 households who are in the non-target group but were still deemed eligible for the BISP. Thus, the BISP has a 52.6% rate of under-coverage while it has a 73.6% rate of over-coverage or leakage.⁶ This can be diagrammatically seen in Figure 7.



Figure 7: PMT Poverty Score by Percentiles of Consumption⁷

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 Under-coverage = $\frac{970}{857+970}$; Over-coverage = $\frac{2392}{2392+857}$

⁷ Adapted from AusAID (2011)

⁵ The 25th percentile of adult equivalent consumption expenditure was calculated using sampling weights that are described in Appendix A. These weights allow the poorest 25% of households in the BISP Baseline dataset to be representative of the poorest 25% of households in Pakistan.

While designing the PMT, the World Bank Staff predicted that this model will generate an under-coverage rate of 52.1% when it is used to target 25% of Pakistan's poorest households (Vishwanath 2009). This is remarkably close to the 52.6% rate that I observe in the BISP Survey of 2011. However, the anticipated rate of over-coverage or leakage, as per the World Bank's predictions, is 37.1% which is almost half of the actual rate of leakage that I observe based on data in the BISP Survey of 2011. This means that there are fewer if any errors of exclusion committed in the survey and data entry processes, over and above the exclusionary errors that were already built into the design of the PMT due to limitations of the PMT predictors. Instead, errors committed in the implementation of the PMT are overwhelmingly errors of inclusion because the over-coverage rate is 36.5 percentage points higher than what it should be. These errors of exclusion and inclusion taken together are reflective of the shortcomings in the design, the current relevance, and the execution of BISP's targeting mechanism.

Figure 8 presents a disaggregated illustration of the BISP's program incidence, based on the BISP Survey, 2011. In light of the discussion above, and in the interest of equity, in a well targeted program, the number of beneficiaries should fall as we move higher up the percentiles of consumption, while the number of control households should increase. The rationale is that if there is a clustering of beneficiaries in percentiles of consumption that are in close vicinity of the targeted percentiles, errors of inclusion are dominated by households who are, at least, vulnerable to poverty, even if they are not as poor as the target group itself.

Figure 8 shows that as the quartiles of per-adult equivalent consumption increase, the proportion of beneficiary households falls while the proportion of control households increases. This is reassuring because all beneficiaries past the first quartile of consumption represent errors of inclusion, and this error of inclusion declines as the percentile of consumption increases.

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Figure 8: Program Incidence

While the overall levels of BISP's exclusionary and inclusionary errors are far from ideal, the higher rate of inclusionary than exclusionary errors is still preferable. This is because in the trade-off between reducing the probability of inclusionary versus exclusionary errors, there are less serious welfare consequences of including a household that is not in the target group but is still vulnerable to poverty in our classification of the poor, than to preclude a poor beneficiary from accessing a program that was clearly intended for her.

4.5 Explanations for Targeting Ineffectiveness

There are a number of structural reasons for the discrepancies between the official BISP poverty score, and the replicated poverty score, as per the BISP Survey of 2011. First, the roll out of the national census was not synchronized across the different provinces of Pakistan, with the consequence that the BISP payments started in some districts, before other districts had had the time to conclude their surveys (Cheema et al. 2014). This may be problematic for a variety of reasons: if a member of the household or extended family receives BISP payments from another

district where she works or resides, and then transmits some or all of this money back to a household in a district where the census is still underway, it may unduly inflate estimates of the wellbeing of that household. Moreover, if payments start in a given district, there is a possibility that they may create a spillover effect in a neighboring district where the census may still be ongoing. This may be because of an effect on the demand, and hence, on the prices of goods in that region, or because of an influence on the overall the level of formal and informal lending across district lines. Thus, the scores assigned by the national census do not reflect a pure baseline estimate. Conversely, the score I generated using the BISP Survey circumvents these issues because OPM ensured that data collection is concluded for the baseline before the BISP payments had started in any district (Cheema et al. 2014).

Second, the inconsistency in the replicated versus the official poverty scores is a product of disparate responses given by the same household but at different times. In the interval between OPM's data collection, and the Government of Pakistan's national census, a household's standing with respect to some if not all of the 23 PMT indicators may have changed. For instance, loss of livestock, acquisition of a new asset, or the enrollment of a child in school in the period between the two surveys could dramatically alter the estimated score of a household before and after the occurrence of such an event.

Third, it may be the case that the households deliberately misreported information on at least one of the two occasions upon which they were surveyed. For instance, if a household had wished to overstate the extent of its poverty to qualify for income support, but failed to hide the assets enquired about in the first interview, it would be better prepared to do so in the second interview, which in turn would lead to a disparity between the two sets of poverty scores. However, if the households are indeed able to pull off this misleading impression, it reflects poorly upon the PMT model because a PMT, in theory, should rely on indicators that are easily observable, and difficult to conceal.

Fourth, there is of course the likelihood that surveyors committed egregious measurement errors. The census was conducted by a series of different organizations in different regions and at different times. The Population Census Organization (PCO), the Rural Support Program Network (RSPN), and the Pakistan Poverty Alleviation Fund (PPAF) were some of the organizations that were commissioned to conduct the surveys, while the data entry and analysis was performed by NADRA (Gazdar 2011). In the absence of a cohesive data collection and compilation process, and given the institutional limitations of the nascent BISP organization, it is entirely possible that the inconsistency in the poverty scores is partly due to measurement errors that resulted from differences amongst the various organizations involved in the enumeration process.

Finally, a key reason for the persistence of inclusion and exclusion errors is built into the design of the program. Given budgetary constraints, the BISP cannot target everyone under the poverty line and must therefore set a threshold that will inevitably exclude households that are poor or are vulnerable to poverty. This is plausible because households just above the 25th percentile are still likely to be vulnerable to poverty, and thus, upon a visit from a surveyor, they are likely to appear very similar to households under the 25th percentile, making it hard to distinguish them from one another, and increasing the likelihood of over-coverage.

On balance, for reasons pertaining to both the design and implementation of the PMT, there is a clear but avoidable discrepancy between the ITT and the TOT. This discrepancy undermines the targeting performance of the BISP, and therefore, calls for an update of the PMT model, and a revision of the assigned PMT scores.

5. Empirical Strategy

To estimate the impact of the BISP on household consumption, saving, and debt; female empowerment, and indicators of child welfare, this study employs the following base specification:

$$Y_{it} = \alpha_i + \gamma_1 Period_t + \gamma_2 (Treatment * Period)_{it} + \mu_{it}$$

 Y_{it} takes on the value of the relevant outcome variable for household *i* in year *t*, α_i corresponds to household level fixed effects, *Period*_t refers to a dummy that equals one if the year is 2013, that is, the endline year; *Treatment* * *Period* is an interaction term that equals one if the year is 2013, and the household in question is deemed eligible for the BISP at baseline. This interaction estimates the difference-in-difference effect of the BISP on the relevant dependent variable. Household level fixed effects absorb the treatment dummy that usually features in difference-in-difference-in-difference approximations because treatment status is assigned at baseline, and remains time invariant across the two periods. All standard errors are robust and clustered at the household level.

This base specification is estimated without any time variant household controls because these may be strongly correlated with the treatment impact, and may lead the model to be overdetermined. Since the BISP is an unconditional cash transfer that may variously be used by different households to realize a series of different needs, controlling for variation that may be caused by the BISP itself may unduly deter the model from detecting a program effect. However, program eligibility, which is part of the difference-in-difference estimator, already controls for 23 household characteristics because it is based on the PMT. Moreover, since the model includes household fixed effects, this base specification accounts for any potentially confounding timeinvariant unobservable characteristics. Given that there are only two time periods, these household fixed effects are likely to account for most sources of bias. Nonetheless, as a robustness check, I estimate two alternative specifications: one controls for household characteristics that are likely to be exogenous to treatment, and one controls for a more exhaustive list of controls that may or may not be correlated with treatment. In both series of regressions, I omit controls that were already included in the PMT. Both specifications can be summarized as follows:

$$Y_{it} = \alpha_i + \gamma_1 Period_t + \gamma_2 (Treatment * Period)_{it} + X_{it} + \mu_{it}$$

The interpretation of this model remains the same as that of the base specification, with the exception that X_{it} acts as a vector of controls for household *i* in year *t*. The results from this specification are reported in the appendix.

With regards to the impact of the BISP on women's empowerment, and the incidence of child labor, the relevant outcome variables often assume a binary distribution. In these cases, the outcome variables are estimated on a household level by converting the individual level dummy to a household level estimate that seeks to address whether or not there is a change in the proportion of people in the household for whom the dummy takes on the value of 1. Then, to see if there is a change in the probability that the dummy takes on the value of 1 for a given individual, individual level regressions are also run to estimate a linear probability model, and then a conditional logit model with fixed effects – the results of the conditional logit model are reported in the appendix.

6. Results and Discussion

6.1 Consumption Expenditure

Table 6 shows how the BISP impacts consumption expenditure on non-durables. Column 1 shows that the BISP has an insignificant effect on the logged monthly per-adult equivalent consumption

expenditure on non-durables.⁸ The remaining columns in the table attempt to tease out whether any individual component of the non-durable consumption expenditure is affected by the BISP even if the aggregated consumption expenditure is not. It finds an insignificant effect of the BISP on food, educational, transport and recreational expenditure, but it finds a statistically significant increase in expenditure on health, apparel and housing.⁹

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total							
	expenditure on	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure
Variables	all non-durables	on food	on health	on education	on apparel	on transport	on recreation	on housing
Treatment x								
Year	0.0057	-0.00037	0.28***	0.042	0.10**	0.026	-0.0029	0.20***
	(0.034)	(0.035)	(0.060)	(0.047)	(0.048)	(0.048)	(0.022)	(0.058)
Follow-up						. ,		
Year	0.35***	0.27***	0.27***	0.47***	0.35***	0.69***	0.12***	0.041
	(0.022)	(0.022)	(0.038)	(0.043)	(0.040)	(0.042)	(0.021)	(0.037)
Constant	7.00***	6.27***	5.55***	3.00***	4.10***	2.59***	0.28***	1.47***
	(0.0085)	(0.0085)	(0.014)	(0.016)	(0.015)	(0.016)	(0.0078)	(0.014)
Household								
FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,316	16,316	14,168	16,316	16,316	16,316	16,316	16,316
R-squared	0.049	0.030	0.032	0.031	0.022	0.057	0.007	0.002
Number of								
Households	8,158	8,158	8,012	8,158	8,158	8,158	8,158	8,157

Table 6: Monthly, Per-Adult Equivalent Consumption Expenditures on Non-Durables

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 7 shows the treatment impact of the BISP on the annual, per-adult equivalent consumption expenditure on durable goods. Column 1 shows that the BISP has a positive and

⁸ This includes tobacco and chewing products, recreation and reading, personal transport and traveling for noncommercial use, utilities, wages and salaries to domestic staff, expenditure on clothing, housing, medical care, recreational traveling, education, taxes and fines, food items, fuel and lighting, and miscellaneous expenditures on personal care articles and services.

⁹ Expenditure on health includes medical fees paid to doctors, specialists, and hakeems or midwives outside the hospital; medicinal expenditure, hospitalization charges including fees for laboratory tests, X-rays, dental care, ophthalmology, and other unclassified expenses. Expenditure on education consists of school/college/private tuition fee, books, and other educational expenses on transport, bags, professional society memberships, hostel expenses, and stationery supplies. Expenditure on apparel consists of clothing, footwear, and other personal effects like hand bags, gloves, belts, etc. Expenditure on transport consists of money spent on petrol, diesel, CNG, lubricants and oils, punctures; and travel by train, road, tongas, donkeys, camels, ferries, and bicycles.

significant effect on households' total expenditure on durable goods.¹⁰ The columns that follow it then seek to identify which of the components of the total durable expenditure are driving this impact. It finds that households that receive the BISP significantly increase their expenditure on textiles and kitchen equipment but not on any other categories of durable goods. All of these results are robust to the inclusion of controls, as shown by the alternative specifications reported in Appendix A.

This may sound counter-intuitive because households below the 16.17 eligibility cut-off are likely to have more imminent, unsatisfied non-durable expenses. However, expenditure on

	Tuble 7. Thinkin Consumption Expenditures on Durubles						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Total		Expenditure	Expenditure		Expenditure	Expenditure on
	expenditure on	Expenditure	on kitchen	on	Expenditure	on household	miscellaneous
Variables	all durable goods	on textiles	equipment	appliances	on furniture	decorations	equipment
Treatment x							
Year	0.39***	0.36***	0.20***	-0.0076	-0.0077	-0.015	0.045
	(0.085)	(0.076)	(0.066)	(0.069)	(0.031)	(0.019)	(0.057)
Follow-up Year	0.73***	0.49***	0.82***	0.32***	-0.37***	0.083***	0.19***
	(0.053)	(0.047)	(0.042)	(0.044)	(0.020)	(0.012)	(0.036)
Constant	2.86***	1.57***	0.83***	0.85***	12.5***	0.024***	0.53***
	(0.021)	(0.019)	(0.016)	(0.017)	(0.0077)	(0.0047)	(0.014)
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,316	16,316	16,316	16,316	16,316	16,316	16,316
R-squared	0.055	0.036	0.087	0.010	0.066	0.008	0.007
Number of							
Households	8,158	8,158	8,158	8,158	8,158	8,158	8,158
Follow-up Year Constant Household FE Observations R-squared Number of Households	0.73*** (0.053) 2.86*** (0.021) Yes 16,316 0.055 8,158	0.49*** (0.047) 1.57*** (0.019) Yes 16,316 0.036 8,158	0.82*** (0.042) 0.83*** (0.016) Yes 16,316 0.087 8,158	0.32*** (0.044) 0.85*** (0.017) Yes 16,316 0.010 8,158	-0.37*** (0.020) 12.5*** (0.0077) Yes 16,316 0.066 8,158	0.083*** (0.012) 0.024*** (0.0047) Yes 16,316 0.008 8,158	0.19*** (0.036) 0.53*** (0.014) Yes 16,316 0.007 8,158

Table 7: Annual Consumption Expenditures on Durables

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

non-durable items like food is inherently short-term in nature, and is incurred on a monthly if not a weekly basis, while expenditure on durable goods is usually incurred in the medium to the long term. The BISP is paid out on a quarterly basis, and there are often additional lags between the

¹⁰ Total expenditure on durable goods consists of expenditure on textile, kitchen equipment, furniture, household decorations, and other miscellaneous household equipment.

official due date of the BISP payments, and the date of their receipt by the beneficiaries. These lags may be due to administrative delays on part of the government, because 25% of the people who claimed that they have been declared eligible for the BISP payments also reported that they are owed at least some of the total payment in arrears.¹¹ It may also be due to beneficiaries' deferral of BISP's transaction costs; beneficiaries often have to travel a sizeable distance, and unwillingly pay a fee to local officials at the point of collection in order to access their cash transfer – as shown in Figures 7 and 8.

Since these transaction costs are likely to be incurred at each instance of collection, instead of picking up each individual BISP payment, households may prefer to allow a few BISP payments



to accumulate over time before going over to collect them.¹³ Such lags - in addition to the inherently quarterly nature of the BISP - attribute a lump-sum quality to this cash transfer program,

¹² The costs of collection are a sum of the money unwillingly paid by beneficiaries to state officials in order to

¹¹ Source: BISP Survey 2011

collect their cash grant, and the costs incurred by beneficiaries in the process of traveling to the point of collection ¹³ That transaction costs are a significant factor in households' decision-making calculus is evident from studies that detect a significant positive effect on savings due to the elimination of the transaction costs of accessing a bank or an alternate saving technology (Karlan et al. 2013)

and lump-sums of cash are likely to assist households in smoothening their consumption over time by facilitating asset retention of durable goods.

That poor households who qualify for the BISP's lump-sum payments use this money to buy durables – or spend on health, apparel and housing – implies that these households face saving and credit constraints. Their post-treatment consumption behavior reveals their preference for durable goods but the fact that they were unable to buy these goods before the receipt of BISP's income support reflects their inability to save or to borrow enough to afford these goods on their own. This finding is consistent with other studies that show that lump-sum cash transfers increase expenditure on durables by helping to alleviate the saving and credit constraints of poor households (Haushofer and Shapiro 2016).

It stands to reason that the increase in the consumption of durable goods is driven by expenditure on the relatively inexpensive commodities: textiles and kitchen equipment. Columns 2-7 show that the BISP does not have a significant effect on expenditure on appliances, furniture, household decorations; or other miscellaneous household equipment like washers, dryers or transport vehicles. However, it does have a significant effect on textiles like bedsheets, blankets, and mosquito nets; and on kitchen equipment like chinaware, silverware, and other cooking utensils. Not only is this reasonable because the need for these goods in a poor household is more pressing than the need for televisions or cars, but also because the BISP cash grant only provides PKR 3000 in each quarter, which is enough to buy kitchen equipment, clothes, and textiles, or to pay for medical and housing expenses, but not enough to purchase more expensive durable goods.

An interesting implication of these findings is that they lend support to the use of UCTs as a tool for poverty alleviation. The fact that households invest their receipts from a UCT on health, housing, and other moderately inexpensive durable goods negates the argument that poor

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households are parochial and short-sighted in their allocation of resources, and hence, they are likely to squander the UCT on temptation goods. BISP beneficiaries are clearly mindful of the opportunity to use a lump-sum supplement to their income as a means to smoothen their overall consumption.

6.2 Saving and Household Debt

Table 8 shows the treatment effect of the BISP on households' saving and debt. Column 1 shows that there is a significant positive effect on savings for households who receive the BISP vis-à-vis households who do not.¹⁴ However, the vast majority of households in the dataset report zero savings at baseline (as shown in Figure 9), and it is questionable whether the positive treatment effect on savings is driven by a BISP-stimulated change in household saving behavior, or if it is driven exclusively by the smaller subsample of households who were already pre-disposed to saving prior to receiving the BISP. To explore this, column 2 reports the impact of the BISP on people who had zero savings at baseline while column 3 reports the treatment impact on people who reported non-zero savings at baseline.

¹⁴ A log-real per adult equivalent scale could not be used to estimate the impact on savings because most of the values of saving at baseline were zero, as shown in . However, as a sensitivity test, I find that if a logarithmic scale is used and the zero savings are all replaced with half of the smallest non-zero value in the saving vector, the results remain consistent.



Figure 9: Distribution of Household Saving

The treatment effect is insignificant in column 2 but it is significant and positive in column 3. This suggests that the BISP has had no impact on people who were not saving at baseline – the overwhelming majority of this sample – but it has had a positive and significant effect on the smaller subsample of households who were already saving at baseline, and it is this subsample that is driving the overall results shown in column 1. Thus, for the vast majority of cases, the BISP does not have an impact on savings. Similarly, there is no impact of the BISP on household debt, as shown in column 4.

Tuble 0. Housenoid Suving and Deot					
	Н				
	(1)	(2)	(3)	(4)	
		Households that	Households that saved a	Log real per-	
	All households	did not save at	non-zero amount at	adult equivalent	
	in the sample	basenne	baseline	ucor	
Treatment x Year	344***	-84.4	2,531***	0.057	
	(104)	(77.7)	(696)	(0.10)	
Follow-up year	-21.7	728***	-5,709***	0.45***	
	(73.2)	(50.9)	(428)	(0.066)	
Constant	832***	0.000	7,947***	5.56***	
	(26.5)	(19.2)	(177)	(0.025)	
Household FE	Yes	Yes	Yes	Yes	
Observations	16,301	14,551	1,750	16,316	
R-squared	0.002	0.043	0.208	0.010	
Number of Households	8,220	7,309	911	8,158	

Table 8: Household Saving and Debt

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

6.3 Child Welfare

Column 1 shows the treatment effect of the BISP on a normalized weight-for-height index of children aged between 0 to 59 months. It suggests that the BISP has had no significant impact on the weight-for-height of these children, relative to children in the control group.

Column 2 uses household level data to ascertain the impact of the BISP on the proportion of children in the household aged 5 to 14, that are involved in child labor.¹⁵ The results suggest that there is no significant change in the proportion of children involved in child labor, even after controlling for the average age of children in the household, and the household proportions of female and disabled children. There is also no significant change in the probability that a given female child may engage in child labor, as per the linear probability model reported in column 3.

	(1)	(2)	(3)	(4)
	Normalized	% of all children in	Probability of	Probability of
	Weight-for-Height	the household	girls being	boys being
	of children aged 0	involved in child	involved in child	involved in child
Variables	to 59 months	labor	labor	labor
Treatment x Year	0.021	0.0097	0.0090	0.030***
	(0.042)	(0.0080)	(0.0070)	(0.0089)
Follow-up year	0.49***	0.020*	0.024***	0.018***
	(0.035)	(0.011)	(0.0052)	(0.0065)
Age †	0.030***	0.021***	0.012***	0.034***
	(0.00078)	(0.0029)	(0.0011)	(0.0013)
Proportion of female children		-0.078***		
		(0.018)		
Disability ∓		0.00013	-0.023	-0.039*
		(0.0047)	(0.019)	(0.020)
Constant	-0.99***	-0.073***	-0.068***	-0.21***
	(0.025)	(0.028)	(0.0094)	(0.012)
Household FE	Yes	Yes	Yes	Yes
Observations	8,782	12,746	15,735	16,869
R-squared	0.248	0.028	0.032	0.087
Number of Households	4,620	6,797	4,838	5,085

Table 9: Child Welfare

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

† For Column 2, age refers to the average age of the children in the household

∓ For Column 2, disability refers to the proportion of disabled children in the household.

¹⁵ A child is deemed to be involved in child labor if he or she works for someone who is not a member of the household or if he or she works on the family farm or business.

However, despite there being no impact on the overall proportion of household children involved in child labor, there is curiously a significant increase in the probability that any given male child may engage in child labor, as shown in column 4. However, this particular estimation of the linear probability model should be taken with a grain of salt not only because it is contrary to the patterns observed in columns 2 and 3, but also because a sizeable amount of the predicted probabilities for male children – more so than for female children – fall well below 0, as shown in Figure 10. This model is therefore particularly susceptible to the limitations of a linear probability estimation that is seeking to explain a binary dependent variable.¹⁶ In view of this, Appendix C reports results of the conditional logit model with fixed effects, and of alternative specifications of the models reported Table 9.



Figure 10: Predicted Probabilities - Child Labor

¹⁶ A potential explanation for this seemingly counterintuitive result – putting aside its econometric shortcomings – is that since the child labor metric includes work done by children at the family farm or business, the inflow of cash into the household may increase the degree of activity on these family businesses and farms. This may in turn lead to an increase in the probability of male children being engaged in child labor. However, the same would not be true for females because households are likely to be opposed to the idea of young girls working.

The fact that, at best, there is no treatment impact of a UCT on child labor, and at worst, there is a potential increase in the probability of child labor for boys suggests that child labor is a deeply intractable component of the livelihoods and subcultures of poor households. Simply providing small cash supplements is unlikely to eradicate it.

6.4 Women's Empowerment

Table 11 shows the treatment effect of the BISP on the proportion of ever-married women in a household who can quickly gain access to varying quantities of cash, especially in cases of an emergency. It finds that receiving the BISP significantly increases the proportion of women in a household who can gain access to PKR 50, PKR 200, PKR 600 and PKR 800. Table 12 shows that not only is there a significant increase in the proportion of women in a household who have increased access to cash, there is also a significant increase in the probability that any given woman can access this sum of money relatively quickly. This is so even after controlling for the woman's age, school enrollment, disability status, and occupation type.

	If you needed to could you personally gain access to the following amounts				
	of mor	ney quickly, for exam	ple in an emergency	?	
	(1)	(2)	(3)	(4)	
Variables	Rs. 50	Rs. 200	Rs. 600	Rs. 800	
Treatment x Year	0.026**	0.032**	0.031**	0.029**	
	(0.013)	(0.015)	(0.013)	(0.013)	
Follow-up year	0.035***	0.094***	0.074***	0.084***	
	(0.0081)	(0.0094)	(0.0086)	(0.0083)	
Constant	0.72***	0.44***	0.23***	0.19***	
	(0.0032)	(0.0037)	(0.0033)	(0.0032)	
Household FE	Yes	Yes	Yes	Yes	
Observations	15,348	15,348	15,348	15,348	
R-squared	0.007	0.027	0.022	0.030	
Number of Households	7,726	7,726	7,726	7,726	

Table 11: Women's Access to Money (Proportional Model)

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

However, it should be considered, first, that the improvement in these probabilities is usually only significant at the 10% level; and second, that only women who answered in the affirmative regarding the previous smaller sum of money were subsequently asked about the next larger sum of money – that is, only a woman who claimed that she can access PKR 50 was then asked if she can also access PKR 200, and so on. Hence, each additional column progressively filters out those who previously revealed their limited access to cash, and in this sense, it may overstate the extent to which women can access progressively larger sums of cash.

Table 13 reports other non-monetary outcomes that indicate women's relative levels of social and political empowerment. Each of the outcome variables in columns 1 to 5 are coded such that 1 represents respondent's agreement with the statement, while 0 represents disagreement. Results suggest that receiving the BISP significantly reduces the proportion of women in the household who believe that important decisions about family matters should only

	If you needed to could you personally gain access to the following amounts of				
	money quickly, for example in an emergency?				
	(1)	(2)	(3)	(4)	
Variables	Rs. 50	Rs. 200	Rs. 600	Rs. 800	
Treatment x Year	0.023*	0.035**	0.030*	0.025*	
	(0.013)	(0.017)	(0.016)	(0.015)	
Follow-up year	0.098***	0.14***	0.10***	0.12***	
	(0.0080)	(0.011)	(0.010)	(0.0099)	
Age	-0.00073***	-0.00011	0.00012	0.00017	
-	(0.00022)	(0.00028)	(0.00025)	(0.00023)	
Ever attended school	0.0062	-0.016	0.011	0.0073	
	(0.014)	(0.019)	(0.018)	(0.017)	
Disability	-0.024***	-0.0096	-0.010	-0.011	
	(0.0063)	(0.0079)	(0.0081)	(0.0081)	
Control for type of					
occupation	Yes	Yes	Yes	Yes	
Constant	0.94***	0.55***	0.24***	0.19***	
	(0.053)	(0.071)	(0.0039)	(0.0038)	
Household FE	Yes	Yes	Yes	Yes	
Observations	18,537	18,540	18,527	18,519	
R-squared	0.042	0.053	0.037	0.046	
Number of Households	7,632	7,632	7,631	7,630	

Table 12: Women's Access to Money (LPM)

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

be made by men (column 1),and that it is better to school the son than the daughter (column 5). It also increases the proportion of women in a household who believe that a married woman should be allowed to work, and that the wife has a right to express her opinion even if the husband disagrees with her opinion. However, the BISP has no significant impact on women's belief that the wife should tolerate being beaten.

		women s Empt		Toportional IV	louely	
	(1)	(2)	(3)	(4)	(5)	(6)
	Important	A married	The wife		It is better	Voting in
	family decisions	woman should	has a right	A wife should	to send a	National /
	should be made	be allowed to	to express	tolerate being	son to	Provincial/ local
Variables	by men	work	her opinion	beaten	school	body elections
Treatment x						
Year	-0.022*	0.034**	0.025*	-0.0047	-0.043***	0.040***
	(0.013)	(0.014)	(0.013)	(0.014)	(0.012)	(0.013)
Follow-up year	-0.070***	-0.0060	0.033***	0.0011	0.041***	0.025***
	(0.0085)	(0.0085)	(0.0080)	(0.0100)	(0.0070)	(0.0079)
Constant	0.76***	0.68***	0.73***	0.71***	0.17***	0.34***
	(0.0033)	(0.0033)	(0.0031)	(0.0037)	(0.0028)	(0.0031)
Household FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,348	15,348	15,348	15,348	15,348	15,348
R-squared	0.020	0.001	0.007	0.000	0.004	0.007
Number of						
Households	7,726	7,726	7,726	7,726	7,726	7,726
Dobugt stondard	mana in noranthagas	· *** ~~ <0.01 ** *	<0.05 * m<0			

 Table 13: Women's Empowerment (Proportional Model)

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.

Interestingly, column 6 shows that receiving the BISP significantly increases the likelihood of BISP women voting in the national and provincial elections. In order to be eligible for the BISP, women have to obtain national identity cards (NICs), and the possession of an NIC is a pre-requisite for voting in the elections. Given this, the finding in column 6 suggests first, that the procurement of an NIC has significant transaction costs for women; second, that while voting – in and of itself – is not an adequate incentive for a woman to overcome these transaction costs, the prospect of eligibility for a monetary compensation – in this case the BISP – is effective in motivating women to acquire an NIC; and third, that conditional on prior possession of an NIC,

women are more willing and able to vote, thereby challenging the assumption that women are inherently disinterested in politics or more prone to voter apathy, and implying instead that women face higher transaction costs to voting than men do. Finally, the fact that the BISP makes women more likely to vote even though it fails to decisively improve child welfare or most indicators of household consumption implies that even if the BISP is not actually helpful, it gives women the illusion of being helpful, which in turn may contribute towards their motivation to actively engage with a political system that has endeavored to improve the quality of their life.

			1			
	(1)	(2)	(3)	(4)	(5)	(6)
						Voting in
	Important	A married	The wife has		It is better	National /
	decisions	woman should	a right to	A wife should	to send a	Provincial/
	should be made	be allowed to	express her	tolerate being	son to	local body
Variables	by men	work	opinion	beaten	school	elections
					_	
Treatment x						
Year	-0.021*	0.047***	0.043***	-0.0036	-0.051***	0.033**
	(0.013)	(0.014)	(0.013)	(0.014)	(0.014)	(0.013)
Follow-up						
year	-0.041***	0.040***	0.084***	0.034***	0.045***	0.042***
	(0.0089)	(0.0090)	(0.0079)	(0.0087)	(0.0088)	(0.0087)
Age	0.00061***	-0.0016***	-0.0012***	0.0010***	0.0021***	0.0092***
	(0.00020)	(0.00025)	(0.00021)	(0.00021)	(0.00025)	(0.00032)
Ever						
attended						
school	0.037**	-0.031**	-0.048***	0.049***	0.014	-0.0076
	(0.015)	(0.016)	(0.014)	(0.016)	(0.015)	(0.015)
Disability	0.00079	0.0058	0.0013	0.0016	-0.0014	-0.015*
-	(0.0067)	(0.0081)	(0.0065)	(0.0058)	(0.0069)	(0.0080)
Constant	0.037**	-0.031**	-0.048***	0.049***	0.014	-0.0076
	(0.015)	(0.016)	(0.014)	(0.016)	(0.015)	(0.015)
Control for				-		
type of						
occupation	Yes	Yes	Yes	Yes	Yes	Yes
Household						
FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18,636	18,457	18,362	18,574	18,368	18,497
R-squared	0.009	0.009	0.035	0.005	0.004	0.010
Number of						
Households	7,643	7,638	7,636	7,647	7,634	7,636

Table 14: Women's Empowerment (LPM)

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

The treatment effect of the BISP on the same outcomes variables, but using a linear probability model on the individual level data of all ever-married women is reported in Table 14. Results in Table 14 reinforce the trends shown in Table 13: there is a significant decline in the probability that women agree with the idea that important family decisions should be made by men, and that it is better to school sons than daughters. There is also a significant increase in the probability that women believe that a married woman should be allowed to work, and that the wife has a right to express her opinion; but there is no significant change in the probability that a BISP beneficiary relative to a non-beneficiary believes that the wife should tolerate being beaten. The results regarding the impact of the BISP on the likelihood of women voting in the national, provincial, or local body elections are also consistent across Tables 13 and 14: there is a significant increase in the probability that a woman who receives the BISP would vote in the elections relative to women who do not receive the BISP.

Conclusion

This study has attempted to address two key aspects of Pakistan's Benazir Income Support Program: the targeting performance of the BISP's PMT, and the short-term welfare effects of the BISP on household consumption, saving and debt; child welfare; and female empowerment. It has found that the BISP is subject to an under-coverage rate of 52.6%, and an over-coverage rate of 73.6%. These errors of exclusion and inclusion are indicative of a series of shortcomings that undermine the targeting performance of the BISP. First, the PMT for the BISP was developed using data from 2005-6 whereas the payments of the BISP started in 2011. Thus, the weights estimated in the original model have now either undergone a change in their magnitude, or in their relative significance levels. As a consequence, they explain a smaller proportion of the overall variation in consumption expenditure, and stand in need of a revision based on more recent data. Second, errors have clearly been made in the execution of the PMT because I find that the poverty scores predicted by the 2005-6 PMT weights rarely match the official poverty scores assigned to households.

With regards to short-term welfare effects, the BISP has had either no effect – or at best – an ambiguously inconclusive effect on household saving, debt, and the consumption of nondurable goods, particularly food. It has also had no beneficial impact on any measure of child welfare. However, it has significantly improved most indicators of female empowerment. It has also increased expenditure on moderately inexpensive durable goods, and on health, apparel and housing expenses. In this respect, the BISP's lumpy nature has ostensibly assisted in mitigating the saving and credit constraints faced by poor households.

BISP's lack of incorporation into households' day-to-day non-durable expenditures is unsurprising, not only because the actual value of the cash transfer is small, but also because the BISP payments had only started 2 years prior to the end-line. Thus, the BISP had yet to cultivate a reputation for being a consistently reliable program, as opposed to being a transient shock to household income. Until the BISP fully does so, it stands to reason that most households will treat it as a rare windfall that they should use in order to make one-time purchases of durable goods and services, rather than to modify day-to-day life style choices. Whether the BISP will get incorporated into households' regular expenditures once it has operated for longer, and has, thus, assumed a stronger impression of reliability, is a topic for further and later research.

The empirical findings reported in this paper are reliant upon the identifying assumption of common trends between beneficiary and control households. However, because the BISP team was unwilling to part with more than 2 years of their survey data, I am unable to empirically demonstrate that the common trends assumption holds for the variables I have analyzed. Thus, the shortcoming of this paper lies in the fact that it takes this assumption for granted, and predicates its findings upon it. However, this is a characteristic common to all BISP studies that have been done so far by the OPM and the World Bank because each of these studies assume common trends in the estimation of their difference in discontinuity estimates. As and when more of the BISP surveys from subsequent years become publicly available, this assumption can formally be tested.

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Appendix

Appendix A: Sampling Weights¹⁷

The probability of a household being selected for the BISP survey is calculated by combining the following probabilities:

 $P_{Selection} = Probability of PSU being selected \times \frac{number of segments selected in PSU}{total number of segments in PSU} \\ \times \frac{total number of PMT's applied in PSU}{total number of households in household listing} \\ \times \frac{number of sampled eligible or ineligible households in PSU}{total number of eligible or ineligible households from list of PMT'sapplied in PSU}$

Hence, the sampling weight is $P_{Selection}^{-1}$

These weights are then adjusted for attrition as follows:

weight_{adjusted} = $P_{Selection}^{-1} \times \frac{1}{estimated probability of response}$

Appendix B: Consumption

Household Fixed Effects with uncorrelated controls

Table 1: Consumption Expenditures on Non-Durables									
	(1) Total	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Variables	expenditure on all non-durables	Food	Health	Education	Apparel	Transport	Recreation	Housing	
Treatment x Year	0.0018	-0.0067	0.26***	0.042	0.097**	0.027	-0.0051	0.18***	
Follow-up Year	(0.034) 0.37***	(0.036) 0.29***	(0.061) 0.17***	(0.047) 0.45***	(0.048) 0.32***	(0.048) 0.45***	(0.023) 0.048***	(0.058) 0.059	
Other welfare	(0.023)	(0.023)	(0.040)	(0.032)	(0.032)	(0.032)	(0.016)	(0.037)	
payments	0.13*** (0.036)	0.12*** (0.037)	-0.046 (0.067)	0.11** (0.053)	0.18*** (0.053)	0.10** (0.052)	0.035 (0.025)	0.29*** (0.067)	
Shocks to the Household	_								
Lower crop yield due to drought,									
flood, disease	0.026 (0.041)	-0.012 (0.042)	0.37*** (0.089)	0.24*** (0.067)	0.18*** (0.062)	0.099 (0.062)	0.013 (0.018)	0.43*** (0.083)	

¹⁷ The following information about sampling and sampling weights is obtained from the original OPM reports.

Household business								
failure (non-								
agriculture)	-0.13	-0.17**	-0.077	-0.027	-0.038	0.046	0.0037	0.14
	(0.078)	(0.082)	(0.15)	(0.11)	(0.12)	(0.11)	(0.064)	(0.14)
Loss of salaried								
employment	0.00076	-0.027	-0.12	0.060	0.057	0.31**	-0.11	0.15
	(0.11)	(0.11)	(0.18)	(0.14)	(0.15)	(0.15)	(0.086)	(0.18)
Illness or accident								
of households' main								
earning member	0.037	0.0093	0.40***	0.031	-0.16**	0.16***	0.013	-0.025
	(0.043)	(0.044)	(0.079)	(0.063)	(0.062)	(0.062)	(0.035)	(0.078)
Death of main								
earning member of								
the household	-0.022	-0.067	0.31	-0.068	0.054	-0.21	0.019	0.095
	(0.16)	(0.16)	(0.27)	(0.19)	(0.24)	(0.19)	(0.071)	(0.26)
Death of household								
head	-0.10	-0.24	0.084	0.038	-0.32*	0.12	-0.025	-0.10
	(0.13)	(0.16)	(0.21)	(0.16)	(0.18)	(0.18)	(0.11)	(0.23)
Dwelling								
damaged/destroyed								
due to flood	-0.19***	-0.18***	-0.28***	-0.016	-0.27***	-0.078	0.00095	0.093
	(0.049)	(0.051)	(0.090)	(0.066)	(0.072)	(0.070)	(0.020)	(0.097)
Constant	6.91***	6.22***	0.86***	0.75***	12.5***	0.023***	0.53***	2.79***
	(0.013)	(0.013)	(0.024)	(0.026)	(0.011)	(0.0067)	(0.021)	(0.031)
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,229	16,229	16,229	16,229	16,229	16,229	16,229	16,229
R-squared	0.056	0.034	0.020	0.047	0.032	0.046	0.002	0.009
Number of								
Households	8,158	8,158	8,158	8,158	8,158	8,158	8,158	8,158

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 2: Consumption Expenditures on Durables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			Ar	nual Expenditur	e on:		
			Kitchen				Miscellaneous
Variables	All durables	Textiles	equipment	Appliances	Furniture	Decoration	equipment
Treatment x Year	0.36***	0.34***	0.19***	-0.018	-0.015	-0.015	0.040
	(0.085)	(0.077)	(0.066)	(0.069)	(0.031)	(0.019)	(0.057)
Follow-up Year	0.74***	0.48***	0.81***	0.35***	-0.38***	0.085***	0.20***
-	(0.054)	(0.048)	(0.043)	(0.044)	(0.021)	(0.013)	(0.037)
Other welfare payments	0.42***	0.073	0.12	0.31***	0.079**	0.045**	-0.050
	(0.093)	(0.087)	(0.073)	(0.079)	(0.033)	(0.021)	(0.062)
Shocks to the Household							
Lower crop yield due to							
drought, flood, disease	0.20	0.29**	-0.15	0.42***	-0.017	-0.039	0.063
	(0.13)	(0.12)	(0.098)	(0.10)	(0.036)	(0.025)	(0.091)
Household business							
failure (non- agriculture)	0.18	-0.0030	0.16	-0.031	-0.16**	0.11**	-0.049
	(0.20)	(0.17)	(0.14)	(0.17)	(0.071)	(0.055)	(0.13)
Loss of salaried							
employment	0.59**	-0.071	0.30	0.37*	-0.025	0.097**	0.080
	(0.24)	(0.22)	(0.18)	(0.21)	(0.10)	(0.048)	(0.17)

Illness or accident of							
households' main earning							
member	0.053	0.076	-0.27***	0.17*	-0.016	-0.059**	-0.050
	(0.11)	(0.095)	(0.084)	(0.091)	(0.039)	(0.024)	(0.066)
Death of main earning							
member of the household	-0.79**	-0.41	-0.47	-0.37	-0.061	-0.10	-0.26
	(0.37)	(0.31)	(0.29)	(0.27)	(0.15)	(0.092)	(0.21)
Death of household head	-0.41	-0.51*	-0.020	-0.13	-0.090	-0.071	-0.066
	(0.33)	(0.28)	(0.23)	(0.27)	(0.11)	(0.073)	(0.21)
Dwelling							
damaged/destroyed due to							
flood	-0.25*	-0.13	-0.27***	-0.0076	-0.22***	-0.017	0.22**
	(0.13)	(0.13)	(0.10)	(0.11)	(0.044)	(0.024)	(0.087)
Constant	2.79***	1.55***	0.86***	0.75***	12.5***	0.023***	0.53***
	(0.031)	(0.028)	(0.024)	(0.026)	(0.011)	(0.0067)	(0.021)
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,229	16,229	16,229	16,229	16,229	16,229	16,229
R-squared	0.056	0.034	0.020	0.047	0.032	0.046	0.002
Number of Households	8,158	8,158	8,158	8,158	8,158	8,158	8,158

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Household Fixed Effects with potentially correlated controls

Table 3: Consumption Expenditures on Non-Durables									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	Total								
	expenditure on								
Variables	all non-durables	Food	Health	Education	Apparel	Transport	Recreation	Housing	
Treatment x Year	-0.015	-0.028	0.22***	0.020	0.071	0.0067	-0.0037	0.15**	
	(0.035)	(0.036)	(0.061)	(0.047)	(0.049)	(0.049)	(0.023)	(0.058)	
Follow-up Year	0.36***	0.29***	0.24***	0.47***	0.34***	0.45***	0.057***	0.092**	
	(0.024)	(0.024)	(0.041)	(0.033)	(0.033)	(0.034)	(0.017)	(0.038)	
Other welfare									
payments	0.12***	0.11***	-0.030	0.11**	0.20***	0.081	0.034	0.31***	
	(0.037)	(0.037)	(0.067)	(0.053)	(0.053)	(0.053)	(0.026)	(0.066)	
Shocks to the									
Household									
Lower crop yield	-								
due to drought,									
flood, disease	-0.038	-0.068	0.37***	0.30***	0.18***	0.083	0.047	0.35***	
	(0.041)	(0.042)	(0.089)	(0.090)	(0.067)	(0.061)	(0.063)	(0.084)	
Household business	· · · ·	× /		× /			× /		
failure (non-									
agriculture)	-0.15*	-0.19**	-0.077	-0.14	-0.078	-0.081	0.025	0.033	
0 /	(0.078)	(0.081)	(0.15)	(0.15)	(0.11)	(0.12)	(0.11)	(0.13)	
Loss of salaried	· · · ·	× /	× /		. ,	. ,		. ,	
employment	-0.028	-0.045	-0.12	-0.12	0.045	0.082	0.28*	0.18	
1 2	(0.11)	(0.11)	(0.18)	(0.18)	(0.15)	(0.16)	(0.16)	(0.17)	
Illness or accident	()	()	()	(****)	()	()	(****)	()	
of households' main									
earning member	0.023	-0.014	0.40***	0.37***	0.018	-0.16***	0.17***	-0.033	
	(0.043)	(0.044)	(0.079)	(0.079)	(0.063)	(0.062)	(0.062)	(0.076)	
	()	(*****)	()	(*****)	()	()	(****=)	(*****)	

Death of main								
earning member of								
the household	0.0092	-0.031	0.31	0.31	-0.053	0.084	-0.18	0.18
	(0.17)	(0.16)	(0.27)	(0.27)	(0.20)	(0.25)	(0.20)	(0.26)
Death of household								
head	-0.0043	-0.13	0.084	0.064	0.044	-0.28	0.16	-0.12
	(0.13)	(0.15)	(0.21)	(0.22)	(0.17)	(0.18)	(0.19)	(0.24)
Dwelling								
damaged/destroyed								
due to flood	-0.19***	-0.17***	-0.28***	-0.29***	-0.012	-0.28***	-0.073	0.11
	(0.049)	(0.051)	(0.090)	(0.091)	(0.066)	(0.070)	(0.070)	(0.096)
Controls †	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	6.70***	6.01***	2.04***	1.08***	1.65***	0.74***	-0.11	1.09***
	(0.21)	(0.21)	(0.28)	(0.26)	(0.25)	(0.26)	(0.12)	(0.30)
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,082	16,082	16,082	16,082	16,082	16,082	16,082	16,082
R-squared	0.079	0.054	0.044	0.060	0.056	0.057	0.010	0.064
Number of								
Households	8,139	8,139	8,139	8,139	8,139	8,139	8,139	8,139

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1 † These controls may be endogenous to the treatment, and they include: Household head's employment status, home occupancy status, urban or rural dwelling, receipt of remittances, agricultural, non-agricultural, commercial and residential land ownership, proportion of household working age adults in the labor force, and whether the household had enough food to eat during the last 12 months

Table 4. Consumption Experiantices on Datables									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
			An	nual Expenditur	e on:				
			Kitchen				Miscellaneous		
Variables	All durables	Textiles	equipment	Appliances	Furniture	Decoration	equipment		
Treatment x Year	0.30***	0.29***	0.16**	-0.062	-0.019	-0.015	0.021		
	(0.086)	(0.077)	(0.067)	(0.070)	(0.032)	(0.019)	(0.058)		
Follow-up Year	0.78***	0.50***	0.85***	0.37***	-0.37***	0.088***	0.21***		
-	(0.057)	(0.051)	(0.045)	(0.047)	(0.022)	(0.014)	(0.039)		
Other welfare payments	0.47***	0.12	0.15**	0.32***	0.074**	0.044**	-0.042		
	(0.093)	(0.088)	(0.074)	(0.080)	(0.034)	(0.022)	(0.063)		
Shocks to the Household									
Lower crop yield due to									
drought, flood, disease	0.090	0.19	-0.17*	0.40***	-0.056	-0.038	0.026		
	(0.13)	(0.12)	(0.099)	(0.10)	(0.036)	(0.025)	(0.091)		
Household business									
failure (non- agriculture)	0.15	-0.033	0.12	-0.034	-0.17**	0.12**	-0.048		
	(0.21)	(0.18)	(0.14)	(0.17)	(0.071)	(0.056)	(0.14)		
Loss of salaried									
employment	0.62**	-0.040	0.31*	0.42**	-0.040	0.11**	0.079		
	(0.24)	(0.22)	(0.19)	(0.21)	(0.11)	(0.049)	(0.17)		
Illness or accident of									
households' main earning									
member	0.033	0.061	-0.27***	0.13	-0.024	-0.059**	-0.069		
	(0.11)	(0.096)	(0.085)	(0.091)	(0.039)	(0.025)	(0.067)		

Table 4. Consumption Expenditures on Durables

Death of main earning							
member of the household	-0.64*	-0.24	-0.42	-0.34	-0.045	-0.11	-0.16
	(0.38)	(0.32)	(0.29)	(0.28)	(0.16)	(0.095)	(0.21)
Death of household head	-0.44	-0.54*	-0.026	-0.12	-0.031	-0.067	-0.058
	(0.33)	(0.29)	(0.24)	(0.28)	(0.11)	(0.074)	(0.22)
Dwelling							
damaged/destroyed due to							
flood	-0.25*	-0.11	-0.28***	-0.018	-0.23***	-0.023	0.23***
	(0.13)	(0.12)	(0.10)	(0.11)	(0.044)	(0.025)	(0.088)
Controls †	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.49***	1.45***	0.79**	-0.13	12.5***	-0.11	0.47
	(0.38)	(0.37)	(0.35)	(0.36)	(0.18)	(0.078)	(0.34)
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,082	16,082	16,082	16,082	16,082	16,082	16,082
R-squared	0.076	0.052	0.097	0.029	0.088	0.016	0.014
Number of Households	8,139	8,139	8,139	8,139	8,139	8,139	8,139

Robust standard errors in parentheses: *** p < 0.01, ** p < 0.05, * p < 0.1† These controls may be endogenous to the treatment, and they include: Household head's employment status, home occupancy status, urban or rural dwelling, receipt of remittances, agricultural, non-agricultural, commercial and residential land ownership, proportion of household working age adults in the labor force, and whether the household had enough food to eat during the last 12 months

Appendix C: Saving Household Fixed Effects with uncorrelated controls

	Table 5: Annual	Savings	
Variables	(1) All Households	(2) Households that did not save at baseline	(3) Households that saved a non- zero amount at baseline
Treatment x Year	8,130*** (2,802)	-867 (1,098)	71,704*** (24,158)
Follow-up Year	-6,135**	3,776***	-83,702***
Other welfare payments	(2,566) -2,990	(784) -1,257	(21,525) -27,871
Shocks to the Household Lower crop yield due to drought, flood,	(2,438)	(1,133)	(22,135)
disease	1,707	4,282*	-42,718**
Household business failure (non-	(2,713)	(2,350)	(20,806)
agriculture)	-2,868	-4,455	5,115
	(5,087)	(3,363)	(33,632)
Loss of salaried employment	-270	626	-9,459
Illness or accident of households' main	(6,012)	(441)	(56,449)
earning member	-3,112	-846	-19,237
Death of main earning member of the	(2,038)	(1,038)	(22,800)
household	8,727 (14,103)	10,606	20,875
Death of household head	-11,253	-9,595	-36,410
Dwelling damaged/destroyed due to flood	(12,514) 855 (2,557)	2,283 (2,095)	-19,270 (20,363)

Constant	8,575***	-108	86,999***
	(1,122)	(465)	(11,103)
Household FE	Yes	Yes	Yes
Observations	16,214	14,470	1,744
R-squared	0.001	0.008	0.027
Number of Households	8,218	7,308	910
D 1 · · · 1 1 · · · · · · · · · · · · ·			

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Household Fixed Effects with potentially correlated controls

	Table 6: Total Savings							
Variables	(1) All Households	(2) Households that did not save at baseline	(3) Households that saved a non- zero amount at baseline					
Treatment x Year	7,383***	-938	70,764**					
	(2,551)	(1,141)	(31,080)					
Follow-up Year	-5,979**	3,628***	-78,662***					
-	(2,477)	(807)	(21,013)					
Other welfare payments	-2,721	-1,067	-33,014					
	(2,438)	(1,131)	(24,436)					
Shocks to the Household								
Lower crop yield due to drought, flood,								
disease	1,223	4,491*	-46,727*					
	(2,908)	(2,496)	(27,562)					
Household business failure (non-								
agriculture)	-5,477	-4,573	171					
	(5,138)	(3,385)	(31,222)					
Loss of salaried employment	-1,040	841	-21,117					
	(6,230)	(661)	(66,977)					
Illness or accident of households' main								
earning member	-3,341	-649	-15,863					
	(2,725)	(1,111)	(26,719)					
Death of main earning member of the								
household	10,430	10,987	27,349					
	(14,580)	(10,794)	(66,061)					
Death of household head	-11,844	-10,777	-37,634					
	(12,767)	(7,699)	(74,754)					
Dwelling damaged/destroyed due to flood	1,398	2,112	-28,396					
	(2,501)	(2,028)	(21,642)					
Controls †	Yes	Yes	Yes					
Constant	21,591*	1,577	107,570					
	(11,702)	(2,349)	(71,587)					
Household FE	Yes	Yes	Yes					
Observations	16,067	14,330	1,737					
K-squared	0.006	0.014	0.062					
Number of Households	8,198	7,289	909					

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Appendix D: Child Labor

Conditional Logit

Table 10: Child Labor					
	(1)	(2)			
Variables	Child works for someone who is not a member of the house	Child works on family business/farm			
Treatment x Year	-0.037	-0.099			
Follow-up year	(0.14) 1.21***	(0.10) 0.36***			
Age of Child †	(0.10) 0.27***	(0.080) 0.29***			
Child is disabled	(0.016) 0.011	(0.014) 0.070			
Household FE	(0.083)	(0.072)			
Observations	6,115	7,825			
R-squared					
Number of Households	1,038	1,328			
Robust standard errors in pa	arentheses: *** p<0.01, ** p<0.05,	* p<0.1			

Proportional Model with controls

Table 7: Child I	Labor (OLS)	
Variables	% of all children in the	HH involved in child labor
	(1)	(2)
Treatment x Year	0.005	0.0050
	(0.0086)	(0.0086)
Follow-up Year	0.044***	0.040***
	(0.0054)	(0.0057)
Other welfare payments	-0.0013	0.0013
	(0.01)	(0.0100)
Shocks to the Household		
Lower crop yield due to drought, flood, disease	0.0061	0.0048
	(0.015)	(0.016)
Household business failure (non- agriculture)	-0.0061	-0.011
	(0.018)	(0.018)
Loss of salaried employment	0.0014	-0.0042
	(0.023)	(0.023)
Illness or accident of households' main earning member	-0.0095	-0.010
	(0.011)	(0.011)
Death of main earning member of the household	-0.0068	-0.0045
	(0.035)	(0.036)
Death of household head	0.034	0.030
	(0.039)	(0.039)
Dwelling damaged/destroyed due to flood	0.011	0.014
	(0.015)	(0.015)
Controls †	No	Yes
Household FE	Yes	Yes
Constant	0.081***	0.075**
	(0.0033)	(0.033)
Observations	12,674	12,611

R-squared	0.021	0.028
Number of Households	6,790	6,777

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1 † These controls may be endogenous to the treatment, and they include: Household head's employment status, home occupancy status, urban or rural dwelling, receipt of remittances, agricultural, non-agricultural, commercial and residential land ownership, proportion of household working age adults in the labor force, and whether the household had enough food to eat during the last 12 months

Appendix E: Women's Empowerment

Household Fixed Effects with uncorrelated controls

Table 11: Women's Access to Money (Proportional Model)									
If you needed to could you personally gain access to the following amounts									
	of mor	of money quickly, for example in an emergency?							
	(1)	(2)	(3)	(4)					
Variables	Rs. 50	Rs. 200	Rs. 600	Rs. 800					
Treatment x Year	0.026**	0.033**	0.031**	0.029**					
	(0.013)	(0.015)	(0.013)	(0.013)					
Follow-up year	0.035***	0.094***	0.073***	0.083***					
	(0.0081)	(0.0094)	(0.0086)	(0.0083)					
Proportion of women									
who can read	-0.051	-0.079	-0.088*	-0.10**					
	(0.045)	(0.053)	(0.047)	(0.046)					
Proportion of women									
who can write	0.062	0.055	0.087*	0.086*					
	(0.048)	(0.057)	(0.051)	(0.051)					
Average age	0.00039	-0.00014	0.00099	0.0012					
	(0.00097)	(0.0010)	(0.00089)	(0.00082)					
Proportion of disabled									
women	-0.014*	-0.0011	-0.0073	-0.0098					
	(0.0082)	(0.0090)	(0.0089)	(0.0085)					
Constant	0.70***	0.45***	0.20***	0.14***					
	(0.039)	(0.042)	(0.036)	(0.033)					
Household FE	Yes	Yes	Yes	Yes					
Observations	15,348	15,348	15,348	15,348					
R-squared	0.008	0.024	0.028	0.020					
Number of Households	7,726	7,726	7,726	7,726					

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 13: Women's Empowerment (Proportional Model)							
	(1)	(2)	(3)	(4)	(5)	(6)	
	Important	A married	The wife		It is better	Voting in	
	family decisions	woman should	has a right	A wife should	to send a	National /	
	should be made	be allowed to	to express	tolerate being	son to	Provincial/ local	
Variables	by men	work	her opinion	beaten	school	body elections	
Treatment x							
Year	-0.022*	0.034**	0.025*	-0.0046	-0.043***	0.039***	
	(0.013)	(0.014)	(0.013)	(0.014)	(0.012)	(0.013)	
Follow-up year	-0.070***	-0.0058	0.034***	0.00057	0.039***	0.017**	

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	(0.0085)	(0.0086)	(0.0080)	(0.010)	(0.0070)	(0.0079)
Proportion of						
women who can						
read	-0.098*	-0.043	-0.036	-0.010	0.073**	0.0018
	(0.052)	(0.051)	(0.043)	(0.048)	(0.031)	(0.044)
Proportion of	· · · ·					· · · ·
women who can						
write	0.022	0.0051	0.033	-0.027	-0.041	-0.024
	(0.054)	(0.053)	(0.045)	(0.050)	(0.031)	(0.047)
Average age	0.00039	-0.00083	-0.00076	0.00014	0.0020**	0.0088***
	(0.00090)	(0.00094)	(0.00090)	(0.0013)	(0.00083)	(0.00091)
Proportion of						
disabled women	-0.0049	0.014	-0.0010	0.012	-0.0013	-0.0026
	(0.0095)	(0.0091)	(0.0085)	(0.0082)	(0.0088)	(0.0091)
Constant	0.75***	0.72***	0.76***	0.71***	0.083**	-0.0077
	(0.036)	(0.038)	(0.036)	(0.053)	(0.033)	(0.037)
Household FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,348	15,348	15,348	15,348	15,348	15,348
R-squared	0.021	0.002	0.007	0.000	0.005	0.020
Number of						
Households	7,726	7,726	7,726	7,726	7,726	7,726
Robust standard err	ors in parentheses	: *** p<0.01, **	p<0.05, * p<0.1			
	-		-			

	If you needed to could you personally gain access to the following amounts							
	of mor	ney quickly, for exam	ple in an emergency	?				
	(1) (2) (3) (4)							
Variables	Rs. 50	Rs. 200	Rs. 600	Rs. 800				
Treatment x Year	0.026**	0.033**	0.031**	0.026*				
	(0.013)	(0.014)	(0.015)	(0.015)				
Follow-up year	0.035***	0.077***	0.090***	0.070***				
	(0.0082)	(0.0091)	(0.0096)	(0.0093)				
Other welfare payments	0.00037	-0.027	-0.043**	-0.055***				
	(0.015)	(0.016)	(0.017)	(0.016)				
Shocks to the Household								
Lower crop yield due to	0.014	0.040*	0.020	0.040*				
drought, flood, disease	-0.014	-0.040°	-0.020	-0.040°				
Household husiness failure	(0.019)	(0.022)	(0.024)	(0.023)				
(non- agriculture)	0.014	-0.0040	0.0072	0.0066				
	(0.033)	(0.035)	(0.037)	(0.034)				
Loss of salaried employment	0.0((*	0.0((0.024	0.0007				
	-0.066*	-0.066	-0.024	-0.0096				
Illness or accident of	(0.040)	(0.042)	(0.042)	(0.041)				
households' main earning								
member	0.041**	0.023	0.023	0.031*				
	(0.017)	(0.019)	(0.019)	(0.018)				
Death of main earning member of the household	0.016	-0.040	-0.099*	-0.077				
-	(0.055)	(0.060)	(0.058)	(0.050)				
Death of household head	0.018	0.036	-0.011	0.046				

	(0.047)	(0.049)	(0.048)	(0.048)
Dwelling damaged/destroyed due to flood	0.0099	-0.0038	-0.0025	0.0086
	(0.021)	(0.024)	(0.025)	(0.024)
Constant	0.72***	0.61***	0.45***	0.33***
	(0.0048)	(0.0054)	(0.0057)	(0.0054)
Household FE	Yes	Yes	Yes	Yes
Observations	15,265	15,265	15,265	15,265
R-squared	0.008	0.025	0.028	0.021
Number of Households	7,725	7,725	7,725	7,725
Household FE Observations R-squared Number of Households	0.72*** (0.0048) Yes 15,265 0.008 7,725	0.61*** (0.0054) Yes 15,265 0.025 7,725	0.45*** (0.0057) Yes 15,265 0.028 7,725	0.33*** (0.0054) Yes 15,265 0.021 7,725

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 9: Women's Empowerment

	Table 9: Women's Empowerment							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
			. ,				Voting in	
			A married	The wife has		It is better	National /	
	Important	If wife works,	woman should	a right to	A wife should	to send a	Provincial/	
	decisions should	husband should	be allowed to	express her	tolerate being	son to	local body	
Variables	be made by men	help with chores	work	opinion	beaten	school	elections	
Treatment x								
Year	-0.046	-0.053	0.043	0.026	-0.021	-0.078***	0.042***	
	(0.035)	(0.032)	(0.032)	(0.032)	(0.034)	(0.028)	(0.013)	
Follow-up year	-0.19***	-0.056***	-0.095***	0.016	-0.033	-0.034*	0.026***	
	(0.023)	(0.021)	(0.021)	(0.021)	(0.022)	(0.017)	(0.0081)	
Other welfare								
payments	0.0088	-0.033	-0.022	-0.050	0.0059	-0.026	0.039***	
	(0.041)	(0.038)	(0.038)	(0.038)	(0.038)	(0.032)	(0.015)	
Shocks to the Household								
Lower crop yield due								
to arought, flood, disease	-0 13**	-0 13***	-0.065	-0.083*	-0.019	-0 15***	-0.068***	
uiseuse	(0.053)	(0.049)	(0.049)	(0.048)	(0.050)	(0.043)	(0.020)	
Household business	(0.000)	(0.0.1))	(0.0.17)	(0.010)	(0.000)	(0.0.0)	(0.020)	
failure (non-	0.045	0.001	0.00055	0.050	0.000.00	0.040	0.0000	
agriculture)	0.045	-0.021	0.00055	0.078	-0.00060	0.048	-0.0088	
1 (1 · 1	(0.086)	(0.077)	(0.082)	(0.079)	(0.081)	(0.067)	(0.027)	
Loss of salaried	0 22**	-0.0024	-0.032	0 0098	0.11	0.14*	-0.080**	
employment	(0.008)	(0.0024)	(0.097)	(0.00)	(0.097)	(0.074)	(0.037)	
Illness or accident of	(0.070)	(0.074)	(0.077)	(0.071)	(0.077)	(0.074)	(0.057)	
households' main								
earning member	0.048	0.027	0.073*	0.087**	0.088**	0.056	0.014	
	(0.046)	(0.044)	(0.043)	(0.044)	(0.045)	(0.034)	(0.016)	
Death of main								
the household	0.19	0.14	-0.060	0.0068	0.050	0.029	0.045	
ine nousenoru	(0.15)	(0.13)	(0.13)	(0.12)	(0.13)	(0.13)	(0.052)	
Death of household	(****)	(*****)	(****)	(***=)	(****)	(0000)	(****=)	
head	0.20*	0.21*	0.17	0.21*	0.26**	0.12	0.043	
	(0.12)	(0.11)	(0.12)	(0.11)	(0.12)	(0.092)	(0.043)	
Dwelling								
aamagea/aestroyed	-0.024	0.049	0.0059	0.0082	-0.072	-0.035	-0.027	
une 10 j1000	(0.054)	(0.051)	(0.051)	(0.052)	(0.052)	(0.047)	(0.02)	
Constant	2 83***	2 54***	2 55***	2 59***	2 64***	1 80***	0 33***	
Constant	(0.013)	(0.012)	(0.012)	(0.012)	(0.012)	(0.010)	(0.0048)	
	(0.015)	(0.012)	(0.012)	(0.012)	(0.012)	(0.010)	(0.00-0)	

Household FE	Yes						
Observations	15,265	15,265	15,265	15,265	15,265	15,265	15,265
R-squared	0.021	0.005	0.004	0.002	0.002	0.007	0.011
Number of							
Households	7,725	7,725	7,725	7,725	7,725	7,725	7,725
Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1							

Household Fixed Effects with potentially correlated controls

Table 10: Women's Access to Money								
	If you needed to co	ould you personally g	ain access to the follo	owing amounts				
	of mor	ney quickly, for exam	ple in an emergency	?				
	(1)	(2)	(3)	(4)				
Variables	Rs. 50	Rs. 200	Rs. 600	Rs. 800				
Treatment x Year	0.025*	0.024	0.024*	0.022*				
	(0.013)	(0.015)	(0.014)	(0.013)				
Follow-up year	0.029***	0.091***	0.065***	0.079***				
	(0.0085)	(0.010)	(0.0093)	(0.0090)				
Other welfare payments	-0.00020	-0.039**	-0.042***	-0.019				
	(0.015)	(0.017)	(0.016)	(0.015)				
Shocks to the								
Household								
Lower crop yield due to	0.012	0.024	0.026	0.015				
arought, jiooa, aisease	-0.012	-0.024	-0.026	-0.015				
Household business	(0.020)	(0.024)	(0.021)	(0.020)				
failure (non-								
agriculture)	0.020	0.0054	-0.017	-0.023				
	(0.033)	(0.036)	(0.031)	(0.029)				
Loss of salaried	()	()	()	(*****)				
employment	-0.064	-0.033	-0.037	0.018				
	(0.040)	(0.042)	(0.039)	(0.035)				
Illness or accident of								
households' main								
earning member	0.033*	0.016	0.029*	0.029*				
	(0.017)	(0.019)	(0.017)	(0.017)				
Death of main earning								
member of the	0.027	0.000	0.00042	0.015				
nousenoia	0.037	-0.069	-0.00042	0.015				
Death of household	(0.057)	(0.060)	(0.050)	(0.049)				
head	0.042	0.0091	0.024	-0.013				
псии	(0.047)	(0.048)	(0.021)	(0.042)				
Dwelling	(0.017)	(0.010)	(0.010)	(0.012)				
damaged/destroyed due								
to flood	0.0090	0.00029	0.0020	0.0026				
	(0.021)	(0.025)	(0.021)	(0.020)				
Controls †	Yes	Yes	Yes	Yes				
Constant	0.63***	0.36***	0.22***	0.19**				
	(0.061)	(0.075)	(0.072)	(0.072)				

Household FE	Yes	Yes	Yes	Yes
Observations	15,265	15,265	15,265	15,265
R-squared	0.008	0.025	0.028	0.021
Number of Households	7,725	7,725	7,725	7,725
	1		a 1	

Robust standard errors in parentheses: *** p < 0.01, ** p < 0.05, * p < 0.1† These controls may be endogenous to the treatment, and they include: Household head's employment status, home occupancy status, urban or rural dwelling, receipt of remittances, agricultural, non-agricultural, commercial and residential land ownership, proportion of household working age adults in the labor force, and whether the household had enough food to eat during the last 12 months

Table 11: Women's Empowerment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
							Voting in
			A married	The wife has		It is better	National /
	Important	If wife works,	woman should	a right to	A wife should	to send a	Provincial/
	decisions should	husband should	be allowed to	express her	tolerate being	son to	local body
Variables	be made by men	help with chores	work	opinion	beaten	school	elections
Treatment x							
Year	-0.052	-0.040	0.056*	0.033	-0.022	-0.069**	0.039***
	(0.036)	(0.033)	(0.032)	(0.032)	(0.034)	(0.028)	(0.013)
Follow-up year	-0.15***	-0.058***	-0.097***	0.026	-0.042*	-0.052***	0.033***
	(0.024)	(0.022)	(0.022)	(0.022)	(0.023)	(0.018)	(0.0085)
Other welfare							
payments	0.025	-0.024	-0.014	-0.035	0.0086	-0.026	0.041***
<u> </u>	(0.041)	(0.038)	(0.039)	(0.038)	(0.039)	(0.033)	(0.015)
Shocks to the Household							
Lower crop vield due							
to drought, flood,			0.044				
disease	-0.13**	-0.13***	-0.066	-0.077	-0.0094	-0.13***	-0.068***
** 1.111	(0.054)	(0.049)	(0.050)	(0.049)	(0.052)	(0.044)	(0.020)
Household business							
agriculture)	0.019	-0.012	0.00034	0.091	0.0058	0.055	-0.011
0 /	(0.086)	(0.078)	(0.082)	(0.080)	(0.081)	(0.068)	(0.028)
Loss of salaried	~ /	× /			· · · ·	× /	· · · ·
employment	0.21**	-0.0082	-0.038	-0.0014	0.089	0.13*	-0.082**
	(0.099)	(0.094)	(0.097)	(0.092)	(0.098)	(0.075)	(0.038)
Illness or accident of							
nousenoias main earning member	0.043	0.031	0.073*	0 090**	0.079*	0.049	0.015
earning memoer	(0.046)	(0.044)	(0.044)	(0.044)	(0.045)	(0.034)	(0.016)
Death of main		()	()	()	()	()	()
earning member of	0.21	0.000	0.045	0.020	0.000	0.0000	0.046
the household	0.21	0.099	-0.045	0.020	0.098	0.0080	0.046
Death of household	(0.15)	(0.13)	(0.13)	(0.12)	(0.14)	(0.13)	(0.054)
head	0.21*	0.22**	0.18	0.22*	0.29**	0.16*	0.047
	(0.12)	(0.11)	(0.12)	(0.11)	(0.12)	(0.093)	(0.044)
Dwelling	()				()		× /
damaged/destroyed	0.025	0.042	0.0000	0.00042	0.072	0.029	0.027
due to flood	-0.035	0.042	0.0098	0.00043	-0.0/2	-0.038	-0.027
Control 1	(0.055)	(0.052)	(0.052)	(0.052)	(0.055)	(0.047)	(0.020)
Controls †	Y es	Y es	Y es	Y es	Y es	Y es	Y es
Constant	2.77^{+++}	$\angle \angle \angle \uparrow^{+++}$	2.03^{+++}	2.13^{+++}	2.33^{TT}	$1./3^{***}$	0.41^{***}
	(0.16)	(0.15)	(0.15)	(0.15)	(U.16)	(0.13)	(0.065)
Household FE	Yes	Yes	Yes	Y es	Y es	Yes	Yes

Observations	15,133	15,133	15,133	15,133	15,133	15,133	15,133
R-squared	0.037	0.010	0.011	0.008	0.009	0.013	0.014
Number of							
Households	7,703	7,703	7,703	7,703	7,703	7,703	7,703
Pobust standard arr	ore in paranthasas:	*** n<0.01 ** n<0	05 * n < 0.1				

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

⁺ These controls may be endogenous to the treatment, and they include: Household head's employment status, home occupancy status, urban or rural dwelling, receipt of remittances, agricultural, non-agricultural, commercial and residential land ownership, proportion of household working age adults in the labor force, and whether the household had enough food to eat during the last 12 months

Conditional Logit Model

Table 15: Women's Access to Money (OLS)									
	If you needed to could you personally gain access to the following amounts of money quickly, for example in an								
_		emergen	cy?						
	(1) (2) (3) (4)								
Variables	Rs. 50	Rs. 200	Rs. 600	Rs. 800					
Treatment x Year	-0.27***	0.29***	0.26**	-0.013					
	(0.094)	(0.084)	(0.10)	(0.089)					
Follow-up year	-0.30***	0.28***	0.84***	0.26***					
	(0.055)	(0.055)	(0.068)	(0.057)					
Age	0.0069***	-0.011***	-0.013***	0.0096***					
	(0.0024)	(0.0020)	(0.0025)	(0.0023)					
Ever attended school	0.26***	-0.20**	-0.46***	0.32***					
	(0.099)	(0.092)	(0.12)	(0.093)					
Disability	0.011	0.049	-0.0043	0.021					
	(0.049)	(0.051)	(0.051)	(0.057)					
Control for type of									
occupation	Yes	Yes	Yes	Yes					
Household FE	Yes	Yes	Yes	Yes					
Observations	5,933	10,156	8,612	7,885					
Number of Households	2,095	3,607	3,095	2,850					

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 16: Women's Empowerment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	Important	If wife	A married	The wife	A wife		Voting in	
	decisions	works,	woman	has a right	should	It is better	National /	
	should be	husband	should be	to express	tolerate	to send a	Provincial/	
	made by	should help	allowed to	her	being	son to	local body	
Variables	men	with chores	work	opinion	beaten	school	elections	
Treatment x								
Year	-0.28***	-0.25***	0.27***	0.24**	0.021	-0.37***	0.22***	
	(0.092)	(0.079)	(0.082)	(0.10)	(0.087)	(0.083)	(0.083)	
Follow-up								
year	-0.30***	0.52***	0.26***	0.81***	0.29***	0.36***	0.28***	
	(0.054)	(0.053)	(0.053)	(0.066)	(0.055)	(0.055)	(0.054)	
Age	0.0069***	-0.011***	-0.013***	0.0096***	0.015***	0.0069***	0.061***	

	(0.0024)	(0.0020)	(0.0025)	(0.0023)	(0.0021)	(0.0024)	(0.0023)
Ever attended							
school	0.26***	-0.20**	-0.46***	0.32***	0.071	0.26***	-0.057
	(0.099)	(0.092)	(0.12)	(0.093)	(0.096)	(0.099)	(0.092)
Disability	0.011	0.049	-0.0043	0.021	-0.0081	0.011	-0.074*
-	(0.049)	(0.051)	(0.051)	(0.057)	(0.041)	(0.049)	(0.043)
Control for		. ,					
type of							
occupation	Yes						
Household							
FE	Yes						
Observations	5,708	6,957	5,166	6,072	6,538	5,708	8,071
Number of							
Households	2,129	2,383	1,770	2,165	2,299	2,129	2,801

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1



