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Failure vs. Displacement: Why An Innovative Anti-Poverty Program Showed No Net Impact

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FAILURE VS. DISPLACEMENT: WHY AN INNOVATIVE ANTI-POVERTY PROGRAM SHOWED NO NET IMPACT*

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Abstract: We present results from a randomized trial of an innovative anti-poverty program in India. Instead of a safety net, the program provides "ultra-poor" households with inputs to create a new livelihood and attain economic independence. We find no statistically significant evidence of lasting net impact on consumption, income or asset accumulation. The main impact was the re-optimization of time use: sharp gains in income from the new livelihood were fully offset by lower earnings from wage labor. The result highlights how the existence of alternative economic options shapes net impacts and external validity.

JEL codes: O1, D1, J2, J4

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Impact evaluations are often undertaken to inform decisions about whether interventions should be replicated. External validity is thus as much of a concern as internal validity. Researchers have focused especially on problems generalizing in the face of population heterogeneity (e.g., Alcott and Mullainathan2012, Heckman and Vytlacil 2007, Eldridge et al. 2008) and whether appropriate complementary inputs exist in different locations (Cartwright 2010). We illustrate a third concern, one that arises when households re-optimize their time and resources in order to take advantage of an intervention; the program's impact then hinges on the nature and availability of appealing substitute activities. We illustrate the mechanism with a randomized controlled trial of an innovative anti-poverty program that showed no net impact on key outcomes in South India. The program was delivered effectively, but it caused substitution away from paid wage employment, erasing the net economic and social impacts on the treatment group. The evidence on substitution highlights the distinction between program effectiveness and net impact, and explains a puzzle about why this intervention had no net impact in rural South India but had strong impacts in other locations with comparable populations.

The intervention in South India was first designed and implemented in Bangladesh, and the replication was initiated with external validity in mind. The intervention departs from traditional safety net programs which guarantee a minimally-acceptable standard of living by providing households a steady flow of financial transfers over time. The transfers are valuable but designed for survival, not economic advancement. BRAC, a globally-recognized NGO based in Bangladesh, sought to improve on the standard safety net idea, and placed a bet that poorer households would do better if given a larger quantity of resources in a shorter period of time.

BRAC coupled the financial transfers with training and assets to use as a basis to create a new livelihood (Matin and Hulme 2003). The bet is on the possibility of "graduation" from a life of extreme poverty, into a life of economic self-sufficiency, an idea with roots in the economics of poverty traps (Bowles, Durlauf and Hoff 2011, Sachs 2005). With an eye to exploring population heterogeneity, BRAC's model is also being piloted in West Bengal, India; Pakistan; Ghana; Ethiopia; Yemen; Haiti; Peru; and Honduras. [3]

The randomized trial of the program in the South Indian state of Andhra Pradesh was implemented by the NGO arm of SKS, a large commercial microfinance institution. Despite expectations that the intervention could be transformative (SKS 2011), a year after the intervention ended, there were no statistically significant net impacts on average household income, consumption, asset accumulation, nor use of financial services when compared to a control group.

These findings contrast with broadly positive impacts found in parallel studies in West Bengal, India (Banerjee et al. 2011) and the original BRAC program in Bangladesh (Bandiera et al. 2012). Why do the results differ? The most immediate possibility is program failure (a failure to effectively turn program inputs into outcomes). Taken on its own terms, however, the program may have been imperfect, but it was not a failure. Participants were effectively identified as being among the poorest members of their villages (the "ultra-poor"): their households could not include a male worker, nor could they own a productive asset or be part of an established microfinance institution. At an average cost of US$357 for each beneficiary, poor women in the SKS program received an asset with which to start a small enterprise, a stipend covering enterprise-related costs, and 18 months of peer-to-peer skills training, basic healthcare and

[3] Information on all sites is available at http://graduation.cgap.org/. The evaluation of the replication in West Bengal has followed on a similar timeline to this one.

saving promotion. Participating households received the assets and services as promised, started new livelihoods and generated income from it, and proceeded toward meeting the goal of "graduation."

Why then did program participants do no better on average than members of the control group, who met identical eligibility criteria but received no assets, training, or services from SKS (treatment and control villages were selected randomly from a list of eligible areas)? The evidence shows that the SKS anti-poverty intervention directly created income gains by promoting livelihoods in the livestock sector (almost 90 percent of participating households chose livestock rearing as their enterprise), but the gains from participation were offset by foregone wages from agricultural labor. Time constraints made it hard to both work fully as a wage laborer on other people's farms and to take care of one's own livestock as part of the SKS program. On average, households that participated in the anti-poverty program increased monthly per capita income from livestock by 53 Rupees more than control households (about US$3.20 in PPP conversion, or 17 percent of the average baseline monthly per capita income), but the control group increased monthly per capita income from agricultural wage labor by 51 Rupees more than the treatment group (calculations from Table III). The relative gain was undone by the relative loss.[4]

This kind of substitution, created by the success of a program at the expense of participation in other economic activities, operates in the background of evaluations of microfinance, health, schooling, and similar interventions in which participating in one program (or clinic or school)

[4] The market exchange rate at the baseline (October 2007) was 39 rupees per US$1. At the endline (October 2010), it was 44 rupees per US$1.

can reduce participation in another.[5] The version of BRAC's program implemented in West Bengal also showed large positive net benefits to livestock income and entrepreneurial activities, but there was no evidence of the income displacement that marked the SKS program. One main factor, we suspect, is that in West Bengal just about half of the households cited wage labor as a main income source before the program started, versus 90 percent in the SKS site (Banerjee et al. 2011, Table 4).

The possibilities for substitution between programs and opportunities are growing in India. India's recent economic growth has brought overlapping programs rolled out by banks, NGOs and the government. Of particular note is the ambitious National Rural Employment Guarantee scheme (NREG), which swept through our study region, guaranteeing (on paper) 100 days of employment per year per household, paid 115 Rupees per day on average (Ministry of Rural Development of the Government of India 2011).At the time of the baseline, 34 percent of all households in our sample (across treatment and control groups) participated in the NREG scheme; by the endline, 81 percent did.

The substitution that we find is not with NREG participation directly but with participation in the agricultural labor market broadly. At a national level, the National Sample Survey Organization (NSSO) data reveal a 27 percent increase in real wages for casual labor in rural India, between 2004 and 2010. The wage increase aligns with a broader shift out of self-employment and into paid labor. The NSSO calculated a drop in self-employment from 56 percent of the labor force to 51 percent between 2004 and 2010, while casual labor rose from 28 percent to 33 percent and wage labor rose from 15 percent to 17 percent. The SKS ultra-poor

[5] Das et al (2011), for example, document how households re-optimize their educational spending to offset grants for schooling, such that anticipated increases in school funding fail to yield significant improvements in students' test scores. There can, in principle, be complementarity: a program may do well especially when other opportunities exist alongside it.

program, which was designed to promote self-employment in a population dominated by wage labor, can be seen as fighting against these trends.

The two scenarios – failure vs. displacement – lead to different conclusions about what the SKS program achieved and what it might contribute elsewhere. Even as efforts proceed to make evaluations more central in development policy, ideas around external validity are evolving, and there's no consensus about what should be considered a generalizable "proven impact." The findings here affirm the importance of rigorous evaluations while highlighting the conditional nature of impact results.

I. Background and Data

The Ultra Poor Program (UPP) in South India aims to establish microenterprises with regular cash flows, which would enable ultra-poor households to grow out of extreme poverty, and eventually gain access to microfinance in order to maintain and expand their economic activity. The pilot program was implemented by Swayam Krishi Sangam (SKS)[6] in 198 villages of Medak district in the state of Andhra Pradesh, one of the poorest districts in India. The program we evaluate has now been introduced in the state of Orissa.

The program targets the poorest households which have few assets and are chronically food insecure. It combines support for immediate needs with investments in training, financial services, and business development. Funds to partially defray the costs of livestock rearing are transferred in the SKS version, but, unlike other program designs, no direct consumption support is provided. The overall cost of the program, though, is in line with other pilots. The aim is that within two years ultra-poor households are equipped to help themselves "graduate" out of extreme poverty. The approach is thus sometimes called a "graduation program."

[6] The program was implemented by SKS NGO, an entity distinct from SKS Microfinance.

The replications were inspired by the success in Bangladesh of BRAC's "Challenging the Frontiers of Poverty Reduction - Targeting the Ultra Poor" (CFPR-TUP) program, which reaches about 300,000 households in Bangladesh. BRAC estimates that over 75 percent of the beneficiaries in Bangladesh are currently food secure and managing sustainable economic activities. The program there has been studied extensively using non-experimental techniques (Emran, Robano and Smith 2009, Krishna, Poghosyan and Das 2012, Mallick 2009, Matin and Hulme 2003), with most studies finding positive impacts on income, consumption and asset accumulation of poor households. A randomized controlled trial evaluation of BRAC's program is also being conducted in Bangladesh, and we compare our findings with preliminary findings from that study (Bandiera et al. 2012).

The idea of expanding this type of interventions gained ground through concern that ultra-poor households remain outside most programs aimed at poverty reduction. Even within the context of microfinance, it has been noted that poorer households do not gain significantly from access to credit (Morduch 1999). Many government schemes that target "below the poverty line" households have failed to do so due to mistargeting (Drèze and Khera 2010, Jalan and Murgai 2007, Ministry of Statistics and Programme Implementation of the Government of India 2005). Banerjee et al. (2007) find that the poorest are not any more likely to be reached by government programs than their better off neighbors.

I.A. SKS's Ultra Poor Program

The program as implemented by SKS is an 18-month intervention aimed at extremely poor households, identified through detailed participatory rural appraisals and village surveys. Households have to meet five criteria to be eligible for the program: (i) not including a male working member, (ii) scoring less than a threshold number on a housing condition scorecard,

(iii) owning less than one acre of land, (iv) not owning a productive asset, and (v) not receiving services from a microfinance institution. The housing condition scorecard takes into account characteristics of the house such as its size, building material, and electricity and water access.

The program comprises four main components: 1) an economic package designed to provide self-employment and spur enterprise development, 2) essential health-care, 3) social development, and 4) financial literacy. The economic package for enterprise development involves a one-time asset transfer, enterprise-related training, cash stipend for large enterprise-related expenses, and the collection of minimum mandatory savings. It starts with the selection of an income-generating activity by the household, from a menu of local activities such as animal rearing (mainly a buffalo or goats) or horticulture nursery. Non-farm activities, such as tea shops, tailoring, or telephone booths, are also available. Once the household has selected an activity, it undergoes training sessions where one ultra-poor member, usually the woman head of household, is taught skills pertaining to the specific enterprise she has chosen and how to find additional help when needed (for example, veterinary care). After the training is completed, the specific asset or in-kind working capital is procured and transferred to the household. A mandatory weekly savings is required of all households, once the asset begins to generate cash flow, such that households save at least $16 by the end of the program in order to “graduate.”

On average, the program cost US$357 for each participant (Table I). The costs of the asset and stipend given to help households meet enterprise-related expenses represent 42 percent of the total program cost. Capacity building (training) and implementation are the next two biggest costs (30 percent and 26 percent, respectively). The remaining costs were incurred at the targeting phase.

A large majority of households in the program chose to rear livestock as their enterprise: 55 percent of all households chose a buffalo, 31 percent chose goats, and 3 percent chose donkeys, pigs or sheep. The next most popular choice was non-farm business, an activity elected by 7 percent of households. Finally, almost 3.5 percent of households used the program's grant to purchase land, earning an income from leasing it out for agricultural production. All analyses are performed with the entire sample of households, because the sample of households which chose non-farm businesses and land lease is too small.

The second component of the program is the provision of essential primary health-care support. This is a combination of preventive training and techniques, and on-the-spot coverage. The health program is divided into the following: a) monthly visits by a field health assistant to each member, documenting the health status of the family and providing care or referrals as needed; b) health screening and information awareness camp hosted with support from government doctors and health focused NGOs; c) monthly information session conducted by the health assistant on topics such as contraception, pre- and post-natal care, sanitation, immunization, tuberculosis and anemia; and d) one or two program member in each selected village is trained by a doctor on basic health services. This member is equipped with basic medicines (available free of cost from the government) and a knowledge of when to recommend a case to a doctor or hospital, and serves as the touch-point for other members.

The third component of the program is social development. It involves measures aimed at building social safety nets in the village, such as a solidarity group and a rice bank, and connecting participants to existing public safety nets. Group solidarity is encouraged through weekly meetings where members discuss common concerns and solutions. A rice bank is created

by members depositing a handful of rice every day, which can be drawn upon by member households at no interest.

The financial literacy component of this program involves basic training in budgeting exercise and setting financial goals. There is also an emphasis on accumulating savings and reducing reliance on moneylenders.

After 18 months, SKS stops conducting the weekly meetings, collecting the weekly savings from members and organizing health camps in the treatment villages. The asset becomes a complete responsibility of the household with no stipend or advisory support from SKS. By the end of the program implementation, households are supposed to "graduate" out of extreme poverty. The graduation criteria included having children in school, being "food secure" for at least 30 days, creating an income generating activity beyond wage labor, and accumulating more than $16 in savings (800 Rupees). Reflecting the program's holistic approach, household must also have gained knowledge about social and health issues, and become aware of any available government programs.

I.B. Data

Most of our analyses rely on detailed quantitative data collected from 3,485 individuals, living in 1,064 households across 198 villages in Medak district, in three waves of surveying between 2007 and 2010.

The baseline survey was conducted between August and October 2007. Detailed information was collected on socio-demographic characteristics of the households, which included religion, caste, family type, size of household, age, marital status, disability, education, occupation, and migration details. Information was also collected on the household's living conditions, including characteristics of the house, source of drinking water, sanitation and source of fuel. Participation

in government schemes (employment, pension, housing, training, credit and subsidized basic goods) was recorded. The baseline survey also included measures of asset ownership, use of time, women's social status and mobility, and political awareness and access. Health information collected included data on physical health, hygiene habits and mental health conditions of household members. In addition, we have gathered details of household monthly consumption expenditure, income and other financial transactions of the household. We also collected details on social standing of the household within the community and future aspirations of the household members.

Following the baseline survey, we randomly assigned 103 villages to the treatment group and 95 to the control group. The 103 treatment villages included 576 households (54 percent of the total sample) who were offered the treatment. Of these, 426 households participated in the program and 150 households declined to participate. In all our analyses, these 150 households are counted as part of the treatment group (to measure the intention to treat estimates). The most common reasons for not participating in the program were "not interested in taking asset" (52 percent), migration (33 percent) and having access to microfinance loans (11 percent).[7] "Microfinance" loans do not include loans from self-help groups; almost 50 percent of households which reported having outstanding loans in the baseline had one or more loans from self-help groups. SKS realized post-targeting that 19 households initially deemed eligible for the program had existing access to microfinance products. Since the design of UPP aims to "graduate" people into microfinance, households that already enjoy access are deliberately left out of the program.

[7] Subsequent interviews with some of the households that refused to take part in the program revealed that "not interested" could imply a lack of entrepreneurial ability or self-confidence, or simply having access to higher wages as construction workers in the nearby township. Seasonal migration for work is a common feature of the labor market in this part of rural India.

A midline survey was conducted for the entire sample in 2009, immediately at the end of SKS's presence in the villages and about 18 months after treatment households received their asset. Since the enterprise training and subsequent asset transfer took four months to implement, the midline survey was done almost 2 years after the baseline survey. Of the 1,064 households surveyed in the baseline, 989 were re-surveyed in the midline. The midline survey included the same questions as the baseline survey, with the addition of two new sections that collected detailed information on participation in the NREG scheme, including number of household members working in the scheme, number of days worked, and payment received for work in the scheme. The other additional section collected height and weight data for children under 10 years of age living in the household.

In order to measure long-term impacts of the program, an endline survey was conducted for the entire sample of households 12 months after the midline, or 3 years after the baseline. In this endline wave, we were able to reach 1,011 of the total baseline households. This survey was conducted with the same questionnaire as the midline, including the two additional sections.

Attrition rates were 7 percent between baseline and midline surveys, and 5 percent between baseline and endline surveys. We compare in Web Table 1 the means of various household characteristics between households that we successfully reached in the endline survey and those that we could not. The households that we were not able to follow up in the endline survey have an older and more literate head, but there are no significant differences in family size, income, expenditure, asset ownership, use of financial services, or participation in government schemes. Web Table 1 shows that the difference in attrition rates between treatment and control groups is not statistically significant. We regressed an indicator variable equal to one if the household was an attriter and zero otherwise on a treatment indicator and the five control variables described in

section II.B. The regression confirms that being in the treatment group does not significantly predict long-run attrition, with or without controlling for these baseline characteristics (results not shown).

In addition to the quantitative surveys, we compare our results to the findings from an independent qualitative study of the SKS program which focuses on sustainability of the outcomes and was conducted 2.5 years after completion of the program (Jawahar and Sengupta 2012). This study was conducted using seven focus group discussions and 32 individual interviews with program participants, control group households, as well as interviews with program staff. These data are not meant to measure the program's impact, but they provide a unique depth of understanding of the program and an insight into how households took advantage or struggled with some of its components. Overall, the qualitative findings confirm the randomized experiment's findings.

II. Experimental Design and Empirical Strategy

II.A. Design

The impact assessment of the program is conducted through a randomized controlled experiment, where the level of randomization is the village. The assignment was stratified by village population, number of ultra-poor households as a proportion to total village population, distance from nearest metallic road, and distance from nearest mandal headquarter.[8]

We randomized at the village level due to (i) ease of program implementation and group interventions on the part of SKS, (ii) ease in ensuring that villages were treated according to the

[8] A mandal is an administrative unit lower than the district but including several villages.

initial random assignment (relative to monitoring the treatment of individual households), and (iii) minimization of spillovers from treatment to control households.

The experimental design took into account that the error term may not be independent across individuals. Since treatment status across individuals within a group is identical and outcomes may be correlated, a larger sample size (relative to individual-level randomization) was required to tease out the impact of the program.

II.B. Analysis strategy

Before turning to the analytical strategy, we describe a frame for interpreting the estimated parameters. We focus on the role of substitution between the ultra-poor program and wage labor. The effect can be seen by considering two different interventions, T and x, that affect income y such that $y = \beta_0 + \beta_1 T + \beta_2 x + \beta_3 (T \cdot x) + \varepsilon$ where $E(\varepsilon|T, x) = 0$. With x = 1 everywhere, the common measure of impact, which is the treatment-control difference, is thus $\Delta = E(y|T = 1, x) - E(y|T = 0, x) = \beta_1 T + \beta_3 (T \cdot x)$. In our context, T is eligibility for the ultra-poor program and x is access to the agricultural labor market. In our case, even though access to T is limited to the treatment group, everyone in the treatment or control group has access to x. Thus the concern is not that the control group is contaminated. Instead, the concern arises from shifts in households' portfolios of economic activities (re-optimization) from x to T. The two opportunities may interact positively ($\beta_3 > 0$) if re-optimization brings out ways that they reinforce each other, or negatively ($\beta_3 < 0$) if there is substitution.

With x = 1 everywhere, families in treatment areas opt to split their energies between the two available options T and x, while families in control areas fully participate in their single option x. The treatment-control difference $\Delta = \beta_1 T + \beta_3 (T \cdot x)$ is thus smaller than $\beta_1 T$ when $\beta_3 < 0$. Where there is full displacement, β_3 could be large enough in absolute value to explain the

finding that $\Delta = 0$.[9] The logic for $\beta_3 < 0$ in our case hinges on the hypothesis that if a person engages in the ultra-poor program, she lacks the time, energy or freedom to simultaneously participate fully in agricultural labor.

This scenario highlights that families in the treatment group would have been in roughly the same place had the ultra-poor program not existed (assuming they re-optimized and took greater advantage of other labor opportunities). But it is simultaneously true that inputs from the ultra-poor program translated into meaningful outcomes for those it served. The distinction from the finding that $\beta_1 = 0$ (that is, program failure) matters when extrapolating from the result that $\Delta = 0$ and for understanding what was actually estimated.

The analytical strategy draws on a series of reduced-form regressions. The difference in the means of the treatment and control groups is the OLS coefficient β in the following reduced-form regression

$$Y_{ij} = \alpha + \beta T_i + v_j + \varepsilon_{ij} \quad (1)$$

where i indexes households and j indexes villages. Y is the outcome of interest (consumption, income, etc.). T is an indicator variable that equals 1 if household i lives in a treatment village and 0 otherwise, and β is the impact of the treatment. v_j and ε_{ij} are the unexplained variance at the village and the household level. In theory, since the treatment was random across villages, ε_{ij} is uncorrelated with T. The coefficient of interest β is the intent-to-treat estimate which measures the expected change in the outcome for a household that was offered the treatment. This is different from the impact of actually participating in the program ("treatment on the treated" estimates) because of partial compliance. That is, not every household that was offered

[9] At the same time, the result could be consistent with there being a potential positive impact when the alternative intervention is not available (x = 0 everywhere) in which case the impact would be $\Delta = E(y|T = 1, x = 0) - E(y|T = 0, x = 0) = \beta_1 T$.

the treatment participated in the program; as detailed above, almost 30 percent of households invited to participate declined the offer. The treatment on the treated estimate is the parameter of interest when we want to capture the cost-effectiveness of the program, but it is biased by the self-selection of households into actually participating in the program or not. The intent-to-treat estimate indicates the causal impact of being assigned to participate in the program, and it is the focus of our analysis.

The intent-to-treat analysis is complemented by treatment-on-the-treated estimates obtained by estimating the impact of the program with an instrumental variable specification, instrumenting actual participation in the program with the random assignment. Table II reports these results for select outcomes. The signs and statistical significance of the coefficients are similar to those of coefficients obtained by regressing each outcome on the treatment indicator following specification (2) below (our main results, displayed in Table IV through Table XI). Coefficients obtained by an instrumental variable specification, however, tend to be of a larger magnitude, confirming that the program had a strong effect on households which participated than the intent-to-treat measures indicate.

While randomizing participants into the treatment and control groups produces similar groups in expectation, this outcome is not guaranteed in practice and was not achieved in our evaluation. The unit of randomization was the village, and household-level data show some statistically significant differences between households in treatment and control villages. We therefore adapt our regression specification to include variables controlling for the characteristics according to which treatment and control households differ at baseline, and to exploit the panel nature of our data:

$$Y_{ij} = \alpha + \beta(T_{ij} * P_{it}) + \delta P_{it} + \gamma X_{ij} + v_j + \varepsilon_{ijt} \quad (2)$$

where the subscript t indexes the waves of data (t = 0, 1, 2), P_{it} is a binary variable equal to 1 if the data come from the midline or endline surveys and 0 if the data come from the baseline survey, X_{ij} includes the baseline values of five control variables described in the next paragraph, and all other quantities are as in equation (1). We analyze short-term and long-term impacts separately: short-term impacts are measured with baseline and midline surveys (P = 0 for t = 0 and P = 1 for t = 1), and long-term impacts are measured with baseline and endline waves (P = 0 for t = 0 and P = 1 for t = 2). Typical impact evaluations focus on coefficient β, which shows the impact of the program above and beyond changes that happened to the control group (indicated by δ). In this analysis, for most outcomes of the program, β does not reach conventional levels of statistical significance but many δ coefficients are large and statistically significant, showing that all households in the study area experienced important changes to their economic situation.

The specification in (2) also allows the assessment of interactions with other markets and interventions. To get at possibilities for substitution, we define Y as participation in competing programs or as income from alternative sources. We then quantify how the availability of the ultra-poor program affected other economic activities such as participation in the agricultural labor market.

Web Table 2 shows the average baseline values of characteristics of the treatment and control groups. At baseline, treatment and control households were similar on most demographic, consumption, income, health, occupation and housing characteristics. But despite the random assignment of villages into treatment and control groups, households living in treatment villages appear better off than control households along some dimensions. In Web Table 2 we consider 38 key variables, and find five dimensions for which treatment and control households differ significantly at baseline. These include the percentage of households that report holding some

form of savings (51 percent of control households and nearly 60 percent of treatment households), participate in the NREG employment scheme (31 percent of control group households and 37.5 percent of treatment households), have outstanding loans (69 percent of control households against 74 percent of treatment households), have outstanding loans from self-help groups (47 percent of control households but 58 percent of treatment households), and own any animal (7 percent control households, versus 13 percent of treatment household own one or more heads of livestock or poultry). We control for the baseline value of these five characteristics in all analyses.

III. RESULTS

This section describes impacts on a limited set of core outcomes, described in Table IV through Table XI. The impact of the program on additional outcomes is reported in Web Tables.

III.A. Summary Statistics

Table III reports the mean of key indicators in each survey wave, by treatment assignment. The average monthly per capita income in the baseline survey, including the value of self-consumption, was slightly above 300 Rupees, equivalent to about 0.60 US dollars per day in purchasing power parity (PPP) terms. Even though 65 percent of ultra-poor households in the area had more than one source of income, they were very heavily dependent on agricultural labor as a primary source of income: at baseline, more than half of their per capita income came from agriculture labor. Average livestock income was very small, and more than 90 percent of all households did not have income from livestock (not shown).

Household consumption is often a better measure of poverty than income, and it is higher here. The Tendulkar Committee Report of the Government of India (Tendulkar, Radhakrishna

and Sengupta 2009) estimates a rural poverty line at Rs.448 per person per month (about US$0.90 per day in PPP conversion). In our baseline sample, the average monthly per capita consumption expenditure was Rs.540 (about US$1.09 per day in PPP conversion).While the households face structural constraints associated with poverty, the data here show that the average consumption of these "ultra-poor" households exceeds the local poverty line.

Participation in government safety nets was heterogeneous in the baseline survey, and remained so throughout the years in which we collected data. On one hand, government programs distributing subsidized foods and basic necessity goods were used by more than 90 percent of all households. On the other hand, fewer than 5 percent of households reported in the baseline survey seeking or receiving assets, vocational training or subsidized loans from the government. Participation in the National Rural Employment Guarantee scheme was relatively low at the time of the baseline (34 percent of all households participated), but increased sharply from 2007 to 2010. By the endline, 80 percent or more of both treatment and control households worked in the scheme.

Even though sample households were among the poorest households in a poor district of India and participation in microfinance excluded them from being eligible for the program, our baseline survey indicates that they had an active, mostly informal, financial life. At baseline, before receiving any service from SKS, more than 50 percent of all households saved and almost three quarters of them had outstanding loans. Average outstanding loan balances represented 8 to 10 times the average per capita monthly income.[10]

Ownership of goats, buffaloes or a large flock of chicken or goats made households ineligible for the ultra-poor program, but households could own a few small animals and still be eligible.

[10]This is notable in the context of a microfinance crisis in Andhra Pradesh: these households did not participate in formal microfinance (other than self-help groups), yet were already over-indebted.

As a result, about 10 percent of households reported in the baseline survey owning one or more animal(s). Animal ownership differed across treatment status in the baseline survey: seven percent of control households and 13 percent of treatment households owned some animal. The difference is statistically significant.

Overall, these baseline descriptive statistics highlight that households eligible for the ultra-poor program and included in our sample were very poor by income measures but not by consumption. They were reliant on income from day labor working for local farmers and on government-subsidized basic goods markets. Despite a low level of small animal ownership, these households do not own productive assets. The population thus fits squarely within the non-monetary targets set by the ultra-poor program. We now turn our focus to estimates of the impacts of the program.

III.B. Income

One of the basic changes that we observe is in the income of ultra-poor households. The average monthly per capita total income increased from Rs.312 (US$18.9 in PPP conversion) in the baseline to Rs.518 (US$31.3 in PPP conversion) in the endline, a 66 percent increase. Figure I shows that the distribution of monthly income per capita shifted to the right and flattened between the baseline and endline surveys. It also highlights that these changes happened in a similar fashion for treatment and control households.

This main finding holds when controlling for unbalanced characteristics of the households at baseline and village fixed effects. Table IV reports the coefficients from a panel regression using the specification detailed in equation (2) above and the log of per capita monthly income. All households surveyed experienced a large and statistically significant increase in total income per capita, both in the short run and in the long run. Over the 3 years between baseline and endline

surveys, average household income per capita increased by 62 percent for households in the treatment group (Panel C) and 74 percent for households in the control group (Panel B).

The ultra-poor program itself, however, failed to raise households' total income per capita beyond what happened to households in the control group. This lack of net average impact does not mean that the program failed to create any impact. Figure II provides a visual summary of our argument. While the levels of and change in total income were not statistically different in treatment and control groups, the change in the composition of income was. Treatment households obtained a larger share of their income from livestock than control households, while the latter obtained a larger share of their income from agriculture labor than the former.

We document with more precision the interaction of the ultra-poor program with other opportunities by defining the variable on the left-hand side of equation (2) as various components of household income.[11] Columns 3 and 6 of Table IV confirm that the program was successful in raising income from livestock, but simultaneously caused a stagnation of agricultural labor income. In the long run, treatment households experienced a 97 percent increase in livestock income, as well as a nine percent decrease in income from agricultural labor (the coefficient is not statistically significantly different from zero). We attribute the large change in other income for all households, reported in column 8, to data capture errors rather than an economically meaningful phenomenon.

Changes in adults' use of time corroborate the observed changes in income. Table V shows that aggregate measures of time spent in productive activities, in leisure, and doing chores did not change differently for treatment and control households. Detailed measures of time use over the past 24 hours, however, show that treatment households spent more time tending animals

[11] We also tested a seemingly unrelated regression specificationto analyze the different sources of income. Results are qualitatively similar and are not reported here.

than control households, and less time doing agriculture labor. On average, between baseline and endline surveys, program participants reduced the time they spent doing agricultural labor by eight minutes while control households increased the time they devote to this activity by 50 minutes, leading to a net difference of 58 minutes per day.

III.C. Consumption

Figure I shows the density of total monthly per capita consumption for treatment and control households, and Figure III details consumption into food and non-food consumption. As the graphs indicate, the distribution of total, food and non-food expenditures shifted towards the left side, indicating a decrease in consumption over time. The decrease in total and food expenditures did not affect treatment and control households differently, but medical expenditures decreased significantly more for treatment households, making a marginal impact on non-food expenditures.

In Table VI we report the results from estimating equation (2), with various measure of monthly per capita expenditure as dependent variables. The regression results corroborate that average total expenditures decreased between baseline and endline survey for all households, but not statistically significantly differently so for treatment and control households.

Although the decrease in food expenditures did not affect treatment households more or less than control households in the long run, the average decrease was large, representing about 70 percent of the baseline level of monthly per capita food expenditures. This result could be due to data reporting errors, however, since all households reported improvements in food security, as measured by whether any household member skipped meals, whether adults ever go an entire days without eating, or whether all household members have enough food all day, every day

(Web Table 3). Note that none of the food security results were statistically different for households living in treatment and control villages.

Unlike other measures of expenditures, the data show that the program actually led to a decline in non-food expenditures in the long term, mostly due to a significant and large decline in medical expenditures. This might in fact be a good sign. Given that treatment households were not more likely to feel in better health, to be too sick to work, nor to have consulted a doctor or gone to a hospital in the last year (Web Table 4), we interpret the decrease in medical expenditures as a positive outcome most likely due to the program's training of a local basic health responder in the village.

III.D. Asset accumulation

The ultra-poor program could help households accumulate assets in at least two ways. First, by granting an animal or the working capital for a non-farm microenterprise, the program had a direct impact on agricultural or enterprise asset ownership. Second, the program could also indirectly help households purchase durable goods and other assets. We find a relative increase in animal ownership among treatment households, but no impact of the program on the ownership of other assets.

Patterns of animal ownership reflect the implementation of the program. Table III shows that the percentage of households which report owning an animal changed very differently for treatment and control households. Among treatment households, it increased almost five fold from the baseline to the midline, which collected data immediately at the end of the program's implementation. Animal ownership also increased in the control group, although in a much more modest proportion. Between the midline and endline surveys, however, the rate of animal ownership dropped by about half in both treatment and control groups, implying an overall long-

term increase in animal ownership of about 250 percent in the treatment group and 14 percent in the control group. This large drop is at odds with the design of the program, and we return to it in the next sub-section. Table VII provides regression estimates of these changes. It confirms the patterns of rates of animal ownership described above. Ownership of livestock, which includes animals such as buffaloes and goats that were provided by the program, increased due to the program. As a check, we note that ownership of poultry did not increase, which is consistent with the fact that chicken and ducks were not available as grants from the program.

To explore the second channel through which the program could increase ultra-poor households' ownership of assets, Table VII also analyzes the impact of the program on the ownership of different types of assets such as house, land, livestock, and household and agricultural assets. The assets index is the principal components index of household durable goods owned by the household (such as television, table, or jewelry). The agricultural assets index is the principal components index of household agricultural durable goods (such as plough, tractor, or pump) and animals owned by the household. Ownership of household and agricultural assets did not significantly change between baseline and endline surveys, neither for control nor for treatment households. The short-term increase in ownership of agricultural assets among treatment households is entirely driven by the transfer of an asset from the program, as evidenced by the lack of significant coefficients in the last two columns of Table VII. The finding of no impacts on ownership of other assets is corroborated by qualitative insights suggesting that households were largely unable to diversify their asset base, even when asset holdings increased (Jawahar and Sengupta 2012).

III.E. Animal ownership

The large post-program drop in animal ownership described in the previous section and shown in Table III is puzzling, particularly for treatment households, since the program is based on the premise that animal rearing is economically profitable and generally desirable for ultra-poor households in the area.[12] Our data suggest that some households in the treatment group sold the animal they received from the program and used the revenue to pay off debt. Program participants that no longer possessed an animal by the endline had higher wage income, indicating that they returned to wage employment. In line with that, the average income from livestock in the endline survey was almost five times lower for households which did not hold on to their animal (Rs.33 per person and per month) than for households which held on to it (Rs.164 per person and per month).

The evidence suggests substantial under-reporting of livestock sales, however. Table VIII reports that less than 20 percent of households sold their animal during the study period. To pursue the possibility that this is under-reported, we worked with SKS to implement a follow-up survey of treatment households which chose buffalos or goats as their activity in the program but reported not owning an animal at the endline survey. In this follow-up survey, two-thirds of the valid responses indicate that the animal was sold, and eight percent indicated still owning and caring for the animal (the remaining households either lost their animals to illness or were leasing them out.)

Data on household indebtedness reinforce the argument that households which did not hold on to their animal actually sold it. Data from the endline survey shown in Table VIII indicate that, compared to households which held on to their animal, households that did not hold on to

[12] We note that there is no indication that households joined the program with the intent of eventually selling the asset.

their animal between the midline and endline waves were 19 percentage points less likely to have outstanding loans, reduced their number of loans outstanding, and had significantly lower average outstanding loan amounts.

This suggests that, given the lack of net positive impact of the program even in the midline survey, some households may have made a rational choice to stop pursuing their livestock-related activity and used the proceeds from selling their animal(s) for other purposes. At the same time, households which held onto their animals did better than others by the endline. Total per capita income and expenditures decreased between midline and endline for households which did not hold on to their animals, and increased for households which held on to them. The differences are statistically significant (Table VIII, "Change Midline to Endline" panel). We cannot causally interpret these differences since holding on to animals is an endogenous choice, but the pattern is consistent with heterogeneity in treatment effects, followed by re-optimization toward wage labor by those who experienced weaker impacts from program participation.

III.F. Saving and Borrowing

An important motivation for the program is to help ultra-poor households establish a microenterprise with a regular income flow, in order to ultimately "graduate" them into microfinance. In this section, we explore the impact of the program on the financial lives of the poor households.

Table IX reports that the program had a strong impact on savings in the short run, as it required treatment households to save every week such that at the end of 18 months they had accumulated at least Rs.800 to "graduate." As a result, immediately at the end of the program

treatment households reported being more likely to save than control households, and reported savings balances 1.3 times that of control households, on average.

These effects did not persist in the endline survey, however. On average, in the long run all households reduced their borrowing and were more likely to save than they were in the baseline, but not differently so for treatment and control households. Qualitative insights confirmed that, two and a half years after the program ended, almost all participants had withdrawn their savings and closed the post office account that had been opened for them during the program (Jawahar and Sengupta 2012). Some households prefer to keep cash at home, but the lump sum created while in program was commonly used to repay outstanding debts.

The debt reduction is visible is our quantitative data for both treatment and control households, measured as (i) the likelihood to have outstanding loans, (ii) the number of outstanding loans, and (iii) the total amount of loans outstanding. The drop in debt among treatment households which sold their animal between midline and endline surveys is not large enough to be reflected in the overall treatment-versus-control comparison.

Web Table 5 looks at the impact of the program on access to credit. It shows that, over the long run, all households in this region moved away from informal sources of credit such as moneylenders, shopkeepers, and relatives and friends. The program, however, did not significantly improve poor households' use of formal credit.

Households strongly reduced their use of moneylender loans – treatment households significantly more so than control households. The percentage of control households which had outstanding loans from moneylenders fell by 10 percentage points between the baseline and endline surveys, a large effect which represents about 20 percent of the baseline percentage of all households' borrowing from moneylenders. Treatment households were an additional 15

percentage points less likely to borrow from moneylenders, for a total effect representing one-third of the baseline percentage of households borrowing from moneylenders.

III.G. Use of government safety nets

The expected net impact of the ultra-poor program on the use of government safety nets is ambiguous. On one hand, part of the training provided to ultra-poor households was meant to empower them to connect with existing support in their community, including government social services. On the other hand, a long term goal was to create independent livelihoods and reduce reliance on public safety nets.

Table X shows no direct evidence of a substitution of the ultra-poor program with specific government safety net programs. While participation in most safety net schemes increased for all households between the baseline and endline surveys, ultra-poor households were not statistically significantly more or less likely to participate in any of them relative to control households. In the qualitative study, Jawahar and Sengupta (2012) make a similar note that "political competition" led to an increased awareness of, and participation in, government safety nets for all households in Andhra Pradesh. For this outcome as for other outcomes of the ultra-poor program, context mattered greatly.

The National Rural Employment Guarantee scheme is of particular interest. The NREG scheme is the largest public safety net scheme in the world. In its fiscal year 2010-2011, it provided employment to 53 million households in India, including 6 million in Andhra Pradesh (Ministry of Rural Development of the Government of India 2011). As noted in the introduction, the NREG scheme provides up to 100 days of unskilled wage employment per household, for a daily wage that averaged Rs.115 in March 2011. Although a minority of households actually worked for 100 days in fiscal year 2010-2011, the potential income from NREG represents a

significant proportion of an ultra-poor's total yearly income and could contribute to dampening the measured impact of the ultra-poor program. Our data, however, do not support this hypothesis. Even though participation in NREG increased sharply in our sample between the baseline and endline surveys (from about 34 percent to about 81 percent), the rate of increase was not statistically significantly different for treatment and control households (Table X, column 1) and the amount earned from working in the scheme was similar for treatment and control households in the endline survey (Table III).[13]

III.H. Heterogeneity in impacts

In this section, we assess the heterogeneous impacts of the program on the ultra-poor population. We divide the sample into subsamples of households based on land ownership, house ownership and livestock ownership at baseline. Table XI shows the impact of the program on total monthly per capita income for each of these subgroups of ultra-poor households.

The results suggest that poorer households, as characterized by not owning livestock, land or a house prior to the program, tended to do worse in the program. The average income of households in these subsamples changed in similar ways while the short run enterprise support from SKS lasted, but poorer households witnessed a larger decline in income by the end of the study relative to their counterparts who owned assets at the start. While the statistical significance of these differences does not provide a compelling argument on its own, Jawahar and Sengupta's (2012) qualitative study also concludes that the impact of the program depended to a significant extent on the amount of experience with the livelihood activity chosen and the availability of support networks.

[13] The lack of displacement of NREG participation arises in part because the work is close to the village (and sometimes within it), making it possible to simultaneously care for livestock. Working as an agricultural laborer, in contrast, usually requires travel and being away from home for extended stints.

IV. CONCLUSION

We study an innovative asset transfer program aimed at ultra-poor households in rural India. The program aims to permanently shift ultra-poor households' living conditions by providing resources (including training, an asset, and other support) intensively but for a limited time, rather than simply providing an ongoing safety net. The basic idea of the program is for households to establish a microenterprise with a regular cash flow such that they can move out of extreme poverty. Over the 18 months of the program, SKS provided significant support in the form of intensive training and monitoring, and a stipend to meet enterprise-related expenses (but not to support household consumption).

The results are surprising: we find no significant long term net impacts of the program on overall consumption, income and asset accumulation of ultra-poor households. We argue that the result is explained in large part by substitution with other economic activities. During the study period, wages in agricultural labor were rising steadily in the region, so that households in the control group were able to improve their economic conditions in parallel with households in the treatment group. It is left open whether the composition of support provided by SKS could have made a difference for households -- especially the very poorest – which struggled to maintain their microenterprises, or whether there might have been greater impacts had SKS maintained a presence in the villages after the program ended.

Taken as a whole, the study shows that the program helped households create new livelihoods as intended. At the same time, the study highlights the need to interpret evaluations in the context of the economic opportunities faced by families and their ability to re-optimize their livelihood strategies. Because of the substitution of economic activities, even a relatively well-implemented intervention delivered resources as intended but yielded no net average

impact. In another economic setting, however, the exact same intervention targeted to an identical population might have generated very different levels of net impact.

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TABLE I

AVERAGE COST OF THE PROGRAM

	Cost in Rupees	Cost in US Dollars
Livelihoods asset	7,000	140
Capacity building	5,350	107
Implementation costs	4,700	94
Targeting costs	260	5
Stipend (working capital allowance)	550	11
Total cost per program participant	17,860	357

Notes: SKS NGO calculations, 2009. 50 Indian rupees = US$1.

TABLE II

IMPACT OF THE ULTRA-POOR PROGRAM, INSTRUMENTAL VARIABLE SPECIFICATION

	Income			Time in agr. Labor	Time tending animals	Total expend.	HH has loans?	HH saves?
	total	agr. labor	livestock					
Panel A. Difference-in-difference, Baseline –Midline								
Post*Treatment	-0.02	-0.54**	2.98***	-49	81***	-0.19**	-0.02	0.11*
	(0.13)	(0.26)	(0.21)	(35)	(10)	(0.09)	(0.06)	(0.06)
Post (0 if baseline, 1 if midline)	0.58***	-0.19	0.18***	-90.89***	1.33	0.34***	-0.01	0.19***
	(0.08)	(0.14)	(0.07)	(18.93)	(2.66)	(0.04)	(0.03)	(0.04)
Observations	1,935	1,942	1,796	1,932	1,946	1,954	1,953	1,954
R-squared	0.108	0.032	0.441	0.092	0.153	0.046	0.084	0.428
Mean of dep. var. at baseline	319	177	3.5	262	3.6	553	.713	.557
Panel B. Difference-in-difference, Baseline –Endline								
Post*Treatment	-0.19	-0.50*	1.44***	-80**	18***	-0.10	-0.04	-0.05
	(0.13)	(0.26)	(0.23)	(34)	(5)	(0.08)	(0.08)	(0.07)
Post (0 if baseline, 1 if endline)	0.74***	0.21	-0.04	50***	-4**	-0.18***	-0.22***	0.09**
	(0.07)	(0.15)	(0.03)	(17)	(2)	(0.04)	(0.04)	(0.04)
Observations	1,976	1,991	1,909	1,973	1,992	2,000	2,000	2,000
R-squared	0.150	0.020	0.158	0.009	0.013	0.037	0.154	0.323
Mean of dep. var. at baseline	318	178	3.6	264	3.6	551	.714	.557

Notes: *** p<0.01, ** p<0.05, * p<0.1. Regressions in this table report coefficients from an instrumental variable specification, where actual participation in the program is instrumented by the random assignment to participate. All regressions include village-level fixed effects. Standard errors are clustered at the village level. Variables controlling for unbalanced characteristics of the sample (baseline values of whether the household saves, participates in EGS, receives a pension, has outstanding loan(s) from self-help groups, and own an animal) are included in the regressions but not shown. Income and consumption measures are the log of monthly per capita income or consumption (log of 1 + amount in 2007 Rupees; 1 USD ≈ 40 Rs). Time in agricultural labor and tending animal are measured in minutes in the last 24 hours. The means of the dependent variables at baseline are in level form. Livestock income includes income from irregular sales of animals.

TABLE III

SUMMARY STATISTICS FOR CONTROL AND TREATMENT HOUSEHOLDS

	Baseline		Midline		Endline		Percent change baseline-endline	
	C	T	C	T	C	T	C	T
Total income	312	313	483	521	520	516	67	65
Income from livestock	2.4	3.6	7.1	55.8	7.6	62.0	221	1,644
Income from ag. labor	174	176	254	199	316	267	82	51
Income from non-ag. labor	60	56	80	92	105	103	75	85
Total expenditures	555	539	860	757	498	471	-10	-12
Food expenditures	275	275	256	234	142	139	-48	-49
Non-food expenditures	194	192	455	419	254	226	31	18
Ceremony expenditures	86	72	149	103	102	107	18	49
Household has savings (percent)	51	59	71	87	60	65	18	9
Per capita savings balance	110	140	606	695	292	295	165	111
Household saves in SHG (percent)	47	58	54	60	58	55	22	-4
Household has outstanding loan (percent)	68	74	67	72	47	49	-32	-34
Per capita outstanding loan balance	2,479	3,041	2,813	1,892	1,447	1,531	-42	-50
Household borrows from moneylender (percent)	28	31	22	14	8	9	-72	-71
Household borrows from SHG (percent)	30	40	28	33	30	33	1	-16
Household sought/received government assets (percent)	3.3	4.3	7.0	4.2	9.9	9.3	203	115
Household sought/received government training (percent)	0	1	2	1	8	6	1,761	1,141
Household received goods from PDS (percent)	93	93	94	97	98	98	5	6
Household received BPL rationing (percent)	91	93	77	83	96	98	5	6
Household sought/received NREG work (percent)	31	37	69	68	82	80	167	116
Number of days household worked in NREG	n/a	n/a	28	37	32	35	n/a	n/a
Monthly per capita income from NREG	n/a	n/a	84	68	72	76	n/a	n/a
Household owns any animal(s) (percent)	7	13	12	60	6	32	-22	149

Notes: All data are averages, except in the last two columns. All amounts are in Rupees of 2007. The midline data were collected 2 years after the baseline, immediately at the end of the ultra-poor program; the endline data were collected 1 year later. The percentage change displayed in the last two columns may be different from the percentage change calculated from data displayed in the table because of rounding. "C" indicates control households. "T" indicates treatment households. Income and expenditures are monthly per capita values. Savings in and borrowing from specific institutions is not conditional on the household having savings/borrowings. PDS and BPL rationing are government schemes providing basic goods at a subsidized price to poor households. The number of days worked in NREG and income from NREG are conditional on participating in the NREG scheme.

TABLE IV

IMPACT OF THE ULTRA-POOR PROGRAM ON INCOME

	Total	Ag. self-empl.	Ag. labor	Non-ag. labor	Salaried empl.	Live-stock	Non-ag. self-empl.	Other sources
Panel A. Difference-in-difference, Baseline –Midline								
Post*Treatment	-0.02	0.06	-0.40**	0.47*	0.05	2.08***	0.14	-0.05
	(0.09)	(0.15)	(0.19)	(0.28)	(0.11)	(0.18)	(0.12)	(0.20)
Post (0 if baseline, 1 if midline)	0.58***	0.22*	-0.19	-0.48**	0.19**	0.18***	0.02	2.74***
	(0.08)	(0.11)	(0.14)	(0.23)	(0.08)	(0.07)	(0.08)	(0.14)
Constant	5.25***	0.67***	4.56***	1.68***	0.01	0.06	0.42***	0.60***
	(0.06)	(0.10)	(0.12)	(0.13)	(0.06)	(0.07)	(0.09)	(0.10)
Observations	1,936	1,828	1,942	1,936	1,945	1,800	1,883	1,768
R-squared	0.108	0.011	0.031	0.026	0.016	0.308	0.012	0.405
Mean of dep. var. at baseline	319	15	177	59	7	4	38	38
Panel B. Difference-in-difference, Baseline –Endline								
Post*Treatment	-0.14	-0.05	-0.36*	0.30	-0.03	1.01***	0.03	-0.34*
	(0.09)	(0.16)	(0.19)	(0.29)	(0.09)	(0.17)	(0.10)	(0.20)
Post (0 if baseline, 1 if endline)	0.74***	-0.12	0.21	-0.08	0.10	-0.04	-0.27***	2.75***
	(0.07)	(0.12)	(0.15)	(0.21)	(0.07)	(0.03)	(0.07)	(0.14)
Constant	5.30***	0.56***	4.44***	1.85***	0.01	0.15**	0.38***	0.75***
	(0.05)	(0.08)	(0.11)	(0.14)	(0.05)	(0.07)	(0.06)	(0.09)
Observations	1,976	1,928	1,991	1,938	1,987	1,910	1,967	1,777
R-squared	0.152	0.012	0.016	0.010	0.012	0.129	0.025	0.382
Mean of dep. var. at baseline	318	15	178	57	7	4	37	38
Panel C. First difference, Baseline – Endline, Treatment group only								
Post (0 if baseline, 1 if endline)	0.62***	-0.17	-0.09	0.19	0.06	0.97***	-0.25***	2.42***
	(0.05)	(0.10)	(0.13)	(0.19)	(0.06)	(0.16)	(0.07)	(0.14)
Constant	5.31***	0.42***	4.42***	1.55***	-0.06	0.21*	0.42***	0.80***
	(0.07)	(0.12)	(0.18)	(0.20)	(0.08)	(0.12)	(0.09)	(0.12)
Observations	1,090	1,064	1,100	1,075	1,100	1,031	1,091	965
R-squared	0.138	0.031	0.007	0.010	0.019	0.139	0.023	0.334
Mean of dep. var. at baseline	318	15	178	57	7	4	37	38

Notes: *** p<0.01, ** p<0.05, * p<0.1. All regressions include village-level fixed effects. Standard errors are clustered at the village level. Variables controlling for unbalanced characteristics of the sample (baseline values of whether the household saves, participates in EGS, receives a pension, has outstanding loan(s) from self-help groups, and own an animal) are included in the regressions but not shown. The dependent variables are the log of the monthly per capita income from each source (log of 1 + amount in 2007 Rupees; 1 USD ≈ 40 Rs). The means of the dependent variables at baseline are in level form. Livestock income includes income from irregular sales of animals. Other sources of income include land sales, rental, government assistance, remittances, pensions and other unclassified sources.

TABLE V

IMPACT OF THE ULTRA-POOR PROGRAM ON TIME USE OF ADULTS

	Productive time	Leisure time	Time doing chores	Agr. Labor	Tending animals	Caring for child/elderly	Tending animals, if owns animals
Panel A. Difference-in-difference, Baseline –Midline							
Post*Treatment	70**	9	-23	-36	59***	-8**	90**
	(27)	(6)	(18)	(26)	(8)	(4)	(37)
Post (0 if baseline, 1 if midline)	-43**	12***	46***	-91***	1	4	-26
	(20)	(4)	(14)	(19)	(3)	(3)	(34)
Constant	280***	7***	205***	248***	2	19***	48**
	(14)	(3)	(7)	(11)	(5)	(2)	(23)
Observations	1,954	1,954	1,954	1,932	1,946	1,945	464
R-squared	0.016	0.036	0.028	0.091	0.105	0.006	0.045
Mean of dep. var. at baseline	301	14	202	262	4	16	24
Panel B. Difference-in-difference, Baseline –Endline							
Post*Treatment	-27	0	10	-58**	13***	-1	7
	(23)	(4)	(11)	(24)	(4)	(3)	(23)
Post (0 if baseline, 1 if endline)	84***	-5*	-40***	50***	-4**	-2	3
	(16)	(3)	(7)	(17)	(2)	(2)	(17)
Constant	287***	11***	204***	247***	5**	18***	52*
	(10)	(2)	(6)	(12)	(2)	(2)	(30)
Observations	2,000	2,000	2,000	1,973	1,992	1,991	296
R-squared	0.049	0.012	0.047	0.019	0.019	0.006	0.068
Mean of dep. var. at baseline	302	13	201	264	4	16	24

Notes: *** p<0.01, ** p<0.05, * p<0.1. All regressions include village-level fixed effects. Standard errors are clustered at the village level. Variables controlling for unbalanced characteristics of the sample (baseline values of whether the household saves, participates in EGS, receives a pension, has outstanding loan(s) from self-help groups, and own an animal) are included in the regressions but not shown. The dependent variables are the log of the monthly per capita income from each source (log of 1 + amount in 2007 Rupees; 1 USD ≈ 40 Rs). The means of the dependent variables at baseline are in level form. Livestock income includes income from irregular sales of animals. Other sources of income include land sales, rental, government assistance, remittances, pensions and other unclassified sources.

TABLE VI

IMPACT OF THE ULTRA-POOR PROGRAM ON EXPENDITURES

	Total	Food	Non-food	Non-food details				
				Fuel	Tobacco/ Alcohol	Medical	Education	Other
Panel A. Difference-in-difference, Baseline –Midline								
Post*Treatment	-0.14**	-0.03	-0.17**	0.15	-0.59***	-0.35***	0.12	-0.20**
	(0.07)	(0.07)	(0.07)	(0.09)	(0.18)	(0.12)	(0.11)	(0.09)
Post (0 if baseline, 1 if midline)	0.34***	-0.19***	0.77***	0.31***	0.32**	0.15	0.29***	0.92***
	(0.04)	(0.05)	(0.05)	(0.07)	(0.15)	(0.09)	(0.08)	(0.06)
Constant	6.02***	5.44***	4.92***	2.10***	1.18***	3.17***	1.00***	4.41***
	(0.04)	(0.04)	(0.04)	(0.05)	(0.09)	(0.07)	(0.10)	(0.05)
Observations	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954
R-squared	0.048	0.033	0.221	0.064	0.012	0.013	0.029	0.185
Mean of dep. var. at baseline	553	277	194	13	18	55	13	176
Panel B. Difference-in-difference, Baseline –Endline								
Post*Treatment	-0.07	0.02	-0.11*	0.06	-0.10	-0.36***	-0.13	-0.05
	(0.06)	(0.05)	(0.06)	(0.09)	(0.15)	(0.12)	(0.11)	(0.09)
Post (0 if baseline, 1 if endline)	-0.18***	-0.70***	0.31***	0.76***	-0.95***	0.07	0.27***	0.36***
	(0.04)	(0.03)	(0.04)	(0.07)	(0.11)	(0.09)	(0.08)	(0.06)
Constant	6.03***	5.45***	4.96***	2.21***	1.13***	3.27***	1.00***	4.42***
	(0.03)	(0.03)	(0.04)	(0.05)	(0.07)	(0.07)	(0.09)	(0.05)
Observations	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
R-squared	0.038	0.280	0.051	0.210	0.148	0.015	0.021	0.043
Mean of dep. var. at baseline	551	276	194	12	19	55	13	176
Panel C. First difference, Baseline - Endline, Treatment group only								
Post (0 if baseline, 1 if endline)	-0.25***	-0.69***	0.20***	-0.29***	0.81***	-1.06***	-0.27***	0.15*
	(0.04)	(0.04)	(0.04)	(0.10)	(0.06)	(0.10)	(0.08)	(0.08)
Constant	6.06***	5.42***	4.98***	0.69***	2.27***	1.05***	3.41***	0.92***
	(0.05)	(0.05)	(0.05)	(0.11)	(0.06)	(0.10)	(0.10)	(0.12)
Observations	1,105	1,105	1,105	1,105	1,105	1,105	1,105	1,105
R-squared	0.041	0.250	0.034	0.014	0.241	0.167	0.024	0.029
Mean of dep. var. at baseline	551	276	194	12	19	55	13	176

Notes: *** p<0.01, ** p<0.05, * p<0.1. All regressions include village-level fixed effects. Standard errors are clustered at the village level. Variables controlling for unbalanced characteristics of the sample (baseline values of whether the household saves, participates in EGS, receives a pension, has outstanding loan(s) from self-help groups, and own an animal) are included in the regressions but not shown. The dependent variables are the log of the monthly per capita expenditures in each category (log of 1 + amount in 2007 Rupees; 1 USD ≈ 40 Rs). The means of the dependent variables at baseline are in level form. Ceremonies include traditional feasts/initiations, weddings and funerals.

TABLE VII

IMPACT OF THE ULTRA-POOR PROGRAM ON ASSET OWNERSHIP

	Household owns its house?	Acres of land owned	Assets index	Agr. assets index	Household owns livestock?	Household owns poultry?	Household owns plough?
Panel A. Difference-in-difference, Baseline –Midline							
Post*Treatment	0.040	0.041	0.184	0.544***	0.492***	0.002	-0.005
	(0.037)	(0.086)	(0.130)	(0.106)	(0.037)	(0.021)	(0.010)
Post (0 if baseline, 1 if midline)	0.119***	0.178***	-0.153	-0.300***	0.031*	0.013	0.009
	(0.027)	(0.066)	(0.096)	(0.058)	(0.016)	(0.012)	(0.005)
Constant	0.645***	0.403***	-0.413***	-0.174***	0.019	0.008	0.015**
	(0.024)	(0.053)	(0.086)	(0.061)	(0.015)	(0.013)	(0.007)
Observations	1,948	1,910	1,945	1,953	1,954	1,954	1,954
R-squared	0.043	0.023	0.042	0.166	0.355	0.114	0.032
Mean of dep. var. at baseline	0.710	0.416	0.022	0.015	0.067	0.050	0.013
Panel B. Difference-in-difference, Baseline –Endline							
Post*Treatment	-0.003	-0.172*	-0.059	0.210	0.242***	-0.002	-0.007
	(0.032)	(0.101)	(0.125)	(0.134)	(0.040)	(0.018)	(0.009)
Post (0 if baseline, 1 if endline)	0.139***	0.108	0.028	-0.131	-0.015	-0.015	-0.002
	(0.023)	(0.090)	(0.086)	(0.089)	(0.014)	(0.010)	(0.007)
Constant	0.653***	0.388***	-0.372***	-0.112**	0.037**	0.028***	0.009**
	(0.026)	(0.044)	(0.078)	(0.049)	(0.014)	(0.008)	(0.004)
Observations	1,995	1,956	1,989	1,977	1,992	1,978	1,994
R-squared	0.040	0.015	0.053	0.145	0.179	0.142	0.040
Mean of dep. var. at baseline	0.711	0.414	-0.007	0.016	0.069	0.050	0.013

Notes: *** p<0.01, ** p<0.05, * p<0.1. All regressions include village-level fixed effects. Standard errors are clustered at the village level. Regressions in which the dependent variable is a binary variable are run as linear probability models. Variables controlling for unbalanced characteristics of the sample (baseline values of whether the household saves, participates in EGS, receives a pension, has outstanding loan(s) from self-help groups, and own an animal) are included in the regressions but not shown. The assets index is the principal components index of household durable goods owned by the household (e.g. television, table, jewelry). The agricultural assets index is the principal components index of household agricultural durable goods and animals owned by the household (e.g. plough, tractor, pump, livestock).

TABLE VIII

CHARACTERISTICS OF HOUSEHOLDS, BY ANIMAL OWNERSHIP STATUS IN MIDLINE AND ENDLINE SURVEYS

	Did not own animal in midline		Held on to animal midline - endline		Sold/lost animal midline - endline		p-value (5)-(3)
	mean	Std. dev	Mean	Std. dev	mean	Std. dev	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Midline							
Household size	3.0	(1.7)	3.6	(1.5)	3.3	(1.9)	0.274
Average age of household members	32.6	(13.6)	30.5	(12.1)	32.7	(11.7)	0.080
Acres of land owned	0.56	(1.14)	0.70	(1.17)	0.72	(1.18)	0.891
Total income	485	(368)	498	(316)	569	(443)	0.097
Agriculture labor income	242	(263)	164	(155)	216	(205)	0.010
Livestock income	2	(57)	78	(145)	92	(208)	0.479
Minutes doing ag. labor in last 24 hours	153	(197)	156	(187)	149	(195)	0.751
Minutes tending livestock in last 24 hours	6	(39)	87	(138)	88	(142)	0.943
Total expenditures	875	(1,366)	598	(694)	754	(913)	0.081
Household has any loan outstanding (percent)	65	(48)	73	(44)	78	(41)	0.290
Number of loans outstanding	0.9	(0.8)	1.0	(0.9)	1.1	(0.8)	0.394
Amount of loans outstanding	6,658	(12,849)	5,977	(13,078)	6,072	(10,683)	0.940
Household savings balance	1,568	(3,013)	1,716	(1,285)	1,962	(2122)	0.243
Household had unexpected event in last year (percent)	23	(42)	21	(41)	20	(40)	0.985
If event: sold asset to cope	0.14	(0.35)	0.11	(0.31)	0.07	(0.26)	0.586
If event: total cost of event(s)	37,742	(107,087)	29,330	(51,553)	26,654	(38,486)	0.801

TABLE VIII
(CONTINUED)

Endline							
Household sold animal in last 12 months (percent)	0.7	(8.2)	16.4	(37.2)	2.3	(15.1)	<0.001
Average monthly amount received from animal sales in last 12 months	2	(30)	31	(98)	6	(38)	0.001
Total income	517	(306)	579	(363)	506	(390)	0.075
Agriculture labor income	303	(263)	252	(195)	283	(264)	0.224
Livestock income	8	(90)	164	(314)	33	(241)	<0.001
Total expenditures	484	(724)	585	(1,275)	455	(630)	0.201
Household has any loan outstanding (percent)	45.9	(49.9)	63.0	(48.4)	43.7	(49.7)	<0.001
Number of loans outstanding	0.5	(0.7)	0.9	(0.9)	0.5	(0.6)	<0.001
Amount of loans outstanding	3,741	(7,994)	6,471	(10,656)	2,650	(5,074)	<0.001
Household savings balance	703	(1,898)	988	(2,644)	636	(1,561)	0.195
Household had unexpected event in last year (percent)	0.11	(0.31)	0.19	(0.40)	0.08	(0.28)	0.002
If event: sold asset to cope	0.16	(0.37)	0.18	(0.39)	0.18	(0.39)	0.986
If event: total cost of event(s)	30,921	(39,209)	43,120	(50,012)	31,031	(49,573)	0.435
Change Midline to Endline							
Total income	34	(432)	80	(455)	-62	(527)	0.008
Agriculture labor income	57	(348)	85	(232)	69	(300)	0.580
Livestock income	9	(104)	94	(326)	-59	(322)	<0.001
Minutes doing ag. labor in last 24 hours	126	(263)	133	(266)	140	(268)	0.807
Minutes tending livestock in last 24 hours	-5	(45)	-56	(158)	-85	(142)	0.069
Total expenditures	-414	(1,587)	-13	(1,416)	-298	(1,087)	0.031
Number of loans outstanding	-0.33	(0.96)	-0.15	(1.18)	-0.62	(0.94)	<0.001
Amount of loans outstanding	-2,705	(13,464)	494	(14,790)	-3,422	(10,855)	0.004
Household savings balance	-847	(3,387)	-657	(2,841)	-1,120	(2,336)	0.199

Notes: All amounts are in Rs. of 2007. The midline data were collected 2 years after the baseline, immediately at the end of the ultra-poor program; the endline data were collected 1 year later.

TABLE IX

IMPACT OF THE ULTRA-POOR PROGRAM ON LOANS AND SAVINGS

	Household has outstanding loans?	Number of loans outstanding	Log (Amount of loan outstanding)	Household saves?	Log (Total savings balance)
Panel A. Difference-in-difference, Baseline –Midline					
Post*Treatment	-0.017	-0.01	-1.11***	0.081*	1.30***
	(0.043)	(0.08)	(0.37)	(0.045)	(0.32)
Post (0 if baseline, 1 if midline)	-0.012	-0.00	-0.07	0.194***	2.02***
	(0.033)	(0.06)	(0.27)	(0.037)	(0.28)
Constant	0.573***	0.71***	4.25***	0.205***	0.31**
	(0.025)	(0.05)	(0.22)	(0.017)	(0.12)
Observations	1,953	1,954	1,954	1,954	1,418
R-squared	0.085	0.086	0.087	0.420	0.462
Mean of dep. var. at baseline	0.713	1.0	2,846	0.557	122
Panel B. Difference-in-difference, Baseline –Endline					
Post*Treatment	-0.030	-0.09	-0.13	-0.039	-0.37
	(0.059)	(0.09)	(0.45)	(0.051)	(0.43)
Post (0 if baseline, 1 if endline)	-0.223***	-0.33***	-1.92***	0.090**	0.90***
	(0.044)	(0.07)	(0.34)	(0.038)	(0.34)
Constant	0.568***	0.69***	4.23***	0.227***	0.52***
	(0.025)	(0.04)	(0.19)	(0.020)	(0.14)
Observations	2,000	2,018	2,018	2,018	1,344
R-squared	0.155	0.134	0.132	0.322	0.219
Mean of dep. var. at baseline	0.714	1.0	2,825	0.557	119

Notes: *** p<0.01, ** p<0.05, * p<0.1. All regressions include village-level fixed effects. Standard errors are clustered at the village level. Regressions in which the dependent variable is a binary variable are run as linear probability models. Variables controlling for unbalanced characteristics of the sample (baseline values of whether the household saves, participates in EGS, receives a pension, has outstanding loan(s) from self-help groups, and own an animal) are included in the regressions but not shown. The amounts of loan outstanding and savings balance are in log form (log of 1 + amount in 2007 Rupees; 1 USD ≈ 40 Rs). The means of these dependent variables at baseline are in level form.

TABLE X

IMPACT OF THE ULTRA-POOR PROGRAM ON THE USE OF GOVERNMENT SAFETY NETS

	Household sought or received the following:						Received goods from PDS	Received goods from BPL
	work from EGS	pension	gov. housing	gov. assets	gov. training	subsidized loans		
Panel A. Difference-in-difference, Baseline – Midline								
Post*Treatment	-0.068	-0.066	-0.094**	-0.039*	-0.014	0.035	0.021	0.048
	(0.052)	(0.047)	(0.040)	(0.022)	(0.010)	(0.036)	(0.018)	(0.055)
Post (0 if baseline, 1 if midline)	0.384***	0.236***	0.090***	0.037**	0.017**	0.160***	0.018	-0.150***
	(0.035)	(0.035)	(0.028)	(0.017)	(0.008)	(0.027)	(0.013)	(0.047)
Constant	0.106***	0.290***	0.114***	0.013	0.003	-0.003	0.875***	0.861***
	(0.018)	(0.016)	(0.017)	(0.012)	(0.005)	(0.015)	(0.014)	(0.022)
Observations	1,954	1,954	1,952	1,954	1,954	1,953	1,953	1,943
R-squared	0.418	0.365	0.015	0.011	0.006	0.100	0.025	0.053
Mean of dep. var. at baseline	0.342	0.646	0.172	0.039	0.005	0.025	0.929	0.922
Panel B. Difference-in-difference, Baseline – Endline								
Post*Treatment	-0.080	-0.085	0.045	-0.011	-0.010	-0.010	-0.000	0.002
	(0.052)	(0.061)	(0.048)	(0.036)	(0.034)	(0.014)	(0.017)	(0.021)
Post (0 if baseline, 1 if endline)	0.510***	0.062	0.011	0.063**	0.070***	0.020*	0.054***	0.053***
	(0.035)	(0.043)	(0.033)	(0.026)	(0.025)	(0.011)	(0.013)	(0.017)
Constant	0.147***	0.292***	0.130***	0.032***	0.012	0.030***	0.878***	0.866***
	(0.019)	(0.019)	(0.018)	(0.012)	(0.009)	(0.008)	(0.013)	(0.015)
Observations	1,998	1,998	1,997	1,999	1,998	1,997	1,999	1,977
R-squared	0.456	0.261	0.008	0.020	0.044	0.006	0.038	0.036
Mean of dep. var. at baseline	0.344	0.643	0.168	0.039	0.005	0.023	0.926	0.918

Notes: *** p<0.01, ** p<0.05, * p<0.1. All regressions include village-level fixed effects. Standard errors are clustered at the village level. Regressions in which the dependent variable is a binary variable are run as linear probability models. Variables controlling for unbalanced characteristics of the sample (baseline values of whether the household saves, participates in EGS, receives a pension, has outstanding loan(s) from self-help groups, and own an animal) are included in the regressions but not shown.EGS include all government "employment-generating schemes," the largest of which is the National Rural Employment Guarantee scheme created by the Mahatma Gandhi National Rural Employment Guarantee Act of 2005.

TABLE XI

IMPACT OF THE ULTRA-POOR PROGRAM ON TOTAL MONTHLY PER CAPITA INCOME, BY SUBGROUPS

	Difference-in-difference, Baseline - Midline		Difference-in-difference, Baseline - Endline	
Owned animals at baseline?	**No animals**	**Owned animals**	**No animals**	**Owned animals**
Post*Treatment	-0.03	0.21	-0.15	0.19
	(0.09)	(0.26)	(0.09)	(0.23)
Post (0 if baseline; 1 if midline or endline)	0.60***	0.25	0.78***	0.28
	(0.08)	(0.23)	(0.07)	(0.20)
Constant	5.24***	5.48***	5.27***	5.32***
	(0.06)	(0.24)	(0.05)	(0.23)
Observations	1,742	194	1,772	204
R-squared	0.109	0.199	0.162	0.142
Mean of dep. var. at baseline	314	359	313	358
Owned land at baseline?	**No land**	**Owned land**	**No land**	**Owned land**
Post*Treatment	-0.11	0.09	-0.21*	-0.08
	(0.12)	(0.11)	(0.12)	(0.10)
Post (0 if baseline; 1 if midline or endline)	0.70***	0.36***	0.84***	0.59***
	(0.10)	(0.08)	(0.09)	(0.07)
Constant	5.14***	5.51***	5.18***	5.59***
	(0.08)	(0.08)	(0.07)	(0.08)
Observations	1,192	695	1,217	713
R-squared	0.131	0.105	0.168	0.176
Mean of dep. var. at baseline	313	324	311	323
Owned house at baseline?	**No house**	**Owned house**	**No house**	**Owned house**
Post*Treatment	0.0003	-0.02	-0.32**	-0.06
	(0.1664)	(0.10)	(0.16)	(0.11)
Post (0 if baseline; 1 if midline or endline)	0.60***	0.57***	0.85***	0.70***
	(0.13)	(0.09)	(0.12)	(0.09)
Constant	5.17***	5.29***	5.16***	5.34***
	(0.12)	(0.08)	(0.12)	(0.07)
Observations	560	1,368	571	1,397
R-squared	0.134	0.113	0.185	0.163
Mean of dep. var. at baseline	315	319	313	318

Notes: *** p<0.01, ** p<0.05, * p<0.1. All regressions include village-level fixed effects. Standard errors are clustered at the village level. Variables controlling for unbalanced characteristics of the sample (baseline values of whether the household saves, participates in EGS, receives a pension, has outstanding loan(s) from self-help groups, and own an animal) are included in the regressions but not shown. The dependent variable is the log of the total monthly per capita income (log of 1 + amount in 2007 Rupees; 1 USD ≈ 40 Rs). The means of the dependent variable at baseline are in level form.

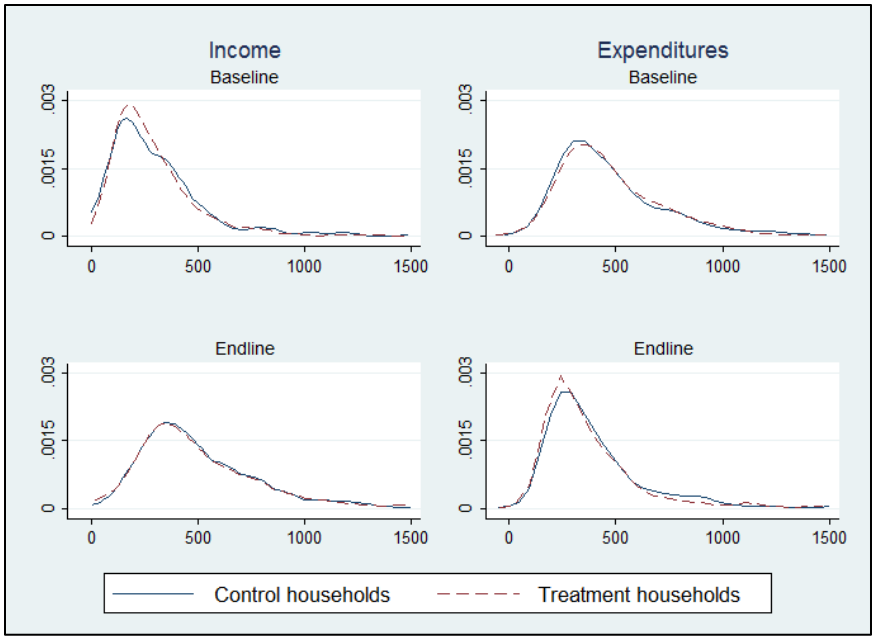

FIGURE I

DENSITY OF MONTHLY PER CAPITA INCOME AND EXPENDITURES

Graph shows distribution of per capita monthly total income and expenditures, truncated at Rs.1,500. Horizontal axes show amounts that are in Rupees of 2007.

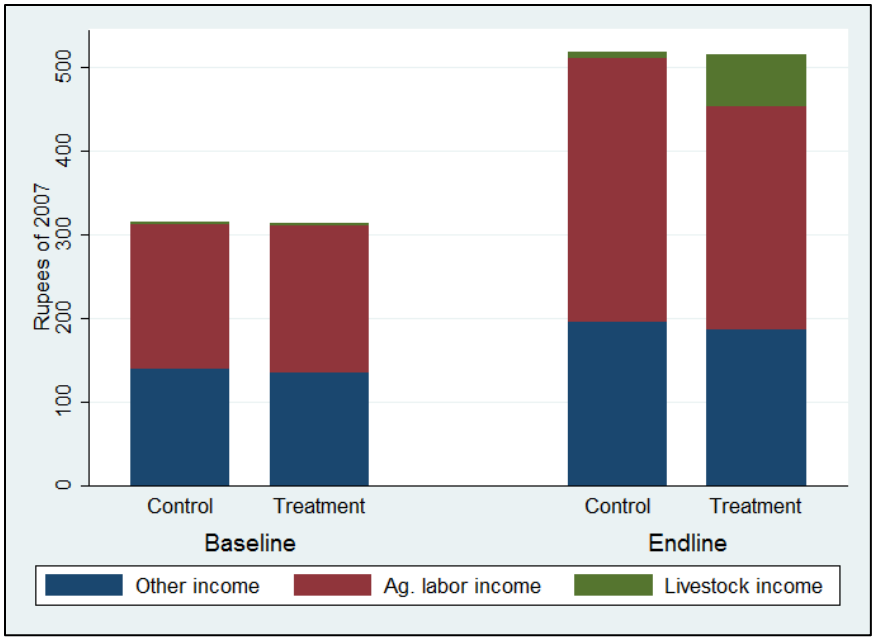

FIGURE II

AVERAGE HOUSEHOLD MONTHLY PER CAPITA INCOME, BY SOURCE OF INCOME, SURVEY WAVE AND TREATMENT ASSIGNMENT

Other sources of income include non-agriculture labor, agriculture and non-agriculture self-employment, salaried employment, and other unclassified sources.

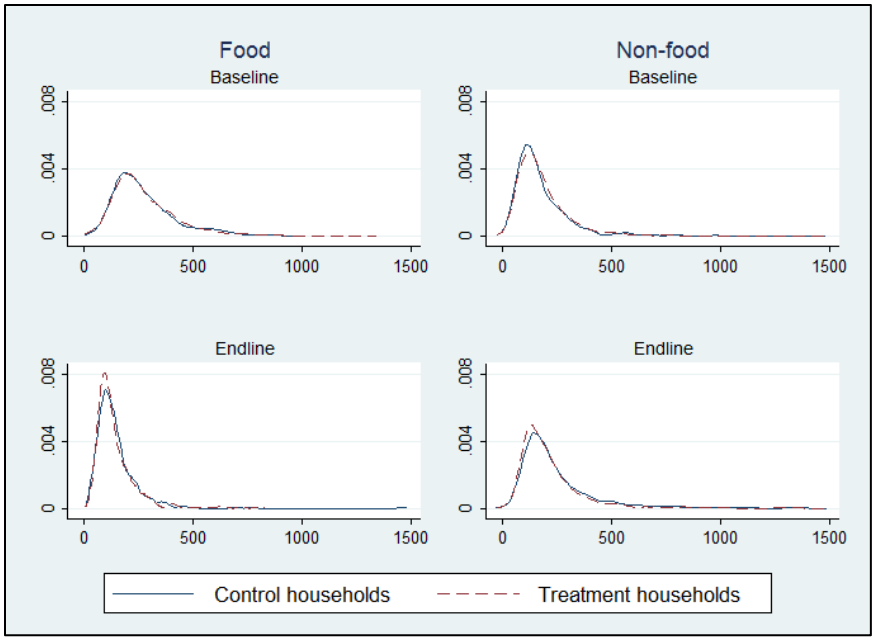

FIGURE III

DENSITY OF MONTHLY PER CAPITA FOOD AND NON-FOOD EXPENDITURES

Graph shows distribution of per capita monthly food and non-food expenditures, truncated at Rs.1,500. Horizontal axes show amounts that are in Rupees of 2007.