

Are cash transfers better chunky or smooth? Impact evaluation of an unconditional cash transfer program to women in northwest Nigeria

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In collaboration with Catholic Relief Services (CRS) we experimentally varied the size, frequency and timing of unconditional cash transfers delivered to women in ultra-poor households in northwest Nigeria. Women were randomly assigned to receive the same total cash amount in 15 monthly installments or 5 quarterly installments. The cash transfers increased women's work, particularly, in their own businesses where they spent more on business inputs and increased their business profits. Cash transfers also had an immediate positive impact on household consumption, food security, animal investments and female well-being compared to the control group who did not receive a cash transfer. Quarterly transfers cost half as much as monthly transfers for the implementer to administer, but we found no statistically significant differences in treatment effects. In addition, the women's ability to control the cash transfers is the same under a quarterly payment scheme and monthly payment scheme. We find the proportion of the cash retained by the female recipient herself wasn't affected by the structure of the transfer, except for a small proportion of households where the quarterly recipients transferred slightly more to their husbands in the event that he temporarily migrated for work. Our results suggest that since less-frequent and larger-value transfers are just as effective as more frequent transfers, program implementers could significantly lower the cost of delivering cash transfers by transitioning to less-frequent transfers. This could potentially free up resources to increase the number of recipients or the size of the transfers.

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I. Introduction

Unconditional cash transfers (UCTs) are gaining popularity as an effective tool to provide social protection and foster economic development. With the growth in unconditional cash transfer program adoption especially high in Africa, where forty countries in sub-Saharan Africa now have a UCT (Bastagli et al, 2016), a substantial body of research has emerged to provide evidence-based guidance to policymakers on how to optimally design cash transfer features such as transfer size, timing, frequency and the choice of the main recipient.

This paper reports the results from an experimental evaluation of a cash transfer program that varied the size and frequency of unconditional cash transfers delivered to women in ultra-poor households in Kebbi state in the northwest region of Nigeria. A total of 75,000 Nigerian Naira (roughly USD 693 PPP) were transferred to 1,269 households over fifteen months, between September 2015 and March 2017, using two disbursement schedules: 15 monthly installments or 5 quarterly installments. The cash was transferred directly to the primary female decision maker in the randomly selected households. The cash transfers were part of the Feed the Future Nigeria Livelihoods Project (FtFNLP) funded by the United States Agency for International Development (USAID) and implemented by Catholic Relief Services, Nigeria (CRS).

A. *Cash transfers: mechanisms of impact*

In developing countries, but also in middle-income and richer areas, cash transfers have been proved to be a very successful instrument of a pro-poor growth strategy (Samson, 2009), including in Nigeria (Holmes et al., 2012). Creating social cohesion, they also enable vulnerable households out of the poverty trap, not only improving wealth (as seen with Progreso in Mexico by Schultz, 2001) but also nutrition (as found with the same program by Behrman & Hoddinott, 2005), educational attainment (in Brazil as seen by Cardoso & Souza, 2003) or frequency of visits of health centers (in Nicaragua as showed by Maluccio & Flores, 2005). Studies have also noted that cash transfers, when provided to women, could help reduce gender discrimination by benefiting girls more than boys (Samson et al., 2004; in South Africa by Duflo, 2003; in Brazil by de Carvalho Filho, 2008).

Cash transfers might alleviate poverty through two mechanisms. On the one hand, transfers might help beneficiaries meet short-term needs, cushioning income/consumption shocks, avoiding harmful disruptions in work, school attendance, or nutrition and thus preventing their fall in a poverty trap as observed by Aker et al., 2011 in Niger and OPM (2013) in Lesotho. On the other hand, these transfers might support a household's long-term needs, spurring them to invest in education or other productive assets, which would raise their income, and help improve their well-being in the long-term as DFID (2005) found in India.

While there is a rich literature on cash transfer programs in general, much of the existing research has focused on Conditional Cash Transfers (CCTs) which

only pay out once preset conditions, such as school attendance or medical visits, are met. More recent research suggests that conditions are not economically necessary for cash transfers to be effective since households can make optimal decisions about their own needs (Devereux et al., 2005; Barrientos & DeJong, 2006; Chronic Poverty Centre, 2007). For example, Agüero et al. (2006) found improvements in the nutritional status of mothers and children in South Africa; Kenya's cash transfer for orphans and vulnerable children found that school enrollment improvements were the same for programs with and without explicit conditions (Handa et al, 2012); and Haushofer & Shapiro (2013), who randomized various versions of an UCT program in Kenya, find a significant increase in consumption, with positive elasticities for food, medical and educational expenditures and improvements in psychological well-being.

If we know that unconditional cash transfers are effective among many demographic groups, more research needs to be conducted on the best delivery mode, in terms of frequency and smoothing of the amounts transferred; indeed, as emphasized by Farrington and Slater (2009), there is not enough evidence on the respective advantages and disadvantages of delivering cash aid in lump-sums versus regular payments. Providing lump-sum payments would reduce administrative overheads and provide large amounts of cash to the household, relative to their income. However, there might be questions about the households' ability to effectively absorb such large sums.

B. Targeted Cash Transfers for Women

Traditional economic models of the household would predict that increasing women's control over household income would increase their bargaining power and consequently shift the intra-household allocation of resources towards goods and types of expenditure favored by women that are arguably welfare-improving for the household. Early empirical studies suggested that targeting a cash transfer to a specific household member (i.e. the wife) may have important consequences on the ultimate use of the money with women expected to favor food and child-oriented expenditures compared to men. Thomas (1990) found early on that resources received by mothers in Brazil lead to a substantial gain in family health compared to resources in the hands of the fathers. Duflo (2003) found girls living with their grandmothers dramatically improve their nutrition and health because of a windfall gain from South Africa's social pension program in the early 1990s. Motivated by this literature CRS designed the cash transfer program to provide transfers exclusively to women.

More recent empirical evidence suggests that there is no gender difference in impacts of temporary UCTs (Haushofer and Shapiro (2013), Benhassine et al. (2015)) and men may be able to invest earnings in higher return opportunities that are unavailable to women – some work on Microfinance suggests this possibility (de Mel et al. 2009). Since the CRS program is targeted to the female we are not able to vary the gender of the recipient but we will investigate who in the

household makes the decision about the use of the transfers (which are given to the woman), and how these decisions are made. Knowing how much of the cash transfer the female is able to retain will be particularly revealing in a context such as northern Nigeria where the norm is for the wife to defer most household decisions to her husband and the cultural custom would anticipate that she hands over all the cash to her husband.

Since the FtFNLP cash transfers are paid directly to the primary female decision maker in the household the cash is theoretically under her control. However, a woman’s ability to control and handle the money may depend on how large the payment is or when the payment is made. The structure of the transfers may matter: for example, smaller and more regular transfers may help smooth consumption and may be easier to hide from others while larger and less frequent transfers may encourage investment and may be more visible to others. In the Philippines, Ashraf (2009) find that people allocate resources differently when they are more visible to others and in Ghana, Boozer et al. (2009) analyze spousal cross reports of food expenditure and find evidence of hidden consumption. Shapiro (2003) describes the theory that “the more wealth I consume today, the less will be available tomorrow to be stolen or transferred to others”. Surveys interviewing both the man and the woman heading the household should help better understand intra-household decisions related to the allocation of cash transfers.

In addition, if the payment is made at a time when the household is more credit constrained, for example, during the lean farming season, then the cash payment could be more visible to other household members and those members may be able to exert more pressure on the woman’s decision of how to use the funds. For example, Anderson and Baland (2002) find that women’s use of ROSCAs in Kenya is consistent with a model of hidden information and de Laat (2008) finds that individuals in split migrant couples in Kenya are willing to expend considerable resources to acquire information about one another.

C. Chunky vs. Smooth Cash Transfers

Varying the size and frequency of the transfers may impact the allocation of the new resources between consumption and investment. Haushofer & Shapiro (2013) find in Kenya that monthly transfers are more likely than a one-off lump-sum payment to improve food security, while a lump-sum transfer lead to higher asset values with a proposed explanation being that credit and savings constraints prevent households putting money aside for larger expenses. In this evaluation we vary the frequency of the transfers (monthly versus quarterly) and find no significant differences in impacts across the more and less frequent transfers. Understanding the differential impact of receiving monthly or quarterly transfers is expected to provide important policy insights especially since high transaction costs are a significant operational barrier to scale-up.

A key motivation of our research is to shed light on how vulnerable households

can be supported in the most effective way both in the short and long run and by testing variations of the structure of the cash transfer we can decipher when the largest impacts on outcomes may be experienced. The World Development Report 2015 emphasizes the timing of cash transfer payments as a highly cost-effective behavioral intervention. The report presented evidence from an experiment in Colombia that modified a cash transfer program by automatically saving a part of the funds on behalf of the beneficiaries, and then disbursing them as a lump-sum at the time when decisions about school enrollment for the next year were being made. The tweak in timing resulted in significant increases in school enrollment for the following year. In addition, Fink, Jack and Masiye (2013) conducted a field experiment in rural Zambia and found that providing households with access to credit during the “growing” or “hungry” farming season (the months leading up to harvest time) resulted in positive outcomes on consumption, labor supply and wages. Providing the cash transfer chunky payments at different times in the agricultural season or during a festival period could therefore introduce heterogeneity into how effectively the cash injection is used by the household and the woman’s ability to control the funds within the household.

The remainder of this paper is organized as follows. Section II describes the context and program setting within which the cash transfers were conducted, while Section III describes the data and empirical strategy used for the analysis. Section IV discusses the results including some heterogeneity analysis and section V concludes.

II. Unconditional Cash Transfers in the Feed the Future Nigeria Livelihoods Project

The Feed the Future Nigeria Livelihoods Project (FtFNLP) is a multi-component development project that intends to help 42,000 very poor households across rural communities of northern Nigeria’s Sokoto and Kebbi states, and the Federal Capital Territory (FCT). FtFNLP is implemented by Catholic Relief Services (CRS) and its approach is founded on an agriculture-led growth strategy that is expected to help vulnerable families. The FtFNLP offers a wide range of benefits and services to communities, including: agricultural extension services, input vouchers, business and financial literacy skills training, mentoring and improved access to finance, to name a few. All households in program villages have access to a package of interventions, but to the most vulnerable households (those categorized as extremely vulnerable) FtFNLP will distribute cash transfers to help meet nutritional needs, recover assets and overcome barriers to income-generating activities. The impact evaluation results in this paper are based on cash transfers that were provided to the poorest households in both FtFNLP treatment and control villages in Kebbi state. The research design allows us to assess both the incremental impact of receiving cash transfers in FtFNLP villages, as well as the pure effect of receiving just cash transfers without the accompanying FtFNLP services.

A. Targeting for the Unconditional Cash Transfer Program

The identification of program beneficiaries for the program in Kebbi drew heavily from lessons learned in the ultra-poor graduation pilots. Beneficiary households were selected through a four stage process involving the identification of vulnerable communities, followed by a community-based identification of vulnerable households and finally the use of a version of the “Progress out of Poverty Index” (PPI) to rank relative vulnerability. Households were stratified into three vulnerability categories, which were defined based on the distribution of the PPI score within each LGA ward. The households that were classified as extremely vulnerable would be eligible to receive the cash transfers. The beneficiary targeting and identification strategy is summarized in Figure 1 and explained in detail in the remainder of this section.

1. SELECTING PROGRAM AREAS

Out of 21 Local Government Areas (LGAs) in Kebbi state, two LGAs Birnin Kebbi and Danko Wasagu were selected through a competitive bidding process based on Expressions of Interest solicited by CRS in collaboration with the Ministry of Local Government and Chieftaincy Affairs, and the Kebbi State Chapter of the Association of Local Governments Nigeria (ALGON). The applications were evaluated by CRS and the ministry based on the following criteria: above-average population size, largely rural population, wide geographic spread, administrative

Feed the Future Nigeria Livelihoods Program Beneficiary Targeting Strategy

# Step	Description
1 <i>Selecting program areas</i>	The program implementer identified the program areas, i.e. the state, local government areas (LGAs) and eligible villages.
2 <i>Community identification of vulnerable households</i>	Village communities were mobilized to conduct a participatory poverty appraisal to identify vulnerable households.
3 <i>Measuring poverty using the PPI</i>	A poverty measurement survey was conducted using the Progress out of Poverty Index (PPI) to measure the poverty of households identified by the community in Step 2.
4 <i>Verifying vulnerability status</i>	The vulnerability status of households was determined based on their PPI scores. Ineligible households were dropped from the beneficiaries list.

FIGURE 1. BENEFICIARY TARGETING STRATEGY

capacity to offer services and commitment to the cash transfer program. A CRS team was tasked with identifying eight wards and at least 100 villages across the two LGAs. Birnin Kebbi has a total of fifteen wards and Danko Wasagu has eleven. The FtFNLP wards were selected based on the existence of a substantial vulnerable population, and logistical considerations with regards to program monitoring and service delivery. Villages needed to have more than 250 households to be considered for inclusion in the program, however, smaller hamlets that were very close to large villages were also considered. CRS also consulted the National Population Commission of Nigeria to help estimate the village populations and attempt to estimate the concentration of vulnerable households in each village. The eight FtFNLP wards that were finally selected by CRS were: Ujariyo/Junju, Lagga/Randalli, Kardi and Makera/Maurida in Birnin Kebbi; and Kanya, Ribah/Waje, Maga/Kyabu and Danko in Danko Wasagu. Based on field work and secondary data, villages were identified in the eight wards that potentially had enough households needed to meet FtFNLP program and impact evaluations targets and 121 villages were finally visited by CRS and a survey firm to hold a Household Targeting Committee (HTC) meeting that had the task of listing all the households considered to be vulnerable in that particular village.

2. COMMUNITY IDENTIFICATION OF VULNERABLE HOUSEHOLDS

Drawing lessons from the ultra-poor graduation program's targeting methodology, FtFNLP used a community-driven approach to identify vulnerable households. CRS convened a Household Targeting Committee (HTC) in each of the villages. The following community stakeholders were invited to be part of the committee: the village heads and their counselors, religious leaders, health workers, farmers' group leaders, teachers, youth leaders, women leaders, and agricultural

extension workers. HTC meetings were generally held at the Traditional Ruler’s palace which is typically a hut located in the center of the village. CRS provided the following guidance about the characteristics of vulnerable households to the HTC: “Vulnerable households are households that have low income, they have few assets (like TVs, radios, bicycles or hoes), and they own less than one acre of land. They probably eat only a few times per day, and eat meat only very rarely. Vulnerable households might also have children out of school, people too sick to work, or very old. They might also have many babies or pregnant women.” The HTC was invited to discuss the characteristics of what might constitute vulnerability in their local context and meet by itself (without CRS) to list out the vulnerable households in their communities. Hand-written lists produced by the HTCs from each village were digitized by a survey firm and became the sampling frame for the Progress out of Poverty Index (PPI) survey.

3. MEASURING POVERTY USING THE PPI

The Progress out of Poverty Index (PPI) is a poverty measurement tool composed of 20 questions about household demographics, health, human capital and assets. The higher the PPI score of a household the more vulnerable it is deemed to be. The PPI data was collected from 18,272 households in 116 villages. Any household that received a score of less than 8 on four validating food security indicators in the PPI were deemed insufficiently vulnerable to be included in the program, as were households with an overall PPI score of less than 25. Only 209 households were excluded from the program based on this criterion.

4. VULNERABILITY CATEGORIZATION

All of the households with PPI data were assigned to one of three vulnerability categories. The Extremely Vulnerable (EV) category was defined as the most vulnerable 16 percentiles of households in each ward (i.e. those with the highest PPI scores) which added up to 2,500 households across Kebbi state as required based on budget constraints and power calculations for the impact evaluation of the cash transfers experiment. The Very Vulnerable (VV) households were defined as the 17th to 85th most vulnerable percentiles and Market Limited (ML) households were the 15 least vulnerable percentiles of the PPI score distribution. Since it was considered logistically infeasible to provide cash transfers in villages with too few EV households (less than 18) this resulted in 256 EV households across 31 villages being excluded from the cash transfers experiment.

B. Cash Transfers Randomization

The implementation of the impact evaluation design strategy for each of the experiments in the project is summarized in Figure 2. Experiment 1 (E1) involved randomizing 104 villages into FtFNLP treatment and control villages which determined the villages that will get the package of FtFNLP services. The village randomization was stratified by ward and an infrastructure index used as a proxy for the development level of the village. The infrastructure index¹ was created by counting the number of infrastructure items that existed in each village based on data collected using a community questionnaire that was administered during the HTC meetings. The villages were then divided into terciles (or thirds) within each ward based on their location in the distribution of infrastructure index scores and randomized into treatment and control villages. All households in the FtFNLP treatment villages selected in the randomization for Experiment 1 were eligible to be included in the household level randomization for Experiment 2 (E2) the caseworker mentoring experiment. The results of the cash transfers experiment (E3) is what is included in this paper. A public lottery was utilized to randomly assign eligible households in the extremely vulnerable (EV) category in both FtFNLP treatment and FtFNLP control villages into receiving monthly cash transfers, quarterly cash transfers or no cash transfers.

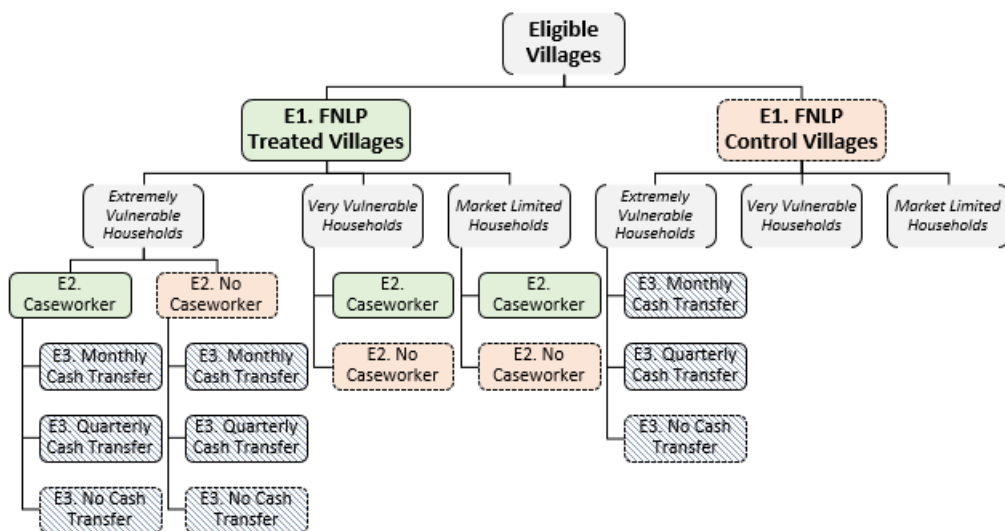


FIGURE 2. IMPACT EVALUATION DESIGN - CASH TRANSFER EXPERIMENT ARMS

¹The infrastructure index was computed by giving the village a +1 score for having each of the following 16 items: primary school, secondary school, health center, hospital, doctor, midwife, pharmacy, airtime or cellphone distributor, bus stop, main access road, bank, microfinance institution, police station, market, mosque or church and community center.

Eight ward-level public randomization ceremonies were organized at the residence of the ward chief's with community representatives from each village invited to participate in the event. CRS and AFRGIL representatives explained the cash transfer program and the randomization process to all present at the beginning of the ceremony. Four containers were placed at the front of the assembled group: one marked "Monthly Cash Transfers," one marked "Quarterly Cash Transfers," and two marked "No Cash Transfers." The order of the containers for each ward-level ceremony was randomized by AFRGIL in advance of the ceremony. Paper slips containing the names of all eligible households were placed before the assembly. Members of the audience would come up to the front, draw out a slip, read out the name and village, and place it in the next container while announcing the treatment assignment. After all the containers had been cycled through, they would circle back to the first and continue till all the names were assigned to a treatment arm. Each EV household had a 50% chance of receiving a cash transfer. See Appendix Table A1 that confirms that the cash transfer randomization produced balanced groups at baseline.

After the public lottery ceremonies about $\frac{1}{4}$ of the 2,500 ultra-poor households were randomly assigned to receive 5,000 Naira cash every month for 15 months, another $\frac{1}{4}$ were assigned to receive 15,000 Naira cash every quarter, so 5 installments over 15 months. The remaining $\frac{1}{2}$ of the households would receive no cash transfers. Disbursement started in September 2015 to both monthly and quarterly treatment households and by March 2017 all recipient households had received 71,500 Naira in total (i.e. about 16% of their annual expenditure)². See Appendix for detailed timeline of the cash transfer program.

C. Sensitization of households and mobile money

Catholic Relief Services and civil society organization (CSO) partners were responsible for distributing mobile phones to beneficiary households to be able to use the mobile money platform through which the cash transfers were originally disbursed. The CSOs also worked with bank agents and community leaders to sensitize households on the cash transfer dissemination process and provided orientation to benefiting households on account opening and training on mobile money. The sensitization on the cash transfers took place at the village chief's palace in the presence of the chief, other village leaders, the female beneficiaries and some husbands from beneficiary households. The beneficiaries were told about the frequency of the cash transfers, the amount they will receive, the text notification alerts they will receive from the bank about the availability of the money in their e-wallets and the overall design of the cash transfers during the sensitization process. The cash transfers in the program are effectively unconditional, however, village leaders could communicate that the transfer is for the

²The original amount was 75,000 Naira but 3,500 Naira was deducted over the first few payments to recover the cost of a mobile phone provided to cash transfer recipient households to facilitate mobile payments.

female and encourage a set of ‘soft obligations’ such as utilizing the Savings and Internal Leading Communities (SILC). A few months into the cash transfer program CRS changed the dissemination strategy and ceased using a mobile money platform through a formal bank and shifted to cash-in-hand payments through their network of CSOs. Most of the communities were found to not have the appropriate phone network making it difficult to activate the mobile money platform in the beneficiaries’ mobile phones and the literacy level of some of the beneficiaries made it difficult for them to use the system.

III. Data and Empirical Strategy

Before presenting our results, we first describe our data and core regression specification.

A. Data

Baseline data were collected from the 2,500 extremely vulnerable households between April-June 2015. The baseline survey questionnaire draws on a number of questions from the World Bank Living Standards Measurement Study (LSMS). A household questionnaire collected demographic characteristics for all household members, information on dwelling characteristics, household consumption expenditures, household asset holdings, aspirations, exposure to shocks, and level of participation in safety net programs. In addition, individual-level questions around food security, risk aversion, and time preferences were asked to both the male and female decision makers in the households. The primary female decision maker was also administered a separate section that had questions related to the Women’s Empowerment in Agriculture Index (WEAI). In addition an agriculture questionnaire was administered to all households engaged in agricultural activities such as crop farming and livestock rearing that asked questions on land holdings, agriculture production, sales, agricultural income and level of participation in extension services programs.

We collected two rounds of follow-up data, in November 2016 (about 12 months into the cash transfer program) and again in April 2017 (shortly after the last transfers were completed). The follow-up surveys were collected from both female and male decision makers in the household. The surveys included questions on food, and other household consumption, productive investments, savings, health, diet, food security, employment, housing expenses and a measure of women’s bargaining power. In this paper we discuss the immediate impacts on households who were offered the cash transfer compared to the households who did not receive them as reported by the primary female decision maker. The results from the two follow-up surveys for consumption and investment outcomes are pooled and for the employment outcomes we only have data from the second follow-up survey.

B. Empirical Strategy

Our main analysis utilize an analysis of covariance (ANCOVA) estimator in assessing all outcomes for which we have baseline data. The regression specification is as follows:

$$Y_{1ig} = \beta_0 + \beta_1 MCash_i + \beta_2 QCash_i + \beta_3 Y_{0ig} + \beta_4 FNLP_g + \beta_5 CW_{ig} + \lambda_s + X'_{0ig} + \varepsilon_{igt} \quad (1)$$

Where Y_{1ig} is the outcome variable for the female respondent in household i in village g measured at follow-up. $MCash_i$ and $QCash_i$ are the treatment dummy variables taking the value of one if the household was a recipient of a monthly cash transfer or a quarterly cash transfer, respectively. β_1 and β_2 will measure the intent-to-treat (ITT) effect of being assigned to the monthly or quarterly cash transfer groups compared to the control group that received no cash transfers. Y_{0ig} is the baseline value of the outcome variable. All regressions control for strata ward-infrastructure tercile fixed effects (λ_s) and a vector of baseline covariates (X'_{0ig}) such as age and marital status. We also control for whether the household was assigned to a village that was randomly assigned to access the Feed the Future package of services ($FNLP_g$) and if the household was randomly assigned to a caseworker mentoring treatment (CW_{ig}). In all regressions standard errors are clustered at the village level and we report the p-values for the test of equality of the regression coefficients that tests whether the monthly and quarterly transfers have significantly different treatment effects. When household data are available for both follow-up rounds we pool the data and include a linear time trend taking the value zero for the first follow-up and one for the second follow-up i.e. we pool the outcome variable across the two follow-up surveys for these outcomes. All variables denominated in Nigerian Naira are winsorized at the 99th percentile to deal with the possibility of sensitivity of the results to outliers.

We also test whether the cash transfer program generates heterogeneous treatment effects along characteristics such as household type, risk aversion and decision making power at baseline.

IV. Results

A. Sharing of the cash transfer by the female beneficiary

Before analyzing the treatment effects of the cash transfers it is useful to know how much of the female-targeted transfer actually remained with the female. The primary female decision maker in the household collected the cash transfer, usually at the village chief's palace, using an identification card. The cash transfers in the Feed the Future Nigeria Livelihoods Project did not come with hard conditions but since households were told by traditional leaders that the money was for the female, the content during the sensitization campaign could have influenced the female's ability to keep more of the cash. Since the payments were made in

a common area in each village, the amount and timing of the cash transfer were likely to be known by the woman's household and to others in the village. Figure 3 shows the average proportion of the cash transfer that the female recipient kept herself (54%) and the proportion transferred to other people in and out of her home. On average, the women shared 26% of the transfer with her husband and 14% with her children. Spillovers to other households seem limited with only 4% being shared with friends or family in the same village and 2% outside the village. Receiving transfers monthly or quarterly made no significant difference in the proportion of the transfer retained by the women recipients. However, in the 5% of households where the husband temporarily migrated for work, women receiving quarterly transfers shared a slightly higher proportion of the cash transfer with her husband. A larger quarterly payment could make the female feel more obligated to share a higher proportion with others to deal with one-off shocks since she has a higher capacity to help.

SHARING OF THE CASH TRANSFER
BY THE FEMALE RECIPIENT

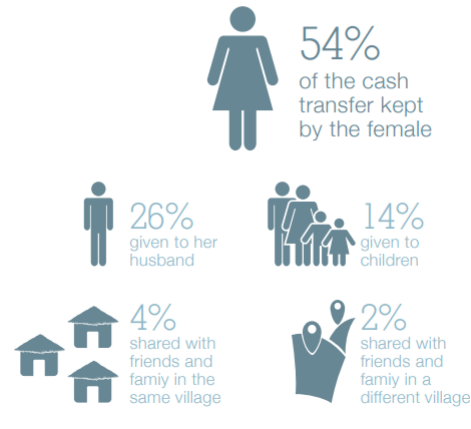


FIGURE 3. SHARING OF THE CASH TRANSFER BY THE FEMALE BENEFICIARY

B. Impacts of monthly and quarterly cash transfers

We start by examining the impact of the monthly and quarterly cash transfers and then turn to heterogeneity in treatment effects across some characteristics of the female and her household.

1. IMPACTS ON HOUSEHOLD CONSUMPTION, FOOD SECURITY AND DIET

In Table 1, we present the impacts on overall household consumption, food expenditures, food security and dietary diversity. The household consumption

measure in column (1) of Table 1 is the daily per capita adult-equivalent expenditure³ that is approximately 25% higher for households that received cash transfers significant at the 1% level using ANCOVA estimation with single baseline and 2 follow-up surveys. We find no statistically significant difference in impact for the monthly and quarterly cash transfer recipients across all consumption and nutrition measures. Food security improved for cash transfer recipients who are less likely to report that their household faced a situation where there was not enough food to eat over the past year. Dietary diversity of cash transfer households also increased significantly when measured by the total number of seven food categories consumed by the household over the past 7 days. The consumption and nutrition impacts did not change substantially between the two rounds of follow-up data collection. The finding that cash transfer recipients are devoting some of the transfer towards purchasing food suggests that these households do indeed lack basic nutritional needs and are unable to generate sufficient food stocks from their land. Our longer-term follow-up survey expected in 2018 intends to investigate the comparative nutrition impacts of the cash transfer as measured by anthropometric indicators.

TABLE 1—AVERAGE TREATMENT EFFECT ON CONSUMPTION
Average Treatment Effects on consumption, food expenditures, diet and food security

	Consumption (Daily Adult Equivalence Expenses Naira)	Food purchases in past 7days (Naira)	Dietary Diversity Score (0-7)	Food Insecure (0-1)
	(1)	(2)	(3)	(4)
<i>Panel A (with controls)</i>				
monthlycash	26.46*** (6.393)	70.15*** (16.59)	0.288*** (0.0666)	-0.0559** (0.0246)
quarterlycash	21.30*** (6.601)	61.87*** (21.41)	0.366*** (0.0739)	-0.0786*** (0.0277)
Observations	4410	4410	4352	4403
No Cash Tranfers in Control Villages Mean	104.3 (9.405)	230.5 (20.43)	2.699 (0.0723)	0.469 (0.0216)
p-value: monthlycash = quarterlycash	0.516	0.740	0.384	0.367

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) The consumption outcome variable is winsorized at the 1% level

(2) Regressions in column (1), (2) and (4) use ANCOVA estimation by including the baseline value in the regression.

(3) Regressions include the responses of the primary female decision-maker with standard errors clustered by village. Regressions in Panel A include stratification fixed effects (ward-infrastructure terciles) and controls for FNL treatment village status, caseworker status, age of the household head, marital status, literacy of the household head and number of agricultural plots at baseline.

³The food and non-food expenditure sections in the survey ask expenditure questions on a number of items across different recall periods - the past 7 days, the past 30 days and the past 6 months. To calculate the daily per capita adult-equivalent expenditure we take the total expenditures on all listed food and non-food items and divide to make a daily rate and again divide by the total number of household members that assigns a weight of 1 to the first household member, of 0.7 to each additional adult and of 0.5 to each child.

2. IMPACTS ON NON-FOOD EXPENDITURES

In Table 2, we unpack some impacts on the expenditures of non-food items. Cash transfer recipient households spent statistically significantly more on children’s clothing and health care than non-recipient households but we find no evidence of increased spending on school fees. Cash recipients also spent a significantly higher amount on festivals and celebrations, which may help bolster their position in the community and grow their social capital. Receiving cash transfers monthly or quarterly made no statistically significant difference in the impacts of the cash transfer on the listed non-food expenditures. Cash transfers were not spent on “temptation goods” like cigarettes and alcohol.

TABLE 2—AVERAGE TREATMENT EFFECT ON NON-FOOD EXPENDITURES

	Average Treatment Effects on Non-Food Expenditures						"Temptation Goods"	
	Non food expenditures 6month recall period						Cigarettes and Tobacco (7days)	Alcohol (7days)
	School fees	Children's clothing	Adult's Clothing	Household Utensils for cooking/cleaning	Festivals (weddings, funerals etc)	Health expenditures		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<i>Panel A (with controls)</i>								
monthlycash	156.4 (236.5)	421.6** (167.7)	927.1 (733.0)	104.6* (61.89)	733.4*** (223.1)	537.7 (364.9)	-3.517* (1.779)	2.072 (2.355)
quarterlycash	190.2 (175.7)	220.3 (160.2)	329.3 (233.8)	94.23 (60.68)	603.0** (267.9)	738.2** (321.9)	-0.737 (1.966)	1.775 (2.047)
Observations	4410	4410	4410	4410	4410	4410	4410	2291
No Cash Tranfers in Control Villages Mean	1006.7 (128.5)	1292.0 (145.5)	1330.3 (133.7)	409.5 (71.27)	1223.7 (228.8)	2860.5 (223.1)	7.659 (1.585)	0.322 (0.322)
p-value: monthlycash = quarterlycash	0.882	0.219	0.448	0.919	0.725	0.594	0.180	0.922

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) The expenses outcome variables are winsorized at the 1% level

(2) Expenses in column (1) to (6) are asked over a 6 month recall period and pooled across the two follow-up surveys. Expenses in column (7) to (8) are asked over a 7day recall period with cigarettes pooled result and alcohol only asked in the second follow-up.

(3) Regressions include the responses of the primary female decision-maker with standard errors clustered by village. Regressions in Panel A include stratification fixed effects (ward-infrastructure terciles) and controls for caseworker status, age of the household head, marital status, literacy of the household head and number of agricultural plots at baseline.

3. IMPACTS ON STOCK INVESTMENTS (ANIMAL, FARM AND HOUSEHOLD ASSETS)

In Table 3, we present the average treatment effects on the number and value of assets owned by the household. After all the cash transfers were received, the value of animal stock owned by recipients was one and a half times the non-recipients and the value of household assets was about 30% higher. In terms of animals, women recipients most often purchase small animals like goats, sheep and chicken. This could be because these were all that she could afford with the amount of the cash transfer. However, it is also possible that small animals offer an easy way to liquidate to be used as a savings mechanism in times of need. We find no difference between monthly and quarterly transfer recipients on the value of animals owned. However, there was a difference in the timing of acquiring animals: quarterly recipients owned a higher number of animals

than monthly recipients at the time of the first follow-up survey but exhibited no difference in the second follow-up survey. During focus group discussions with female cash transfer recipients, the monthly recipients alluded to needing more time to save enough to afford to buy assets whereas the quarterly recipients had more liquidity to purchase assets right away. Only 30% of women reported being involved in farming at follow-up and we find no significant difference in the value of farming assets owned by cash transfer recipients nor by their husbands who were much more active in farming. In terms of household assets, women cash transfer recipients most frequently purchase bedding items such as mats, mattresses and beds. In addition, we find that the value of cash savings and the amount of money spent on housing improvements (i.e. floor, roof or walls) over the period of the cash transfer was significantly higher for the recipients but we find no evidence that the recipients housing was made of higher quality materials than non-recipients (savings and housing repair expenditures are not reported in Table 3).

TABLE 3—AVERAGE TREATMENT EFFECT ON INVESTMENTS

Average Treatment Effects on Stock Investments: Animals, Farm Assets and Household Assets

	Animals		Farm Assets		Household Assets	
	Number of Animals Owned	Current Value of all Animals Owned (Naira)	Number of Farm Assets Owned	Current Value of all Farm Assets Owned (Naira)	Number of Household Assets Owned	Current Value of all Household Assets Owned (Naira)
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A (with controls)</i>						
monthlycash	0.886*** (0.301)	13182.5*** (3816.1)	0.356* (0.184)	339.9 (447.1)	0.598*** (0.173)	4130.9*** (1220.3)
quarterlycash	0.951*** (0.316)	9816.5** (4047.0)	0.0823 (0.217)	17.61 (366.0)	0.380** (0.158)	2216.6* (1144.7)
Observations	4410	4410	4410	4410	4410	4410
No Cash Transfers in Control Villages Mean	3.031 (0.292)	25138.8 (3302.7)	3.929 (0.185)	3692.3 (516.3)	3.820 (0.249)	11545.5 (1645.3)
p-value: monthlycash = quarterlycash	0.804	0.498	0.157	0.574	0.222	0.246

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) The expenses outcome variables are winsorized at the 1% level

(2) Outcomes are the current number and value of assets pooled across the two survey rounds.

(3) Regressions include the responses of the primary female decision-maker with standard errors clustered by village. Regressions in Panel A include stratification fixed effects (ward-infrastructure terciles) and controls for caseworker status, age of the household head, marital status, literacy of the household head and number of agricultural plots at baseline.

4. IMPACT ON FEMALE LABOR SUPPLY

In Table 4, we present the impacts of the cash transfers on the productive activity of women. At baseline, women were primarily engaged in household work or childcare, with only 36% engaged in farming, 10% in business and 5% employed in wage labor (over the prior year to the baseline survey). Cash transfers significantly impact female employment, increasing the likelihood of being economically active over the past 30days by 14%. Women receiving cash transfers are 5% more

likely to be involved in farming activities and are 11% more likely to work in a nonfarm business than non-recipients. The nonfarm enterprises of cash transfer recipients are also larger than the non-recipients as they purchase twice as much raw material for their businesses and their business profits are approximately 80% higher. These women are most commonly engaged in petty trading, rice crop-processing and frying cakes for sale. The majority (75%) of women who engage in nonfarm activities still operated the business out of their home with mobility constraints for women in the region possibly restricting the potential to grow the business beyond a certain level. The quarterly cash transfer recipients reported a higher amount spent on raw materials than monthly cash transfers over the past 30days. Perhaps the chunkier payment offered by the quarterly transfer allows the women to purchase raw materials in bulk. Our results show that relaxing the liquidity constraints on households through the provision of a cash transfer encourages women's participation in the labor force. At baseline we found 90% of men engaged in agriculture or animal production and men largely continue to work in farming activity whether the household received a cash transfer or not. We did not find evidence of increased temporary labor migration of the husband upon receipt of a cash transfer but we found more was shared with the husband in the event he traveled for work.

TABLE 4—AVERAGE TREATMENT EFFECT ON ECONOMIC ACTIVITY

	Average Treatment Effects on Female Economic Activity				
	No work	Farming	Non-farm enterprise		
	Did not work in any income generating activity in the past 30days (Yes=1; No=0)	Participated in a Farming activity in the past 30days (Yes=1; No=0)	Participated in a non-farm enterprise activity in 30days (Yes=1; No=0)	Average Monthly Profit from non-farm business (Naira)	Raw Materials purchased for non-farm business past 30days (Naira)
	(1)	(2)	(3)	(4)	(5)
<i>Panel A (with controls)</i>					
monthlycash	-0.152*** (0.0370)	0.0683** (0.0334)	0.0993*** (0.0292)	193.8* (100.1)	645.7** (261.5)
quarterlycash	-0.135*** (0.0280)	0.0457* (0.0257)	0.123*** (0.0281)	344.1*** (113.7)	1081.7*** (300.9)
Observations	2291	2291	2291	2291	2291
No Cash Transfers in Control Villages Mean	0.542 (0.0324)	0.293 (0.0423)	0.201 (0.0340)	334.2 (78.67)	743.8 (151.8)
p-value: monthlycash = quarterlycash	0.617	0.481	0.496	0.142	0.0948

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) The profits and raw materials outcome variables are winsorized at the 1% level

(2) Regressions (1)-(5) include only data collected in the second follow-up survey.

(3) Regressions include the responses of the primary female decision-maker with standard errors clustered by village. Regressions in Panel A include stratification fixed effects (ward-infrastructure terciles) and controls for caseworker status, age of the household head, marital status, literacy of the household head and number of agricultural plots at baseline.

5. IMPACT ON FEMALE WELL-BEING, BARGAINING AND DECISION MAKING POWER

In Table 5, we present measures of female well-being, bargaining power and decision-making power. Receiving cash transfers boosted recipients self-reported happiness and life satisfaction. However, once the cash transfers ceased (i.e. by the second follow-up survey) the significant differences in happiness between recipients and non-recipients disappeared. Perception of life control measures the degree to which the female feels she is in control of her life and captures the notion of external versus internal locus of control. We find that female perception of life control does not change on receipt of a cash transfer which perhaps could be because the cash transfer was not large enough or was anticipated to be temporary by the recipient. We also found no conclusive evidence that the female's bargaining power changed from receiving a cash transfer measured by comparing the amount she could give a close relative or to her child's school with and without consulting her husband. In terms of decision making power we asked the female who had the final say over the purchase of all assets in the follow-up survey and classify her as a sole decision maker if she was the only person making the decision. The decisions include purchase of animals, farm assets, household assets and crops to cultivate as presented in columns (6) to (9). Column (10) show that the cash transfer recipients are more likely to have made a sole decision on any decision for the household than non-recipients. The finding that quarterly cash recipients were more likely than monthly to make a decision by herself when purchasing an animal may suggest that the larger quarterly payment affords her to buy an animal asset immediately and therefore there is less time for other household members to interfere with her decision.

TABLE 5—AVERAGE TREATMENT EFFECT ON WELL-BEING, BARGAINING AND DECISION MAKING POWER

	Average Treatment Effects on female well-being, intrahousehold bargaining power and decision making power									
	Female well-being			Relative Bargaining Power		Decision Making Power				
	Happiness (0-3)	Income Satisfaction (0-3)	Perception of life control (0-1)	Money you could give to a relative with and without consulting your husband	Money you could give to child's school with and without consulting your husband	Purchase of any animal	Purchase of any farming asset	Purchase of any household asset	Crop to cultivate	Sole decision maker on any decision
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Panel A (with controls)</i>										
monthlycash	0.135** (0.0586)	0.174*** (0.0527)	0.00200 (0.0207)	0.0541 (0.108)	-0.0302 (0.0659)	0.0613*** (0.0222)	0.00512 (0.0160)	0.0626*** (0.0207)	0.0259 (0.0201)	0.0361* (0.0204)
quarterlycash	0.210*** (0.0521)	0.214*** (0.0624)	0.000372 (0.0221)	0.0448 (0.0679)	0.0544 (0.0513)	0.108*** (0.0254)	0.0157 (0.0194)	0.0317 (0.0250)	0.0242 (0.0200)	0.0477** (0.0214)
Observations	4410	4410	4410	1720	1586	4410	4410	4410	4410	4410
No Cash Transfers in Control Villages Mean	1.730 (0.0713)	1.576 (0.0703)	0.178 (0.0199)	0.815 (0.0560)	0.678 (0.0383)	0.449 (0.0321)	0.191 (0.0210)	0.447 (0.0273)	0.286 (0.0253)	0.605 (0.0284)
p-value: monthlycash = quarterlycash	0.160	0.511	0.933	0.923	0.109	0.0770	0.655	0.175	0.942	0.629

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) Regressions in column (1) to (3) and (6) to (10) pool the results across the two follow-up surveys and use ANCOVA estimation.

(2) Regressions in column (4) and (5) from the second follow-up survey only. Question was asked to women who are married and married with children.

(3) Regressions include the responses of the primary female decision-maker with standard errors clustered by village. Regressions in Panel A include stratification fixed effects (ward-infrastructure terciles) and controls for caseworker status, age of the household head, marital status, literacy of the household head and number of agricultural plots at baseline.

C. *Heterogeneous Impacts*

1. HETEROGENEITY BY BASELINE DECISION MAKING POWER

We test this by interacting the cash treatment (both monthly and quarterly combined) dummy variable with baseline decision making power. Women who score greater than the median score on an index of 14 decisions asked at baseline is used to proxy for having decision making power (48% of women coded as one in decisionmaker dummy variable). Since the decision making index was created using a set of 14 questions where the score is associated with the household being involved in the particular activity and the woman also having an input into the decision, we include a control for baseline labor force engagement in the regression with the expectation that women who are more economically active at baseline are more likely to be involved in more decisions where her input might have been required. Table 6 presents how treatment effects vary with our proxy for decision making power. Women choose to spend significantly more of the cash transfer on food and investments when they already had some decision making power at baseline. Women who had decision making power at baseline are no more likely to work after they receive a cash transfer than women who recorded lower decision making power at baseline but we do find the impacts on business performance outcomes are lower for the women who already had some decision making power at baseline.

TABLE 6—HETEROGENEOUS TREATMENT EFFECTS OF CASH TRANSFER BASED ON DECISION MAKING POWER AT BASELINE

	Heterogeneous Treatment Effects by Decision Maker at baseline									
	Food		Value of all Animals Owned	Investments		No work (Yes=1; No=0)	Employment			
	Food purchases in past 7days (Naira)	Food Insecure (0- 1)		Value of all Farm Assets Owned	Value of all Household Assets Owned		Business work (Yes=1; No=0)	Farming work (Yes=1; No=0)	Business Profits (Naira)	Raw materials (Naira)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
<i>Panel A (with controls)</i>										
cash*decisionmaker	40.13* (20.88)	-0.0688** (0.0341)	2884.4 (4431.8)	917.5** (459.8)	3236.1** (1423.0)	0.0473 (0.0486)	-0.0382 (0.0399)	-0.0288 (0.0286)	-201.9** (94.11)	-282.9 (287.6)
decisionmaker	20.48 (16.37)	0.0463* (0.0249)	-1695.1 (2581.9)	-249.1 (321.2)	-54.27 (1016.4)	-0.0211 (0.0303)	0.00677 (0.0217)	0.00815 (0.0288)	19.94 (67.91)	166.9 (203.1)
cash	46.16*** (15.35)	-0.0337 (0.0316)	10258.7*** (3872.1)	-232.7 (424.7)	1573.9 (1141.2)	-0.169*** (0.0362)	0.131*** (0.0271)	0.0739*** (0.0276)	366.2*** (116.6)	1014.2*** (307.2)
Observations	4410	4403	4410	4410	4410	2291	2291	2291	2291	2291
No Cash Transfers in Control Villages Mean	230.5 (20.43)	0.469 (0.0216)	25138.8 (3302.7)	3692.3 (516.3)	11545.5 (1645.3)	0.542 (0.0324)	0.201 (0.0340)	0.293 (0.0423)	334.2 (78.67)	743.8 (151.8)
p-value: cash*decisionmaker = cash	0.0000722	0.000248	0.000814	0.0375	0.0000433	0.00168	0.00704	0.136	0.105	0.0110

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) Regressions in column (1) to (5) pool the results across the two follow-up surveys and use ANCOVA estimation.

(2) Regressions in column (6) to (10) from the second follow-up survey only.

(3) Regressions include the responses of the primary female decision-maker with standard errors clustered by village. Regressions in Panel A include stratification fixed effects (ward-infrastructure terciles) and controls for employment status at baseline, FNL village treatment status, caseworker status, age of the household head, marital status, literacy of the household head and number of agricultural plots at baseline.

2. HETEROGENEITY BY HOUSEHOLD TYPE (FEMALE HEADED HOUSEHOLDS)

We test this by interacting the cash treatment (both monthly and quarterly combined) with female named as the head of the household at baseline (20% of households are headed by a female). Table 7 shows that female-headed households start with a lower base of animal, farming and household assets than the male-headed households but when they receive a cash transfer they invest more, particularly in animals. Perhaps there are fewer alternative investment opportunities available to females in female-only households who are typically responsible for investing the entire cash transfer and so she puts it into animals to use as a savings device. In addition, treatment effects are larger on food security for female-headed households. We conjecture that the female-headed households are likely to be the most liquidity constrained and the cash transfer provides immediate relief to satiate any hunger among household members.

TABLE 7—HETEROGENEOUS TREATMENT EFFECTS OF CASH TRANSFER BY FEMALE-HEADED HOUSEHOLDS

	Heterogeneous Treatment Effects by Female Household Head at baseline									
	Food		Investments			Employment				
	Food purchases in past 7 days (Naira)	Food Insecure (0-1)	Value of all Animals Owned	Value of all Farm Assets Owned	Value of all Household Assets Owned	No work (Yes=1; No=0)	Business work (Yes=1; No=0)	Farming work (Yes=1; No=0)	Business Profits (Naira)	Raw materials (Naira)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
<i>Panel A (with controls)</i>										
cash*femhhhead	9.059 (32.93)	-0.102** (0.0413)	7640.4 (5876.2)	813.2 (549.9)	1899.0 (1463.4)	0.0507 (0.0544)	-0.0435 (0.0560)	-0.0398 (0.0406)	-210.7 (155.8)	301.2 (456.4)
femhhhead	-31.82 (42.30)	0.0494 (0.0315)	-8837.7** (4190.9)	-916.8* (520.9)	-4760.2*** (1686.4)	0.0190 (0.0564)	0.0230 (0.0461)	-0.0444 (0.0521)	20.07 (127.8)	-174.9 (363.9)
cash	64.89*** (15.80)	-0.0446* (0.0258)	9904.2*** (2781.2)	-0.511 (333.1)	2738.8*** (880.0)	-0.155*** (0.0294)	0.119*** (0.0226)	0.0677** (0.0270)	309.9*** (102.4)	807.9*** (243.9)
Observations	4410	4403	4410	4410	4410	2291	2291	2291	2291	2291
No Cash Transfers in Control Villages Mean	230.5 (20.43)	0.469 (0.0216)	25138.8 (3302.7)	3692.3 (516.3)	11545.5 (1645.3)	0.542 (0.0324)	0.201 (0.0340)	0.293 (0.0423)	334.2 (78.67)	743.8 (151.8)
p-value: cash*femhhhead = cash	0.0158	0.000128	0.00947	0.0967	0.00189	0.0523	0.182	0.461	0.518	0.0259

Notes:

* significant at 10% level ** significant at 5% level *** significant at 1% level

(1) Regressions in column (1) to (5) pool the results across the two follow-up surveys and use ANCOVA estimation.

(2) Regressions in column (6) to (10) from the second follow-up survey only.

(3) Regressions include the responses of the primary female decision-maker with standard errors clustered by village. Regressions in Panel A include stratification fixed effects (ward-infrastructure terciles) and controls for food insecurity at baseline, FNL village treatment status, caseworker status, age of the household head, marital status, literacy of the household head and number of agricultural plots at baseline.

3. HETEROGENEITY BY FEMALE RISK PREFERENCES

We test this by interacting the cash treatment (both monthly and quarterly combined) with a measure of baseline loss aversion. The female is loss averse if she is not willing to play a risky bet. The risky bet is the choice of either not playing a hypothetical game and receiving nothing or to play with 50/50 probability of winning 120 Naira if a coin lands on heads or losing 40 Naira if a coin lands on tails (25% of women coded as one for the lossaverse dummy variable). Table 8 shows that females who are loss averse at baseline are more likely to devote a higher proportion of the cash transfer to food expenditures than females who are more risk taking. Perhaps the loss aversion is a good indication

of their existing desperation at baseline and therefore we see the cash transfer being used to alleviate immediate scarcity and satiate hunger. A cash transfer is less likely to induce a women who is loss averse into working in farming - it might be that these women find farm work to be a risky venture and therefore are less likely to undertake it.

TABLE 8—HETEROGENEOUS TREATMENT EFFECTS OF CASH TRANSFER BASED ON LOSS AVERSION OF FEMALE AT BASELINE

Heterogeneous Treatment Effects by **Loss Averse Female** at baseline

	Food		Investments			Employment				
	Food purchases in past 7days (Naira)	Food Insecure (0-1)	Value of all Animals Owned	Value of all Farm Assets Owned	Value of all Household Assets Owned	No work (Yes=1; No=0)	Business work (Yes=1; No=0)	Farming work (Yes=1; No=0)	Business Profits (Naira)	Raw materials (Naira)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Panel A (with controls)</i>										
cash*lossaverse	81.20** (37.41)	-0.0125 (0.0408)	6572.0 (5131.8)	490.6 (678.1)	-363.7 (1545.1)	0.0581 (0.0493)	-0.0134 (0.0469)	-0.0653** (0.0313)	-132.7 (144.2)	-307.3 (356.8)
lossaverse	-13.54 (17.08)	-0.0152 (0.0287)	-4154.5 (3718.2)	-374.7 (505.5)	-439.9 (1049.9)	0.0147 (0.0382)	-0.0177 (0.0346)	0.00893 (0.0329)	-23.35 (98.55)	-264.2 (212.6)
cash	50.13*** (16.45)	-0.0585** (0.0284)	9929.9*** (3657.9)	-0.0757 (379.2)	3141.9*** (1048.1)	-0.154*** (0.0288)	0.117*** (0.0278)	0.0699*** (0.0264)	304.3*** (113.2)	958.3*** (296.4)
Observations	4232	4225	4232	4232	4232	2193	2193	2193	2193	2193
No Cash Tranfers in Control Villages Mean	230.5 (20.43)	0.469 (0.0216)	25138.8 (3302.7)	3692.3 (516.3)	11545.5 (1645.3)	0.542 (0.0324)	0.201 (0.0340)	0.293 (0.0423)	334.2 (78.67)	743.8 (151.8)
p-value: cash*lossaverse = cash	0.000328	0.0400	0.000656	0.373	0.0337	0.0445	0.0130	0.896	0.229	0.0625

Notes:
 * significant at 10% level ** significant at 5% level *** significant at 1% level
 (1) Regressions in column (1) to (5) pool the results across the two follow-up surveys and use ANCOVA estimation.
 (2) Regressions in column (6) to (10) from the second follow-up survey only.
 (3) Regressions include the responses of the primary female decision-maker with standard errors clustered by village. Regressions in Panel A include stratification fixed effects (ward-infrastructure terciles) and controls for food insecurity at baseline, employment status at baseline, FNL village treatment status, caseworker status, age of the household head, marital status, literacy of the household head and number of agricultural plots at baseline.

D. Implementation costs of the quarterly versus monthly cash transfer payments

Initial cost estimates by CRS suggest that overhead cost of delivering monthly cash transfers to 650 women cost a total of \$16,500, while the quarterly cash transfers cost \$8,600 altogether. This estimate includes bank charges that were issued per transaction, transportation costs and salary costs for field agents. This estimate is potentially an under-estimate since the proportion of the overall Feed the Future Nigeria Livelihoods Project overheads haven't been included in this estimate. However, the majority of cost savings were made because of the reduced transport costs and transaction charges associated with fewer cash outs with quarterly payments. In localities that are better serviced by mobile money or more financial service providers there is the possibility that these cost savings will lessen. For example, better functioning mobile money platforms that charge their fees as a % of the transfer value would make the cost of more frequent transfers the same as smaller regular payments for the implementer.

V. Conclusion

Cash transfers to extremely poor households in northwest Nigeria have an immediate and overall positive impact on many dimensions of household welfare. Women are more likely to work, the whole household eats more food (more regularly) and eats a more diverse diet. The cash recipient's households save more, but also spend more on their children's clothing and healthcare. Women getting the cash transfers are also happier and more satisfied with their lives. They spend more on festivals and celebrations, bolstering their position in the community and gaining important social capital. Finally, they also invest more in assets, especially small animals.

The study found that receiving chunkier, less-frequent transfers made no substantial difference in the proportion of the cash the female held on to and in the overall positive impact on the household's living conditions. This means that chunkier transfers can lower the overall cost of delivering cash, possibly freeing up resources to increase the number of beneficiaries and widen the impact of such programs.

Digging a little deeper into some of the more interesting effects, we find that roughly one fourth of the women who were not engaged in an economic activity before getting the cash transfer, switched over to being economically active. Most of these women start a small, often home-based, non-farm business like a small store, cake-making or rice processing as a result of getting the cash transfer. In a setting where women face highly restrictive gender norms regarding work and mobility this shift into economic activity is encouraging for policies aimed at relaxing liquidity constraints and increasing women's control over household resources.

Further analysis work will assess whether the timing of the lump-sum payments in the different farming seasons had an impact on what the cash transfer was used for and its impact on household welfare outcomes. Future work will also study the synergies between the cash transfers and the caseworker mentoring program as well as the full package of FtFNLP program services.

VI. Appendix

A. Randomization Balance Check

The randomization process, when comparing households receiving monthly cash transfers and quarterly cash transfers to no cash transfers produced balanced groups at baseline. Monthly cash transfer households and no cash transfer households are balanced along all included observable covariates. Quarterly cash transfer households and no cash transfer households are balanced along the included observable covariates, with one exception: quarterly cash transfer households are less likely to have no land ownership. A joint test of significance (chi-squared) of mean differences demonstrates overall balance.

Table A1: Balance between Monthly, Quarterly Cash Transfers and No Cash Transfer households

Indicators	Mean full sample (EV, VV and ML)	Monthly Cash Transfers mean	Quarterly Cash Transfers mean	No Cash Transfers mean	Mean difference (2) - (4)	Mean difference (3) - (4)
	(1)	(2)	(3)	(4)	(5)	(6)
Socio-demographic characteristics of Household Head						
Age						
Age of Household Head	45.58 (16.27)	46.49 (17.40)	45.95 (16.05)	45.80 (16.41)	0.72 (0.81)	0.10 (0.68)
Mental status						
Percent who are married	0.84 (0.36)	0.80 (0.40)	0.80 (0.40)	0.82 (0.38)	-0.02 (0.02)	-0.02 (0.02)
Percent in polygamous marriage	0.23 (0.42)	0.24 (0.43)	0.23 (0.42)	0.23 (0.42)	0.01 (0.02)	0.00 (0.02)
Education and literacy						
Attended School	0.36 (0.48)	0.33 (0.47)	0.35 (0.48)	0.35 (0.48)	-0.02 (0.02)	-0.00 (0.02)
Can read and write in any language	0.39 (0.49)	0.39 (0.49)	0.39 (0.49)	0.38 (0.48)	0.01 (0.02)	0.01 (0.02)
Household Characteristics						
Household Size						
Average household size	4.97 (2.62)	4.91 (2.70)	4.83 (2.55)	4.93 (2.56)	-0.02 (0.13)	-0.09 (0.11)
Number of offspring	2.97 (2.38)	2.95 (2.41)	2.91 (2.32)	2.95 (2.32)	-0.01 (0.12)	-0.04 (0.11)
Household Type						
Percent of female headed households	0.18 (0.38)	0.21 (0.41)	0.21 (0.40)	0.20 (0.40)	0.01 (0.02)	0.01 (0.02)
Poverty						
Daily per capita expenditures, mean (Naira)	69.43 (306.40)	53.14 (96.21)	82.75 (414.68)	64.58 (200.30)	-10.99 (7.68)	18.88 (16.48)
Percent of HHs with per capita consumption less than \$1.25-a-day	0.85 (0.36)	0.85 (0.35)	0.83 (0.38)	0.85 (0.36)	0.00 (0.02)	-0.02 (0.02)
Percent of HHs with per capita consumption less than \$1.90-a-day	0.92 (0.28)	0.92 (0.27)	0.92 (0.30)	0.91 (0.28)	0.01 (0.01)	-0.01 (0.01)
Food Security						
Food situation where not enough food to feed HH in past 12months	0.19 (0.39)	0.21 (0.41)	0.19 (0.39)	0.21 (0.41)	-0.00 (0.02)	-0.02 (0.02)
Agricultural Land Ownership						
Total number of agricultural plots owned	0.67 (0.76)	0.68 (0.78)	0.70 (0.81)	0.64 (0.78)	0.04 (0.04)	0.05 (0.04)
Total area of plots owned or cultivated (ha)	1.81 (12.99)	2.44 (20.24)	1.27 (5.75)	1.52 (8.92)	0.91 (0.78)	-0.25 (0.34)
Percent of households with no land ownership	0.45 (0.50)	0.45 (0.50)	0.44 (0.50)	0.48 (0.50)	-0.04 (0.03)	-0.04** (0.02)
Percent of households with agricultural land greater than 1 hectare	0.35 (0.48)	0.34 (0.48)	0.34 (0.47)	0.34 (0.47)	0.01 (0.03)	-0.00 (0.03)
Joint test p-value					0.77	0.90
Number of Households	3976	640	629	1270		

* significant at 10% level ** significant at 5% level *** significant at 1% level
 (1) Columns (1), (2), (3) and (4) report means with standard deviations in parentheses.
 (2) Column (5) reports the test of differences of means across columns (2) and (4) for households receiving monthly cash transfers and those receiving no cash transfers.
 (3) Column (6) reports the test of differences of means across columns (3) and (4) for households receiving quarterly cash transfers and those receiving no cash transfers. We report OLS regressions which include ward-infrastructure stratification fixed effects and treatment village stratification fixed effects and standard errors are clustered by village. Sampling weights are employed in the regressions to correct for the differential sampling probabilities across the EV categories in treatment and control villages.
 (4) The percent of households with agricultural land greater than 1 hectare is conditional on the household owning land.
 (5) Joint test is the Chi-Sq Statistic, which is computed by jointly estimating a system of seemingly unrelated regressions where the explanatory variable is a dummy for treatment with standard errors adjusted for within village correlation and the regressions include stratification dummies.

FIGURE 4. RANDOMIZATION BALANCE CHECK

B. Timeline of the cash transfer

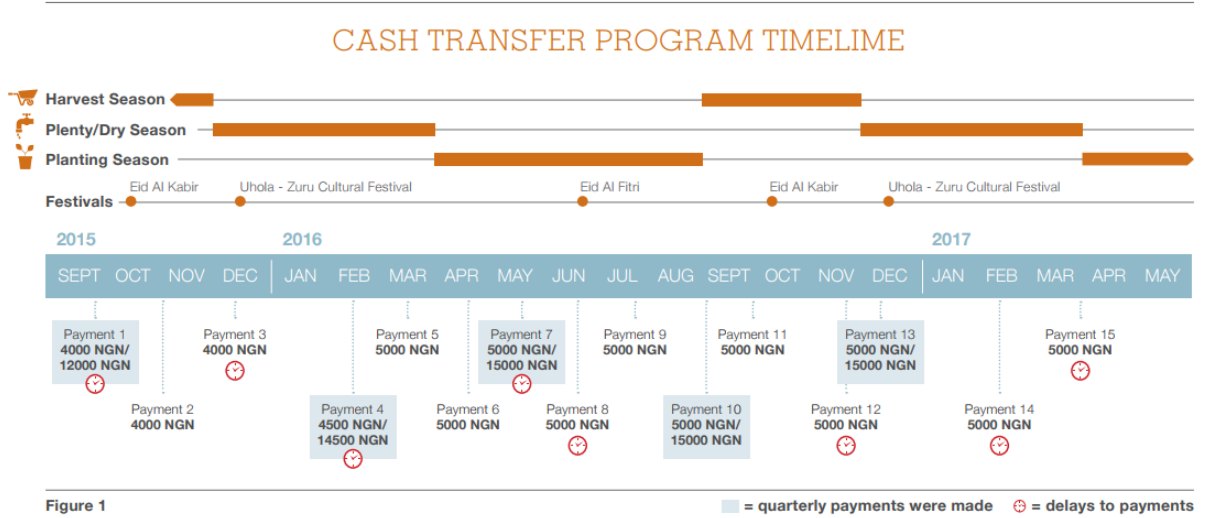


FIGURE 5. TIMELINE OF THE CASH TRANSFER

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