

# Evolution of consumption and livelihood impacts from cash and food transfer programs:

## Eight-year post-program experimental evidence from Bangladesh

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### 1. Introduction

While cash transfer and food transfer programs have been shown to improve food security among the poor (Bastagli et al. 2016; Hidrobo et al. 2018), questions remain on whether impacts persist after transfers end and what factors influence sustainability of benefits. Recent studies on post-program impacts of transfer programs are mixed (Leight et al. 2024). Some find sustained improvements, while others find that benefits fade out post-intervention (e.g., Stoeffler et al. 2020; Handa et al. 2025).

Post-intervention impacts are important to understand. Poverty-targeted transfer programs are implemented at large scale in many low- and middle-income countries, and there is growing interest in whether such programs can facilitate participants “graduating” from poverty over the longer term. Underlying this question is whether such programs influence the livelihoods of household members in the long run. A substantial literature documents that transfers do not discourage work while they are provided, and in some cases increase work or influence the type of work (Banerjee et al. 2017). But less is known about how receiving transfer programs shapes the trajectory of livelihoods *after* transfers cease. Given that gender norms and other gender-differentiated factors shape livelihood opportunities, it is important to disaggregate by gender when assessing post-intervention impacts on livelihoods.

Recent evidence from Bangladesh shows that a pilot transfer program targeted to women in poor rural households led to sustained improvements in household consumption and poverty reduction four years after the intervention ended, but that these effects depended on program design and context (Ahmed et al. 2025). We extend this analysis by analyzing a follow-up survey round collected four years later, i.e., 8 years post-intervention. We present preliminary results on the intervention’s impacts on trajectories of consumption, assets, savings, and gender-disaggregated livelihoods, then discuss future research.

## 2. Study context, data, and methods

### 2.1 Transfer Modality Research Initiative

#### 2.1.1 Intervention

The intervention we study is the Transfer Modality Research Initiative (TMRI). From May 2012 to April 2014, TMRI was implemented by the World Food Programme in two regions of Bangladesh: Rangpur division in the northwest (hereafter “the North”); and Barisal and Khulna divisions near the southern coast (hereafter “the South”). The program provided mothers of young children in poor rural households with monthly food or equal-value cash transfers, with or without a complementary nutrition behavior change communication (BCC) component.











To be eligible to participate in TMRI, study households needed to meet poverty-based criteria, not already participate in a government social assistance program, and have a child aged 0-24 months. The mother of the child aged 0-24 months was both the cardholder for receiving transfers and the target participant in BCC activities.

Cash transfers were monthly payments of 1,500 Taka per household (approximately 19 USD, or 25% of households’ pre-intervention monthly consumption). Payments were delivered using a mobile phone cash transfer system, in which women collected cash from designated distribution sites using mobile verification of identity. Food transfers were monthly rations for the household (worth 1,500 Taka, as of April 2012), consisting of the following: 30 kilograms of rice, 2 kg of mosoor pulse (a lentil), and 2 liters of micronutrient-fortified cooking oil. Food transfers were handed to beneficiaries at designated food distribution points. The BCC component focused on promoting knowledge and adoption of recommended practices for young children’s nutrition and health, through three activities: (1) Weekly interactive group sessions led by a community nutrition worker – some with only target mothers and some also inviting other family members; (2) Twice-a-month home visits; (3) Monthly group meetings with influential community leaders. Some group sessions discussed producing healthy foods as a means of accessing them.

#### 2.1.2 Intervention

TMRI was designed as a cluster-randomized control trial, at the village level. In each region, 250 villages were selected and randomly assigned to either a control arm or to one of four treatment arms. Due to funding constraints that limited data collection in post-program survey rounds, this analysis focuses on only the control arm and three treatment arms in each region. In the North, these arms were (1) “Control”: no intervention, (2) “Cash”: unconditional monthly cash transfers, (3) “Food”: unconditional monthly food rations, (4) “Cash+BCC”: monthly cash transfers along with nutrition BCC. In the South, the first three arms were the same, and the fourth differed: (1) “Control,” (2) “Cash,” (3) “Food,” (4) “Food+BCC”: monthly food rations along with nutrition BCC. We summarize the randomization over relevant arms in Figure 1. From each village, 10 eligible households were selected for inclusion in the study. Thus, in each region from these arms, TMRI included a total of 2,000 targeted households: 500 in each arm.

**Figure 1:** TMRI’s randomized control and treatment arms included in this analysis

North		South	
Control		Control	
Cash		Cash	
Food		Food	
Cash+BCC	 + 	Food+BCC	 + 

**2.1.3 Data collection**

To evaluate the impacts of TMRI, multiple rounds of longitudinal survey data were collected between 2012 and 2022. This analysis uses four rounds of these data: (1) A baseline survey, conducted from March-April 2012 (prior to the start of the intervention in May 2012); (2) An endline survey, conducted in April 2014 (just before the end of intervention); (3) A four-year post-program survey, conducted in April-May 2018 (four years after all intervention components ended); (4) An eight-year post-program survey, conducted in April-May 2022 (eight years after all intervention components ended). In each round, rich data were collected at the household level as well on all individuals in the household.

**2.2 Outcome measures**

To measure household consumption, we construct the value of total consumption: the sum of food consumption (purchased, consumed out of own production, gifts and transfers, and food consumed outside the home; based on recall from the last 7 days prior to the survey) and nonfood non-durables (clothing, fuel, hygiene, transport, etc.; based on recall from the last 30 days prior to the survey). Both are put in terms of total monthly expenditures, deflated to 2012 Taka. We then winsorize and take the logarithm of each, noting there are no cases where reported expenditures were zero.

To measure household assets, we construct the value of all assets reported as owned by the household at the time of each survey, including items across consumer durables, productive assets, livestock, and poultry. To measure household savings, we construct the value of all savings reported as held by the household at the time of each survey (at home, in NGOs, in savings groups, in banks or other institutions, with friends or relatives, or in any other forms) and also include any amount reported as cash in hand. We deflate the total value of assets and total value of savings to 2012 Taka, winsorize, add 1, and take the logarithm of each.

To measure gender-disaggregated livelihoods, we construct binary variables based on the 7 days prior to the survey: whether the household reports any adult female household member (age 18 or over) and whether the household reports any adult male household member (age 18 or over) working in each of agricultural wage work, non-agricultural wage work, own farm work, and self-employment. Information draws from a module that collects information on all types of economic work performed in the last 7 days, listing details for each economic activity conducted by each household member. Binaries are based on whether household members report non-zero hours in different activities, thus are at the “extensive” margin of any participation, rather than at the “intensive” margin of how much work is done.

## **2.3 Methods**

Our analysis sample is at the level of households. In both treatment and control arms in each round, we focus on households that include the “target woman,” defined as the woman in each household who met the baseline program criteria that were required to be the main program participant. We use an “unbalanced panel,” drawing on the sample with non-missing values for each outcome variable in each round.

We estimate treatment impacts during the program (at endline in 2014), 4 years post-program (2018), and 8 years post-program (2022) for each outcome variable. We use intent-to-treat (ITT) analysis in each round using analysis of covariance (ANCOVA), controlling for the baseline value (in 2012) of the outcome variable, and running ordinary least squares specifications. Regressions are run separately by region, clustering standard errors at the village level.

We use tables to present treatment impacts on consumption, assets, and savings, showing the estimated impact of each treatment in each survey round, by region. We use figures to represent how gender-disaggregated livelihoods differ by intervention arm over time, for ease of comparison. In the figures, “adjusted means” are shown; the adjusted mean for Control is simply the control arm’s mean value, while for Food, Cash, Cash+BCC, and Food+BCC, it shows the estimated ANCOVA impact of that treatment added to the control arm’s mean value. While external time trends affect control arm means across rounds, within-round differences between arms reflect effects of the interventions.

## **3. Preliminary findings**

We first assess the evolution of treatment impacts on household consumption by intervention arm, by region, and over time (Table 1). In the North, all arms significantly increased consumption during the program, but only Cash and Cash+BCC led to sustained improvements 4 years and 8 years post-program (by approximately 5% to 13%). In the South, all arms also significantly increased consumption during the program, but only Food+BCC led to sustained improvements 4 years post-program (by approximately 7%), and no arm increased consumption by 8 years post-program. In fact, by 8 years post-program in the South, being a prior participant in the Food arm led to lower consumption (by approximately 6%).

**Table 1:** TMRI's treatment impacts on log value of household consumption, by region and round

<b>Consumption</b>			
<b>PANEL A: NORTH</b>	<b>2014</b>	<b>2018</b>	<b>2022</b>
Cash	0.12*** (0.02)	0.05* (0.03)	0.07** (0.03)
Food	0.10*** (0.03)	0.02 (0.03)	0.05 (0.03)
Cash+BCC	0.27*** (0.02)	0.10*** (0.03)	0.13*** (0.03)
Mean in control group	7.26	7.30	7.54
Observations	1,736	1,772	1,784
Cash = Food	0.39	0.24	0.46
Cash = Cash + BCC	0.00	0.05	0.06
Food = Cash + BCC	0.00	0.00	0.01
<b>PANEL B: SOUTH</b>	<b>2014</b>	<b>2018</b>	<b>2022</b>
Cash	0.06** (0.03)	-0.02 (0.03)	-0.02 (0.03)
Food	0.06** (0.03)	-0.03 (0.03)	-0.06* (0.03)
Food+BCC	0.17*** (0.03)	0.07** (0.03)	0.01 (0.03)
Mean in control group	7.42	7.49	7.57
Observations	1,799	1,815	1,799
Cash = Food	0.88	0.66	0.30
Cash = Food + BCC	0.00	0.00	0.29
Food = Food + BCC	0.00	0.00	0.04

Note: Values expressed in Taka deflated to 2012, logged, and winsorized at top 99 percent. 2014 round is during-program (endline), 2018 round is 4 years post-program, 2022 round is 8 years post-program.

We next assess the evolution of treatment impacts on households' total assets and savings (Table 2). In the North, all arms significantly increased the value of household assets during the program, but only Cash+BCC led to sustained improvements 4 years post-program (approximately 25%); no arm led to significant increases relative to the control group 8 years post-program, although all arms showed positive point estimates. In the South, the Cash and Food+BCC arms significantly increased the value of household assets during the program, while Food did not; no arms led to sustained improvements in assets, and point estimates were negative for Cash and Food at 4 and 8 years post-program.

In terms of the value of household savings, in the North, all arms led to significant increases during the program, as well as 4 years post-program (approximately 35% to 63%). Cash and Cash+BCC led to sustained improvements 8 years post-program relative to the control group (approximately 50%), while Food no longer had significant impacts but showed positive point estimates. In the South, all arms significantly increased household savings during the program; only Food+BCC led to sustained increases in savings at 4 years post-program (approximately 27%), and no arm led to significant improvements 8 years post-program, with Cash and Food showing negative point estimates.

**Table 2:** TMRI's treatment impacts on log values of household assets and savings, by region and round

PANEL A: NORTH	Assets			Savings		
	2014	2018	2022	2014	2018	2022
Cash	0.21** (0.08)	0.12 (0.10)	0.13 (0.10)	1.69*** (0.21)	0.42** (0.21)	0.51** (0.25)
Food	0.24*** (0.08)	0.12 (0.10)	0.10 (0.10)	1.19*** (0.26)	0.35* (0.21)	0.40 (0.24)
Cash+BCC	0.45*** (0.08)	0.25*** (0.09)	0.10 (0.10)	2.03*** (0.23)	0.63*** (0.21)	0.50** (0.23)
Mean in control group	9.28	9.86	10.11	7.49	7.53	7.60
Observations	1,736	1,772	1,784	1,735	1,771	1,783
Cash = Food	0.77	1.00	0.81	0.03	0.69	0.63
Cash = Cash + BCC	0.00	0.11	0.78	0.10	0.27	0.95
Food = Cash + BCC	0.00	0.15	0.98	0.00	0.13	0.65
PANEL B: SOUTH	2014	2018	2022	2014	2018	2022
Cash	0.12* (0.07)	-0.03 (0.07)	-0.06 (0.08)	1.07*** (0.17)	0.06 (0.16)	-0.07 (0.14)
Food	0.09 (0.07)	-0.06 (0.08)	-0.11 (0.08)	0.60*** (0.17)	0.15 (0.16)	-0.12 (0.16)
Food+BCC	0.21*** (0.08)	0.02 (0.08)	0.07 (0.09)	1.07*** (0.17)	0.27* (0.15)	0.07 (0.16)
Mean in control group	9.57	9.87	10.17	7.36	7.67	7.88
Observations	1,799	1,815	1,799	1,799	1,815	1,799
Cash = Food	0.72	0.70	0.54	0.01	0.57	0.72
Cash = Food + BCC	0.24	0.52	0.13	0.98	0.15	0.36
Food = Food + BCC	0.15	0.34	0.04	0.01	0.39	0.26

Note: Values expressed in Taka deflated to 2012, logged, and winsorized at top 99 percent. 2014 round is during-program (endline), 2018 round is 4 years post-program, 2022 round is 8 years post-program.

We then consider the evolution of treatment impacts on household members' participation in different livelihood categories, by gender. In the North (Figure 2), the large majority of households had at least one female member participating in own farm work in each round, with smaller proportions of households having any female members participating in agricultural wage work, non-agricultural wage work, or self-employment. Relative to the control group, Cash+BCC significantly increased the proportion of households with female participation in own farm work during the program, with sustained increases in this category at 4 years post-program and 8 years post-program; these effects were accompanied by small decreases in households with female participation in agricultural wage work during the program and non-agricultural wage work at 4 years post-program. Cash significantly increased the proportion of households with female participation in self-employment during the program, showed no significant impacts relative to the control at 4 years post-program, and significantly increased the proportion with female participation in own farm work at 8 years post-program. Relative to the control group, Food showed no significant impacts on the proportion of households with female participation in different livelihood categories in any round.

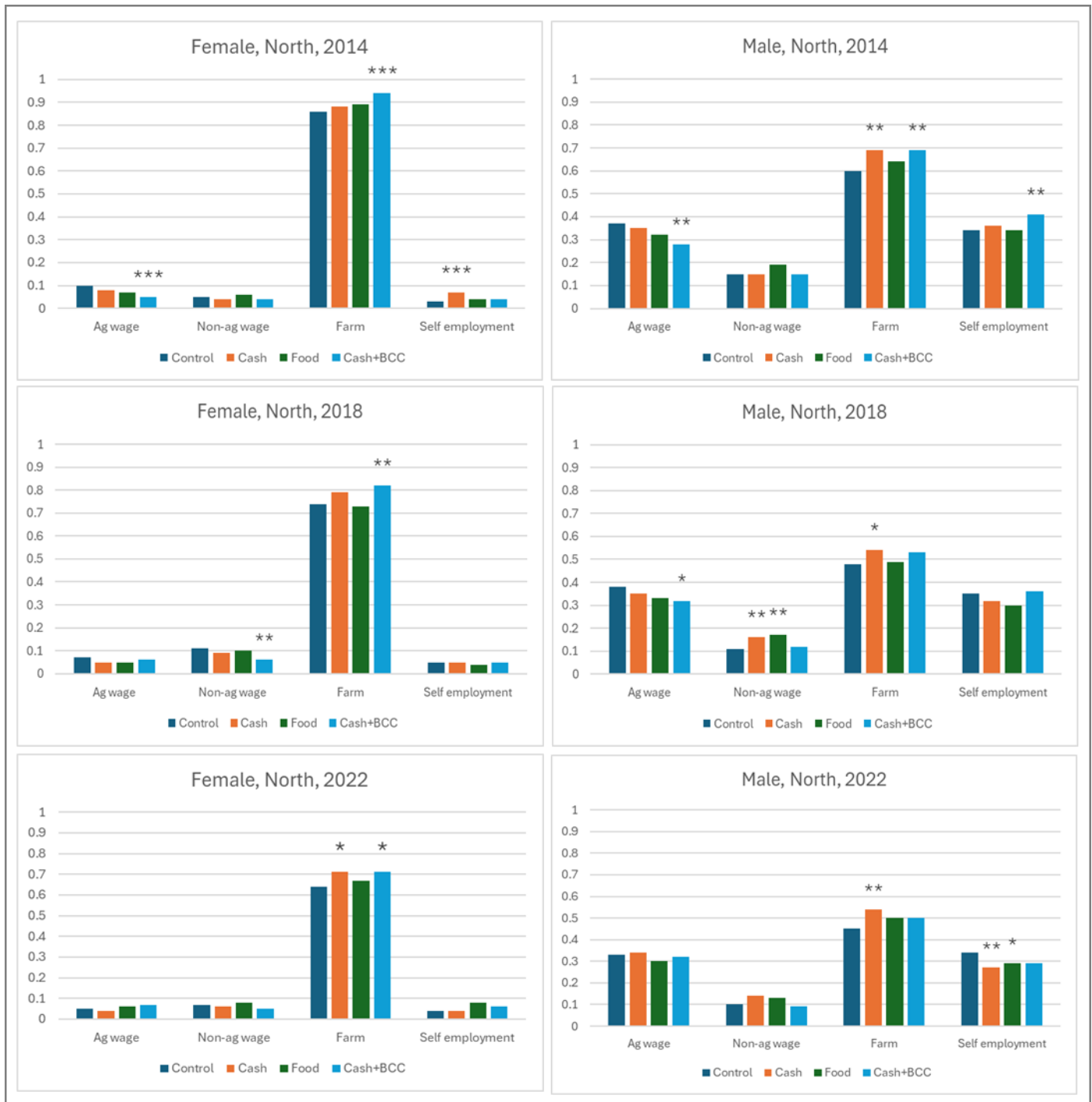
In the North, a substantial proportion of households had at least one male member participating in own farm work, agricultural wage work, non-agricultural wage work, and self-employment in each round. Relative to the control group, Cash+BCC significantly increased the proportion of households with male participation in own farm work during the program, but these effects were not sustained at 4 and 8 years post-program; Cash+BCC also showed an increase in male self-employment during the program and a decrease in agricultural wage work both during the program and 4 years post-program. Cash significantly increased the proportion of households with male participation in own farm work during the program, with sustained increases in this category at 4 years post-program and 8 years post-program; Cash also slightly increased male participation in non-agricultural wage work at 4 years post-program

and slightly decreased male participation in self-employment at 8 years post-program. Relative to the control group, Food showed no significant impacts on the proportion of households with male participation in different livelihood categories during the program; Food led to an increase in male participation in non-agricultural wage work at 4 years post-program and a decrease in male participation in self-employment at 8 years post-program.

In the South (Figure 3), the large majority of households also had at least one female member participating in own farm work in each round, with smaller proportions of households having any female member participating in agricultural wage work, non-agricultural wage work, or self-employment. Relative to the control group, no arm significantly changed the proportion of households with female participation in these livelihood categories during the program or 4 years post-program. Cash led to an increase in the proportion of households with female participation in agricultural wage work at 8 years post-program.

In the South, a substantial proportion of households had at least one male member participating in own farm work, agricultural wage work, non-agricultural wage work, and self-employment in each round. Relative to the control group, Food+BCC significantly increased the proportion of households with male participation in own farm work during the program, but these effects were not sustained at 4 and 8 years post-program. Cash significantly increased the proportion of households with male participation in agricultural wage work during the program, but these impacts were also not sustained at 4 years post-program and 8 years post-program. Relative to the control group, Food showed no significant impacts on the proportion of households with male participation in different livelihood categories during the program, but led to a decrease in male participation in own farm work at 4 years post-program and 8 years post-program.

**Figure 2:** Proportion of households with any adult female and male participation in livelihood categories in 7 days prior to survey, adjusted means by intervention arm and round: North



Note: Adjusted means are based on control means and treatment impact estimates. Stars represent statistical significance of treatment impact relative to control: \* 10%, \*\* 5%, \*\*\* 1%. 2014 round is during-program (endline), 2018 round is 4 years post-program, 2022 round is 8 years post-program.

**Figure 3:** Proportion of households with any adult female and male participation in livelihood categories in 7 days prior to survey, adjusted means by intervention arm and round: South



Note: Adjusted means are based on control means and treatment impact estimates. Stars represent statistical significance of treatment impact relative to control: \* 10%, \*\* 5%, \*\*\* 1%. 2014 round is during-program (endline), 2018 round is 4 years post-program, 2022 round is 8 years post-program.

## 4. Summary and future research

Our preliminary results indicate that the evolution of impacts from TMRI's cash transfer, food transfer, and nutrition BCC interventions vary over time through 8 years post-program and differ by region. In the North, all arms significantly increase consumption during the program; both Cash and Cash+BCC lead to sustained increases in consumption at both 4 years post-program and 8 years post-program. Patterns suggest that impacts on consumption may be related to the evolution of impacts on household savings and on women's and men's livelihoods. Initial impacts on aggregate household assets are largely not sustained through 8 years post-program. For savings (similar to consumption), all arms lead to increases during the program, while Cash and Cash+BCC lead to sustained increases at 4 years post-program and 8 years post-program. In terms of livelihoods, Cash+BCC impacts include increases in the proportion of households with female participation in own farm work across all rounds; Cash impacts include increases in households with *male* participation in own farm work in all rounds, as well as an increase in female participation in own farm work at 8-year post-program; less consistent changes appear across wage work and self-employment.

In the South, all arms significantly increase consumption during the program as well; but only Food+BCC leads to sustained increases in consumption at 4 years post-program, and no arms show increased consumption at 8 years post-program relative to the control. In fact, Food shows reduced consumption relative to the control group by 8 years post-program. Patterns suggest that the limited sustainability of impacts on consumption may relate to limited post-program increases in assets, savings, and women's and men's livelihoods. Only Food+BCC leads to sustained increases in savings at 4 years post-program, and no arm leads to significant improvements 8 years post-program. Initial impacts on aggregate assets are not sustained post-program. In terms of livelihoods, there are no significant impacts on female participation in different categories during the program or 4 years post-program; Cash increases female participation in agricultural wage work at 8 years post-program. For male participation, Food+BCC increases own farm work during the program, but this effect is not sustained at 4 or 8 years post-program; Food reduces male participation in own farm work at 4 and 8 years post-program; few consistent changes appear across wage work and self-employment.

These preliminary results suggest that the sustainability of improved household consumption from transfer programs could relate to how interventions influence the trajectory of household savings and different household members' livelihoods. They also corroborate that the same intervention can lead to different patterns in different regional contexts. Findings moreover suggest that complementary "plus" programming such as TMRI's nutrition BCC may influence whether female or male participation in different livelihoods is more strongly affected at the extensive margin. For example, in the North, Cash+BCC appears to increase female participation in own farm work more consistently across rounds, while Cash appears to increase male participation in own farm work more consistently across rounds.

Future research will investigate these issues further, including unpacking different effects on livelihoods and the role of context. For example, while few sustained impacts appear on aggregate household assets, follow-up analysis will assess post-program impacts on asset categories by type of asset and gendered ownership, which may provide insight on different livelihoods by gender. Savings will also be further explored, including how they may facilitate livelihoods; for example, some study households report saving in a local arrangement referred to as "*jomi bondhok*" which may facilitate access to land. Livelihoods will also be explored beyond the extensive margin of any female or male participation, and will

consider the intensive margin to better understand how TMRI influenced trajectories of activities. Contextual factors will also be considered, for example whether there were regional differences in how prior participation in TMRI affected households' access to subsequent programming or community support.

Findings from this study will provide greater insight as to how and why transfer programs have mixed post-intervention effects across different contexts, and how gender and livelihood opportunities may influence these trajectories. These insights will help inform the future design of transfer programs that aim to support sustainable poverty reduction and gender-equitable livelihoods, including to guide modifications tailored to the local context.

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