

# **Sustainability Assessment of the Impacts of the Food Security for the Ultra Poor (FSUP) Project implemented by WFP in North-West Bangladesh**

## **Final Draft Report**

**Submitted to:  
World Food Programme (WFP)**

**Submitted by:  
Development Research Initiative (dRi)**

### **Authors**

Dr. Ferdous Jahan  
Dr. Munshi Sulaiman  
Dr. Selim Gulesci  
Dr. Shahed Rahman  
Fahim S. Chowdhury  
Ebney Ayaj Rana

### **Qualitative Field Research Lead**

Md. Mamun-ur-Rashid

### **Quantitative Field Research Lead**

Shameem Reza Khan

**Dhaka [27 Mach, 2016]**

## Contents

Executive Summary.....	1
1. Introduction .....	1
2. FSUP project description .....	2
A. Targeting the ultra poor .....	2
B. Interventions.....	2
3. Data and analytical framework.....	5
A. Household Surveys.....	5
B. Qualitative Data .....	7
C. Analytical Framework.....	8
D. Data Analysis.....	10
4. Sustainability of the impacts on livelihood .....	12
A. Sustainable asset accumulation.....	12
B. Economic activities and earnings.....	16
C. Vulnerability, crisis coping and accessing services .....	23
D. Households' wellbeing .....	28
E. Long-term change in social empowerment.....	30
5. Determinants of sustainability pathways.....	35
A. Individual and household level determinants .....	37
B. Programmatic design .....	40
C. Sustainability through qualitative lens.....	41
6. Intra-household spillovers: Effects on nutritional outcomes of children .....	48
A. Anthropometric measurements .....	49
B. Child anthropometry.....	50
C. Infant and Young Child Feeding (IYCF) practices .....	53
D. Hygiene practices.....	55
E. Vaccination of children among 12-23 months of age .....	57
F. Consumption of iron and folic acid (IFA) tablets .....	57
G. Childhood illness.....	58
H. Consumption of deworming tablets by family members.....	58
I. Consumption of iodized salt .....	59
J. Consumption of fruits and vegetables .....	59
K. Major findings.....	60
7. Intra-community spillovers .....	61
8. Comparative analysis of FSUP's cost-effectiveness.....	62
9. Conclusion.....	65
References.....	66
Annexure 1: Details of qualitative data collection .....	67
Annexure 2: Descriptive statistics of asset ownership.....	68

## List of Tables

Table 1: Impacts on ownership of different assets .....	13
Table 2: Impacts on value of assets owned.....	14
Table 3: Earning activities of the respondent.....	17
Table 4: Extent of work and income of the respondent (if engaged in IGA).....	20
Table 5: Impact on vulnerability to shocks and coping ability.....	23
Table 6: Impact on informal transfers.....	27
Table 7: Impact on consumption.....	28
Table 8: Impact on women’s mobility.....	31
Table 9: Type of rural network.....	33
Table 10: Correlates of poverty dynamics.....	37
Table 11: Dynamics of asset accumulation in post-intervention.....	40
Table 12: Correlates of poverty dynamics with FSUP IGA and SHKMG .....	40
Table 13: Cut-offs for wasting, stunting and underweight .....	49
Table 14: Stunting among 6-23 month old children .....	51
Table 15: Stunting among 6-59 months old children.....	51
Table 16: Wasting among 6-23 month old children .....	52
Table 17: Wasting among 06-59 months old children .....	52
Table 18: Underweight among 6-23 month old children.....	53
Table 19: Underweight among 6-59 month old children.....	53
Table 20: Exclusive Breastfeeding of children aged less than 6 months.....	54
Table 21: Percent of children 6 – 23 months with dietary diversity .....	55
Table 22: Children (6-23 months) receiving diet following minimum meal frequency .....	55
Table 23: Hand washing practices of women during six critical time .....	56
Table 24: Availability of hand washing agent at designated place of hand washing.....	57
Table 25: Water is available at designated place of hand washing .....	57
Table 26: Vaccinated Children Aged 12 – 23 months .....	57
Table 27: Women consuming iron tablet and folic acid/syrup.....	58
Table 28: Proportion of children 0-5 years having any sort of illness.....	58
Table 29: Proportion of children 0-59 months having had diarrhea in last 2 weeks.....	58
Table 30: Households consumed deworming tablets last year (in Percentage) .....	59
Table 31: Households consumed iodized salt (in Percentage).....	59
Table 32: Consumption of fruits and vegetables frequency .....	60
Table 33: Benefit cost calculation .....	63

## List of Figures

Figure 1: Households in the panel survey .....	6
Figure 2: Sustainable livelihood framework.....	9
Figure 3: Ownership of land and grain .....	13
Figure 4: Value of total assets owned by the households .....	15
Figure 5: Cumulative distribution of assets accumulation by first follow-up .....	16
Figure 6: Trends in income from farming by the respondent.....	18
Figure 7: Trends in income from livestock rearing by the respondent .....	18
Figure 8: Trend in total monthly household income .....	21
Figure 9: Trends in cash savings .....	24
Figure 10: Awareness of services and facing crisis in 2015.....	25
Figure 11: Accessing different services in 2015 .....	26
Figure 12: Changes in food consumption groups .....	29
Figure 13: Poverty dynamics among the intervention households .....	35
Figure 14: Poverty dynamics in post-intervention period .....	36
Figure 15: Change in assets in post-intervention .....	39
Figure 16: Correlation between poverty dynamics and assets accumulation .....	39
Figure 17: Comparative cost-effectiveness analysis of FSUP with 'Graduation' approach .....	62
Figure 18: Benefit-cost ratios under different assumptions.....	64

## Executive Summary

Bangladesh has made substantial progress in reducing extreme poverty over the last two decades. Comprehensive livelihood interventions with a focus on targeting the extreme poor have been one of the key strategies in achieving this success. This report assesses the long-term effects of one such intervention, the food security for the ultra poor (FSUP) project by the World Food Programme (WFP). Previous work analyzing the short-term effect of the program has found that the project led to significant reductions in extreme poverty by the end of first and second year of the interventions. The main goal of this study is to assess the long-term sustainability of these impacts and to answer some research questions that were not (fully) addressed in previous work.

Initiated in 2009, with implementation starting in 2010 for 5,000 households and in 2011 for 25,000 households, WFP's FSUP project has overall reached 30,000 ultra poor households in eight Upazilas in three Northern districts (Sirajganj, Pabna and Bogra) of Bangladesh. The project has provided a comprehensive support package including a monthly subsistence allowance for the entire duration of the program to ensure that immediate food consumption gaps are met, a one-off cash grant to purchase an income-generating asset to kick-start an economic activity that will generate subsequent streams of incomes to sustainably maintain food security even after the end of the program, training to manage their economic activities and being part of a local self-help knowledge management group (SHKMG).

This report utilizes a mixed-method approach to address the following five research questions: (a) How different are the program effects on livelihoods of the intervention group two years after the project interventions ended vis-a-vis those measured immediately after (and during) the interventions? (b) What are the determinants of the trajectories of change in post-intervention period among the beneficiaries? (c) What are the intra-household spillover effects of improved livelihoods on nutritional outcomes of the children? (d) What are the inter-household spillover effects within a community on the livelihoods of non-beneficiary poor households in intervention villages? (e) What is the overall cost-effectiveness of FSUP? To answer questions (a)-(c), we primarily utilize quantitative methods and data from household surveys, complemented by qualitative methods in order to provide insights on causal mechanisms. To answer question (d) on the spillover effects, exploratory research is conducted through qualitative means. Answering the final question relies on meta-analysis of comparable interventions from the literature to provide a comparative cost-effectiveness analysis.

The household surveys were conducted on the sample of households (of the first batch of 5,000 households that started in 2010) that were part of the previous outcome studies (in 2011 and 2012) which were conducted to measure the short to medium term effects of FSUP. As part of this, a baseline survey was conducted in 2010 on a sample of 1,890 households (1,260 beneficiary/intervention and 630 comparison households).<sup>1</sup> Beneficiary households were sampled from a total of 5,000 households in 84 intervention villages in three districts. For sampling comparison households, the sub-districts in the same three districts without the project

---

<sup>1</sup> We use the term beneficiary to also refer to intervention households (we use intervention and beneficiary households interchangeably), and participant to refer to the woman from the beneficiary households participating in the project. Non-beneficiary refers to the households who are in the intervention villages but did not receive the interventions. The comparison households are also non-beneficiary households, but selected from different communities for measuring impacts and sustainability.

interventions were considered, and the research team adopted the same eligibility criteria followed by the project. Two follow-up surveys were conducted in 2011 and in 2012 on this sample. The current study aimed to trace these same households and successfully interviewed 1,555 households in 2015. This yields an attrition rate of 18 percent from the baseline survey. We use difference-in-difference as the primary statistical identification strategy for the sustainability assessment. Under the common trend assumption (that the beneficiary households would have had a similar trend as comparison households in the absence of the interventions), this difference-in-difference estimate identifies the impacts of the program on the outcomes of interest. In addition, a number of qualitative research techniques were employed, including case studies, in-depth interviews, focus group discussions and key informant interviews.

From descriptive analysis, we find that 70 percent of the beneficiary households were living below the dollar-a-day poverty line in 2010, and two-third of them have crossed the poverty line by 2015. In terms of impact on asset ownership, we find that while there was a large effect of the project on the likelihood of households owning livestock in the short run, the effect sizes at second and third follow-up surveys have gradually declined. We find that the project had a statistically significant long-term positive effect on livestock ownership, which is lower than the short-term impacts. This, however, does not necessarily demonstrate a lack of sustainability of the impact. It is plausible that households may shift their asset holdings from livestock to other assets. In fact, our qualitative studies indicate that over time, the beneficiary households have diversified their income sources and as a result, they have concentrated on developing other permanent sources of income and engaging other members of their households. A similar reduction in the impact is observed for poultry and transport related assets, although the impact of the program on land-ownership is still positive and significant in 2015. The most encouraging change is observed in the impact on households' likelihood to have a stock of grains. The increasing impact on grain stock by the third follow-up corroborates the sustained impact on land ownership.

On the intensive margin<sup>2</sup>, we find a positive but declining impact on the value of livestock owned, confirming that intervention households are relying less on livestock as an income earning activity in the post-intervention period although they have more livestock than the comparison group even in the long-run. Second, there is a remarkable positive impact on the value of land owned. The longer-term impact is over 16 times higher than the impact in 2011. This is a testimony of the households attaining a faster asset accumulation path than the comparison group through accumulating land. Although we did not observe any changes in ownership of transport and household durable assets at the extensive margin (i.e. whether own or not), there are significant changes on the intensive margin as the values of these assets owned by the intervention households are significantly higher than the comparison group. Finally, in terms of impact on grain stock, the impacts are stronger in the long-run. We conduct further cost-effectiveness analysis and found that the total impact estimate on the value of assets owned is about four times the actual size of the lump sum cash grant provided by the program. This is also twice the value of the total cash received by each intervention household (including lump sum for asset and monthly stipend).

Looking at the distribution of these effects shows that the FSUP project had a long-term effect not only on the average asset ownership, but on the entire distribution among the targeted households.

---

<sup>2</sup> Extensive margin refers to the likelihood of something (e.g. whether own a particular asset or engaged in an earning activity) whereas intensive margin refers to its intensity (e.g. amount of assets owned or work hours).

This implies that the effects of the program are distributed across the beneficiaries (and not concentrated on a handful of successful households). Given the importance of physical assets in rural livelihoods, we can conclude that the project was successful in creating sustainable livelihoods for the ultra poor beneficiaries.

Next, we analyze the effect of the program on the income-generating activities and earnings of beneficiaries and their households. At baseline, labor force participation of respondent women was very high (over 85 percent) for both beneficiary and comparison groups. In the long run, the program led to a modest fall in the labor force participation of women in intervention households (despite short-run positive impacts). This is consistent with the well-documented finding that women's labor force participation in Bangladesh is higher among poor women since they primarily rely on selling labor due to lack of other productive assets. Diversification of IGAs was one of the strategies of the project to help ultra poor households build their livelihoods. Consequently, similar patterns of change are observed in the impacts on number of income earning activities and labor force participation. The short run impacts of increasing engagement in one additional IGA on average are followed by a much lower longer-term impact. In terms of specific types of activities, these changes are primarily driven by the dynamics of engagement in livestock rearing – the main IGA supported under the FSUP project. The most encouraging long-term trend for FSUP is observed in the sustained impact on the fraction of respondent women who are involved in farming. The long-term impact on the likelihood that a respondent (woman) is involved in managing her own farm is 16 percentage points. There is a general decline (both for the comparison and the intervention groups) in the fraction of women who work as housemaids, which is an activity often considered to have low social prestige in these settings. Furthermore, we have observed a long-run positive impact on these women being involved in day labor. Overall, we find that the economic activities of the respondents have mostly stabilized in the long run, following sharp changes during the intervention period. In the long run, the participant women are slightly less likely to be in the labor market conforming the general pattern of declining female labor force participation as households get richer in Bangladesh (Rahman and Islam, 2013), but have higher engagement in farming.

Looking at labor hours, we find that there is no long-term impact on total work hours although there were short-term increases. This shows that the reduction in female respondents' labor force participation is only at the extensive margin, but not on the intensive margin.

Examining the dynamics of earnings of respondent women show that earnings from farming have a long-term positive trend for the intervention group. However, the income levels from livestock rearing have equalized between the intervention and comparison groups after sharp short term increases for the former. The acceleration in growth from farming by the participant women in the post-intervention period shows their preference to shift to farming over livestock rearing. Findings from qualitative studies shed some light on the reasons behind this. First, ownership of cultivable land and engagement in farming have direct implications on (perceived) household food security. Second, there is a social prestige associated with farming as an indicator of moving up in the occupational ladder in rural settings. Thirdly, the presence of a suitable arrangement for land ownership has also encouraged the households to engage in farming activities. Fourthly, the beneficiary households view crop production as a more stable source of income than livestock.

In terms of impacts on income and productivity, the project has clearly created a sustained improvement. There is an impact of Tk. 3,683 on annual total income earned by the participant

women in 2015 (which is 102 percent of the mean income earned by the women in comparison group). Doubling long-term income is a testimony of the sustainability of the project's benefits. It is equally important to highlight that this income growth is taking place through a long-term increase in the productivity of the beneficiaries. Moreover, the effects are not only limited to the earning activities by the female respondents, even though they are often the main income-earner in these ultra poor households. The program leads to an increase of, on average, Tk. 665 in the monthly household income, which is 36 percent and 18 percent of the earnings of the comparison group at baseline and in 2015 respectively.

In terms of the effects of the FSUP on the vulnerability of beneficiary households to crises and shocks, we find that the program did not affect (positively or negatively) the likelihood that beneficiary households face any crises in the long-run, but it had a modest effect on the types of coping strategies they adopt in times of crisis. In particular, beneficiaries were less likely to reduce consumption in response to an unexpected shock, compared to comparison households. The program also had a positive and sustained effect on the level of cash savings held by the beneficiary households. This is an important indicator of a household's ability to deal with the costs associated with unexpected shocks, and could explain why they are less likely to reduce their consumption when faced with a shock. Moreover, beneficiary households were more likely to be aware of services available to them in times of need (e.g. healthcare or livestock services), even though they were less likely to have needed them (except for livestock services) relative to comparison households, which could be due to them having better preventative behaviors (e.g. health and sanitation practices). Finally, we find that beneficiary households were less likely to receive informal transfers from their social networks, but they were more likely to give such transfers (the latter effect was lower, although still statistically significant, in the long-run). This shows the program made beneficiaries less in need of help from their family and friends, and that there could be positive spillover effects of the program on non-beneficiaries who are socially connected to beneficiary households.

Importantly, we find that the program led to improvements on the consumption level of beneficiary households, and that these effects are sustained in the long-run (2 years after the interventions are over). In particular, beneficiary households had faster growth in per capita food and non-food consumption relative to the comparison group, and the estimated project impacts are large in magnitude. The impact on food consumption is 26 percent of the baseline level of food consumption in these households, while the effect on nonfood consumption is 40 percent. Beneficiary households also have higher food consumption score than the comparison group in the long run.

In addition to these economic and food consumption related outcomes, we evaluate the long-term impacts of the program on the social empowerment of beneficiary women and their households in terms of five different dimensions of empowerment. We have five different findings related to social empowerment: First, the mobility of ultra poor women improved as a result of the program. Initially, economic necessity forced the poor women to leave their homes, but this necessity also legitimized their mobility. Their economic contribution in the family and the fact that they were able to help their families to survive and even thrive, facilitated their active participation in the community. Second, our qualitative interviews of participants find that their decision-making ability within their families and within their communities has improved. Multiple respondents expressed that they believe their opinions are more respected by their families and their social networks. Thirdly, they are taking more active roles in their communities. Our interviews suggest that empowerment, from the perspective of the ultra poor participants, seems to be not only about being in control but also



about being accepted and respected by their communities. In this respect, they express greater satisfaction in their standing within their communities. Fourthly, we find a strong positive effect on women's self-reported confidence in doing different business-related activities. Fifthly, we discuss the implications of our findings in terms of social empowerment through network building.

Next, we study the poverty dynamics of individual households over time and explore characteristics associated with different paths of change. We find that overall, the program has persistent impacts on poverty as nearly 70 percent of the FSUP beneficiaries are found to be living above the poverty line in 2015. However, there is considerable variation in terms of households who exit poverty shortly after the intervention and remain above the poverty line, and some households who descend back into poverty, while some households never make the transition. We study the correlates of these dynamics in terms of household characteristics and programmatic aspects.

In terms of the correlation of household characteristics with poverty dynamics, we find that households who are less likely to receive informal transfers are also less likely to make the transition out of poverty, which could be due to their lack of a support network to cope with external shocks. Moreover, mobility of the participant is another structural difference that can explain part of the reason for why some households have failed to move above the poverty line. These two findings emphasize the role played by social networks and social norms in determining the effectiveness of the program in enabling a successful transition out of poverty. In terms of programmatic aspects, our findings indicate that the longer term growth and stable reduction in poverty depends on the households continuing the FSUP-supported IGAs at least for a while after the intervention period is over. Saving with the SHKMG or attending the group meetings do not seem to be strongly associated with long-term sustainability of impacts on poverty, although SHKMGs are considered to be critical during the intervention period.

Qualitative findings from three different case studies highlight the role of individual capacity, financial capital, social networks and connections in determining the success of the program in improving the livelihoods of poor households. In terms of reasons for the differences across beneficiary households in developing sustainable livelihood strategies, a number of explanations emerge from these case studies: lack of education and skills may hinder some participants' ability to managing a business and to make profitable business decisions; the presence of supporting members in the household makes an important difference for the success of the livelihood strategies; vulnerability and exogenous shocks like illness at the initial stages of the program may play an important role in determining the sustainability of livelihood strategies; individual household capacity (e.g. ability to internalize training, focus on saving, availability of networks) plays a key role in determining the success of livelihood strategies.

The main findings of the current study on nutritional outcomes can be briefly summarized as follows: (i) Undernutrition among young children are similar to the results of the Bangladesh Demographic Health Survey (BDHS-2014) in terms of all major indices- stunting wasting and underweight among the FSUP beneficiaries and comparison households. (ii) Among infant and young child feeding indicators, exclusive breastfeeding and minimum meal frequency is comparatively better in FSUP beneficiaries (relative to comparison households) while minimum dietary diversity is lower. (iii) About one third of women from beneficiary households always wash their hands with soap before eating, before preparing meals and before feeding their children. Almost half of them wash their hands with soap after cleaning child feces and preparing fuel from cow dung. There is high incidence

of hand-washing with soap after defecation among women from both beneficiary and comparison households (67 percent). Hand washing with soap seems to be a more prominent norm than washing at any other critical time. Direct observation states that access to soap and water at designated hand-washing places is higher among beneficiary than comparison households. (iv) Overall rate of vaccination among children (12-23 months of age) is remarkably high (82 percent) in both beneficiaries and comparison households. (v) Childhood illness is comparatively lower among the children (0-59 months of age) in beneficiary households than the comparison group. This may be the consequence of improved child caring practices and access to health services. (vi) We find that beneficiaries are more likely to use deworming tablets and iodized salt compared to comparison households. However, they are no more likely to consume fruits and vegetables frequently.

In terms of inter-household spillover effect on non-beneficiaries within the intervention communities, our qualitative studies highlight the following potential spillover effects of the program: (a) expansion of productive capacity in both agricultural and livestock farming; (b) development of saving behavior both at individual and collective levels; (c) strengthening of solidarity among the community people; (d) improvement in disaster preparedness; (e) creation and dissemination of new knowledge; (f) improved health behavior and hygienic sanitation practices; (g) increased awareness of health and nutrition; (h) women's empowerment and improved gender relations; (i) increased social mobility of women and recognition of their contribution to family and society; and (j) development of social networks and integrated economic activities.

In order to benchmark the impacts and costs of the FSUP relative to similar approaches, we compare the benefit-cost ratio of the program to similar programs also following a so-called 'graduation model'. We find that FSUP is quite comparable to these initiatives that have been evaluated in the literature in terms of the ratio of consumption benefits over costs. Although this is a simplistic comparison of impacts, since it considers only the impacts on consumption, the results are quite robust and highlight the comparability of FSUP with other, similar initiatives in terms of cost-effectiveness. In order to have a wider view of the program's livelihood impacts and to allow for a more complete cost-benefit analysis, we consider three elements of impacts – household consumption, assets value and savings. This analysis could potentially also include other social benefits such as food security or mobility, but the obvious concern is how to impute values for such benefits. Therefore, the benefits can be interpreted as 'economic benefits only'. Under certain, rather standard, assumptions, the average benefit-cost ratio comes to 2.87, which means that for every dollar spent the social return in economic terms the beneficiary households is 2.87 dollars. We also study the benefit-cost ratios for different quintiles of the benefits. Strikingly, we find that the ratio is very close to 1, even at the bottom quintile. This shows the project is cost-effective, even for those beneficiaries who have attained the lowest amount of economics benefits. Although the benefit-cost ratio is between 1.5 and 2.5 for most of the beneficiaries, there are about 20 percent beneficiaries who have benefited by a much larger margin than the rest. Overall, these results are testimony of the long-term cost-effectiveness of FSUP interventions.

Given the overall long-term success of the project, the intervention model can be adopted by policy makers as an effective strategy for sustainable reduction of ultra-poverty in Bangladesh. For further strengthening the long-term impacts, we recommend three specific intervention aspects – stronger focus on nutritional outcomes of children by introducing elements from successful nutrition interventions, encouragement to the beneficiaries to continue the supported enterprise for longer period before they start diversifying into farming, and strengthening SHKMGs through institutional

supports so that the beneficiaries continue to participate. These aspects can be further tested in future expansion of FSUP or similar interventions.

## 1. Introduction

Bangladesh has been making substantial progress in reducing extreme poverty over the last two decades, and has marginally achieved the millennium development goal (MDG) of reducing extreme poverty by half. According to the General Economics Division (GED) of the Ministry of Planning (2015), the proportion of households below the dollar-a-day mark has reduced from 70 percent to 43 percent between 1990 and 2010. According to BBS (2011), the proportion of households below the lower poverty line has declined from 25 percent in 2005 to 17.6 percent in 2010. The progress between 2010 and 2015 will be revealed from the national household survey. Comprehensive livelihood interventions with a focus on targeting the extreme poor have been one of the key strategies in achieving this success. However, achieving the new sustainable development goals will require both continuing the focused interventions targeting these extreme poor households as well as the sustenance of the income and consumption gains made by the households in recent years. It is generally accepted that growth alone, with unchanged inequality, will not be adequate to achieve these goals (Yoshida et al, 2014). Therefore, it is critical to understand the sustainability of the progress made by livelihood support programs and the determinants of sustainability.

The Food Security for the Ultra Poor (FSUP) project by the World Food Programme (WFP) is one of the examples for successful interventions that have led to reductions in extreme poverty in the short run (Umaria et al, 2011; BDI, 2012). However, considering the upcoming challenges of SDG as well as for understanding overall cost-effectiveness of such a targeted approach, it is equally important to measure the long-term success of this project. This study was commissioned by the WFP to assess the long-term sustainability of the initial impacts achieved by the project. This study is based on a panel survey of the households included in the previous outcome assessments to measure the sustainability of impacts. Additional qualitative data were also collected to understand the process of the long-term changes and to explore potential spillover effects at the community level. Furthermore, this study is designed to assess the nutritional impacts on children, which can be reflective of much longer duration of impact through higher human capital, although the project per se did not have any nutrition objectives.

Directions of the impacts in post-intervention periods will determine the cost-effectiveness of the model adopted by the project. If the interventions are successful not only in improving economic outcomes, but also in breaking any underlying structural poverty traps, we should observe an acceleration in economic growth among the targeted households in the post-intervention period. Moreover, impacts on human capital accumulation can have much longer-term effects since this is one of the main drivers of transition out of ultra-poverty in Bangladesh. On the other hand, much of the immediate successes can wither away after the project is phased out if the supports create a dependency trap. Furthermore, certain outcomes such as nutritional status or school enrolment of the children may take longer than the project period to have visible impacts. At a more practical level, it is also important to identify which specific program component(s) can strengthen the effects in post-intervention period.

## 2. FSUP project description

Initiated in 2009, WFP's FSUP project has reached 30,000 ultra poor households in eight *upazilas* in three Northern districts of Bangladesh, 5,000 households started in 2010 and 25,000 in 2011.<sup>3</sup> This project has provided a comprehensive support package to the targeted households comprising of a one-off asset grant/cash grant and monthly subsistence allowance for 24 months combined with business development supports and trainings. The project integrated a set of carefully sequenced elements within a holistic strategy to achieve long term food security. The monthly subsistence allowance aimed to ensure that immediate food consumption gaps are met, a cash grant was provided to purchase an income-generating asset to kick-start an economic activity that will generate subsequent streams of incomes to sustainably maintain food security even after the end of the program and the end of the consumption allowance, and training conducted to manage their economic activities and being part of a local self-help knowledge management group (SHKMG). The project design is based on WFP's long-term experience in working with the poorest in Bangladesh.

### A. Targeting the ultra poor

In order to select ultra poor women in disaster prone zones, the project applied a rigorous targeting methodology using vulnerability analysis and mapping, and a combination of proxy means test and community targeting. In order to achieve a high level of accuracy and transparency in the selection process, WFP trained NGO partners on Food Security Ranking (FSR) Technique that involved communities and attached priority to female-headed households. The NGO teams asked community members to identify extremely poor households in their community according to their level of food security. Based on the input received, they drafted a list of the households in the poorest food intake category. In the next step, they prioritized the female-headed households from the list, 77 percent of female-headed households had either a disabled or no male earning member, applying the following inclusion and exclusion criteria to finalize the list of participants.

Program eligibility was based on households meet at least four of the following five criteria:

- Chronic food insecurity, i.e. members of the household often skip meals due to food insufficiency
- Households headed by a woman with no adult male income earner
- Households surviving on low income casual labor and lacking a regular source of income
- Poor housing conditions in terms of material and sanitation facilities; and
- Asset poor households owning less than 0.15 acre of land.

In addition, households were excluded if the primary female participant was not within the age range of 18-49, if they were receiving assistance from a similar food or cash assistance program, or if they were in a similar program that had recently finished. Results from the baseline survey (BDI, 2010) indicate that 86 percent of beneficiary households fulfilled four inclusion criteria and 98 percent fulfilled at least three. This shows the successful effort by the implementation partners in adhering to targeting methodologies.

### B. Interventions

There were four broad components of the FSUP intervention package. The first is a **lump-sum cash grant** as startup capital to initiate an income generating activity (IGA). The participants received Tk.

---

<sup>3</sup> This project description draws heavily from the outcome survey report of Umaria et al (2011).

14,000 in one installment to purchase a productive asset. The cash grant enabled participants to purchase their own assets or to invest in business activities of choice.

Under the second component, FSUP participants received a monthly **subsistence allowance** of Taka 500, which was provided for 24 months. During the lean seasons, i.e. a period of two months each year, the amount distributed was increased to Tk. 1,000. Provision for this allowance had several underlying considerations. It provided much needed assistance to immediately improve food security, especially in the lean season, until additional earnings began to stream in from economic activities started with program grants. It also offset the opportunity cost of time for the alternative livelihood of managing the project funded IGA by reallocating time from other activities. Moreover, the monthly allowance provided an incentive for participants to attend the regular program meetings to discuss any problems they may have with their economic activities, to find out about health and social issues, and to build relationships and networks with other members or NGO staff.

The third component comprised of **forming self-help knowledge management group (SHKMGs)**. They usually consist of between 20 to 30 members, and meet twice every month. Each group had a committee consisting of a president, secretary and treasurer. Typical meeting durations were between one hour and a half to two hours. From the project side, the Economic Development Officer (EDO) and the Contact Women (CW) were always present. An EDO is primarily responsible for helping participants with their IGA. He or she also acts as the main communicator between participants and the NGO. An EDO looked after any number between 300 to 350 participants. They were mandated to visit each household bi-weekly. All Contact Women were required to have completed at least Class 8 of education. They were from the area and mandated to visit each participant's household once a week. Their primary responsibilities were to collect data regarding an IGA's expenditure and profit and raise awareness about nutritious food intake and proper sanitation and hygiene practices. They were also to inform the EDO if there was a problem with a particular IGA. Both of these coordinators were always present at the meetings and worked together to raise awareness about nutrition. While the program did not mandate savings, annual outcome survey teams found that NGO staff on the ground firmly insisted that participants deposit Tk. 100 of their cash consumption allowance each month.

The fourth and final component included a wide range of training. Prior to receiving the cash grant, all project participants received 5-day training on **Entrepreneurship Development**. NGO staff assisted participants to choose an IGA or a combination of IGAs that they engaged in after receiving the cash grant. The training required the participants to consider a number of things prior to starting an IGA. For example, they brainstormed together on (i) necessary skill sets and capacity that was needed to run an IGA; (ii) market demand for its products; (iii) whether they had access to necessary resources and services to maintain the IGA; (iv) costing, cash flow and profits; and (v) potential challenges stemming from input scarcity, loss of demand, increased costing, fluctuating prices.

Immediately prior to receiving the grant, participants were given an additional training specific to their IGA called **Income Generation Activities Skill**. Those women who had prior experience and/or were skilled in an IGA often did not participate. Separate modules on bull fattening, crop cultivation, poultry and goat rearing covered most of this skills training component. For example participants selecting a goat as an IGA were specially taught about the goat plague, its symptoms and preventing it with vaccination. Those participants who were engaged in crop cultivation were offered basic training on the following crops- wheat, jute, mustard, chili and tomatoes. They received training on

how to prepare the land, harvest the crops and market the products. They learned when to plant the seeds, when to water the crops, how to identify whether the crop was ready for harvesting and how to harvest it. Participants who selected bull fattening enterprise learned how to identify a healthy bull for purchase. They were taught the importance of having a safe shelter and the right food for the animal.

Project participants were also offered training on **Disaster Risk Reduction**. They learned about the adverse effects of different types of disasters, such as flood, river erosion, drought, cyclone, fire and violent feuds. Special emphasis was placed on the actions that can be taken in advance in order to protect livestock, homes and crops. For example, prior to a flood, beneficiaries were told to raise the plinth of their homestead, collect dried dung on sticks and dry food items. During a flood, they were taught to take shelter by an embankment or in a school or where they can collect water. They were also advised on what to do following a disaster. For example, after a flood, they were told to purchase insect repellent and repair their homes to avoid exposure to further health risks.

Finally, participants also received training on infant and young child feeding practices which includes breastfeeding, age appropriate complementary feeding, handwashing during critical time, consumption of nutrient dense food and fruits following seasonal calendar, utilization of essential health and nutrition services targeting women and young children. During routine discussion in the sessions, they discussed adoption of behaviors related of consumption of certain food items instead of others and basic hygiene skills such as washing one's hands prior to eating. Much emphasis was put on breast feeding their children and getting them immunized during these training sessions.

### 3. Data and analytical framework

This report utilizes a mixed-method approach for analyzing the sustainability of impacts two years after the end of the intervention phase, the determinants of post-intervention trajectories and the process of household poverty dynamics. The study identifies five broad research questions –

- a. How different are the program effects on livelihoods of the intervention group two years after the project interventions ended vis-a-vis those measured immediately after (and during) the interventions?
- b. What are the determinants of the trajectories of change in the post-intervention period among the beneficiaries?
- c. What are the intra-household spillover effects of improved livelihoods on nutritional outcomes of the children?
- d. What are the inter-household spillover effects within a community on the livelihoods of non-beneficiary poor households in intervention villages?
- e. What is the overall cost-effectiveness of FSUP?

Among these five questions, the first three primarily rely on the household surveys for sustainability assessment with qualitative data providing insights on the mechanisms. Exploratory research is conducted through qualitative means to answer the fourth question of spillover effects within the intervention communities. Answering the final question relies on meta-analysis of comparable interventions from the literature to provide a comparative cost-effectiveness analysis.

#### A. Household Surveys

This study builds on the previous impact study conducted by BRAC Development Institute (BDI) to measure the short-term impacts of FSUP. As part of this, a baseline survey was conducted in February of 2010 on a sample of 1,890 households of whom 1,260 were beneficiary/intervention households and 630 were in the comparison group.<sup>4</sup> This baseline survey adopted a three-stage cluster random sampling process – from each of the three districts selected as project sites (viz. Sirajganj, Pabna and Bogra), four intervention unions (lowest administrative unit in Bangladesh) were sampled followed by random sampling of seven intervention villages in each union. This yielded a total sample of 84 intervention villages. From each of these intervention villages, 15 beneficiary households were randomly selected at the third and final stage yielding a total sample of 1,260 intervention households. This sampling was done to select the beneficiaries from the 5,000 households identified for intervention in the 1<sup>st</sup> batch of selection in the project who started participating in 2010.

For sampling comparison households, the sub-districts in the same three districts without the project intervention were considered. From these non-intervention sub-districts, six unions were randomly selected stratified by districts (i.e. two unions per district). In each sampled union, seven villages were randomly selected following the same sampling structure of intervention group. To sample households from these comparison villages, the research team adopted the same eligibility criteria as adopted by the project for beneficiary selection. To create a sampling frame, a census was

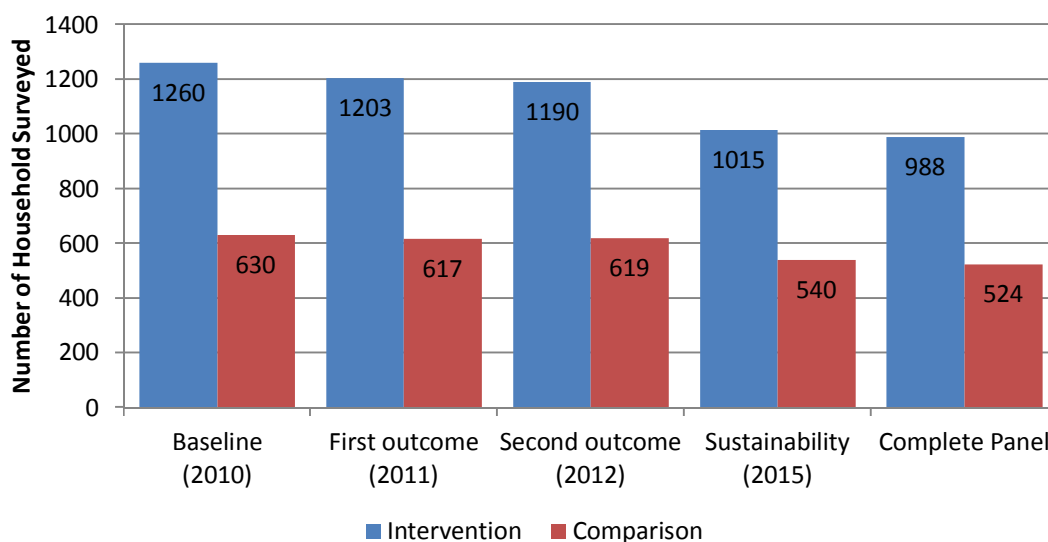
---

<sup>4</sup> To clarify the different terminologies used in this report, we use *beneficiary* to refer to the households who received FSUP interventions, *participants* to refer to the women who participated in the trainings and received the transfers for their households, and *comparison group* to refer to household who are not beneficiary and were selected from villages without interventions. The *non-beneficiaries* refer to the households in the intervention villages who did not receive FSUP transfers.



conducted in all these households and possible eligible households were identified based on this census information. This step is one of the critical aspects for comparability of the comparison group, and hence the members from implementation teams were engaged to verify the screening process. After the screening, 15 households were sampled randomly from the eligible households to reach a total of 630 comparison households.

**Figure 1: Households in the panel survey<sup>5</sup>**



Two follow-up surveys were conducted in February of 2011 and from March to May 2012 on the same 1,890 households. These “outcome surveys” successfully tracked 1,820 and 1,809 households in the first and second outcome surveys respectively with attrition rates of about 4 percent, which is generally considered to be an acceptable attrition rate in panel data (Figure 1). The current sustainability study aimed to trace these same households and successfully interviewed 1,555 households. This yields an attrition rate of 18 percent from the baseline survey. One of the major challenges in conducting this panel survey (conducted during July – September, 2015) was the unavailability of the paper questionnaires used for the previous surveys. Since the detailed information of respondents’ household members’ names and other identification information was not fully entered in the data, we had to rely on limited contact information available in the database. Considering this important limitation, the rate of re-interview can be considered successful.<sup>6</sup>

There was also a challenge in creating the panel data with all four rounds. The second outcome survey in 2012 used a different identification number than the other three rounds. Consequently, we are not able to conduct the panel analysis – i.e. measuring changes for individual households. However, since these households are from the same baseline, we can treat them as ‘repeated cross-section’. Most of our sustainability analysis uses the complete panel of 1,512 households with data in all three rounds (2010, 2011 and 2015).

Since measuring nutrition outcome of the children is also one of the additional objectives of this sustainability study, attrition was a particularly important consideration for having adequate

<sup>5</sup> ‘Complete Panel’ refers to the same households interviewed in baseline, 2011 and 2015. Data from the second outcome survey in 2012 is used in the ‘repeated cross-sectional’ type analysis.

<sup>6</sup> To limit such challenges in future, this survey used computer adapted survey method and digitally captured all the identification information including GPS location of the respondent households.

numbers of children in the sample. Therefore, we took an additional replacement sample during the sustainability (2015) survey. A total of 367 such replacement households were interviewed in this round (242 intervention and 125 comparison households) who are not shown in Figure 1. Data collected from these households are utilized only for the nutritional outcomes.<sup>7</sup>

## **B. Qualitative Data**

As explained later, the analytical framework followed for measuring sustainability and the focus on understanding the process through which livelihood strategies can be developed and sustained require a mix of quantitative and qualitative methodologies. There are a number of reasons behind this mixed-method approach.

First, the analysis of sustainable livelihood approach relies on assessing the internal aspects of livelihood, identifying and analyzing the external institutional factors, and the extent and nature of vulnerability faced by the poor. The interaction between these factors not only determines the livelihood strategies of the poor but also indicates their sustainability. Whereas the internal aspects of livelihood, the impact of external factors (to some extent) and the overall impact can be found through analyzing the quantitative approach, this does not provide an in-depth analysis of the process through which this interaction takes place.

Second, from this perspective, the qualitative approach is extremely helpful because as explained by Spencer et al (2003), if an evaluator wants to "provide an in-depth understanding of people's experiences, perspectives and histories in the context of their personal circumstances or settings", he or she should follow the qualitative approach as its strength lies in exploring a phenomenon from the "...perspective of those being studied, with the use of unstructured methods which are sensitive to the social context of the study" (Spencer et al, 2003: 3). Furthermore, it provides a more detailed and richer view of a studied phenomenon and this view is concentrated on depth at the expense of breadth (Maxwell, 2013), which is extremely helpful in tracing the process through which internal capacities of the poor households were translated into livelihood strategies.

Considering these factors, a number of qualitative research techniques have been employed to explain the sustainability of the impacts and the process of poverty dynamics in general and the spillover effects of the project on the intervention communities in particular.

During our study we conducted 30 case studies in total (20 beneficiary and 10 comparison households). The case studies have been developed using the life-history method. In order to understand the spillover effects on other ultra poor people residing in the intervention villages, we conducted in-depth interviews of 40 non-beneficiary households. These households were identified through our surveys of beneficiary households. During these interviews, the participant women were asked about other ultra poor households living in their community with whom they maintained social connections. The 40 households for these in-depth interviews were selected from these connected households. This helped the evaluation team in measuring the impact of social connections. Group discussions were held with 10 SHKMGs in order to develop a better

---

<sup>7</sup> Panel data has the advantage of controlling for time invariant both observable and unobservable characteristics, which is quite powerful for robust analysis of attributable impact. Since most of the children who are aged <5 at the 2015 survey were born after the previous surveys, panel data analysis for their nutritional status does not have the same statistical advantage as the other livelihood outcomes.

understanding about the issues of sustainability and changes in social norms. Finally, we conducted one key informant interview (KII) in each intervention village to triangulate our findings of spillover analysis from in-depth interviews. The key informants were elites, NGO personnel, market actors, government service providers and local political leaders. Annex 1 has the specifics of qualitative data collection used in this study.

### C. Analytical Framework

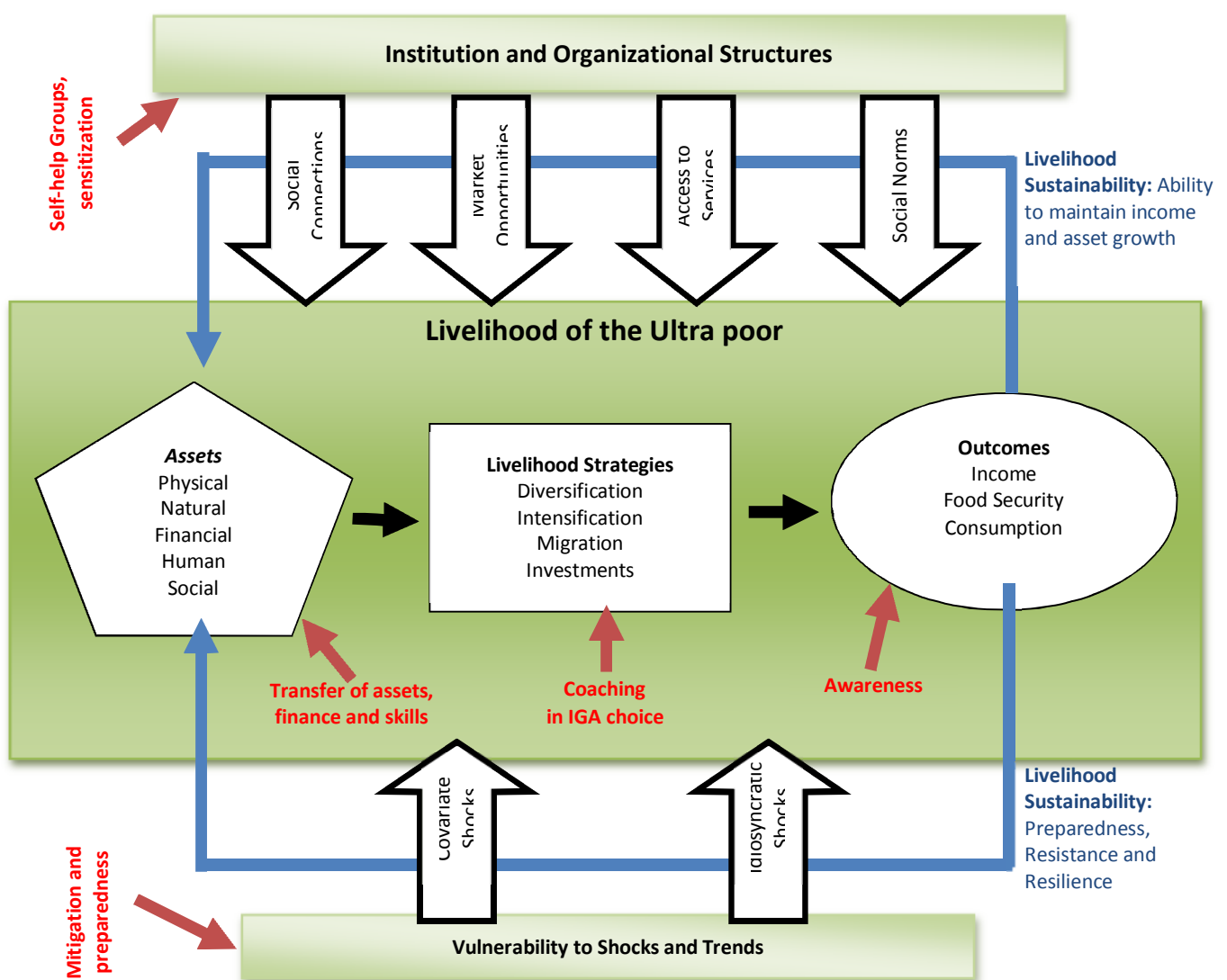
The purpose of this section is to describe the framework that we follow in conducting our analysis for answering the five specific research questions. This analysis framework is primarily relevant for the sustainability questions (questions a and b specified earlier) that feed into answering the final question of cost-effectiveness by measuring the social return on investment. It is important to specify the definition of 'sustainability' since there is a multitude of meanings even in the context of social programs, e.g. financial, social and environmental sustainability. In our analysis, we essentially define sustainability as the ability of rural ultra poor households to maintain their livelihoods by using the economic and social opportunities available to them and to withstand shocks. Environmental sustainability is relevant for our analysis as an external factor instead of one on which FSUP may have impact on. This framework (Figure 2) is taken from the sustainable livelihood framework proposed by Frank in his various publications on rural livelihoods since 1999 including Ellis (2000).

Our first research questions on the "sustainability of impacts" will require us to study how the impacts observed at the end of the program were sustained in the post-intervention periods. This is done by assessing the trajectories of changes at three specific domains of livelihood: asset base, livelihood strategies and outcomes. At the asset level, the sustainability question is primarily whether they are able to maintain and/or grow their asset base. Various studies have shown that asset is a better reflection of poor households' long-term dynamics, since income or consumption can vary in the short term due to small shocks. Carter and Barrett (2006) demonstrate that asset change can better reflect the structural change in poverty dynamics over transitory changes. Therefore, we focus more on assessing the poverty dynamics from asset accumulation perspective. However, it should be mentioned here that measurement of change in asset base does not only include financial assets. Rather, in sustainable livelihoods approach, assets also include the social resources available and accumulated by the poor. As Solesbury (2003) pointed out the asset base of the poor include among others, "... their own skills...social institutions...values and cultures and... their detailed and sophisticated knowledge of their own environment". Ellis' (1999) analysis actually provides a broader categorization of assets and as shown in the figure below, asset base is comprised of human capital, i.e. education, skills and health of poor; physical capital, i.e. their ownership of farm lands and equipment; social capital, i.e. "...the social networks and associations to which people belong; financial capital which includes savings, credit or cattle and natural capital. To develop an understanding about the ability of the poor in accumulating different types of assets is extremely important because through analyzing this, it will be possible to understand how the poor have managed (or failed) to develop sustainable livelihood strategies.

Sustainability of livelihood strategy can be assessed by observing whether participants were able to maintain or build on the IGA portfolio that they had developed by the end of the FSUP interventions. It should be noted that sustainability of livelihood strategies does not necessarily mean that the households will continue the same IGAs over time. Instead the focus is to explore whether the IGAs adopted by the participants at the end of FSUP interventions have allowed them to modify or even shift the income generating activities as a response to external environment (i.e. new opportunities

or threats). From this perspective, the ability to diversify IGAs as a response to changes in the external environment is considered to be a key survival or growth strategy adopted by the poor. Sustainable livelihood strategy therefore includes diversification which has been defined by Ellis (1998) as the process through which, "... rural families construct a diverse portfolio of activities and social support capabilities in their struggle for survival and in order to improve their standards of living" (Ellis, 1998: 4). This definition is important for the purpose of this evaluation for two specific reasons- first, it shows that survival and/or improvement encourages the poor to diversify their portfolio of IGAs; second, it shows that diversification requires social support capabilities, i.e. whether they have the capacity to receive support from their social networks. Finally, the outcomes are primarily household welfare, and the question at this level is whether their welfare is sustained. Income, food security and consumption are to be used as proxies for wellbeing.

Figure 2: Sustainable livelihood framework



The second research question regarding what determines this sustainability (or lack thereof) involves looking at households' internal livelihood structures as well as their external environments. The internal aspect, as indicated above, includes an assessment of the asset base of the poor and provides an idea about their capacity to deal with exogenous factors and external shocks. The external factors, on the other hand, can be assessed from two dimensions: institutional, which

includes social network, social norms, market opportunities and services; and vulnerability to external shocks. Analysis of the institutional factors is extremely important as the outcome of interaction between the institutional factors and households' abilities, i.e. their asset base, eventually determines the livelihood strategies. For instance, the use of education for their children, health services or livestock care services is determined by their ability to interact (i.e. social capital) with these service providers and the service-orientation of these service delivery agents (i.e. an important institutional factor- access to services). Exploring this pattern or nature of interaction serves two purposes. First, it allows the opportunity to analyze how the asset-base can be translated into livelihood strategies while taking into consideration the social context, institutions, market opportunities, social network, and norms, as shown in the figure above. Second, it indicates the households' capacity to diversify their use of the asset base in order to develop their responses to the opportunities or threats coming from the external institutional set-up. This eventually determines the initial sustainability of the livelihood strategies. Furthermore, the second external domain, vulnerability, which includes various covariate shocks (such as natural disasters) and idiosyncratic shocks (e.g. death of a household member or theft of assets), may test the strength of the initial sustainable livelihood strategy. From this perspective, assessments of the poor's readiness (to mitigate the livelihood of experiencing shocks), resistance (ability to reduce the effects of such shocks) and resilience (ability to bounce back from the immediate shocks) indicate the extensity of the livelihood sustainability strategies.

In addition to these analyses of livelihood sustainability, it is important to identify the programmatic entry points, and the correlations between programmatic approaches with particular sustainability measures. The red texts on the framework identify the specific interventions that are to be assessed individually to the extent possible. It is also important to highlight that a particular intervention can be related to multiple aspects of this framework. For instance, the SHKMGs are primarily an institution building to create social networks among the ultra poor and change certain social norms. It can also work as an informal insurance mechanism to cope with crises.

An important aspect of adopting this framework in sustainability analysis is the need for combining quantitative data with qualitative analysis. While many of the internal aspects of livelihood can be assessed using survey data, the interaction of external institutions and vulnerability with livelihood strategies can only be understood through detailed qualitative analysis.

#### D. Data Analysis

We use difference-in-difference as the primary statistical identification strategy for the sustainability assessment. In particular, we estimate the following specification:

$$y_{it} = \beta_0 + \beta_1 treat_i + \beta_2 followup_{2011} + \beta_3 followup_{2012} + \beta_4 followup_{2015} + \beta_5 treat_i * followup_{2011} + \beta_6 treat_i * followup_{2012} + \beta_7 treat_i * followup_{2015} + \delta_k X_i + u_{it}$$

where  $y_{it}$  is outcome of household  $i$  in time  $t$ ,  $treat_i$  is a dummy equal to 1 if household  $i$  is an intervention household and 0 if a comparison household,  $followup_t$  are dummy variables equal to 1 if the observation comes from follow-up survey in period  $t$  and 0 otherwise,  $X_i$  is a vector of household controls from the baseline and  $u_{it}$  is the error term. In this specification,  $\beta_5$  is the difference-in-difference estimate of the FSUP's impact at the first follow up survey (2011),  $\beta_6$  is the impact measured in 2012, and  $\beta_7$  is the impact at the 2015 survey round (i.e. long-term impact).  $\beta_2$ ,

$\beta_3$  and  $\beta_4$  show the 'general trend' observed by the comparison group between baseline to the three follow-up survey years respectively. The main assumption in this estimation method is that the trend observed for the comparison group is the counterfactual trend for the intervention group had they not received the project supports (i.e. common trend assumption).

To identify the determinants of changes in the post-intervention period, we estimate the following specification:

$$\Delta y_{i2015-2011} = \beta_0 + \beta_z \Delta Z_{it} + \delta_k X_{ibaseline} + u_{it}$$

Where  $\Delta y_{i2015-2011}$  is the change in outcome indicator for household  $i$  between 2011 and 2015, which primarily measures the post intervention changes. The correlates investigated are changes in other indicators and baseline characteristics. As noted earlier, data from 2012 could not be used for this change analysis because of inadequate identification information for creating panel. However, this analysis of changes between 2011 and 2015 is adequate to understand changes in post-intervention period.

One important consideration in the data analysis is the conversion of all monetary values to baseline level for measuring true change beyond inflation. We used the rural consumer price index (CPI) of Bangladesh Bureau of Statistics (BBS) to deflate the monetary values (e.g. income, assets value or savings) to 2010 as the base year. The CPI at baseline was 159, which increased to 173 in 2011 (first outcome), 175 in 2012 (second outcome) and 212 by February of 2015.

#### 4. Sustainability of the impacts on livelihood

Following the sustainable rural livelihood framework, we compare the long-term impacts of the project against the short-term effects on key livelihood outcomes. We start with assets, which is a better measure of *structural* (or systematic) changes compared to *stochastic* (or random) changes. The second subsection measures the same on economic activities of the respondents. Vulnerability to shocks, crisis coping ability, overall changes in household wellbeing and the long-term change in empowerment are assessed in subsequent subsections.

##### A. Sustainable asset accumulation

Table 1 shows the sustainability of asset ownership for different types of assets. In this analysis, the constant shows the proportion of comparison households who own particular type of assets. According to this Table, 47 percent of households in the comparison group owned some livestock (excluding poultry) at baseline. This rate was much lower (by 16 percentage points) among the intervention group (i.e. only 31 percent of them owned any such livestock at baseline). We do not observe any significant change in this indicator for the comparison group between the baseline and any of the three follow-up surveys, which are reflected by not significant coefficients of follow-up 1, 2 and 3. Impact 1, Impact 2 and Impact 3 show the difference-in-difference estimates for this outcome at 2011, 2012 and 2015 respectively. We find that while there was a large effect of the project on the likelihood of households owning livestock (by 53 percentage points), the effect sizes at second and third follow-up surveys have gradually declined to 28 percentage points in 2012 and 17 percentage points in 2015. We find that the project has a statistically significant long-term positive effect on livestock ownership (17 percentage points in 2015), which is lower than the short-term impacts. This difference in short vs. long-term impacts is also significant at 1% significance level (estimate not shown in the table). This, however, does not necessarily demonstrate a lack of sustainability of the impact. It is plausible that households may shift their strategy of asset accumulation from livestock to other assets. In fact, our qualitative studies indicate that over the time, the beneficiary households have diversified their income sources and as a result, they have concentrated on developing other permanent sources of income and engaging other members of their households. For instance, one participant, after making profit from selling livestock decided to buy an auto-van for her husband. Another participant eventually bought a grocery shop with the savings and profits made from the livestock rearing. In other words, our qualitative study indicates that in most cases, the successful beneficiary households concentrated on two things – they decided that they needed to develop a permanent income source for the family and, with that in mind, they attempted to develop a long-term plan. One respondent explained it in the following way, "you have to plan how you are going to spend the money. Those who have cut their coats according to their clothes have been successful. After all, if you have no idea about how you are going to use your resources, how will you be successful?"

A similar reduction in the impact is observed for poultry, land and transport related asset (e.g. bicycle or boat) ownership. However, this reduction in the impact has not happened due to fewer beneficiary households owning these assets. It has happened due to the increases in the proportion of comparison households owning these assets. (Descriptive statistics are provided in Annex 2 as simpler presentation of these changes.) As the coefficient of Follow-up 3 shows, comparison households owning land increased by 16 percentage points between baseline and 2015. In other words, while the intervention households have been able to sustain ownership of these assets,

households in the comparison group have increased their ownership as well, catching up with the intervention households. We do not observe any major changes in household durables since almost all the households owned some form of durable asset at baseline and this has not changed in follow-up surveys. The most encouraging change is observed in the impact on households' having some stock of grains.

**Table 1: Impacts on ownership of different assets**

	Livestock (1)	Poultry (2)	Land (3)	Transport (4)	Tools (5)	Durables (6)	Grain (7)
Intervention	-0.157 (0.026)***	0.021 (0.027)	-0.011 (0.027)	-0.007 (0.022)	0.023 (0.010)**	0.002 (0.002)	-0.052 (0.022)**
Follow-up 1 (2011)	-0.015 (0.031)	0.042 (0.030)	0.044 (0.031)	-0.038 (0.024)	0.023 (0.011)**	-0.002 (0.003)	-0.177 (0.020)***
Follow-up 2 (2012)	0.031 (0.031)	0.019 (0.030)	0.152 (0.031)***	-0.016 (0.025)	0.019 (0.011)*	-0.017 (0.006)***	0.146 (0.028)***
Follow-up 3 (2015)	-0.046 (0.031)	0.176 (0.030)***	0.170 (0.030)***	0.162 (0.028)***	0.034 (0.010)***	0.000 (0.003)	0.149 (0.028)***
<b>Impact 1 (2011)</b>	<b>0.525</b> <b>(0.036)***</b>	<b>0.099</b> <b>(0.038)***</b>	<b>0.145</b> <b>(0.038)***</b>	<b>0.133</b> <b>(0.031)***</b>	<b>-0.007</b> <b>(0.012)</b>	<b>-0.001</b> <b>(0.004)</b>	<b>0.161</b> <b>(0.026)***</b>
<b>Impact 2 (2012)</b>	<b>0.280</b> <b>(0.038)***</b>	<b>-0.000</b> <b>(0.038)</b>	<b>0.150</b> <b>(0.036)***</b>	<b>0.141</b> <b>(0.032)***</b>	<b>-0.026</b> <b>(0.013)**</b>	<b>-0.011</b> <b>(0.008)</b>	<b>0.140</b> <b>(0.034)***</b>
<b>Impact 3 (2015)</b>	<b>0.168</b> <b>(0.038)***</b>	<b>-0.008</b> <b>(0.038)</b>	<b>0.089</b> <b>(0.037)**</b>	<b>-0.009</b> <b>(0.034)</b>	<b>-0.014</b> <b>(0.011)</b>	<b>-0.000</b> <b>(0.003)</b>	<b>0.342</b> <b>(0.034)***</b>
Constant	0.471 (0.022)***	0.397 (0.021)***	0.406 (0.021)***	0.210 (0.018)***	0.956 (0.009)***	0.998 (0.002)***	0.223 (0.018)***
Observations	6,048	6,048	6,048	6,048	6,048	6,048	6,048
R-squared	0.106	0.022	0.092	0.026	0.009	0.015	0.174

Note: Robust standard error in parenthesis; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; The coefficient of 'Intervention' shows the differences between beneficiary and comparison households at baseline, and constant is the baseline mean for comparison group. Follow-up 1, Follow-up 2 and Follow-up 3 are the changes in comparison group from baseline to 2011, 2012 and 2015 respectively. Impact 1, 2 and 3 are the difference-in-difference estimates of impact on beneficiary households in 2011, 2012 and 2015 respectively.

**Figure 3: Ownership of land and grain**

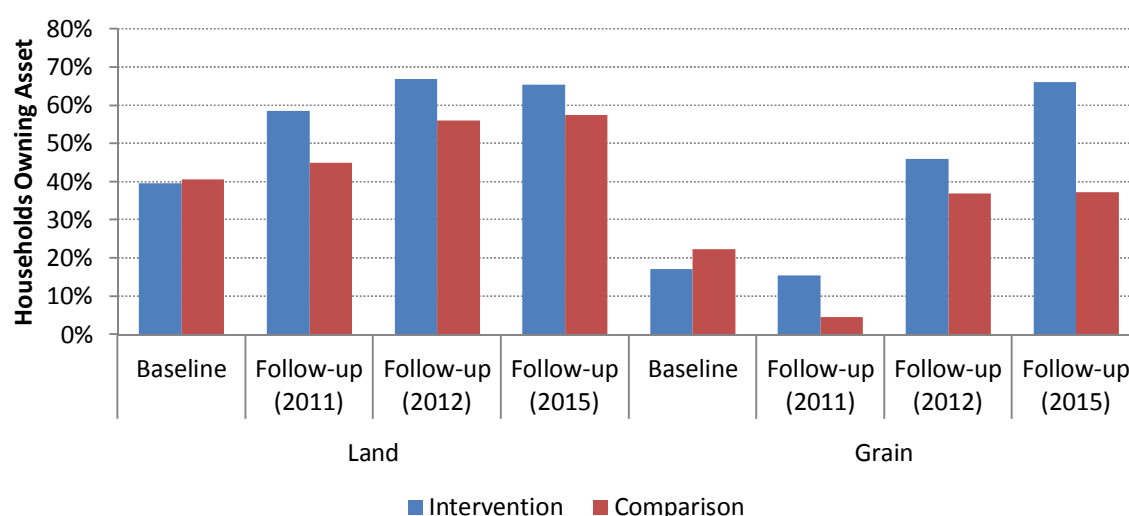


Figure 3 gives a visual representation of the changes in households' likelihood to own land and to have a grain stock. The importance of land ownership for rural poor is well understood in



Bangladesh. Land is the most desired form of asset, not only because of its importance in livelihood stability but also for social status. Part of the changes in the grain stock can be attributed to seasonality since the survey in 2015 was done at a different period. However, the larger impact on grain stock at the third follow-up corroborates the sustained impact on land ownership. These statistics show that the intervention households are moving up on the asset accumulation path from livestock to land, and thereby attaining greater food security through having food stocks in their households.

Our qualitative findings strongly support this trend. During the focus group discussions (FGDs) and key informant Interviews (KIIs), a number of respondents told us that while they initially relied on cattle-rearing, after selling their cows twice or thrice, they managed to have a sizeable profit in their hands, which eventually encouraged them to take lease of arable land. One respondent told us, "it is always better to have a regular source of food. When my husband told me that X of this area is looking for people to whom he can lease out his land, I told him to take that opportunity. After all, in that case we would not have to be concerned about our meals".

**Table 2: Impacts on value of assets owned**

	Livestock	Poultry	Land	Transport	Tools	Durables	Grain
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intervention	-2,550.2 (416.0)***	-14.3 (14.7)	1,903.5 (2,264.8)	4.8 (91.1)	1,087.3 (1,216.4)	-372.5 (134.1)***	-10.4 (18.9)
Follow-up 1 (2011)	-1,966.7 (504.7)***	32.2 (17.9)*	6,806.7 (6,006.8)	673.4 (627.3)	-237.5 (70.8)***	367.4 (217.4)*	-49.8 (18.1)***
Follow-up 2 (2012)	-760.6 (531.0)	109.3 (23.8)***	15,650.7 (3,972.2)***	278.0 (160.6)*	24.8 (83.9)	2,212.8 (271.6)***	1,136.8 (161.6)***
Follow-up 3 (2015)	1,711.8 (748.7)**	232.7 (25.8)***	19,349.6 (3,698.4)***	661.5 (193.8)***	20.5 (74.4)	2,336.4 (243.6)***	405.9 (128.9)***
<b>Impact 1</b>	<b>14,195.4</b> <b>(686.0)***</b>	<b>184.3</b> <b>(34.8)***</b>	<b>2,803.5</b> <b>(6,448.2)</b>	<b>-147.7</b> <b>(633.3)</b>	<b>-916.9</b> <b>(1,217.0)</b>	<b>1,522.4</b> <b>(267.3)***</b>	<b>124.7</b> <b>(29.1)***</b>
<b>Impact 2</b>	<b>10,274.8</b> <b>(734.4)***</b>	<b>168.8</b> <b>(40.6)***</b>	<b>20,626.1</b> <b>(5,105.0)***</b>	<b>928.4</b> <b>(238.3)***</b>	<b>-953.0</b> <b>(1,217.8)</b>	<b>2,092.7</b> <b>(336.4)***</b>	<b>670.3</b> <b>(210.5)***</b>
<b>Impact 3</b>	<b>3,536.6</b> <b>(882.1)***</b>	<b>133.0</b> <b>(43.9)***</b>	<b>47,371.2</b> <b>(7,029.5)***</b>	<b>750.5</b> <b>(329.5)**</b>	<b>-819.9</b> <b>(1,217.6)</b>	<b>1,558.3</b> <b>(349.4)***</b>	<b>388.3</b> <b>(149.3)***</b>
Constant	4,432.9 (388.7)***	135.3 (12.4)***	14,555.5 (1,537.4)***	501.5 (77.8)***	604.7 (66.2)***	2,618.5 (110.6)***	80.5 (15.7)***
Observations	6,048	6,048	6,048	6,048	6,048	6,048	6,048
R-squared	0.120	0.030	0.051	0.007	0.001	0.089	0.070

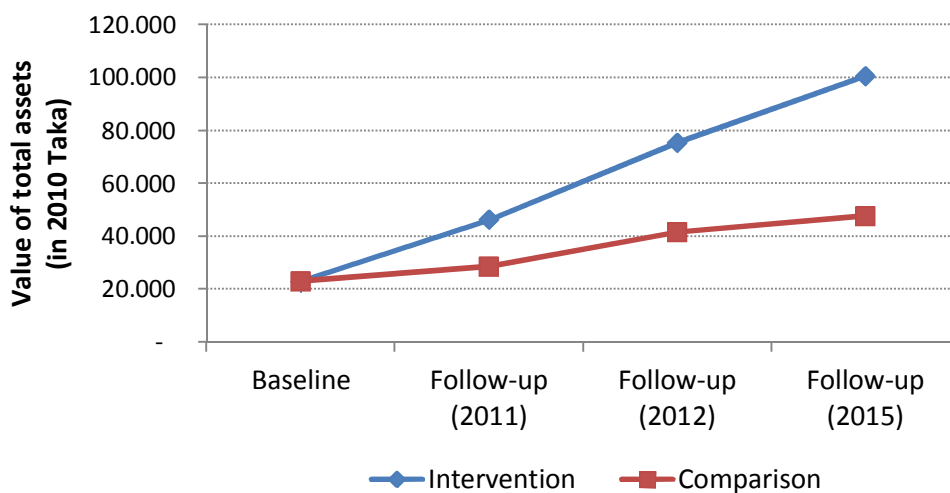
Note: Robust standard error in parenthesis; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; The coefficient of 'Intervention' shows the differences between intervention (beneficiary) and comparison households at baseline, and constant is the baseline mean for comparison group. Follow-up 1, Follow-up 2 and Follow-up 3 are the changes in comparison group from baseline to 2011, 2012 and 2015 respectively. Impact 1, 2 and 3 are the difference-in-difference estimates of impact on intervention households in 2011, 2012 and 2015 respectively.

Table 2 shows the impact assessment results on the value of assets (in Taka). The interpretations of the coefficients are the same as those of Table 1 with the only difference of the outcome indicators being in Taka instead of percentages. In Table 2, several changes between short-term and long-term impacts are noteworthy. Firstly, impact on the value of livestock owned has declined (from Tk. 14,195 in 2011 to Tk. 10,275 in 2012 and to Tk. 3,536 in 2015) confirming that intervention households are relying less on livestock as an income earning activity in the post-intervention period although they have more livestock than the comparison group even in the long-run. Second, there is

again a remarkable change in the impact on the value of land owned. The longer-term impact is over 16 times higher than the short-term impact (i.e. Tk. 20,626 in 2015 compared to only Tk. 2,803 in 2011). There was also a 10-fold increase in the impact on this indicator between 2011 and 2012. This is a testimony of the households attaining a faster asset accumulation path than the comparison group through accumulating land. Although we did not observe any changes in ownership of transport and household durable assets at the extensive margin (i.e. whether owned or not), there are significant changes on the intensive margin as the values of these assets owned by the intervention households are significantly higher than the comparison group. Finally, in terms of impact on grain stock, the impacts are stronger in the long run.

Figure 4 shows the changes in total value of assets owned by the intervention and comparison households. The difference-in-difference estimates are about Tk. 18,000 in the short-run and about Tk. 53,000 in the long run, and both are statistically significant. This three-fold increase in the impact between 2011 and 2015 implies that the impact on asset ownership is not only sustainable, but also that the project has enabled the beneficiary households to expand their asset stock faster than the comparison households after the interventions were phased out. Interestingly, the comparison group has observed growth in assets between 2011 and 2012 although it was stagnant during the other two waves (baseline-2011 and 2012-2015). We conduct further cost-effectiveness analysis below, but the impact estimate of TK. 53,000 is about four times the actual size of lump sum cash grant provided by the program. This is also twice the value of the total cash received by each intervention household (including lump sum for asset and monthly stipend).

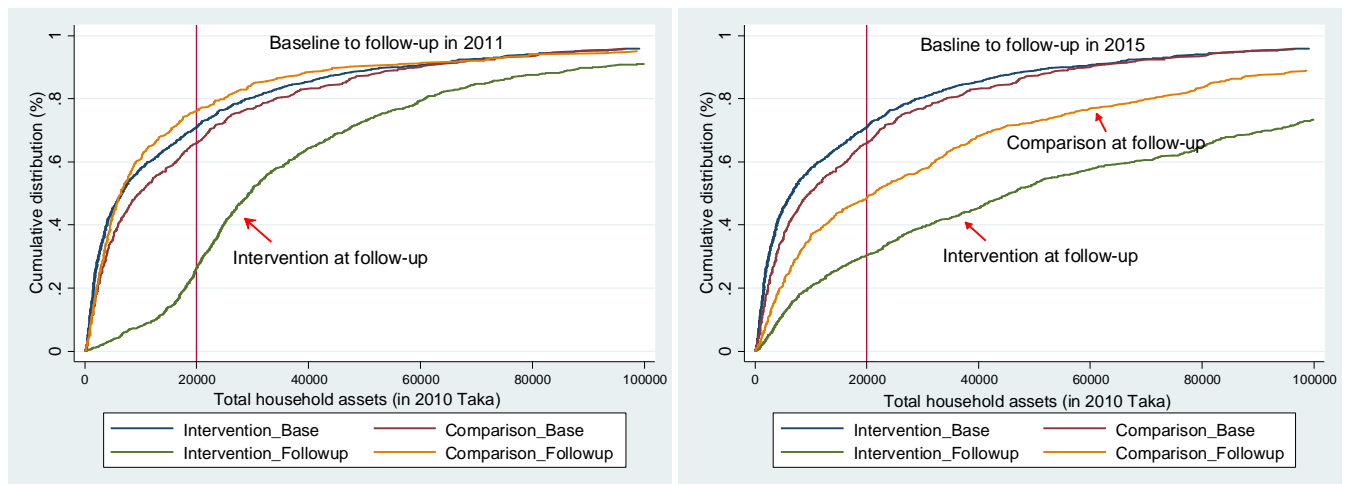
**Figure 4: Value of total assets owned by the households**



One important limitation of measuring impacts through comparing averages is that they do not necessarily reflect the change in the overall distribution. For example, it is possible that a few highly successful asset accumulating households in the intervention group are driving up the average, while the majority has observed a decline or stagnation. Comparing the cumulative distribution is often suggested as a tool to assess the overall change in the distribution. Figure 5 shows how the distribution of households at different asset levels has changed between the baseline and first follow-up (the graph on the left), and between the baseline and the third follow-up (the graph on the right) surveys. It is clear that the intervention and comparison groups had almost identical asset distributions at baseline. About 75 percent of the households owned assets worth less than Tk.

20,000. Although the comparison group remained almost unchanged at the first follow-up, most of the intervention group households moved up on the asset level immediately after the transfers. By the first follow-up, only 25 percent of the intervention households had assets less than Tk. 20,000 and about 40 percent moved into the Tk. 20,000 to 40,000 asset range. The bulge in this asset range basically reflects the size of the cash transfer that took place during the first year of the intervention.

**Figure 5: Cumulative distribution of asset accumulation by first follow-up**



By the third follow-up survey, more than half of the intervention households had moved above the Tk. 40,000 asset cut-off. Although we see a remarkable improvement for the comparison group (in asset accumulation from baseline to 2015), in 2015 significantly fewer households in the intervention group are poorer than the comparison for any asset cut-off. As it has been clarified at the methodology section, these asset values take the inflation into account. Therefore, the general trend for the comparison group indicates that these ultra poor households are increasingly able to benefit from economic progress in Bangladesh. More importantly for this analysis, the FSUP project had a long-term effect in addition to the general trend, and this effect is distributed across the beneficiaries. Given the importance of physical assets in rural livelihoods, we can conclude that the project was successful in creating sustainable livelihoods for the ultra poor beneficiaries.

### **B. Economic activities and earnings**

In this section, we study the changes in economic activities and income from these activities of the participant women and other household members. Table 3 shows the impacts on IGA involvement of the participant. In the FSUP project, the transfer takes place through the ‘main female’ in the households who is often the head of the household. The respondent identification in the comparison group followed the same process as in the intervention group.

At baseline, labor force participation of participant women was very high (over 85 percent) for both intervention and comparison groups. This is consistent with the well-documented finding that women’s labor force participation in Bangladesh is higher among poor women since they primarily rely on selling labor for livelihood due to lack of other productive assets. Therefore, it is expected that the FSUP participant women will have a lower level engagement in earning in the long run given the impacts observed on their asset ownership. The data shows that the likelihood of participant women being engaged in an earning activity declined by 7 percentage points compared to the

comparison group (coefficient of Impact 3). However, there were some short run increases (by 22 and 15 percentage points in 2011 and 2012 respectively) as almost all the participant women got engaged in activities supported by the FSUP.

Diversification of IGAs was one of the strategies of the project to help ultra poor households build their livelihoods. Consequently, similar patterns of change are observed in the impacts on number of income earning activities and labor force participation. The short run impacts of increasing engagement in one additional IGA on average (0.99 and 0.94 in 2011 and 2012 respectively) is followed by a much lower longer term impact (0.17 in 2015). In terms of specific types of activities, these changes are primarily driven by the dynamics of engagement in livestock rearing – the main IGA selected under the FSUP project. The most encouraging long-term trend for FSUP is observed on the sustained impact on the fraction of participant women who are involved in farming. The long-term impact on the likelihood that a participant (woman) is involved in managing her own farm is 16 percentage points.

**Table 3: Earning activities of the respondent (intervention and comparison)**

	Any work (1)	Number of IGA (2)	Farming (3)	Day Laborer (4)	Animal husbandry (5)	Domestic Help (6)	Micro-enterprise (7)
Intervention	-0.043 (0.017)**	-0.398 (0.065)***	-0.136 (0.021)***	-0.101 (0.020)***	-0.163 (0.024)***	0.031 (0.022)	0.090 (0.024)***
Follow-up 1 (2011)	-0.074 (0.021)***	-0.555 (0.072)***	-0.219 (0.020)***	0.036 (0.026)	-0.145 (0.028)***	-0.023 (0.024)	-0.031 (0.026)
Follow-up 2 (2012)	-0.025 (0.019)	-0.481 (0.072)***	-0.176 (0.022)***	-0.008 (0.025)	-0.066 (0.027)**	-0.069 (0.022)***	-0.050 (0.026)*
Follow-up 3 (2015)	-0.204 (0.024)***	-0.996 (0.067)***	-0.229 (0.020)***	-0.109 (0.022)***	-0.265 (0.028)***	-0.095 (0.021)***	-0.046 (0.026)*
<b>Impact 1</b>	<b>0.215</b> <b>(0.024)***</b>	<b>0.990</b> <b>(0.085)***</b>	<b>0.281</b> <b>(0.026)***</b>	<b>-0.018</b> <b>(0.030)</b>	<b>0.472</b> <b>(0.033)***</b>	<b>-0.042</b> <b>(0.030)</b>	<b>0.030</b> <b>(0.034)</b>
<b>Impact 2</b>	<b>0.153</b> <b>(0.023)***</b>	<b>0.942</b> <b>(0.087)***</b>	<b>0.354</b> <b>(0.028)***</b>	<b>0.041</b> <b>(0.029)</b>	<b>0.295</b> <b>(0.033)***</b>	<b>-0.078</b> <b>(0.027)***</b>	<b>0.187</b> <b>(0.034)***</b>
<b>Impact 3</b>	<b>-0.070</b> <b>(0.031)**</b>	<b>0.169</b> <b>(0.081)**</b>	<b>0.162</b> <b>(0.023)***</b>	<b>0.099</b> <b>(0.026)***</b>	<b>-0.042</b> <b>(0.036)</b>	<b>-0.036</b> <b>(0.027)</b>	<b>-0.084</b> <b>(0.033)**</b>
Constant	0.903 (0.013)***	2.065 (0.054)***	0.250 (0.019)***	0.210 (0.018)***	0.779 (0.018)***	0.191 (0.017)***	0.258 (0.019)***
Observations	6,000	6,048	6,048	6,048	6,048	6,048	6,048
R-squared	0.159	0.173	0.078	0.019	0.192	0.023	0.044

Note: Robust standard error in parenthesis; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; The coefficient of 'Intervention' shows the differences between intervention/beneficiary and comparison households at baseline, and constant is the baseline mean for comparison group. Follow-up 1, Follow-up 2 and Follow-up 3 are the changes in comparison group from baseline to 2011, 2012 and 2015 respectively. Impact 1, 2 and 3 are the difference-in-difference estimates of impact on intervention/beneficiary households in 2011, 2012 and 2015 respectively.

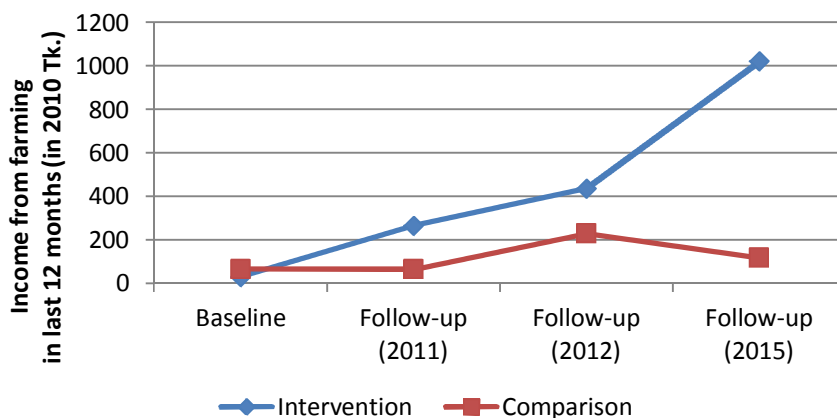
Besides these self-employment activities, the program led to some changes in wage employment activities. There is a general decline in the fraction of women who work as housemaids, which is an activity often considered to have low social prestige in these settings. Among the comparison group, likelihood of engaging in domestic help activity declined by about 10 percentage points from a baseline of 19 percent. For the participant women, this decline is even higher. In fact, as we will explain in detail later, in one particular case, an FSUP participant who used to work as a housemaid became really conscious about her social status and she even did not feel comfortable in sharing a

tube-well with another household which encouraged her to set up a new one. Her economic involvement has not only changed her financial condition, but also has created a sense of self-awareness.

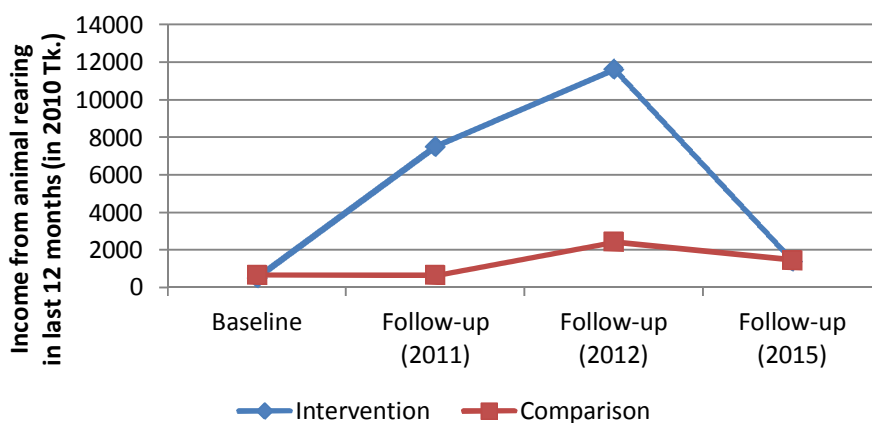
We have observed a long-run positive impact on participant women being involved in day labor. This impact has taken place because of a large decline in day labor activity among the comparison group (by about 11 percentage points) than the beneficiary households (by only 1 percentage point) instead of an increase in this activity among the participants. Overall, we find that the economic activities of the respondents have mostly stabilized in the long run followed by sharp changes during the intervention period. In the long run, the participant women are slightly less likely to be in the labor market conforming the general pattern of declining female labor force participation as households get richer in Bangladesh, but have higher engagement in farming.

Figures 6 and 7 show the dynamics of earnings of respondent women from farming and livestock rearing respectively. We find that, while the earning from farming has a long-term positive trend for the intervention group, the income levels from livestock rearing have equalized between the intervention and comparison groups after sharp short term increases for the former. The acceleration in growth from farming by the beneficiary women in the post-intervention period (between 2012 and 2015) shows their preference to shift to farming over livestock rearing.

**Figure 6: Trends in income from farming by the respondent**



**Figure 7: Trends in income from livestock rearing by the respondent**



It is also noteworthy that, for respondents in intervention households, the level of earning from livestock rearing in 2012 was about 10 times higher (between Tk. 8,000 and 12,000) than the income from farming in 2015 (about Tk. 1,000). By this simple measure, it seems the women prefer land ownership for crop production although it has a lower return than livestock rearing. While part of the income from farming may not be fully captured due to household consumption of own produce, the apparent puzzle is why the beneficiaries would shift towards a low return activity. Research findings through our qualitative studies shed some light on this.

First, as indicated above, ownership of cultivable land and engagement in farming has direct implications on (perceived) household food security. In most cases, the households believe that owning (through lease) agricultural land ensures regular meals and that is preferable to other IGAs. For instance, in one particular case, the beneficiary bought a cow after receiving Tk. 14,000 and sold that at Tk. 24,000. Just after making the first sale, she moved towards farming activities and took a lease of 15 *katha* land. She cultivated green chilies on that and after three months, the harvest was ready for sale. She sold the entire production at Tk. 24,000 and made a profit of Tk. 8,000. She then bought a cow and after selling that went for agricultural land-lease once again. However, this time around, she decided to cultivate IRRI (high yielding paddy variety) arguing that, “this will ensure regular meals for at least 4 months”. Another beneficiary household followed the same strategy and after making their first sale with a profit of Tk. 10,000 decided to take lease of 10 *katha* of agricultural land. She explained the reason to us in the following way, “we produce 10 maund paddy and we can live on that for six months”.

Second, farming brings the social prestige of moving up in the occupational ladder in rural settings. Furthermore, given the trends in land prices in rural Bangladesh (compared to prices of other physical assets), investing in land is often considered as a safe and high return investment.

Thirdly, the presence of a suitable arrangement for land tenures has also encouraged the households to engage in farming activities. For instance, our qualitative study shows that three specific patterns of engagement in farming are observed in the studied area – *land as collateral*, i.e. the households use the land by lending money to the land owner and the land will be returned to owner only after (s)he pays back the loan money in full amount; *land rental*, i.e. taking annual lease in exchange for fixed rent; and *share-cropping*, i.e. an arrangement where the household cultivates the land and gives away one-third of the total production. Our study shows that of these three, the first one, i.e. leasing land in exchange of money, is the most preferable option for the beneficiaries as this allows them to have complete control over the land, they do not have to share-crop and they also have the option of getting their money back in full amount. This specific pattern of engagement in farming has increased significantly in the studied area and this is probably one of the key reasons for making the shift towards agricultural activities.

It is important to note that through following this specific pattern of land agreement, the beneficiary households' overall asset level is actually increasing. In fact, the investment they are making for owning land is not really 'spent', because they would eventually get that money back from the landowner. From this perspective, the initial asset-loss indicates a much larger asset-gain. At the same time, this arrangement is relatively risk-free compared to the other arrangements. In case of fixed rental and sharecropping, the farmer may suffer if faced with natural disasters or a bad harvest and s/he may end up losing the initial capital. Getting land as collateral for loan is free from this risk

because even when the owner takes away the land or if the farmer suffers from a bad harvest, s/he will still have the entire money that was lent to the land owner.

This is an important finding because it reflects not only the ability of the once ultra poor to concentrate on farming activities which may offer a long-term solution to their problems but also their capacity to effectively bargain for a preferable option.

Fourthly, another factor that has encouraged the households to move away from cattle rearing is the consideration that it is extremely difficult to take proper care of the livestock during two seasons- the rainy season and the winter. As mentioned earlier, most of the project beneficiaries live near the banks of the Jamuna river and as such, natural disasters like flood are a common phenomenon in their lives. As explained by one respondent, "it is not possible to look after the cows during the rainy season. When the flood comes, there is no place to keep the cows and often livestock get stolen during this the time. I cannot risk that and that is why I always try to sell them before the rainy season". The respondents told us that the winter has a similar effect, "we buy the bulls at a lower price and focus on fattening them so that we can sell at a higher price. The problem is, in winter, the bulls do not grow well and we have to spend extra for their protection from the cold." Due to these reasons, the beneficiary households have made cattle-rearing a seasonal thing and are gradually moving towards a more permanent solution- farming.

**Table 4: Extent of work and income of the respondent (if engaged in IGA)**

	Total number of hours worked	Total income earned	Earning per hour worked
	(1)	(2)	(3)
Intervention	200.697 (41.438)***	1,034.054 (227.356)***	0.340 (0.192)*
Follow-up 1 (2011)	-33.305 (45.085)	1,761.970 (433.753)***	1.479 (0.302)***
Follow-up 2 (2012)	22.955 (43.242)	4,084.109 (426.674)***	4.070 (0.319)***
Follow-up 3 (2015)	252.159 (47.894)***	2,827.442 (393.107)***	1.997 (0.305)***
<b>Impact 1</b>	<b>101.125</b> <b>(57.622)*</b>	<b>6,990.449</b> <b>(830.813)***</b>	<b>5.659</b> <b>(0.401)***</b>
<b>Impact 2</b>	<b>283.903</b> <b>(57.680)***</b>	<b>11,700.305</b> <b>(1,009.707)***</b>	<b>5.242</b> <b>(0.432)***</b>
<b>Impact 3</b>	<b>-46.256</b> <b>(65.626)</b>	<b>3,683.920</b> <b>(628.457)***</b>	<b>2.387</b> <b>(0.419)***</b>
Constant	895.871 (30.635)***	2,331.247 (164.828)***	2.369 (0.151)***
Observations	5,078	5,078	4,932
R-squared	0.055	0.113	0.259

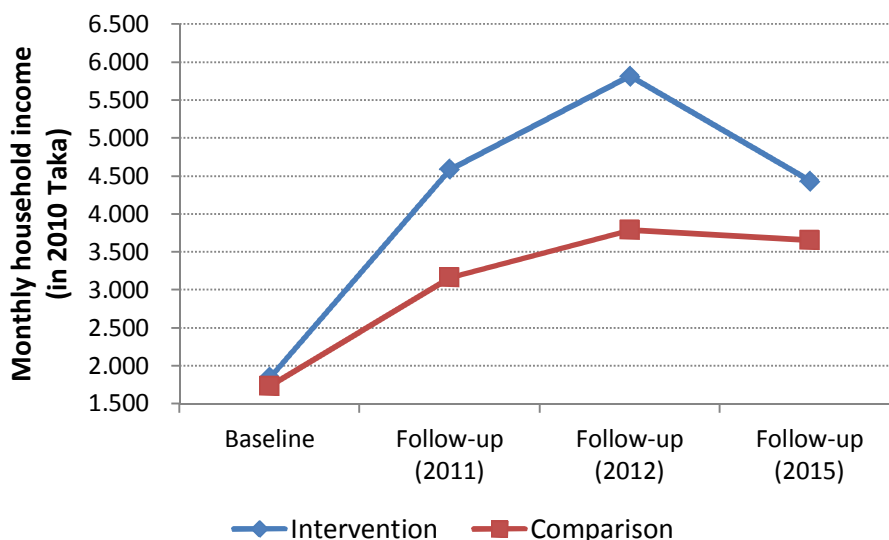
Note: Robust standard error in parenthesis; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; The coefficient of 'Intervention' shows the differences between beneficiary/intervention and comparison households at baseline, and constant is the baseline mean for comparison group. Follow-up 1, Follow-up 2 and Follow-up 3 are the changes in comparison group from baseline to 2011, 2012 and 2015 respectively. Impact 1, 2 and 3 are the difference-in-difference estimates of impact on beneficiary/intervention households in 2011, 2012 and 2015 respectively.

Table 4 shows the impacts on annual total hours worked by the respondent, total income earned and earning per hour (as a proxy for productivity) by the women who are engaged in any earning

activity. We find that there is no long-term impact on total work hours although there were short-term increases. This shows that the reduction in female respondents' labor force participation is only at the extensive margin, but not on the intensive margin. In terms of impacts on income and productivity, the project has clearly created a sustained improvement. As discussed earlier, the short-run changes are primarily driven by livestock activities. Since all the proceeds from the sale of livestock is considered as income, the short-term changes are not necessarily entirely due to the work done by the beneficiaries. The impact of Tk. 3,683 on total income earned by the participant in 2015 (which is 102 percent of the mean income earned by the women in the comparison group) shows the 'true' additional income earned due to the interventions. Doubling long-term income is definitely a clear testimony of the sustainability of the interventions' effects. It is equally important to highlight that this income growth is taking place through long-term increase in the productivity of the beneficiary households. There are two ways to increase income of the ultra poor women – by creating additional work opportunities and by increasing their productivity. The latter is a more sustainable pathway.

So far the discussion has focused on the earning activities by the female respondents, who are often the main income-earner in these ultra poor households. Figure 8 shows the trends in total monthly income earned by the beneficiary and comparison households. This shows the same pattern observed from the impact measurement of respondents' income. There is significant long-term impact followed by extra-ordinarily large impacts in the short term. Point estimate of the long-term impact on total monthly household income is Tk. 665, which is 36 percent and 18 percent of the monthly income of the comparison group at baseline and in 2015 respectively. This estimate is also statistically significant at <1% level.

**Figure 8: Trend in total monthly household income**



In addition to the quantitative findings, our qualitative study findings offer two additional insights about the trend in total monthly household income as shown in the figure above-

First, our study indicates that the initial sharp increase in the income of the beneficiary households is not only limited to the asset transfer or the change in the income level of the female household member. While this factor may have played the major role, it has been supported by the household's



emphasis on creating new employment opportunities for other members of the household. As mentioned above, in many cases, the female members, after making the initial profits, support their husbands and/or their sons in engaging them in IGAs and this has enabled the ultra poor families to unleash their earnings potential. Second, another interesting trend, as reflected through the figure above, is a decline in household income of the beneficiary households. However, our study shows that, in most cases, this decline is unlikely to affect the households negatively for two reasons:

- This may have happened because the household is shifting towards farming activities and the decline indicates that they have invested a large amount of money for leasing land without having any returns so far. However, as we have explained earlier, this investment is risk-free (albeit with low return) and there will not be any depletion in the overall asset-base of the household.
- Another important reason for the decline is, as we have found in our study, a number of households are now spending money in building a better house, in setting up tube-wells etc. This may be considered as non-productive investment but, based on our findings, we argue that this will have a positive impact on the lives of the poor and in fact, can be considered as broad livelihood strategies. The successful beneficiary households, which have gone through a sharp increase in the household income level at the initial stage, have managed to find their places and positions within the rural social structures. In other words, the 'invisible' poor have become 'visible' as one respondent said, "in the past, no one used to come to our house. We lived alone and no one seemed to care. Now, we can have guests. Our relatives, other people come to our houses and we can entertain them". This economic improvement has also encouraged them to raise their voices and to place their demands. As one respondent narrated, "few weeks ago, I had a meeting somewhere else and by the time the meeting ended it was quite dark. We were all thinking how we can return home and then we found a CNG. When we asked him whether he would take me to our village, he refused, stating that he had no license and the police would arrest him. I told him not to worry and said that if the police stopped, we would take care of that. Well, the police officials really stopped us. We all got down and I told the officer that the CNG driver was not willing to come and told us that he did not have any license. We pushed him and this man was actually helping us. Now if they arrested him, we would be in big trouble. Luckily, the police officer understood and we were allowed to leave".

The position in the society, the ability to speak up and the opportunity of connecting with new networks have made the beneficiaries aware of their living conditions and that is why, they are now spending money to build a home that will reflect their achievement. In other words, through using Maslow's "Hierarchy of Needs", the initial sharp increase in household income has helped the beneficiaries to fulfill their physiological and safety needs. Once those needs are satisfied, they are now trying to fulfill their "belongingness" need. For their livelihood strategies, fulfilling this need is extremely important as that will allow them to develop and maintain a better network, which can eventually lead them to the next level- "self-esteem".<sup>8</sup>

---

<sup>8</sup> Abraham Maslow's model is based on need-based approach. In his seminal work, "A Theory of Human Motivations" (1943), Maslow stated that human needs can be represented in a hierarchical way, where the most fundamental level of needs will be at the bottom and the need for self-actualization will be at the top. As per his model, the primary-level need of every human being is the physical need, also known as physiological needs. At this stage, human beings are concerned about their basic survival and concentrate on their need for food, water, etc. When these basic-level needs are fulfilled, human beings then move towards the next stage, i.e. they try to fulfill their safety needs, which include security of body, resources, property, etc. At the third level, people focus more on their emotional needs and try to develop a sense of

### C. Vulnerability, crisis coping and accessing services

One of the critical aspects of sustainable livelihood is households' vulnerability to shocks and their capability to cope with such shocks. It is important to distinguish between covariate shocks (such as flood or food price hike) and idiosyncratic shocks (such as severe illness or death of household members) as the two types of shocks which often involve different coping strategies. By the nature of covariate shocks affecting the whole community, household-level savings become more important since community-level informal insurance mechanisms tend to fall apart. A transfer program such as FSUP can crowd out informal transfers, if the increase in the assets of beneficiary households causes the households in the support network to become less likely to support the beneficiaries in times of crises. On the other hand, informal insurance can be crowded in if the beneficiaries also share their fortune within their network and this, in turn, increases their likelihood to receive help from their networks when they are in need. In this section, we explore the long-term changes in these dimensions among the beneficiaries vis-à-vis the comparison households.

**Table 5: Impact on vulnerability to shocks and coping ability<sup>9</sup>**

	Faced any crisis	Number of crises	Coping strategy adopted				
			Reduced consumption	Used savings	Sold assets	Borrowed money	Did nothing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intervention	-0.112 (0.026)***	-0.282 (0.051)***	-0.036 (0.021)*	-0.010 (0.016)	-0.008 (0.008)	-0.108 (0.020)***	-0.135 (0.026)***
Follow-up 1 (2011)	-0.143 (0.030)***	-0.410 (0.053)***	-0.141 (0.021)***	0.020 (0.019)	0.004 (0.010)	-0.130 (0.022)***	-0.080 (0.030)***
Follow-up 3 (2015)	0.122 (0.028)***	0.302 (0.064)***	-0.004 (0.025)	0.039 (0.018)**	-0.019 (0.008)**	-0.011 (0.025)	0.095 (0.031)***
<b>Impact 1</b>	<b>0.110</b> <b>(0.038)***</b>	<b>0.319</b> <b>(0.065)***</b>	<b>0.035</b> <b>(0.025)</b>	<b>0.062</b> <b>(0.024)***</b>	<b>-0.008</b> <b>(0.011)</b>	<b>0.064</b> <b>(0.024)***</b>	<b>0.121</b> <b>(0.036)***</b>
<b>Impact 3</b>	<b>-0.029</b> <b>(0.036)</b>	<b>-0.043</b> <b>(0.077)</b>	<b>-0.037*</b> <b>(0.020)</b>	<b>0.012</b> <b>(0.022)</b>	<b>0.026</b> <b>(0.020)</b>	<b>-0.013</b> <b>(0.028)</b>	<b>0.053</b> <b>(0.037)</b>
Constant	0.649 (0.021)***	1.036 (0.043)***	0.206 (0.018)***	0.097 (0.013)***	0.025 (0.01)***	0.212 (0.018)***	0.399 (0.021)***
Observations	4,536	4,536	4,536	4,536	4,536	4,536	4,536
R-squared	0.031	0.059	0.026	0.009	0.003	0.037	0.025

Note: Robust standard error in parenthesis; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; The coefficient of 'Intervention' shows the differences between beneficiary/intervention and comparison households at baseline, and constant is the baseline mean for comparison group. Follow-up 1 and Follow-up 3 are the changes in comparison group from baseline to 2011 and 2015 respectively. Impact 1 and 3 are the difference-in-difference estimates of impact on beneficiary/intervention households in 2011 and 2015 respectively.

Table 5 shows the extent of households facing crisis and the specific coping strategies adopted by them. During the household survey, every respondent was asked whether their household experienced 26 different types of crises in the preceding year. We find that the majority of the households (in both intervention and comparison groups) have faced at least one of these shocks. In the first follow-up in 2011, we see an increase in the likelihood of facing a shock by the beneficiaries. By looking into the specific types of crises, we find that this increase is primarily related to livestock

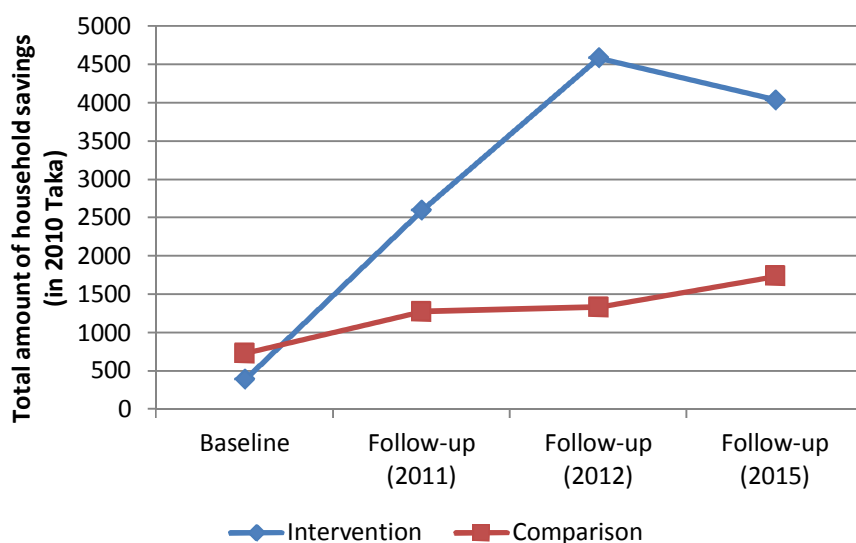
belonging. The fourth level is the level of self-esteem, where people place more emphasis on respect from others. The final level is the highest one, also known as self-actualization.

<sup>9</sup> We exclude the data of the second outcome survey of 2012 in this analysis since the data was collected using a different survey module from the other three rounds.

related events (results not shown in Table). This is understandable since asset-related shocks increase, as a household owns more assets. This short-term increase in the livelihood to face crisis events does not persist in the long run, primarily due to the reduction in the engagement of beneficiary households in livestock rearing. Column 2 in Table 5 shows the impacts on the number of crisis events faced by the households, and we see the same pattern – a short-term increase in number of crises faced by the beneficiaries followed by no impact in the long run.

Although households can mitigate the risk of facing such shocks to some extent, their vulnerability still depends on the external environment. The key question related to livelihood sustainability is whether the households are able to cope with these events using less effective and less costly strategies. Shocks can create a poverty trap if the households are forced to deplete their assets or adopt other costly means of coping. In terms of long-term impacts on specific coping strategies adopted by the households, we do not find strong differences between the intervention and comparison groups. In the short run the beneficiary households are more able to utilize their savings or borrow money to cope with crises. In the long run, these effects are not observed. However, relative to comparison households, the beneficiary households are 3.7 percentage points less likely to adopt ‘reduced household consumption’ as a crisis coping strategy. The lack of a persistent impact on savings as a coping tool should be interpreted as a reduction in the overall vulnerability to shocks in the long run compared to the short run.

Figure 9: Trends in cash savings

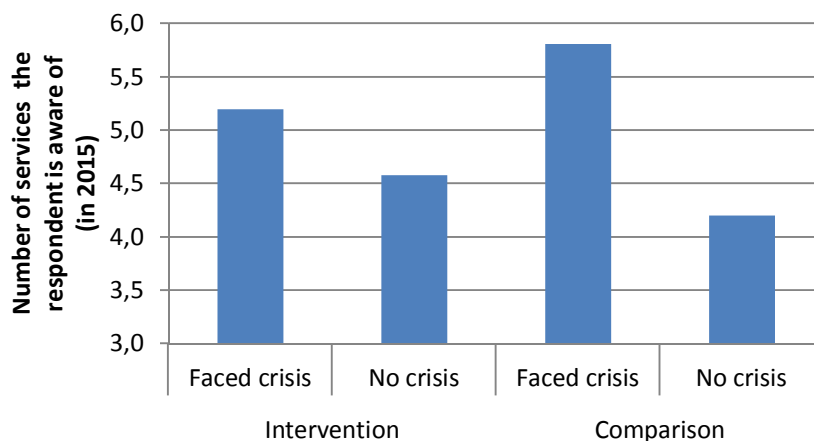


The importance of having cash savings has already been highlighted in the context of a household’s ability to cope with shocks. Figure 9 shows the trend in the level of household savings for the intervention and comparison households. We see a remarkable positive trend in the average savings accumulated by intervention households between the baseline and the final follow-up surveys. At baseline, both intervention and comparison households had a meager average saving of Tk. 500 cash. While the comparison households have managed to increase their saving level in the subsequent years by 75 percent, 83 percent and 138 percent in 2011, 2012 and 2015 respectively, the changes are much sharper for the intervention households. The intervention households have increased their savings by many folds during the intervention period. Their increases are 6.7 and 11.8 times the baseline level by the years 2011 and 2012. More importantly, most of this gain in

savings has been sustained in the long run. The impact on household savings in 2015 is Tk. 2,643, which is more than double the average cash savings of the comparison households. Although the cash savings in 2015 are slightly lower than their savings in 2012, the average amount of cash savings in 2015 is still substantially larger than in 2011. It is also important to note here that we observed households using their cash savings to lend for access to land or interests. Although we did not see any direct impact of using savings as a coping strategy, this higher savings is surely enabling the intervention households to mitigate the effects of some events/shocks and to smoothen their consumption.

One of the possible mechanisms through which the program may have mitigated the negative effects of shocks is by making the beneficiary households more aware of different services that are available and accessible to them. Although a household may find out about a service when faced with a particular crisis (e.g. learning about veterinary services when encounters livestock sickness), it is more effective to be aware about them beforehand. Figure 10 demonstrates this, by looking at the gap in the number of services that a respondent is aware of, separated by whether the respondent's household had faced a crisis or not. One can see that in comparison households, respondents whose household had faced a crisis were aware of nearly 6 different types of services, while for the rest this number was much lower (around 4). In the FSUP intervention, there was a focus on making households aware of different services available from government and non-government sources. As a result, we find that the same knowledge gap (between respondents whose household was faced with a shock versus those whose household did not) is much smaller among intervention households. In other words, the participant households are more likely to be aware of these services irrespective of whether they needed to use them or not, while the comparison households may have had to learn about these services after being forced by their circumstances.

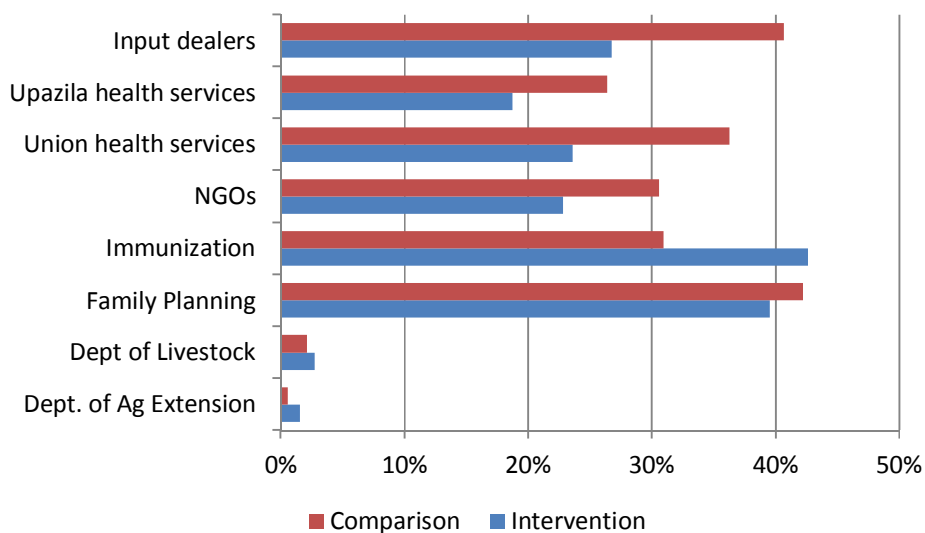
**Figure 10: Awareness of services and facing crisis in 2015**



In Figure 11, we look at the utilization of different types of services by intervention and comparison households in 2015. In general, comparison households are more likely to have used most of the main services compared to the intervention group. The only service that the intervention households are more likely to utilize is immunization. This most likely reflects the strong focus of FSUP on making these households aware of the need for immunization and childcare practices. Although the service utilization is lower among intervention households, it does not necessarily reflect a lack of sustainable impact. Since service utilization depends on the extent of need, it is possible that the beneficiary households require these services less often. Based on our qualitative study, we can

argue that this is exactly what is happening. For instance, as the figure below indicates, the beneficiary households have lower use of health services and NGO services compared to the control households. Our FGDs and KIIs with the beneficiaries and non-beneficiaries show that due to the training and information dissemination on nutrition and cleanliness, the beneficiary households are more aware of these issues and they effectively practice what they have learned through trainings of the FSUP program. As one respondent noted, "before this program started, diseases were a common thing for my household. Cold, fever, diarrhea never left this house and we had to visit the health services regularly. Things have changed a lot since then. We have learned about nutrition, food value and how to maintain a clean house. We know the danger of water-borne diseases and have learned ways of fighting them. I think we are much better now". Almost all the beneficiary households have knowledge about how to take care of a pregnant mother and the ability to fight and cope with disasters. They now have adequate understanding about how to deal with different diseases in the aftermath of a disaster. This knowledge, preparedness and reliance on preventive measures have played an important role in reducing their need for and reliance on health services. In fact, it is interesting to note that even though the use of health services by the beneficiary households is comparatively lower, use of immunization services is significantly higher compared to the comparison households. This shows that awareness and necessity is actually determining access to services. The issue of necessity becomes even more important if we consider access to other services – department of livestock and department of agricultural extension. Although the difference of access is not that significant, it is, however, important to note that in both cases, the intervention households have a higher access rate. In fact, our study indicates that in the future, the use of department of agricultural extension may increase substantially.

**Figure 11: Accessing different services in 2015**



As a final aspect of vulnerability, we investigate the changes in informal transfers received and given out by the households, which is indicative of the extent of informal insurance mechanisms. In Table 6, columns 1 and 3 look at the impacts on the likelihood of receiving or making transfers respectively, and column 2 and 4 show the impacts on the amount of transfers received and made. We find that the majority (above 60 percent) of both beneficiary and comparison households reported receiving at least one transfer in the last one year. We also found that most of these

transfers were in-kind rather than cash (results not shown), which is in line with these transfers being part of risk-sharing mechanisms (that are particularly relevant for food security). Given the risk-sharing nature of these transfers, it is expected that beneficiary households will receive such transfers less often after benefiting from the project interventions. We indeed find that the project reduced the likelihood of receiving transfers by 7 to 13 percentage points by 2011 and 2012 respectively with the long-term impact being a reduction of 12 percentage points. However, we do not find any significant impact on the total value of transfers received by the intervention households. Overall the changes in transfers received show that in the long-run the households are likely to require these transfers less often but the amounts of transfer are either similar to baseline or have increased.

**Table 6: Impact on informal transfers**

	Whether received transfer	Transfer received (in Taka)	Whether gave transfer	Transfer made (in Taka)
	(1)	(2)	(3)	(4)
Intervention	-0.036 (0.026)	-145.928 (150.795)	-0.075 (0.018)***	-28.030 (44.478)
Follow-up 1 (2011)	0.002 (0.030)	894.690 (278.066)***	-0.051 (0.021)**	58.574 (71.322)
Follow-up 2 (2012)	-0.004 (0.030)	998.834 (263.538)***	-0.081 (0.020)***	268.187 (190.751)
Follow-up 3 (2015)	-0.210 (0.030)***	437.129 (215.382)**	-0.074 (0.020)***	93.651 (93.473)
<b>Impact 1</b>	<b>-0.073</b> <b>(0.037)**</b>	<b>-79.201</b> <b>(360.479)</b>	<b>0.105</b> <b>(0.025)***</b>	<b>258.266</b> <b>(117.994)**</b>
<b>Impact 2</b>	<b>-0.130</b> <b>(0.037)***</b>	<b>-488.454</b> <b>(320.273)</b>	<b>0.150</b> <b>(0.024)***</b>	<b>52.029</b> <b>(210.186)</b>
<b>Impact 3</b>	<b>-0.119</b> <b>(0.037)***</b>	<b>-118.702</b> <b>(290.423)</b>	<b>0.043</b> <b>(0.023)*</b>	<b>-75.666</b> <b>(107.820)</b>
Constant	0.647 (0.021)***	1,018.441 (122.583)***	0.156 (0.016)***	123.189 (31.343)***
Observations	6,010	6,048	6,002	6,048
R-squared	0.063	0.005	0.015	0.004

Note: Robust standard error in parenthesis; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; The coefficient of 'Intervention' shows the differences between beneficiary/intervention and comparison households at baseline, and constant is the baseline mean for comparison group. Follow-up 1, Follow-up 2 and Follow-up 3 are the changes in comparison group from baseline to 2011, 2012 and 2015 respectively. Impact 1, 2 and 3 are the difference-in-difference estimates of impact on beneficiary/intervention households in 2011, 2012 and 2015 respectively.

With respect to informal transfers, transfer given rather than received is probably a better proxy for the sustainability of FSUP impacts. A decline in transfer receipts can be the combined effect of crowding out informal insurance and the beneficiaries' need for such transfers. On the other hand, a positive impact on transfers made by the intervention group would reflect a greater ability to provide risk-sharing service to their fellow community members. Indeed, the constant term in Column 3 shows that the comparison households at baseline were much less likely to make transfers (about 15 percent) compared to receiving (over 60 percent). This is understandable given that the ultra poor are more likely to be receivers rather than providers of transfers. However, there was a large positive impact on transfers given out in the short term (in both 2011 and 2012) in the magnitude of 10 to 15 percentage points. There is also a positive impact in the long run as the intervention households are 4 percentage points more likely to give transfers. We, however, do not

find any significant long-term change in the amount of transfer made. Overall, the positive impact on the likelihood of giving out transfers suggests possible mechanisms for positive spillover effects on the non-beneficiary households in the intervention communities.

#### D. Households' wellbeing

In this section, we study the impacts of the FSUP on several wellbeing indicators at the household level. These indicators are essentially the outcomes of the households' livelihood strategies determined by the interplay of their asset base and their external environment (the livelihood framework described in Figure 2). There are multitudes of wellbeing aspects that could possibly be affected by the project. However, to align the analysis with the project objectives as closely as possible, we focus on food security measures in this section and nutritional outcomes are discussed in a separate section. For food security, we use per capita monthly food consumption and food consumption score (following the method specified in WFP's Vulnerability Analysis and Mapping). We also look at the short and long-term effects on non-food consumption (Table 7).

**Table 7: Impact on consumption**

	Per capita monthly food	Per capita monthly non-food	Food consumption score
	(1)	(2)	(3)
Intervention	-12.4 (4.040)***	-17.9 (21.038)	-2.5 (0.605)***
Follow-up 1 (2011)	54.0 (8.926)***	59.2 (22.516)***	0.1 (0.672)
Follow-up 2 (2012)	39.3 (4.401)***	224.3 (33.367)***	10.1 (0.799)***
Follow-up 3 (2015)	6.6 (4.026)	164.1 (33.860)***	7.9 (0.761)***
<b>Impact 1</b>	<b>21.5</b> <b>(9.579)**</b>	<b>132.6</b> <b>(33.317)***</b>	<b>13.1</b> <b>(0.882)***</b>
<b>Impact 2</b>	<b>54.4</b> <b>(5.758)***</b>	<b>181.0</b> <b>(43.193)***</b>	<b>9.6</b> <b>(1.009)***</b>
<b>Impact 3</b>	<b>31.7</b> <b>(5.028)***</b>	<b>126.2</b> <b>(47.478)***</b>	<b>5.3</b> <b>(0.958)***</b>
Constant	121.2 (3.397)***	313.0 (14.851)***	33.8 (0.499)***
Observations	6,010	6,010	6,005
R-squared	0.115	0.042	0.199

Note: Robust standard error in parenthesis; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; The coefficient of 'Intervention' shows the differences between beneficiary/intervention and comparison households at baseline, and constant is the baseline mean for comparison group. Follow-up 1, Follow-up 2 and Follow-up 3 are the changes in comparison group from baseline to 2011, 2012 and 2015 respectively. Impact 1, 2 and 3 are the difference-in-difference estimates of impact on beneficiary/intervention households in 2011, 2012 and 2015 respectively.

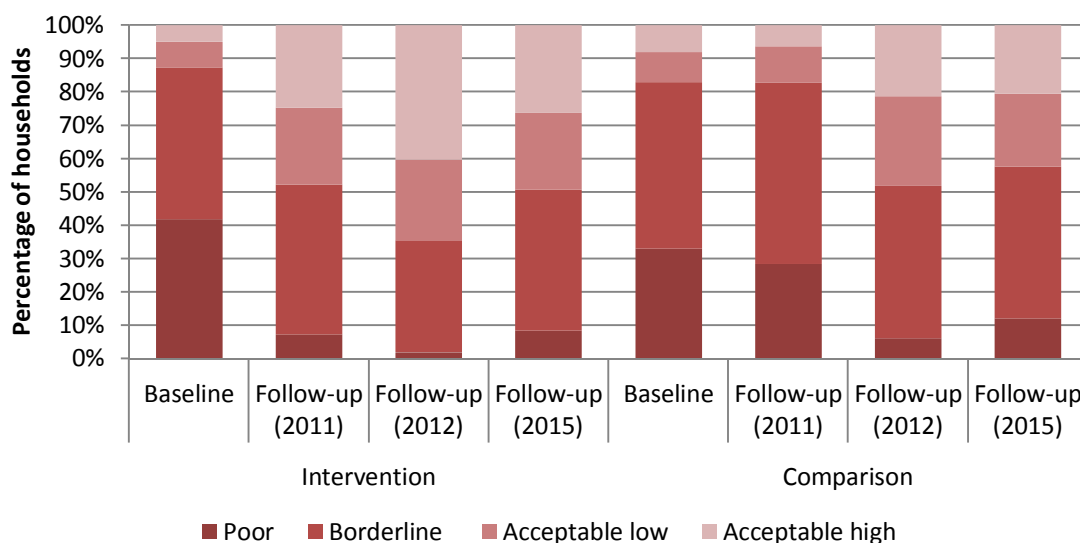
We find significant positive impacts on per capita food consumption in the short-run and most of this gain is sustained in the long run, which is a testimony of the sustainable livelihood created by the project for the ultra poor beneficiaries. In 2015, the impact on per capita monthly food consumption is Tk. 32, which is 26 percent of the baseline value for the comparison group (Tk. 121). In terms of non-food and total consumption, we find larger effects in absolute terms. The long-term effect on per capita monthly non-food consumption is Tk. 126, which is 40 percent of the baseline value of non-food consumption of the comparison. In terms of the dynamics across the survey

waves, we find that the impacts on non-food consumption have greater sustenance than food consumption. The long-term effect on food consumption is about 60 percent of the impacts in 2012 (Tk. 32 vs. Tk. 54) whereas this ratio for non-food consumption is about 70 percent (Tk. 126 vs. Tk. 181). From this simple measure of impact sustainability, it can be concluded that at least two third of the impacts are sustained even after 3 years from the end of interventions. The project, of course, has stronger sustainability than this simple measure as discussed in the assets section where we find accelerated growth.

In line with these effects, there is also a long-term significant effect on the food consumption score (Column 3 in Table 7). The short-term effects on food consumption scores (FCS) are 13 and 10 in 2011 and 2012 respectively. These are quite large effects considering the maximum value of FCS is 112. In 2015, the effect size is relatively smaller at 5, which is about 14 percent of the comparison group at baseline, and statistically significant. It is also relevant to note that there have been improvements in food security scenario among the comparison group in 2012 and 2015 from their baseline levels, reflected by significant positive coefficients for Follow-up 2 and Follow-up 3.

While the analysis using the FCS scale is useful to measure impacts, the other objective of this scoring is to categorize households by their food security status. We used the cut-offs used in the FSUP outcome reports to categorize the households into four groups, viz. poor (FCS <28), borderline (FCS 28 – 42), acceptable low (FCS 43 – 53) and acceptable high (FCS above 53). Changes in food security status by these classifications are shown in Figure 12.

**Figure 12: Changes in food consumption groups**



The figure shows that over 85 percent of intervention households were either poor or borderline food security level at baseline, which yet again shows the remarkably accurate targeting achieved by FSUP. The status of the comparison group was also very similar at baseline, which is a necessary condition for comparability with the comparison group. Between baseline and the first outcome survey in 2011, the extent of poor food security reduced from about 40 percent to below 10 percent, which is the immediate result of the consumption support. While a good portion of the households were still at the borderline level, about half of the intervention households moved up to acceptable level. There was almost no change for the comparison group during that period. The situation improved even further by 2012 and the comparison group also observed an improvement. In 2015,



about 15 percent of the households seem to have slipped back to poor or borderline levels compared to 2012. Despite this slippage, they are still far better than their baseline level, and also more households have acceptable food consumption levels than the comparison group. These differences are statistically significant at 5 percent level. The dynamics and determinants of households slipping back into poverty are discussed further in Section 5.

### E. Long-term change in social empowerment

Women's empowerment, being one of the five major policy approaches to women and development put forth in Moser's (1993) gender planning framework, is critical as it is inextricably intertwined with the other outcomes of the project. In view of social benefits of the project, social empowerment of women can be defined as positive and visible changes in the communities in terms of increased awareness of women's rights, greater social mobility of women, and improved gender relations. In addition to that, social empowerment also entails women's ability to form or be part of a larger social network that facilitates their access to political, economic, and social services. The goal of this particular section is to analyze whether changes have indeed taken place in the aforesaid dimensions, which would contribute to the social empowerment of women.

**Mobility:** Our study indicates that the mobility of the participants has increased significantly over time. Almost all the respondents told us they used to stay at home and did not dare to go outside. However, as the program began, things started to change. As one respondent noted, "We really had no other options and we could not afford staying at home. Furthermore, since I was getting the money, that gave me the power to come out of the house and my family could not protest". Another respondent told us that she now goes to the agricultural extension office on her own and she knows many people who go to the office of the department of livestock for seeking help. In the words of another participant, "I now have to go the market to sell or buy some products. I maintain my *Purdah* and my husband understands why I need to go outside. However, when I go to the market, people often ask me, 'why are you alone? Don't you have your husband?' I replied, 'we are our husbands. We do not need them to go outside. Besides, why are you asking me these? When I was starving, did you go to my home to inquire about me?' That stops them". She also told us that mobility of the program participants have encouraged other women in their communities to come out of their homes.

Furthermore, mobility of women within their communities has considerably increased as women are increasingly participating in community-level activities, i.e. taking the next-door poor and children to hospitals, getting involved in various activities of Union Parishad (UP), which brings respect and recognition for their contribution to community development. According to one respondent, "I maintain regular communication with the UP and help my neighbors to get necessary information provided by the UP. The Chairman and the members know me and they respond to me".

Our survey findings support the trend described above. Table 8 shows the impacts of mobility on the respondent women. Positive impacts are observed on their mobility to the upazila market, livestock office and agriculture office. In terms of needing permission from other household members to visit any of these places, we do not find a significant long-term effect. In terms of visiting *upazila* markets, there has been a long-term impact of 6 percentage points, which is a quite large effect when compared to the fact that only 12 percent of the women from comparison group visited this market place at baseline (column 2 in Table 8).

The discussion above indicates that even though economic necessity forced the poor women to leave their homes, this necessity also legitimized their initial mobility. However, women's economic contribution in the family and the community and the fact that they were able to help their families to survive and even thrive, facilitated the continuation of their active participation in the outside world.

**Table 8: Impact on women's mobility**

	Places that the respondent has visited by herself last year						Permission needed to visit
	Local market	Upazila Market	Health centre	NGO offices	Livestock office	Agriculture office	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intervention	0.101 (0.025)***	-0.044 (0.016)***	-0.011 (0.015)	-0.046 (0.019)**	-0.004 (0.004)	-0.007 (0.004)*	0.190 (0.144)
Follow-up 1 (2011)	0.172 (0.030)***	-0.021 (0.019)	-0.011 (0.017)	0.111 (0.025)***	-0.004 (0.005)	-0.006 (0.004)	-0.324 (0.143)**
Follow-up 2 (2012)	-0.294 (0.020)***	-0.118 (0.014)***	-0.094 (0.013)***	-0.160 (0.016)***	-0.008 (0.004)**	-0.008 (0.004)**	-1.027 (0.113)***
Follow-up 3 (2015)	0.143 (0.029)***	-0.015 (0.019)	0.002 (0.018)	-0.042 (0.021)**	0.015 (0.008)**	0.006 (0.006)	-0.315 (0.139)**
<b>Impact 1</b>	<b>-0.055</b> <b>(0.037)</b>	<b>0.066</b> <b>(0.023)***</b>	<b>0.064</b> <b>(0.022)***</b>	<b>0.372</b> <b>(0.031)***</b>	<b>0.038</b> <b>(0.008)***</b>	<b>0.012</b> <b>(0.005)**</b>	<b>0.389</b> <b>(0.188)**</b>
<b>Impact 2</b>	<b>-0.101</b> <b>(0.025)***</b>	<b>0.044</b> <b>(0.016)***</b>	<b>0.011</b> <b>(0.015)</b>	<b>0.046</b> <b>(0.019)**</b>	<b>0.004</b> <b>(0.004)</b>	<b>0.007</b> <b>(0.004)*</b>	<b>-0.190</b> <b>(0.144)</b>
<b>Impact 3</b>	<b>-0.105</b> <b>(0.037)***</b>	<b>0.058</b> <b>(0.023)**</b>	<b>0.034</b> <b>(0.023)</b>	<b>0.032</b> <b>(0.026)</b>	<b>0.019</b> <b>(0.010)*</b>	<b>0.018</b> <b>(0.008)**</b>	<b>0.086</b> <b>(0.179)</b>
Constant	0.294 (0.020)***	0.118 (0.014)***	0.094 (0.013)***	0.160 (0.016)***	0.008 (0.004)**	0.008 (0.004)**	1.027 (0.113)***
Observations	6,048	6,048	6,048	6,048	6,048	6,048	6,048
R-squared	0.172	0.031	0.033	0.265	0.017	0.010	0.051

Note: Robust standard error in parenthesis; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; The coefficient of 'Intervention' shows the differences between beneficiary/intervention and comparison households at baseline, and constant is the baseline mean for comparison group. Follow-up 1, Follow-up 2 and Follow-up 3 are the changes in comparison group from baseline to 2011, 2012 and 2015 respectively. Impact 1, 2 and 3 are the difference-in-difference estimates of impact on beneficiary/intervention households in 2011, 2012 and 2015 respectively.

**Decision-making Power:** A significant improvement in the state of gender relations is evident in the community during the post-intervention period. In addition to wider social acceptance of women's empowerment and mobility, the relations between female and male members within a family or within the community as a whole have become more reciprocal than before. According to a beneficiary of the project, "my husband is very pious but he did not forbid me to go outside. I, too, never defied him".

During our interviews, a number of women participants told us that before the program started, they did not have any power within their own households. Often, they had to face domestic violence and they could not do anything about it. For instance, one respondent told us, "before I became a beneficiary of this project, my husband assaulted me on a regular basis. However, the whole scenario changed after I received money from this program. Now, I have become the income-generating member of the family and my husband has to acknowledge that. Whereas in the past, he never asked me before taking any decision, now, he does not do anything without asking me". Another respondent told us, "few days ago, we were thinking about building a new room. Actually,

my husband had that idea and he asked me what I thought about that. We discussed and then decided that it should be done. Something like this was never possible a few years ago". However, the question is, why did this happen? What aspect of the program helped this to take place? One respondent explained the reason in the following way, "why wouldn't he listen to me? After all, I am providing the capital. I bought him an auto-van and I am contributing to the family."

Few other respondents, on the other hand, actually pointed out that the change in position of the women in the decision-making arena is not a radical one. Instead, it is something that should have happened before and the economic contribution of the women is simply making things normal. As one interviewee told us, "It is true that things have changed but that does not necessarily mean that we are dominating our husbands or we are controlling them. That is not happening and that should not happen. The thing is, I now have a bigger role in the family and my views and opinions are treated with respect. When I suggest that we should buy this land or when I tell my brother-in-law that he should consider selling that land, they consider it seriously." Another respondent raised an important point, "economic solvency or control over money is not everything. My husband and his family listen to me because I am successful. I do not think that they would care for my opinion if I had failed".

**Role Recognition in the Society:** Our study indicates that women are successfully carrying out various activities, which they were not allowed to be involved in previously. Moreover, as their role is important in developing the socioeconomic status of their families and thus their communities, their contribution is getting widely recognized.

This 'role-recognition' can be felt at two levels – at the household level, this essentially means being able to play a role in the decision-making process as mentioned above. On the other hand, at the societal level, role-recognition has a different meaning. It is interesting to note that almost all the respondents identified 'getting invitation in various social events' as the key indicator of gaining social recognition. One beneficiary told us "in the past, no one knew that we existed. I was never invited to any social events. People arranged marriage ceremonies and other social festivals and I was invisible to them. This program has changed that. Now, people come to my house to invite me. All of a sudden, they have realized that I exist". This emphasis on being part of the society indicates that empowerment at societal level is not only about increasing asset-base or becoming financially solvent. Rather, it is about getting recognized by the other members of the community, being involved in social activities and being a part of the 'community'. In other words, empowerment, from the perspective of the ultra poor is not about being in control and in fact, it is about being accepted by the society.

**Access to Market:** We found a strong positive effect on women's self-reported confidence in doing different business-related activities. To measure business confidence, each respondent was asked whether they are confident in completing 11 different business-related tasks – such as bargaining for better input prices, planning for a new business or keeping business records. Their responses on these eleven questions were combined into a single index of business confidence by the factor analysis method.<sup>10</sup> The mean score of this business confidence score is 0.09 compared to -0.18 for

---

<sup>10</sup> Factor analysis, principle component analysis to be more precise, is a widely used tool to create index from multiple indicators. A common example is the wealth index created in demographic and health surveys. This index is standardized to have mean zero and standard deviation of one.

the comparison group. This is actually a large difference since the index is standardized. In other words, we observe a difference of 0.27 standard deviations, which is statistically significant.

Our qualitative findings strongly support this. During our interviews, one of the respondents explained her feeling in the following way, "I think even though I am a woman, I am more industrious than you guys. I can go to the field, I am involved with farming and I can also go to the market to buy or sell chicken or eggs. I am not afraid of anyone". In fact, in most cases, we found that the decision to shift from one IGA to another has been taken by the beneficiaries themselves. They were aware of the risk they were taking and they did not hesitate to do that. In every way, the program has created a unique sense of confidence among the beneficiaries, which helped not only them but also whole communities as other members of the community learned from them and tried to follow in their footsteps.

**Social Empowerment through Network Building:** The discussion so far indicates how mobility, role-recognition, decision-making ability, and access to market have increased significantly as an outcome of the program. However, this does not indicate the joint effect of these factors on the lives of the ultra poor. Our study findings indicate that these factors actually play an important role in shaping the nature and pattern of social networks to which the ultra poor belong.

In the lives of the people living in the rural communities, the importance of social bonding or networks is significant. However, it is important to note that the nature of the networks to which the rural people belong, the services they receive or the commands they exercise over networks may differ and this largely depends of two factors: their contribution to the network (which ranges from high to low) and their reliance on the network (which can also vary from high to low). The interaction between these two factors shows that overall, four types of networks are available to rural communities (Table 9).

**Table 9: Type of rural network**

Degree of Reliance \ Degree of Contribution	Low	High
High	Self-sufficient	Exchange
Low	Invisible	Dependent

**A. Invisible Network:** This is the network type to which the most of the rural ultra poor belong. As we have indicated above, before the program started, most of the respondents identified themselves as 'invisible' human beings who were ignored by the society, and were not considered a part of the community. Given their financial, political or social conditions, it is understandable that their contribution to the community was low. However, it is interesting to note that at this stage, their degree of reliance on the network was also low mostly because they had no idea what they should do, they lacked capital or knowledge about changing their status and they did not know where they should go to seek help.

**B. Dependent Network:** This can be considered as the early stage of program intervention. At this stage, the contribution remains low as the poor still have nothing to offer, but their economic condition has started to change due to the economic intervention offered by the program. This is the time when they become a part of the network and make themselves visible. As we have explained above, mobility, role-recognition and taking an active role in the decision-making process helped the

participant women and their household members to move to this stage. However, it is important to note that this is the stage when they would need support from the network members to gain access to services, to markets and to political institutions. In fact, our study shows that the program design and interventions have played a key role in developing these initial connections. For instance, one participant noted that she had not had a close bond with anyone in particular in the society until she became a beneficiary of the project. She started to become familiar with many people through participating in various programs of the project, which helped her to a great extent during her bad times. For instance, after her house was damaged during a thunderstorm in 2014, she managed to borrow some money, free of charge, from one of her fellow participants to repair her house.

Two things should be noted here-

- First, as participants are visible to the community, they may succeed in receiving support from the wider community but how they will use this support is a completely different question. That is, they can either use this support to cope with shocks, which could force them to stay at this stage, or they can use it to move up, which means strategic use of the network. As we will explain later, the choice of action will largely depend on the individual household's capacity, which would essentially determine the sustainability of their livelihood strategies.
- Second, our study also indicates that moving from an invisible to a dependent network type is not that difficult and in fact, a significant number of comparison households and almost all the beneficiary households have made this transition. The economic development at the national level, knowledge or experience transfer at the community level (i.e. spill-over effects) can help the households in making this transition, however, the key question is whether they will be able to stay here, or whether they will slip or whether they will move up. This is where the program's other aspects (e.g. training, knowledge transfer) interact with individual household's capacity and may make a difference.

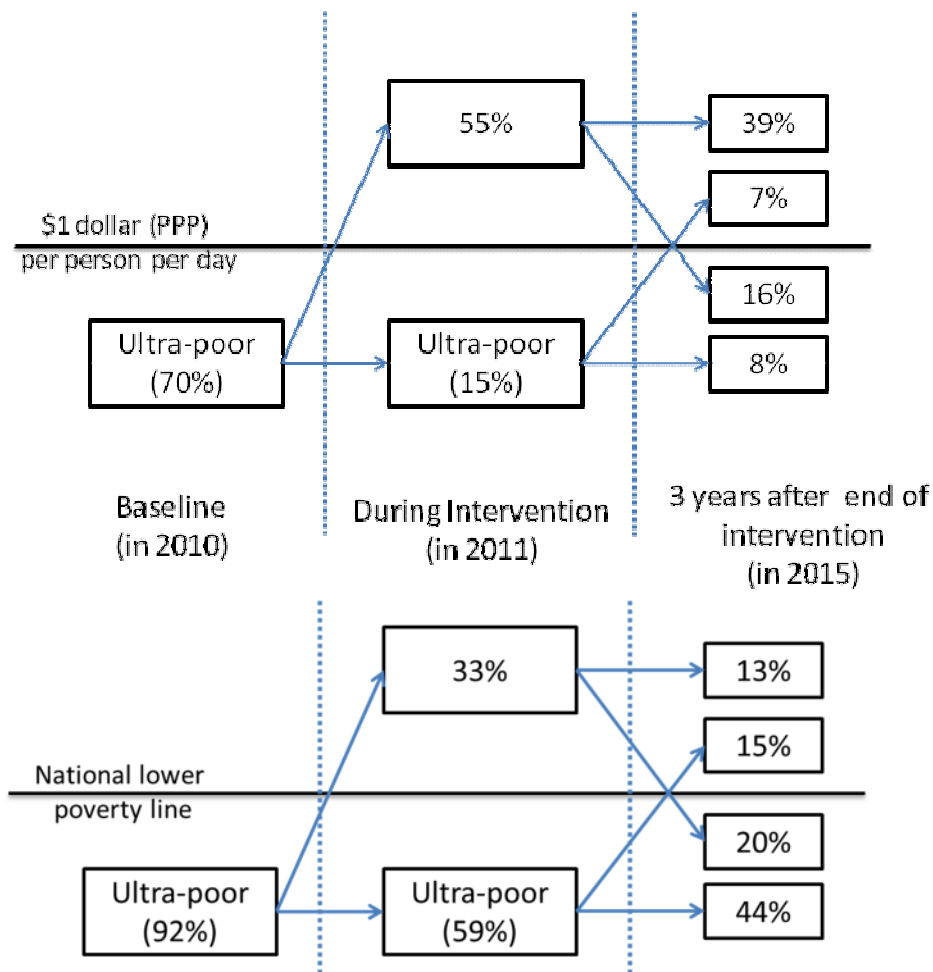
**C. Exchange Network:** This is probably one step closer to sustainability and this is where the rural poor start contributing to the other members of the network. However, it is important to note that the contribution does not need to be financial, and in fact, as our study reflects, a number of successful households have actually contributed by being there for the poor, by helping them in getting connected with necessary service points or by sharing their experiences with the other members of the community. In fact, at this stage, the poor are trying to fulfill their love/belongingness needs (as per Maslow's need hierarchy) and they have also become a recognizable actor within the socio-political set-up of the society. As pointed out, beneficiaries who have reached this level can interact with the UP chair and members, they can get access to them to get services and they can also help other people in receiving services. They still rely on the network but they have also achieved some socio-political assets, which they can share and invest.

**D. Self-sufficient Network:** The highest level of network where the rural elites belong. They still rely on the network but this reliance is not for their survival but for legitimizing their role and acceptance.

## 5. Determinants of sustainability pathways

The analysis in this section looks at the poverty dynamics of individual households over time and explores characteristics associated with different paths of change. As discussed in the methodology section, we have not used the second outcome survey (in 2012) in this analysis because of our inability to create a panel data structure with that survey round. Despite this limitation, the data from the other three survey rounds gives a detailed picture of the trajectory of changes in poverty. Figure 13 gives a simple but useful depiction of these dynamics in the short-run (between baseline and 2011) and in the long run (between 2011 and 2015). The upper panel shows the poverty dynamics based on dollar-a-day poverty line and the lower panel uses national lower poverty line.

Figure 13: Poverty dynamics among the intervention households

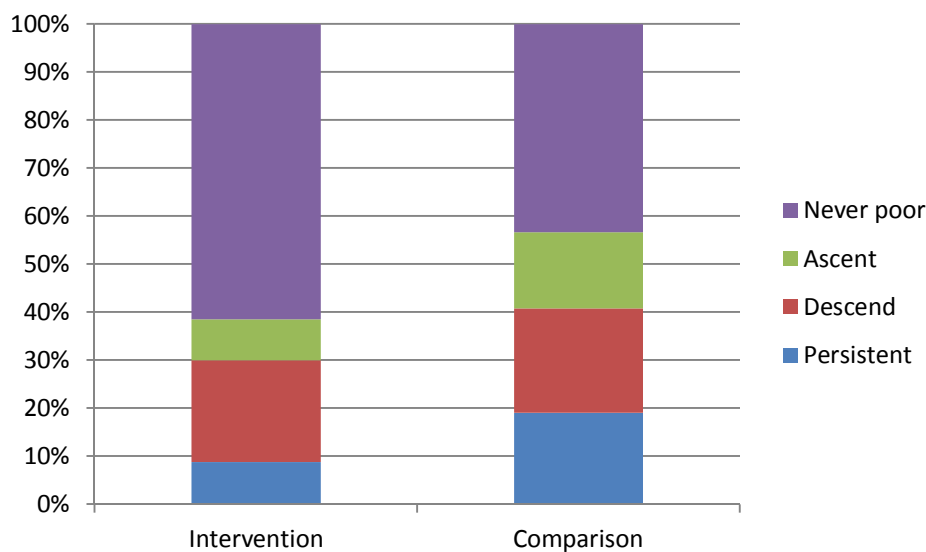


By using the dollar-a-day poverty line, we find that 70 percent of the FSUP beneficiary households were ultra poor in terms of their per capita total consumption at baseline. With the transfers taking place immediately after the baseline, about 80 percent of these ultra poor households had crossed the poverty line by 2011, which constitutes over half (55 percent) of the total FSUP beneficiaries. By 2015, most of these households stayed above the poverty line and about 16 percent households slipped back into poverty. Among the 15 percent of FSUP beneficiaries who had not crossed the poverty line in 2011, about half (7 percent of the total) of them moved above the line by 2015. From this simple analysis of poverty dynamics, we find that about 24 percent of the FSUP beneficiaries either stayed in poverty chronically or slipped back after a short-term improvement, and 66 percent

of the ultra poor beneficiaries crossed the line by 2015. Among the remaining 30 percent beneficiaries who were above the dollar-a-day poverty line at baseline, about 80 percent stayed above poverty line in 2015 (the group not shown in the figure). Overall, about 70 percent of the FSUP beneficiaries are found to be living above the one dollar-a-day poverty line in 2015 compared to only 30 percent at baseline.

Poverty line is \$1 daily per capita total expenditure in terms of purchasing power parity (PPP)<sup>11</sup>, which is 27.18 for the baseline year (2010). The bottom panel of Figure 13 also presents the same descriptive base on national lower poverty line. The national poverty line is Tk 1,236 per capita per month compared to Tk 810 by one dollar-a-day. Consequently, we see that 92 percent of the FSUP beneficiaries are below the national poverty line compared to 70 percent below one dollar-a-day. Moreover, we see comparatively more transition in and out of poverty based on the national poverty line in the long run. This essentially shows that the FSUP project was highly successful in primarily reaching households who are far below the national lower poverty line. Among all the beneficiaries, 70 percent of the households had per capita expenditure below one dollar-a-day, and another 22 percent households had a per capita expenditure between the dollar-a-day and the national lower poverty lines. In other words, these 22 percent households were not far above the one dollar-a-day line. Second, although the project is successful in helping them to cross the dollar-a-day cut-off and sustain the improvement in the long-run, about 40 percent of the beneficiary households are still living between the two lines.

**Figure 14: Poverty dynamics in post-intervention period**



In order to shed light on the determinants of poverty dynamics in the post-intervention period, we classified the households into four groups based on their poverty status in 2011 and in 2015 (Figure 14). This analysis includes the households who were above the poverty line at baseline (30 percent of the entire sample). About 60 percent of the households in the intervention group are found to be above the poverty line in both rounds, and about 10 percent are chronically poor. The extent of ‘transient poverty’ (i.e. temporary) is relatively low compared to what is usually observed from

<sup>11</sup> PPP is the international standard practice for conversion of exchange rate, done by the World Bank, based on a basket of commodities for poverty estimates. \$1.25 in PPP terms is generally used as the dollar-a-day poverty cut-off.

national data.<sup>12</sup> About 20 percent of the beneficiaries descended into poverty during the four-year period while about 10 percent moved up. When this trajectory is compared with the comparison group (38 percent transient poverty), the intervention households are clearly showing more stable and sustainable livelihoods. The extent of persistent or chronic poverty is twice as much among the comparison households compared to the intervention group. Moreover, in the post-intervention period, about 43 percent of the comparison households are categorized to be “never poor” compared to 60 percent of households in the intervention group. Subsequent discussion in this section focuses on understanding the household, community and programmatic characteristics that are associated with the four categories of poverty dynamics among the beneficiary households. We also explore the correlations between these poverty dynamics and changes in other livelihood aspects.

### A. Individual and household level determinants

In the poverty dynamics literature, there is usually a distinction between ‘stochastic’ (or random) and ‘structural’ (or systematic) changes. Stochastic poverty contains two broad elements – one consists of temporary changes and the second is pure measurement error in consumption data. Whether the poverty changes are structural or not can be assessed by checking if they correlate with other characteristics indicating a structural difference. Lack of correlation essentially indicates that the changes are primarily random in nature. With this note, Table 10 shows the differences among the four groups of beneficiaries in terms of various household characteristics. In general, it seems that there are no strong structural differences among the four groups (of poverty dynamics) in terms of their household characteristics.

**Table 10: Correlates of poverty dynamics**

	Persistently ultra poor	Descend	Ascent	Never ultra poor	F-stat
Food consumption score [baseline]	30.6	30.5	31.9	31.7	0.83
Change in savings (baseline to 2011)	1,393	1,898	2,133	2,446	1.77
Change in savings (2011 to 2015)	-523	-179	4,510	1,851	2.04
Asset level at baseline	17,854	16,924	18,923	26,364	1.43
Change in assets (baseline to 2011)	25,019	23,933	22,201	23,138	0.03
Change in assets (2011 to 2015)	41,609	36,093	59,638	61,551	1.24
Change in per capita income (baseline to 2011)	4,316	7,153	6,421	9,560	4.50***
Number of crises faced in 2011	0.62	0.74	0.53	0.66	1.57
Number of crises faced in 2015	1.03	1.13	1.14	0.95	2.25*
Change in probability of receiving informal transfers (baseline to 2011)	-0.17	-0.15	-0.09	-0.03	2.92**
Amount of transfers received in 2015	674	724	2,403	1,256	2.20*
Respondent age at baseline	31.1	32.1	32.0	32.6	0.88
Respondent is an earner at baseline	0.90	0.83	0.85	0.87	1.03
Respondent has restricted mobility (at baseline) [Scale 0 to 9]	1.24	1.74	1.26	1.03	3.36**

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>12</sup> According to the estimates by Sen (2015), transient poverty is two to three times higher than persistent poverty.



Among the characteristics where we find significant differences, a change in per capita income from baseline to 2011 seems to be the strongest. It shows that households, who were consistently above poverty after the baseline, also had the highest amount of income from their earning activities while those in persistent poverty had the lowest income. This again is more of a reflection of the correlation between income and consumption rather than any underlying structural difference. The external environment in 2015, in terms of household level shocks, is also related to households descending back into poverty.

From this analysis, however, we find two potential structural differences that can explain part of the reason for why some households have failed to move above the poverty line, while most of the beneficiaries were successful in doing so. One of these explanations is the differential persistence in receiving informal transfers and the second is related to the mobility of respondent women. Households in persistent poverty have faced a 17 percentage point decline in receiving informal transfers compared to only 3 percentage point decline faced by the “never poor”. A similar difference is observed in the amount of informal transfers received by the households in 2015. A plausible interpretation of this difference is that the chronic poor had weaker social networks compared to the other intervention households, and consequently the FSUP intervention may have crowded out these informal support networks. On the second structural aspect, we find that women from “never poor” households were less likely to have restricted mobility, while women from descending households had the highest level of restriction on their mobility. Data analysis exploring such correlations did not reveal significant associations (results not shown) indicating that the changes are primarily not structural.

Another way to explore the structural difference in poverty is to look at the asset dynamics instead of consumption. It is well documented that changes in wealth are a better proxy for long-term changes in poverty compared to changes in income or consumption levels, which could be transitory. In the previous discussion on impacts of the program on assets, we found that there was an immediate change in the asset stock after the transfers took place. From sustainability perspective, it is probably more important to assess to what extent households have managed to a) continue building assets, b) keep the asset stock stable after the influx, and c) observed any asset depletion after the interventions were phased out. For this analysis, we measured the change in the value of total assets by each beneficiary household between 2011 and 2015. Figure 15 shows the distribution of intervention households in terms of this change. We see that the majority of intervention households are on the positive end of the distribution, indicating that they are able to further accumulate assets in the post-intervention period. To classify these households into the three groups, we used a 0.2 standard deviation change as the cut-off to indicate a stable asset path. About half of the beneficiary households (49 percent) have been able to increase their assets further by at least 0.2 standard deviation from their asset stock of 2011. While 28 percent of intervention households have observed a decline, the remaining 23 percent have maintained the same asset level. This is another measure of sustainability whereby over 70 percent of the beneficiary households are either having sustainable asset stocks or on an accelerated asset accumulation pathway.

Figure 15: Change in assets in post-intervention

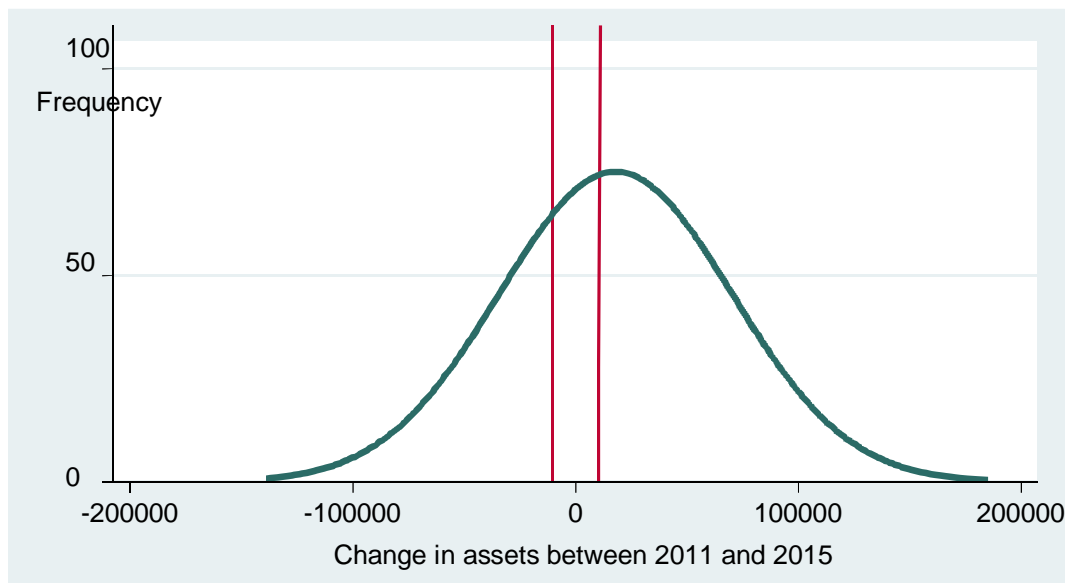
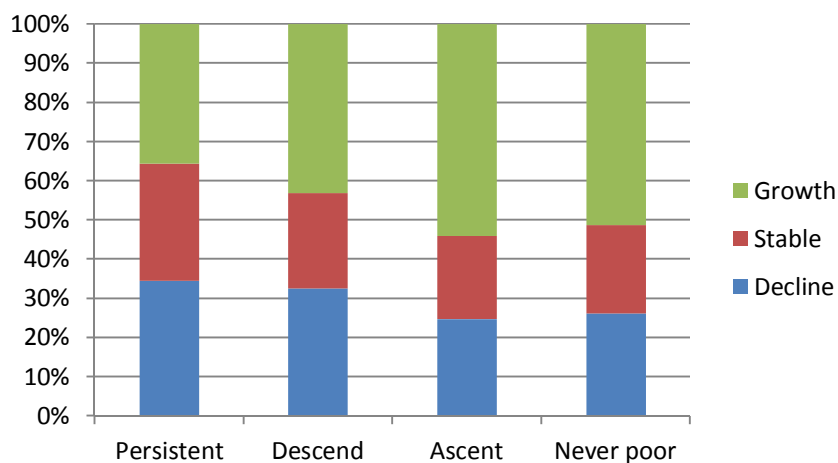


Figure 16 shows the correlation between the two measures of poverty dynamics, i.e. the poverty category by consumption data and asset accumulation in the post-intervention period. Following this, Table 11 shows the correlations between asset dynamics and other household characteristics. The graph shows a weak correlation between consumption and asset poverty whereas there are strong correlations between asset dynamics and changes in household characteristics. Based on this analysis, we conclude that changes in consumption poverty capture primarily stochastic changes while asset dynamics demonstrate more structural patterns.

Figure 16: Correlation between poverty dynamics and assets accumulation



Results in Table 11 show that households who experienced a sharp increase in assets in the first year of intervention are more likely to face declines in their assets in the post-intervention period. On the other hand, households who are on a stable and growing asset paths had similar levels of asset increase, which is nearly equal to the size of the transfer made by FSUP project. The households on the asset growth path had a slow progress followed by a big jump between 2011 and 2015. From the data, we observe that the households who experienced a decline in assets in the post-intervention

period were more likely to have sold the cows purchased through FSUP (64 percent) compared to those who had stable assets (54 percent) and those who accumulated further assets (56 percent). It seems that the households have been selling their livestock to invest in land. Overall, investment in land seems to be a more effective strategy if the households chose to invest in it in the long run instead of immediate purchase of new land. Borrowing does not have any association with asset accumulation, indicating that they are not using credit as a pathway for asset accumulation.

**Table 11: Dynamics of asset accumulation in post-intervention**

	Decline	Stable	Growth	F-stat
Change in assets value (between baseline and 2011)	35,914	15,865	19,761	5.67***
Value of assets in 2011	62,616	27,572	46,042	27.72***
Value of assets in 2015	20,931	26,677	182,841	113.78***
Sold cow by 2011	0.64	0.54	0.56	3.44**
Change in savings between baseline and 2011 (if sold cows by 2011)	1887	2868	3089	2.97*
Change in value of land owned (between baseline and 2011)	22,646	2272	5590	8.68***
Change in value of land owned (between 2011 and 2015)	-28,671	3,398	133,069	108.37***
Amount of outstanding loan (in 2011)	652	617	519	0.21

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## B. Programmatic design

One of the key questions for devising a sustainable poverty reduction policy, from an operational perspective, is how the specific aspects of the interventions correlate with poverty dynamics. We look into two aspects of the interventions: IGAs supported by FSUP and household participation in SHKMGs, and we study their association with post-intervention poverty dynamics. We do not find a strong difference in households' engagement in FSUP-supported IGAs in 2011 among the four poverty dynamics groups (Table 12). However, households who are persistently above the poverty line in the post-intervention period are more likely to continue the FSUP-supported IGAs. Bull fattening, which is one of the main IGAs supported through FSUP, was more common among households in the "persistent/chronic poverty" group although more than half of the households in each group were in this enterprise.

**Table 12: Correlates of poverty dynamics with FSUP IGA and SHKMG**

	Persistently ultra poor	Descend	Ascent	Never ultra poor	F-stat
# of FSUP supported IGAs in 2011	1.18	1.22	1.05	1.14	2.51*
# of FSUP supported IGAs in 2015	0.29	0.21	0.38	0.43	8.70***
Engaged in bull fattening in 2011	0.67	0.57	0.62	0.50	4.17***
Engaged in bull fattening in 2015	0.14	0.04	0.14	0.13	4.35***
Saved with SHKMG in 2011	0.99	0.99	0.99	0.99	0.16
Saved with SHKMG in 2015	0.06	0.10	0.09	0.08	0.42
Attended SHKMG meet'g in 2015	0.01	0.03	0.04	0.06	1.72

Overall, our findings indicate that the longer term growth and stable reduction in poverty depends on the households continuing the FSUP supported IGAs at least for a while after the intervention period is over. Although SHKMGs are considered to be critical during the intervention period, as almost all the beneficiary households reported savings with the SHKMG during the intervention,

their importance seems to decline after the intervention is phased out. In 2015, we find that less than 10 percent of intervention households are still saving with the SHKMG or attending the group meetings. This figure needs to be read with the strategic decision by WFP to refund the deposits with apprehension that the SHKMG fund may not be well managed after withdrawal of all follow up supports. Although the evidence on the impact of such informal saving and lending schemes is not conclusive (e.g. Karlan et al, 2012; Mukherjee and Chaturvedi, 2014), this has the potential of creating longer-term effects especially when layered with the intensive support package of FSUP.

### **C. Sustainability through qualitative lens**

In order to understand the process through which the beneficiary households managed to develop their asset base, translate that into sustainable livelihood strategies and how the specific components of the program design helped them to achieve these goals, we have compared and contrasted the experiences of three households – one participant that managed to develop a sustainable livelihood strategy, one that failed to do so and one non-beneficiary household from comparison group that did not succeed in transitioning out of poverty. The goal here is to understand the processes behind these dynamics. Let us first consider the experience of the successful beneficiary household:

Nazma Khatun used to live in Garadaho Union of Sirajpur district. Nazma's grandfather was a rich farmer and they had no problems at the time. Her father inherited enough arable land to live a happy life. However, Nazma's father sold all his land to bear the educational expenses of his brother's son and started selling clothes. However, during this time, due to river bank erosion, the family lost their home and started living on government land. Nazma got married while living there and moved to the nearby Narina Union. Her father had to pay Tk. 9000 as dowry and after marriage she started living with her in-laws in a joint family. Back then, Nazma's husband was engaged in the fish business; however, his income was not enough for the family. To make matters worse, they did not know about birth control and consequently, they had five children. Things got really difficult for her and she also could not stand the ill-treatment by her in-laws. As a result, she encouraged her husband to live separately from his parents. This, however, did not improve their financial condition and Nazma's husband started driving a van. Since he did not own a van, he had to rent one from others and this did not help their financial situation. They could not afford three meals a day, which forced Nazma to work as a domestic worker at a neighbor's house. She used to get Tk. 10 to 15 per day. This did not help them much and the future seemed quite bleak to her.

However, FSUP provided an opportunity for her. She opted for cattle rearing and after receiving Tk. 14,000 from the project, she bought a cow and after 6 months, sold it for Tk. 35,000. In 2013, she took Tk. 10,000 from the profit she made, added another Tk. 2,000 from **her own saving**, and bought a van for her husband. She spent Tk. 15,000 to buy another cow and sold it for Tk. 37,000 few months later. She then decided that she would make more profit if she could sell more than one cow and as a result, spent Tk. 16,000 to buy two calves. Later, she sold them at Tk. 35,000 and made a profit of Tk. 19,000. Again, she bought another cow by spending Tk. 18,000 and later sold it at Tk. 50,000. Nazma and her husband, at that time, came to the conclusion that driving paddle-van was not profitable and it is too labor-intensive. She took Tk. 35,000 out of her profits, added another Tk. 8,000 from her savings and bought her husband an auto-van. Her husband now carries school children on a monthly basis and earns Tk. 3,500 from that. In addition to that, he also earns Tk. 200-300 every day by carrying passengers. Nazma's two sons also drive a paddle-van and earn Tk. 300-400 per day. She has also started poultry-rearing and earns a decent amount of money from her cattle and poultry businesses. In addition to these, Nazma's household has recently leased arable land from a local shopkeeper. Actually her husband knew the shopkeeper and when he was looking for someone to lease the land, **Nazma's husband discussed with her and together** they decided that it would be an excellent opportunity for the household. Nazma paid Tk. 45,000 for that from the profit she made through cattle rearing. She, however, is not involved with cultivation and lets the shopkeeper cultivate the land. This year, they are producing mustard on the land and Nazma will get half of the total output.

It is important to note that Nazma does not deposit money in the bank or in the NGO account. She keeps everything at home - "well, I spend the money necessary for running this family and the rest I save for the future". She now has a saving of Tk. 15,000 and with that she is planning to buy a new cow. She explained the saving process followed at their home in the following way, "if we earn Tk. 2, we try to save Tk. 1". She told us that her involvement with a saving group as part of the FSUP program has helped her in developing this saving tendency and she considers this as a safeguard for the future.

Nazma used to live in a *kaccha* house and had to suffer a lot in the rainy season. At the same time, the house did not have enough space to accommodate all the family members. However, when she first got assistance from FSUP with the amount of Tk. 14,000, she resisted the temptation to build a decent house- "I thought that we had suffered a lot and we could suffer some more for a bright future. Let's settle down a little and then we can take other steps." She was right and it did not take her much to build a tin-shed house. She also has her own tube-well- "in the past, we had to fetch water from a nearby house but I did not like that. I felt **embarrassed**". As a result, they decided to have their own tube-well. In this household, decisions are taken together and Nazma's husband values her opinion. She can move around without any restriction and while interviewing her, our research team clearly realized her level of confidence. She has also learned about the benefits of cleanliness and having nutritious food from the FSUP program. She tries to follow the lessons as best as she can.

In contrast, let us consider the experiences of a non-beneficiary household:

Rokeya Begum is now almost 60 years old and lives in Shubhogacha Union of Sirajganj district. Before coming to Sirajganj, she used to live in Bhuapur at her in-law's house. Her father also lived in Bhuapur. She lived a happy life at her father's house and at the age of 14, she got married. The economic condition of her father-in-law was not bad either and she was living a decent life. However, she lost everything to the Jamuna River and migrated with her husband's family to Sirajganj. She first came to one of her relative's house but river-bank erosion also uprooted her from this place. Now she lives at a rented place and pays Tk. 500 per month. She is now involved with cattle rearing but the cow is not hers. She has leased it from someone else and if the cow gives birth, she will get the calf. Her husband is over 60 years of age. He is sick and is not fit to work. However, they have no one else to rely on and as a result, they have to collect food for the cow on their own. Rokeya does not want to borrow money even if they have to starve. The reason is simple: "I will not be able to pay back".

She does not have any assistance from any NGO (probably due to the fact that she has a gold-ornament which is worth Tk. 12,000) and took loan from an NGO about 10 years ago. With that Tk. 10,000 she bought a cow and later sold it with a profit. However, she did not re-invest that money- "I was taking care of my two sons and expected that they would take care of us when we grow old. However, they left this home after their marriage and now we have no one to rely on. We really have no future and no hope or expectation". The family does not have any emergency funds, which causes a lot of problem for them. In fact, if one of them gets ill, they take a loan for medical purposes and later try to repay it by selling chicken or selling labor. In fact, "3 years ago, my husband suddenly fell down and hurt his head. We had to spend Tk. 3,000 for his treatment. The people of this community raised Tk. 2,000 for us and I had a saving of Tk. 1,000. Now, everything is gone".

They do not have any future plan and they have to face extreme difficulties in maintaining their livelihoods - "the secretary of the union gives us Tk. 400-500 from various projects of the union and I earn Tk. 100-150 per month by selling eggs or chickens and that is all the income we have. However, we get 30 kg rice through the VGD card issued in the name of my daughter-in-law". She told us that the household could not completely recover from the losses incurred by the river-bank erosion. However, things were getting better when her youngest son was working in Dhaka- "he used to send us money and things finally started to look up. However, when he died from cancer, we lost everything. Our two other sons do not care for us, they do not even know how we are living. In truth, we are living on the edge"

If we compare these two case studies, it is possible to draw the following conclusions:

First, it clearly indicates the impact of financial assistance. Many ultra poor families actually lack necessary capital, which they can utilize for their economic development and these two case studies indicate how the presence of such capital can make a difference.

Second, it is interesting to note that in the case of Nazma, there is a mindset and determination to save. She has emphasized on saving and has resisted the initial temptation to spend that money in unproductive activities. Whereas the mental strength and capacity of Nazma has definitely played a role, the influence of FSUP in terms of providing training related with IGAs and saving activities should not be ignored. For Rokeya, neither that mental strength nor the support through training was available. Furthermore, even when Rokeya managed to make some profit, she could not invest it since she had to spend it for the treatment of her ailing husband or for helping her children. This is an important difference because while Nazma learned that she needed to save for the future and she could spend later if she could pass through the initial hardship, Rokeya did not get any opportunity of understanding that. In fact, it can be argued that if Rokeya could resist the temptation of spending money for her children, she could have ended up like Nazma and if Nazma failed to resist temptation of building a new house, she would probably live the life of Rokeya at an old age.

Thirdly, both households actually suffered from river-bank erosion and while one of them managed to come out of it to live a better life, the other failed miserably. It is, however, interesting to note that both households relied on social networks and connections but the nature of this network and

support are significantly different. Nazma, for instance, maintained a social connection with people on her own terms and that is why she could cut a deal with the local shopkeeper about leasing agricultural land. On the other hand, Rokeya's network is more supportive in nature and she does not dictate the terms. She has to depend on the secretary of the Union Parishad for monetary help, for getting VGD cards or she has to rely on the people of her community for treating her husband. The capacity and the ability of the households have determined the nature of the connection they are maintaining.

Fourthly, an important finding of this comparison is the fact that Nazma, who used to work as domestic help in one of the neighboring houses, now feels embarrassed in fetching water from a nearby house which encourages her to build her own tube-well. It shows how economic empowerment can redefine social position, which is probably playing a role in determining her capacity to dictate the terms of the social connections she maintains. Rokeya cannot afford such an attitude.

Even though the comparison between these two case studies is helpful in understanding the overall effect of the program and sheds some light on how the beneficiary households managed to develop livelihood strategies, it does not tell us about sustainability of the livelihood strategies. That is, it does not:

- help us in identifying the reasons which helped Nazma's household to develop a sustainable livelihood strategy
- explain the process through which the sustainable livelihood strategy can be developed. Even though it introduces some key factors like individual capacity, financial capital, social networks and connections, these case studies do not tell us how these factors interact with each other
- tell us if program interventions are so useful why some the households that received assistance failed to build a sustainable strategy
- explain the impact of vulnerability on sustainable livelihood strategies.

In order to understand these, let us now consider a case, where the program participant has failed to sustain the positive outcomes:

Sonavan lives in Doulotpur Union of Sirajganj district. For generations, her family survived as day laborers – her father was a day laborer, her brothers are now working as day laborers and she too is a day laborer. She has lost everything to river-bank erosion. At 45 years of age, she lives on the river-bank. Due to poverty, she could not go to school and got married at the age of 18. Her husband was a weaver and after marriage for the first time in her life, Sonavan started to live a decent life. After a year, she gave birth to a girl and things seemed to go as planned. After 3-4 months of her daughter's birth, Sonavan's husband died and she was desperately trying to find a way to survive. She started working as domestic help and she had to work so hard that she did not even have time to breast-feed her daughter. Sonavan's daughter is now married and Sonavan is living a lonely, helpless life.

FSUP offered Sonavan an opportunity to break free. With the Tk. 14,000 she received from the project, she bought a cow and six months later, sold it at Tk. 19,000. Then she bought another cow by spending Tk. 15,000 and after two months, sold it at Tk. 16,000. After that, she bought another one at Tk. 15,500, however, as the cow got sick, she had to sell it at Tk. 13,000 and incurred a loss. Furthermore, at that time, her daughter was getting married and she had to manage Tk. 32,000 as dowry. With the money she had after selling the cow and by taking loans from the neighbors, she arranged the marriage of her daughter and along the way, lost everything she had. Therefore, even though FSUP offered Sonavan an opportunity, she failed to make the best use of it: "those were the good days. I had food in my house and I could manage well. Well, those days are gone and I am back where I was". Sonavan is working as a day laborer again. Even though she had taken the training, and she managed to learn a lot of things about nutrition and cleanliness, she could not use the trainings and other opportunities to develop a sustainable livelihood strategy around the asset she received through FSUP.

The differences in outcome between these two households that received assistance from the FSUP are quite clear. Whereas one household managed to gradually break free from poverty, the other failed to do so. At the same time, the asset base of one household went through significant changes (Nazma) as this household managed to transform its initial financial asset into a physical asset whereas the other (Sonavan) lost her initial asset to meet more pressing needs. Similarly, while Nazma's household is now concerned about wellbeing and nutrition and concentrated on creating opportunities for their children, Sonavan's household is still concentrated on surviving. Given that the focus of this section is to understand the reasons and the processes behind developing sustainable livelihood strategies, these two contrasting cases actually allow us to identify some factors.

First of all, comparing the two households, it becomes clear that there are some significant differences between these two women. For instance, while Nazma had some idea and knowledge about how to do business, Sonavan clearly lacked that. It is possible that the illiteracy of Sonavan has played some part in this. In fact, during our FGDs, a number of respondents argued that due to lack of knowledge sometimes beneficiaries failed to develop proper strategies: "for women with limited or no knowledge it is extremely difficult to remember all the trainings or all the methods for treating the cattle once they get sick. As a result, sometimes they fail to make the best use out of the support they receive", commented one respondent. However, for this case, it is important to note that in addition to formal education, lack of practical knowledge has also played a part. For instance, Nazma actually waited before making her first sale and she sold her cow just before the Eid-ul-Adha by realizing that she would profit more if she could sell at this time. On the other hand, Sonavan made her first sale at a very low profit and in the second time, she sold her cow just after two months. The fact that her profit margin had shrunk over time indicates her inability to devise a business plan.

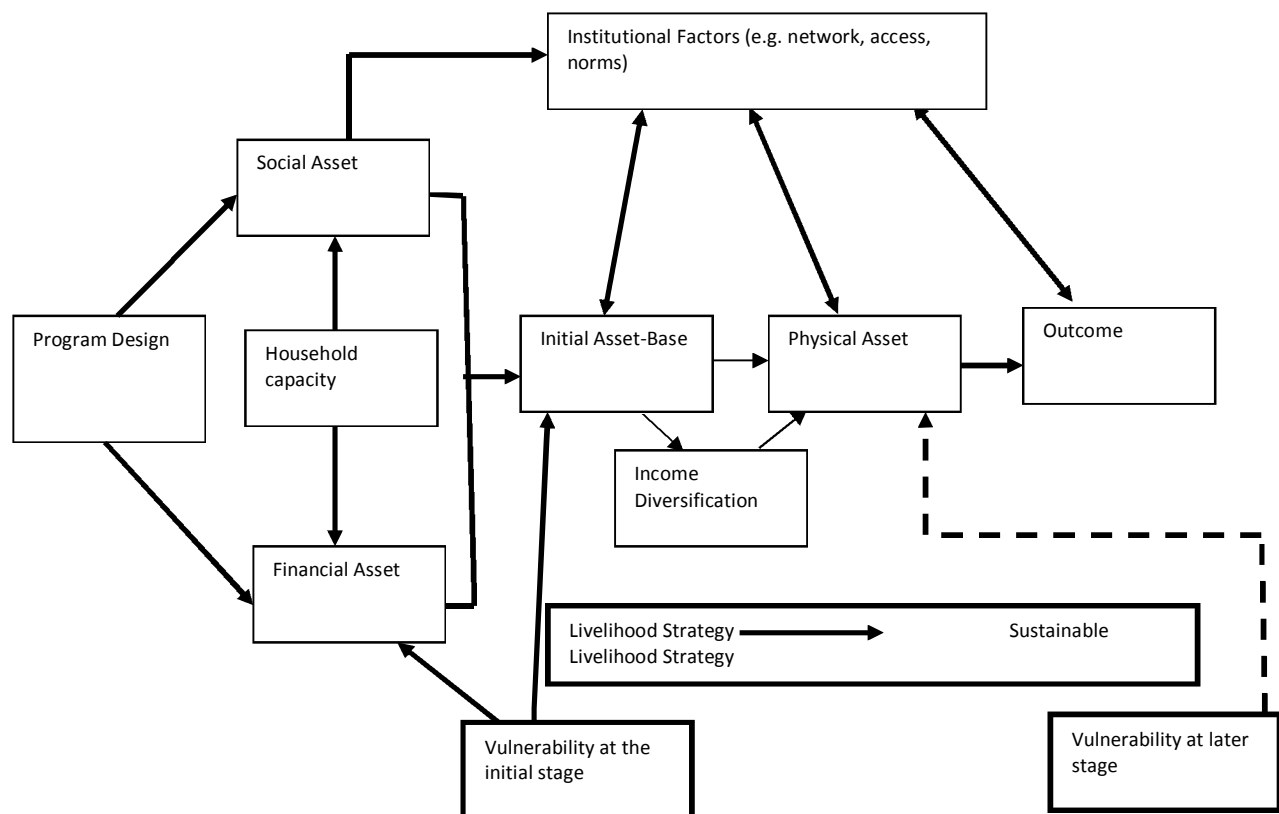
Second, the fact that individual household capacity plays a role in determining the livelihood strategies becomes clear if we consider the attitudinal difference between these two households. Nazma internalized the training properly and emphasized savings. From the very beginning, she was focused and worked on that. Sonavan, on the other hand, had failed to do that.

Thirdly, a significant difference between these two households was the presence of supporting members. For Nazma, diversifying IGAs was comparatively easier as she had her husband and sons whom she could engage in other IGAs. For Sonavan, who lost her husband and did not have any son, such an option does not exist.

Fourthly, it is important to note that vulnerability at the initial stage also plays an important role in determining the sustainability of livelihood strategies. Sonavan faced a serious problem at the very early stage of the intervention when she had to pay Tk. 32,000 as dowry. This not only dried up her savings but also forced her to take loan. This is almost similar to the experience of Rokeya, a non-beneficiary who also had to spend her savings for treating her husband.

Considering the factors mentioned above, the analytical framework developed at the beginning can be redrawn in the following way:





Based on the figure above it can be argued that the approach followed by FSUP eventually focused on creating two specific asset sets for the poor - the financial assets which were delivered through cash assistance and social assets which were delivered through developing 'forced groups', providing and emphasizing training. The goal of the program was that it would help the poor in developing the initial asset-base. If we consider the case of Nazma's household, it is possible to draw the conclusion that the program worked as planned. However, an important missing link that was not addressed by the program was the issue of individual household capacity. For Nazma, FSUP provided a wonderful opportunity where the characteristics of her household (e.g. presence of supporting members, practical knowledge, ability to internalize training, focus on saving, availability of networks) allowed her to move towards developing an initial asset base. Further to that, the fact that she did not have to face any adverse situation at the beginning of the intervention also played an important role in devising her livelihood strategy. It should be mentioned here that her initial livelihood strategy was built around her initial asset-base and at that stage, she mainly focused on cattle-rearing and selling. At the same time, her initial success (mainly due to the household capacity and lack of vulnerability) encouraged her to diversify the IGAs. Her husband and her sons played an important role here. At the same time, it is important to note that the livelihood strategies started to shift for Nazma as the IGAs started to be diversified. At that stage, her household focused on building physical assets and through using the social networks of her husband, she started to take lease of arable land and build her own house, tube-well etc. Even though the overall income declined due to these extra costs, it served two purposes: first, it ensured food security of the household as it now had control over grain stock and it also increased the prestige of the family within the community allowing it to strengthen its social networks. In other words, the experience of Nazma shows how the household can translate

the programmatic assets into initial livelihood strategies and later sustainable livelihood strategies while emphasizing its internal capacity and understanding of the institutional factors.

On the other hand, Sonavan's initial strategy did not become sustainable due to two basic reasons- first, even though she met the basic criteria of being included in the program, her specific context and needs were not completely realized by the program. Her shortcomings were not addressed and as a result, she failed to follow the successful example of Nazma. At the same time, her vulnerability, i.e. payment of dowry, actually forced her to go back to the pre-program level. This essentially means that if her specific needs and lack of specific capacities are not met, it is possible that she would always be vulnerable and henceforth, her livelihood strategy will never be sustainable. On the other hand, for Nazma, dealing with vulnerability should not be a big problem as she had managed to have sizeable savings to deal with such sudden shocks.

## 6. Intra-household spillovers: Effects on nutritional outcomes of children

Malnutrition rates in Bangladesh are one of the highest in the world. There are about six million children who are currently suffering from chronic malnutrition. The effects of malnutrition on physical stature, cognitive development and the ability to do physical work can lock children into poverty and entrench into inequality. Malnutrition can therefore pose a significant barrier to productivity and economic growth. Malnutrition is continuously challenging the overall improvement in maternal health, reduction of child mortality and eradication of extreme poverty and hunger. In this section, we present quantitative and qualitative evidence on the impacts of the FSUP on children's nutritional status and other health outcomes in beneficiary households.

The case studies discussed in the previous section already provided some insights on the health and nutritional effects of the FSUP. In particular, training programs through which the participants were made aware of improved health and nutrition had significant impacts on children's nutritional status. Health behavior of the participants was reportedly unhygienic before they received training under this project. As Rekha Khatun reported "I used to eat leaves and vegetables but did not know how nutritious these were. After attending the training, I can now understand the importance of eating leaves and vegetables. I also came to learn from the training that it was good for health to eat eggs, milk, fish or meat two days in a week. Before receiving the training, I did not know the consequences of unhygienic sanitation practices, i.e. going to toilets without wearing sandals, not washing hands with soap. I now maintain hygienic sanitation and can protect my children against diarrhea which my family members, especially my children, were often suffering from previously."

Another training participant named Baby said that the knowledge of health, hygiene and nutrition that she acquired by attending the training was no less than the value of Tk. 14,000 that she received as a beneficiary of the project. She made her children follow the instructions on how to maintain hygienic sanitation practices and good health behaviors, which she learned from the training. Women, particularly pregnant women, were found to be aware of possible prenatal and postnatal dangers. As Marjina reported, "I did not know how to maintain good health during pregnancy, how to do prenatal care. Neither did I have an idea about nutritious food items, which were very important for pregnant women. I did not maintain good health behaviors during my pregnancy and consequently I gave birth to a physically handicapped girl. By attending the training program, I became aware of these dangers and I learned how to maintain good health behaviors during the period of pregnancy and how to do prenatal care, which helped me give birth to my second child healthily."

Furthermore, the training recipients are now unwilling to consult charlatans during their health hazards. The community people used to complicate their diseases by going to charlatans for treatments, but they are now aware of the possible dangers that are likely to be caused due to wrong treatment. As Nando Ghosh said, "the women of this village are now careful about health and nutrition. After learning the consequences of wrong treatment from the training, they do not risk their children's health by consulting charlatans or village doctors. Rather, they are very keen on visiting good doctors or government medical officers."

In terms of quantitative evidence on child nutrition, the household survey of the present study collected information on nutrition-related indicators. Sampling a comparison group has helped to distinguish the effect of extraneous factors on the project outcomes. The nutrition component of the

survey included children between 0-59 months old and their mothers/caregivers. Total sample size was 605 children, 397 from intervention households and 208 from comparison. Interviews were conducted with mothers or caregivers of the children. Children’s anthropometric measurements were taken. It is important to note that we have a very small sample for the 0-6 months age group since it has been three years after the end of FSUP and the number of children whose nutritional status is measured here is not sufficiently large to enable a comparison with national statistics. Thus, while these results present the overall situation of nutrition in the program and comparison areas, they have to be interpreted with caution while making generalizations. The subsections below present the findings of the survey.

### A. Anthropometric measurements

Anthropometric measurements of children (weight, and length/height) were recorded as indicators of general nutritional status. The three most common indicators frequently used to describe the nutritional status of children are based on weight and height measurement. Weight of the children is measured by electronic digital scale (TANITA model scale), with a precision of 100 grams. Mother and child’s weight were taken together, followed by the weight of the mother only, and then child’s weight was obtained by taking the difference of the two measures. Child’s length was measured using locally-made wooden length boards. Measurements on height and weight are subsequently compared to the standards according to the WHO 2006 growth standards and the nutritional status was assessed by z-scores.

Malnutrition status of the children is manifested either as under-nutrition or over-nutrition. We are using malnutrition and under-nutrition interchangeably in this report where both are synonymous to describe poor nutritional status of children.

For children 6-59 months old, the following definitions and cut-off points were used for assessing nutritional status:

#### Definition of under-nutrition

A child who is more than two standard deviations below the median (-2 SD) of the WHO reference population in terms of height-for-age is considered short for his/her age, or stunted. If a child is below three standard deviations (-3SD) from the reference median, then he/she is considered to be severely stunted. Similar cut-offs are applied for wasting and being underweight.

Due to small sample size of young children, results on anthropometry indices were generated into two age categories i.e. 6-23 months and 6-59 months. Further disaggregation by gender was not possible.

**Table 13: Cut-offs for wasting, stunting and underweight**

State	Cut-off (moderate)	Cut-off (severe)
Wasting	<-2 SD weight-for-height z-score	< -3 SD weight-for-height z-score
Stunting	< -2 SD height-for-age z-score	<-3 SD height-for-age z-score
Underweight	< -2 SD weight-for-age z-score	<-3 SD weight-for-age z-score.

#### Infant and Young Child Feeding (IYCF) indicators

Adequate nutrition is vital for child health and development. The period from birth up to two years of age is most critical because of the rapid growth and brain development that occurs during this period. The Infant and Young Child Feeding (IYCF) practice provides information on key indicators

related to optimal feeding practices. Feeding practices described in this report are related to breastfeeding practices, introduction of solid and semi-solid foods to children after completion of 6 months of age, and complementary feeding, including appropriate dietary diversity and meal frequency for children of 6-23 months according to globally-agreed feeding guidelines.

In 1991, WHO released a set of indicators designed, to be used in population-based surveys to measure adherence to recommended feeding practices. However, most of these indicators focused on breastfeeding practices. Recently, the indicators have been updated to include a greater focus on appropriate feeding practices for children of complementary feeding age (6-23 months). The effort by an interagency working group has in 1991 produced a set of simple, valid and reliable indicators that measure food-related aspects of complementary feeding (including dietary variety and frequency of eating episodes), as well as current guidance on the feeding of non-breastfeeding infants and young children up to 24 months of age. We measured selected IYCF indicators in this survey because of small sample size, analysis plan and timing that didn't allow us to go further. The selected indicators we measured are given below.

**Indicator 1:** *Exclusive breastfeeding under 6 months:* Proportion of infants 0-5 months who are fed exclusively with breast milk

**Indicator 2:** *Minimum dietary diversity:* Proportion of children 6-23 months who receive food items from 4 or more (of 7) food groups

**Indicator 3:** *Minimum meal frequency:* Proportion of breastfed and non-breastfed children 6-23 months who receive solid, semi-solid or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more.

Indicators 2 and 3 were calculated on the whole number of breastfed and non-breastfed children together as disaggregation would generate insignificant result.

## **B. Child anthropometry**

The survey collected anthropometric data of children aged 0-59 months. Height and weight were measured using appropriate scales with precision. For assessing the level and extent of malnutrition among young children, height and weight of 6-59 months old children was recorded (457 from intervention and 225 from comparison) using the standard procedure that was demonstrated in the enumerators training. The standard indices of physical growth that describe the nutritional status of children are:

- Height-for-age (Stunting)
- Weight-for-height (Wasting)
- Weight-for-age (Underweight)

### **Stunting (Height-for-age)**

Stunting was analyzed in two different age groups of children. The age classifications were 6-23 months and 6-59 months to see age-specific prevalence of stunting. As the number of children below 6 months is very low in our sample, we dropped that age group from the analysis. This information will essentially inform us about the sustained practices of the FSUP project beneficiaries.

Survey results show that, among children aged 6-23 months, 32 percent are found to be stunted among intervention households and 38 percent in comparison households. There is a significant

difference between the intervention and comparison groups, the prevalence of stunting in the comparison groups is also higher than the corresponding national average (31.68 percentage)<sup>13</sup>.

**Table 14: Stunting among 6-23 month old children**

	Mean	[95% Conf. Interval]	
	<b>Comparison (n = 56)</b>		
Percentage below -3 SD	0.18	0.075	0.282
Percentage below -2 SD	0.38	0.244	0.506
Percentage above 2 SD	0	0	0
	<b>Intervention (n = 114)</b>		
Percentage below -3 SD	0.13	0.069	0.195
Percentage below -2 SD	0.32	0.237	0.412
Percentage above 2 SD	0.03	-0.004	0.056

Results in Table 15 show that among children aged 6-59 months, 38 percent are stunted in intervention and 40 percent among comparison groups. There is no significant difference in the prevalence of stunting among the two groups and it is similar to the national average (37.9 percentage).

**Table 15: Stunting among 6-59 months old children**

	Mean	[95% Conf. Interval]	
	<b>Comparison (n = 198)</b>		
Percentage below -3 SD	0.19	0.132	0.242
Percentage below -2 SD	0.40	0.335	0.473
Percentage above 2 SD	0	0	0
	<b>Intervention (n = 370)</b>		
Percentage below -3 SD	0.17	0.129	0.206
Percentage below -2 SD	0.38	0.334	0.434
Percentage above 2 SD	0.02	0.005	0.033

### Wasting (Weight- for-height)

Weight-for-height describes current nutritional status. A child who is more than two standard deviations below (-2SD) the reference median for weight-for-height is considered to be too thin for his/her height, or “wasted”. This condition reflects acute or recent nutritional deficit. As with stunting, wasting is considered severe if the child is more than three standard deviations below the reference median.

Acute malnutrition is more prevalent (14 percent) among 6-23 month old children from the comparison group relative to those from intervention households (17 percent).

<sup>13</sup> Weighted result from Draft BDHS 2014

**Table 16: Wasting among 6-23 month old children**

	Mean	[95% Conf. Interval]	
		<b>Comparison (n = 56)</b>	
Percentage below -3 SD	0.05	-0.007	0.114
Percentage below -2 SD	0.14	0.048	0.237
Percentage above 2 SD	0.05	-0.007	0.114
		<b>Intervention (n = 114)</b>	
Percentage below -3 SD	0.10	0.041	0.152
Percentage below -2 SD	0.17	0.097	0.236
Percentage above 2 SD	0.09	0.035	0.140

Among children aged 6-59 months, 17 percent are wasted in the intervention households (Table 17) while 13 percent are observed in the comparison groups. Though intervention households show a higher proportion of children suffering from acute malnutrition this is close to national average (16.2 percent)

**Table 17: Wasting among 06-59 months old children**

	Mean	[95% Conf. Interval]	
		<b>Comparison (n = 198)</b>	
Percentage below -3 SD	0.05	0.016	0.075
Percentage below -2 SD	0.13	0.084	0.179
Percentage above 2 SD	0.05	0.020	0.081
		<b>Intervention (n = 370)</b>	
Percentage below -3 SD	0.07	0.046	0.100
Percentage below -2 SD	0.17	0.129	0.206
Percentage above 2 SD	0.06	0.035	0.084

The overall findings suggest that acute malnutrition is slightly more prevalent among intervention households than the national average.

### **Underweight (Weight-for-age)**

Weight for age is a composite index of weight-for-height and height-for-age. In this study, we analyze underweight for two age groups, 6-23 months and 6-59 months. As there are very few children aged 0-6 months in our sample, we omit this group from the analysis.

The results show that, there is a substantial difference in the prevalence of being underweight among 6-23 month old children from intervention households compared to those from comparison households. Table 18 shows that, in intervention households only 24 percent of the children are underweight in intervention households while the corresponding figure among comparison households is 34 percent. This suggests that the project may have led to a remarkable improvement in underweight of children in the 6-23 month age group.

**Table 18: Underweight among 6-23 month old children**

	Mean	[95% Conf. Interval]	
	<b>Comparison (n = 56)</b>		
Percentage below -3 SD	0.11	0.024	0.191
Percentage below -2 SD	0.34	0.211	0.467
Percentage above 2 SD	0	0	0
	<b>Intervention (n = 114)</b>		
Percentage below -3 SD	0.08	0.029	0.129
Percentage below -2 SD	0.24	0.158	0.316
Percentage above 2 SD	0.01	-0.009	0.026

**Table 19: Underweight among 6-59 month old children**

	Mean	[95% Conf. Interval]	
	<b>Comparison (n = 198)</b>		
Percentage below -3 SD	0.10	0.059	0.143
Percentage below -2 SD	0.33	0.267	0.400
Percentage above 2 SD	0	0	0
	<b>Intervention (n = 370)</b>		
Percentage below -3 SD	0.10	0.072	0.134
Percentage below -2 SD	0.29	0.245	0.338
Percentage above 2 SD	0.01	0.000	0.021

When underweight is analyzed among children in the 6-59 months age group, results show that 29 percent of children in the intervention households are underweight which is still below the national average (33.8 percent) while this is almost the same for comparison households (33 percent) in this age group.

### **C. Infant and Young Child Feeding (IYCF) practices**

The IYCF practice provides information on key indicators related to optimal feeding practices. Feeding practices include breastfeeding practices, feeding of solid and semi-solid foods to breastfed and non-breastfed children and micronutrient intake. Feeding practices play a pivotal role in the growth and development of infants. Poor breastfeeding and infant feeding practices have adverse consequences for the health and nutritional status of children.

It is recommended by UNICEF and WHO that children should be exclusively breastfed (i.e. given no other liquid, including plain water, or solid food) for the first six months of life. Moreover, they should be given solid or semi-solid complementary food starting at six completed months. The usual indicator for exclusive breastfeeding is the percentage of children younger than six months who are exclusively breastfed. After six months, children should be introduced to solid, semi-solid and soft food items along with breastfeeding. The GoB guidelines on Infant and Young Child Feeding (IYCF) practices recognize the importance of complementary feeding to combat under-nutrition during this period. In Bangladesh, 35 percent<sup>14</sup> of children are late to start timely complementary foods, which is likely to be a driving cause for the high prevalence of stunting and being underweight.

#### **Exclusive breastfeeding**

<sup>14</sup> BDHS 2014



Exclusive breastfeeding is defined as proportion of infants aged 0-5 months who received only breast milk in the last 24 hours. Exclusive breastfeeding allows the inclusion of ORS and Vitamins and/or mineral supplements. Breastfeeding status does not vary much across the children’s age groups as the number of children aged 0-5 months is very small. BDHS 2014 <sup>15</sup> shows that only 55 percent of children younger than 6 months are practicing exclusive breastfeeding. In FSUP intervention households, this rate is lower, as only 44 percent children are exclusively breastfed in the first 6 months.

**Table 20: Exclusive Breastfeeding of children aged less than 6 months**

	<b>Obs</b>	<b>Mean</b>	<b>[95% Conf. Interval]</b>	
Comparison	21	0.14	-0.02	0.31
Intervention	39	0.44	0.27	0.60
Total	60	0.33	0.21	0.46
p-value	0.021			

Exclusive breastfeeding rate is comparatively higher among the FSUP intervention households relative to the comparison group where the rate is very low (14 percent). This is a remarkable difference, although the rate is still lower than the national average.

### **Minimum Dietary Diversity**

Infant and young child feeding (IYCF) practices include timely introduction of solid or semisolid food items into the diets of children at the age of 6 months and increasing the amount and variety of foods and frequency of feeding as the child gets older, while maintaining frequent breastfeeding.

Minimum dietary diversity means feeding food from at least four food groups (out of 7). This cut-off was selected because it is associated with better-quality diets for both breastfed and non-breastfed children. It is recommended that meat, poultry, fish, or eggs be eaten daily or as often as possible. Vegetarian diets may not meet children’s nutrient requirements, unless supplements or fortified products are used. Vitamin-A-rich fruits and vegetables should be consumed daily. Children’s diets should include an adequate fat content, including fats that provide essential fatty acids. Fat facilitates absorption of fat-soluble vitamins (such as vitamin A, D, E, K), and augments dietary energy density and palatability. Consumption of food from at least four food groups means that the child has a high likelihood of consuming at least one animal source of food and at least one fruit or vegetable in addition to a staple food (grains, roots, or tubers) (WHO, 2008). The four food groups should come from a list of seven food groups: grains, roots and tubers; legumes and nuts; dairy products (milk, yogurt, and cheese), flesh food (meat, fish, poultry, and liver/organ meat); eggs; vitamin-A rich fruits and vegetables.

In the following analysis, minimum dietary diversity is defined as the proportion of children aged 6-23 months who received food from 4 or more food groups.

---

<sup>15</sup> BDHS 2014

**Table 21: Percent of children 6 – 23 months with dietary diversity**

	<b>Obs</b>	<b>Mean</b>	<b>95% Conf. Interval</b>	
Comparison	52	0.40	0.266	0.542
Intervention	102	0.19	0.109	0.263
Total	154	0.26	0.190	0.330
p-value	0.003			

This study report shows that among children 6-23 months old, only 26 percent have sufficient dietary diversity. There is a huge difference in the adoption of this crucial behavior between intervention and comparison groups. This result might be attributed to the low sample size in this age group.

### **Minimum meal frequency**

The minimum meal frequency or the minimum number of meals consumed by a child during the last 24 hours is a proxy for adequate energy from complementary food. The recommended minimum feeding frequencies are:

- 2 times for breastfed infants 6-8 months old
- 3 times for breastfed infants 9-23 months old
- 4 times for non-breastfed infants 6-23 months old

According to these recommendations, minimum meal frequency<sup>16</sup> prevalence is about 42 percent in the intervention group and 46 percent in the comparison group. As we have a small sample of children, we combined both breastfed and non-breastfed children together to get an idea about their current feeding behaviors (44 percent). With this result, we can conclude that frequency of feeding of young children is not high enough in both program and comparison area.

**Table 22: Children (6-23 months) receiving diet following minimum meal frequency**

	<b>Obs</b>	<b>Mean</b>	<b>95% Conf. interval</b>	
Comparison	52	0.46	0.321	0.602
Intervention	102	0.42	0.324	0.519
Total	154	0.44	0.356	0.514
p-value	0.639			

### **D. Hygiene practices**

Hand washing with soap is an essential individual behavior to protect children from the two biggest pediatric killers: diarrhea and lower respiratory infection. These diseases kill more than 3.5 million children globally every year.<sup>17</sup> Hand washing at certain times is considered as “critical”. In the household survey, respondents were asked about hand washing at six critical times: “before meals, before preparing food for and feeding children, after using toilet, after cleaning children’s feces and using cow dung for fuel”. The promoters for hand washing are awareness, social norms, availability of water and soap for hand washing during critical times. These are considered as promoters while absence of any of these might interrupt the desired behavior on time. In this survey, these factors

<sup>16</sup> This result is not analyzed based on breastfed and non-breastfed criteria of children because of small number of children in this age group

<sup>17</sup> Luby S, Agboatwalla M, Feikin D, et al “Effect of handwashing on child health: a randomized control led trial”. *Lancet* 2005;366:225-33

were taken into consideration during development of questionnaires and systematically information were collected from respondents and direct observation was made to capture actual information during the household survey.

Hand washing with soap is essential and hygienic before and after meals, before preparing food and feeding the child, after toilet use, changing a baby and processing of cow dung for fuel (if applicable). Survey results, as presented in Table 23, show that a high proportion of women do not follow these hygiene practices on most occasions. About 28 percent of the respondents do not wash their hands with soap before eating and before feeding children, which is remarkably high. About 73 percent of women wash their hands after defecation. About 22 percent of women never wash their hands after cleaning their children’s feces and about 24 percent never wash their hands after preparing fuels from cow dung.

Table 23 also shows the differences between comparison and intervention households in terms of hand washing. The final column labeled “p-value” shows whether these differences are statistically significant. A p-value below 0.10 is typically considered to show a statistically significant difference between the two groups. Respondents from intervention households are significantly less likely to say they “never” was their hands in each critical occasion, and more likely to say they “sometimes” or “always” wash their hands, relative to respondents from comparison households.

**Table 23: Hand washing practices of women during six critical time**

When	Frequency	Comparison (n = 647)	Intervention (n = 1217)	Total (n = 1864)	p-value
Before eating	Never	0.36	0.20	0.26	0.000
	Sometimes	0.44	0.53	0.50	0.000
	Always	0.19	0.27	0.24	0.000
Before preparing meals	Never	0.48	0.29	0.36	0.000
	Sometimes	0.38	0.47	0.44	0.000
	Always	0.14	0.24	0.20	0.000
Before feeding children	Never	0.47	0.28	0.35	0.000
	Sometimes	0.34	0.40	0.38	0.012
	Always	0.20	0.32	0.28	0.000
After coming from toilet	Never	0.10	0.04	0.06	0.000
	Sometimes	0.23	0.23	0.23	0.885
	Always	0.67	0.73	0.71	0.008
After cleaning children's feces	Never	0.38	0.22	0.28	0.000
	Sometimes	0.24	0.22	0.23	0.428
	Always	0.38	0.56	0.50	0.000
After making fuel from cow dung	Never	0.39	0.24	0.30	0.000
	Sometimes	0.25	0.30	0.28	0.016
	Always	0.36	0.46	0.42	0.000

**Availability of hand washing agent (either soap, soap powder, liquid soap/shampoo) at a designated place of hand washing**

In addition to the responses on hand washing practices with soap from the women in both intervention and comparison groups, direct observation was conducted to check the availability of hand washing agent in the designated place where household members usually wash their hands.

Survey results showed that about 89 percent of intervention households, had some kind of hand washing agent in the designated place. This is much higher than the corresponding rate in comparison households (54 percent).

**Table 24: Availability of hand washing agent at designated place of hand washing**

Group	Obs	Mean	[95% Conf. Interval]	
Comparison	647	0.54	0.47	0.62
Intervention	1217	0.89	0.83	0.96
Total	1864	0.77	0.72	0.82
p-value	0.000			

### Availability of water in a designated place of hand washing

Results show that water for hand washing was available in specific places in 46 percent of intervention and 36 percent of comparison households. About half of the households did not preserve water in the designated place of hand washing.

**Table 25: Water is available at designated place of hand washing**

Group	Obs	Mean	[95% Conf. Interval]	
Comparison	647	0.36	0.325	0.399
Intervention	1217	0.46	0.435	0.491
Total	1864	0.43	0.405	0.450
p-value	0.000			

As discussed above, the respondents' self-reported hand washing practices in six critical times is poor (except after defecation). This suggests that the presence of soap/any kind of hand washing agent and water may not be a sufficient cue for action in this case.

### E. Vaccination of children among 12-23 months of age

Almost 82 percent of children were vaccinated in both intervention and comparison households. There is a slightly higher percentage of vaccinated children among intervention group but this difference is not statistically significant. Nevertheless, this result shows a high awareness among family members about vaccination of their children.

**Table 26: Vaccinated Children Aged 12 – 23 months**

	Obs	Mean	[95% Conf. Interval]	
Comparison	40	0.80	0.670	0.930
Intervention	73	0.84	0.749	0.923
Total	113	0.82	0.752	0.894
p-value	0.553			

### F. Consumption of iron and folic acid (IFA) tablets

Consumption of iron and folic acid (IFA) tablets is recommended during pregnancy for optimal growth of children and to prevent complications during and immediately after pregnancy. The Government is recommending at least 100 IFAs to be consumed during pregnancy. IFA tablets are routinely distributed during antenatal checkups or through home visits by frontline government health and family planning workers. To measure this outcome, respondents were asked to report,

whether they took iron and folic acid for 60-90 days during their last pregnancy. The responses were categorized into three: women who consumed IFA tablets for a period of less than 30 days, 30-60 days and 60-90 days.

There is low intake of iron and folic acid tablets in both intervention and comparison households. In both groups, only 16 percent women consumed IFAS. As such, we cannot say that the program had any effect on consumption of iron and folic acid tablets.

**Table 27: Women consuming iron tablet and folic acid/syrup for 60 – 90 days during last pregnancy**

	Obs	Mean	[95% Conf. Interval]	
Comparison	142	0.16	0.101	0.223
Intervention	279	0.16	0.118	0.205
Total	421	0.16	0.126	0.197
p-value	0.986			

Note: Among mothers with <5 children consuming 60-90 days during last pregnancy

### G. Childhood illness

Data shows that prevalence of illnesses among children aged 0-59 months is comparatively low among intervention households (42 percent) relative to the comparison group (53 percent). The illnesses included in the indicator are fever, diarrhea, persistent diarrhea, dysentery and breathing difficulties. This lower incidence of illness among intervention households suggests that women in the intervention groups have better childcare practices.

**Table 28: Proportion of children 0-5 years having any sort of illness**

	Obs	Mean	[95% Conf. Interval]	
Comparison	206	0.53	0.465	0.603
Intervention	391	0.42	0.375	0.474
Total	597	0.46	0.422	0.502
p-value	0.011			

Diarrheal incidence is very low among both intervention and control areas. About 5-6 percent of children suffered from diarrhea during the two weeks before the survey, and there is no significant difference between the intervention and comparison groups.

**Table 29: Proportion of children 0-59 months having had diarrhea in last 2 weeks**

	Obs	Mean	[95% Conf. Interval]	
Comparison	206	0.06	0.026	0.091
Intervention	391	0.05	0.029	0.073
Total	597	0.05	0.035	0.072
p-value	0.715			

### H. Consumption of deworming tablets by family members

Consumption of deworming tablets by all family members including children 2-5 years old would indicate an increased awareness about desired healthcare behaviors. The Government carries out directed national deworming campaigns twice a year, targeting children 2-5 years old to prevent soil-transmitted helminth infections, which is one of the most common infections in Bangladesh. To prevent these infections, intake of periodic deworming tablets can be effective. Deworming tablets

also prevent internal bleeding that causes loss of iron and anemia, malabsorption of nutrients, diarrhea and loss of appetite etc. This deworming treatment can have a large impact on the growth and development of children. According to WHO guidelines, children 2-5 years old, school aged children and women of childbearing age are in the high-risk group.

We find that about 57 percent intervention households and 40 percent of the comparison households' members consumed deworming tablets. This difference in their consumption rates is statistically significant. It indicates that intervention household members are more aware about healthcare and nutritional practices. Except for preschool and school-age children, other family members have to purchase this deworming tablet which indicates a sustained practice about health and nutrition.

**Table 30: Households consumed deworming tablets last year (in Percentage)**

	<b>Obs</b>	<b>Mean</b>	<b>[95% Conf. Interval]</b>	
Comparison	647	0.40	0.367	0.443
Intervention	1217	0.57	0.542	0.597
Total	1864	0.51	0.490	0.535
p-value	0.000			

### **I. Consumption of iodized salt**

Iodine deficiency is a lack of the trace element iodine. Severe deficiency may result in goiter (so-called endemic goiter), as well as cretinism, and even less severe deficiency may result in developmental delays and other health problems. It is essential for healthy brain development in the fetus and young children. Deficiency of iodine negatively affects the women's health, as well as economic productivity and quality of life. Therefore, it is an important public health issue as it is a preventable cause of intellectual disability.

During the FSUP household survey, data was collected to see the household consumption of iodized salt by family members. The results show that 61 percent of sampled households in the intervention group consumed iodized salt while the corresponding rate among the comparison households is low (23 percent). This indicates that people in the intervention households are more aware of the benefits of using iodized salt.

**Table 31: Households consumed iodized salt (in Percentage)**

<b>Group</b>	<b>Obs</b>	<b>Mean</b>	<b>[95% Conf. Interval]</b>	
Comparison	647	0.23	0.198	0.263
Intervention	1217	0.61	0.580	0.635
Total	1864	0.48	0.454	0.499
p-value	<b>0.000</b>			

### **J. Consumption of fruits and vegetables**

Regular consumption of fruits and vegetables indicates a major progress in the dietary diversity of the targeted households in the FSUP project areas. Responses were collected in three categories to identify whether this practice is commonly observed among the sampled households. We found no significant differences between the intervention and comparison groups in terms of their consumption of fruits and vegetables.

**Table 32: Consumption of fruits and vegetables frequency**

	Consumption Frequency		
	Never	Sometimes	Always
Comparison	0.06	0.78	0.16
Intervention	0.03	0.77	0.20
Total	0.04	0.77	0.18
p-value	0.000	0.895	0.040

### **K. Major findings**

The main results of the current study on nutritional outcomes can be briefly summarized as follows:

1. Undernutrition is high in terms of all three indices (stunting, wasting and underweight) both among the FSUP beneficiaries/intervention and comparison households
2. Among infant and young child feeding indicators, exclusive breastfeeding is comparatively better among FSUP intervention than the comparison group. Minimum dietary diversity and minimum meal frequency are better in the comparison households, although a larger sample size in this cohort is required to generate a significant result to compare in the recommended IYCF indicators which is not available in this study.
3. About one third of women from FSUP intervention households always wash their hands with soap before eating, before preparing meals and before feeding children. Almost half of them wash their hands with soap after cleaning child feces and preparing fuel from cow dung. There is a high incidence of hand-washing with soap after defecation among both intervention and comparison women (67 percent). Hand washing with soap seems to be a more prominent norm than washing at any other critical time. Direct observation states that access to soap and water at designated hand-washing places is higher among FSUP intervention households.
4. Overall the rate of vaccination among children 12-23 months of age is remarkably high (82 percent) in both FSUP intervention and comparison households.
5. Childhood illness is comparatively lower among the children 0-59 months of age in FSUP intervention households than the comparison households. This may be the consequence of improved child caring practices and access to health services.
6. In terms of other healthcare practices, we find that FSUP intervention households are more likely to use deworming tablets and iodized salt compared to comparison households. However, they are no more likely to consume fruits and vegetables frequently.

## 7. Intra-community spillovers

The spillover effects of the project on the livelihoods of the neighboring non-beneficiary households in their communities were conspicuous in the intervention areas. Non-beneficiary women may be inspired by the success of beneficiary women, who become engaged in various income generating activities and as a result have better command over their family income. Another potential mechanism through which spillover effects of the project may take place is through the dissemination of knowledge and advice generated by the project. The non-beneficiary women may get influenced by observing the successes of the beneficiary women and acquire knowledge from them. Moreover, this may incentivize them to maintain good relationships with them, which may reinforce the solidarity among the community members. There could also be negative spillover effects: non-beneficiaries may feel envious to see their poorer neighbors getting richer, or they may suffer from higher demand for land that the program beneficiaries have, which may cause an increase in land prices.

One non-beneficiary woman, named Hasi Begum, said that she discussed the opportunities of starting some income generating activities with Nurunnahar, who was an FSUP participant. Nurunnahar advised her to set up a cow-share leasing. Hasi Begum started her income generating activity accordingly and her cow gave birth to a calf. She reared the calf for 1 year and sold it for Tk 10,000 and then bought one goat. Hasi Begum bought another cow a few months later. She managed to earn Tk. 200,000 by selling all her goats and cows after four years and set up a grocery shop which is being run by her husband. She and her family are now economically solvent. However, while there are a number of success stories prompted by the intra-community spillover effects of the project, there are also cases of failure among the project beneficiaries.

During our group discussions, we enquired about different ways that the non-beneficiary households may have benefited from the FSUP project. The discussants came up with various mechanisms of spillover effects including - (a) expansion of productive capacity in both agricultural and livestock farming; (b) development of saving behavior both at individual and collective levels; (c) strengthening of solidarity among the community people; (d) improvement in disaster preparedness; (e) creation and dissemination of new knowledge; (f) improved health behavior and hygienic sanitation practices; (g) increased awareness of health and nutrition; (h) women empowerment and improved gender relations; (i) increased social mobility of women and recognition of their contribution to family and society; and (j) development of social network and integrated economic activities. However, by the nature of the source of this information, it is not feasible to measure which of these mechanisms created meaningfully strong spillover effects and which mechanisms are weak. Evaluation design at baseline needs to incorporate specific sample to be able to measure spillover effects in a robust way, which can be considered in future evaluations.

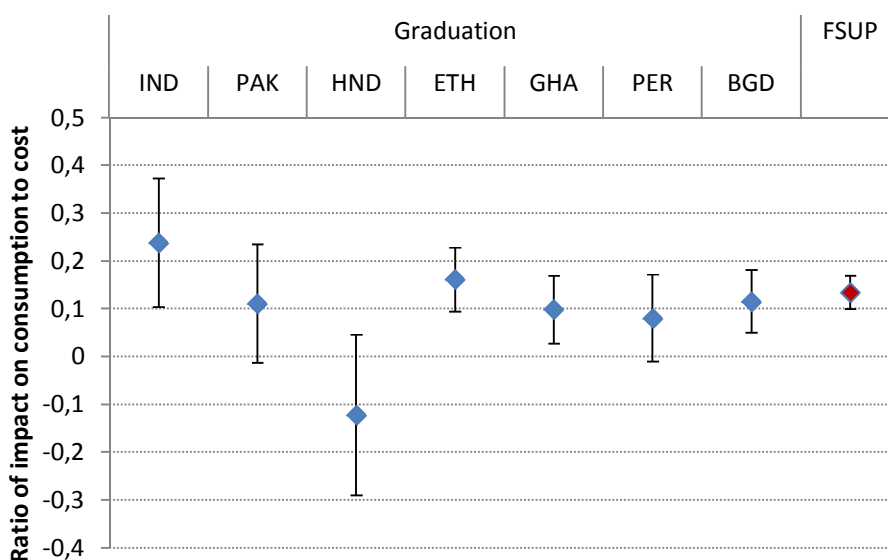


## 8. Comparative analysis of FSUP's cost-effectiveness

While the long-term impact analysis shows the sustainability of most of the impacts as well as an accelerated asset accumulation by the FSUP beneficiary households, it is important to put the impacts of FSUP into a comparative perspective relative to similar approaches. BRAC's targeting the ultra poor program, has a very similar approach and has been rigorously evaluated (Banerjee et al, 2015; Bandiera et al, 2015). In this section we make a comparison of FSUP impacts to these other graduation programs, considering the differences in costs. Six pilots were evaluated under the graduation program initiative by the Consultative Group to Assist the Poor (CGAP) in India, Pakistan, Honduras, Ethiopia, Ghana and Peru using a randomized control trial method (Banerjee et al, 2015).<sup>18</sup> The study in Bangladesh by Bandiera et al (2015) is also a randomized evaluation, generating rigorous impact results.

We use these seven studies for comparison because of their high quality of evidence and similarity in approach to assist the ultra poor moving towards a sustainable livelihood. The interventions evaluated in these studies take a similar approach of FSUP in targeting the ultra poor and sequencing a similar package of interventions over a 24-month cycle. A key distinction, however, between these and FSUP is that FSUP provides a lump sum cash grant to purchase assets whereas the other graduation models transfer assets. An ideal comparison would include evaluations of programs in Bangladesh. However, there are important limitations for such comparisons. For example, Ahmed et al (2009) evaluates impacts of four programs in Bangladesh including income generation for vulnerable group development (IGVGD), food security for vulnerable group development (FSVGD), food for asset (FFA) and rural maintenance program (RMP). However, their study evaluates the impact while the interventions are underway with important limitation on the evaluation of the sustainability of impacts.

Figure 17: Comparative cost-effectiveness analysis of FSUP with other 'Graduation' approaches



Source: Compiled from Banerjee et al (2015) and Bandiera et al (2015)

Figure 17 shows the result, where the indicator for comparison is the ratio of impacts on per household annual consumption to the total cost of intervention per beneficiary household. For

<sup>18</sup> Visit <http://www.cgap.org/topics/graduation-sustainable-livelihoods> for resources on the pilots and evaluations.

FSUP, this ratio is 0.134 which means for every 100 taka spent per household by FSUP during the intervention, the beneficiary households have an additional annual consumption of 13.4 taka. This simplistic measurement of impact-cost ratio has the advantage of not requiring assumptions for a full benefit-cost analysis. For comparison purposes, such assumptions can lead to drastically different results. We find that FSUP is quite comparable to this global evidence on graduation models, including the TUP program in Bangladesh. Out of the seven comparison estimates, the more precisely five estimate lie between 0.08 and 0.16, compared to FSUP's 0.13. Although this is a simplistic comparison of impacts, since it considers only the impacts on consumption, the results are quite robust and highlight the comparability of FSUP with other, similar initiatives in terms of cost-effectiveness. It is also worth highlighting that the magnitude of impact on asset holdings observed by FSUP is several times higher than most of the evaluations could show for the other graduation programs.

In order to have a wider view of the program's livelihood impacts and to allow for a more complete cost-benefit analysis, we consider three elements of impacts – household consumption, assets value and savings (following Banerjee et al, 2015). We do not include income since this can lead to double counting benefits. This analysis could potentially also include other social benefits such as food security or mobility, but the obvious concern is how to impute values for such benefits. Therefore, the benefits can be interpreted as 'economic benefits only'. With this caveat, Table 13 shows the benefit calculations.

**Table 33: Benefit cost calculation**

Benefits and costs	Mean	Quintiles				
		0.2	0.4	Median	0.6	0.8
(a) Annual consumption in year 1	2,702	3,025	2,950	3,181	3,511	3,495
(b) Annual consumption in year 2	4,978	3,356	4,307	4,848	4,918	6,080
(c) Annual consumption in year 3 <sup>a</sup>	4,368	2,814	3,582	4,090	4,159	5,361
(d) Annual consumption in year 4 <sup>a</sup>	3,758	2,271	2,857	3,331	3,400	4,642
(e) Annual consumption in year 5	3,149	1,729	2,132	2,573	2,640	3,923
(f) Annual consumption in year 6 onwards <sup>b</sup>	32,680	17,949	22,132	26,703	27,406	40,718
(g) Total assets in year 5	52,918	5,787	20,772	27,443	40,168	68,326
(i) Total savings in year 5	2,643	-	156	246	989	2,281
(j) Total benefit (sum of a to i)	107,196	36,932	58,889	72,415	87,191	134,825
(k) Cost	37,293	37,293	37,293	37,293	37,293	37,293
Benefit-Cost Ratio (j/k)	2.87	0.99	1.58	1.94	2.34	3.62

<sup>a</sup> Interpolated from year 2 and year 5 results.

<sup>b</sup> Assumes 15 years of benefit continuation and a discount rate of 5%

All costs and benefits are benchmarked (inflated or deflated) to year 5.

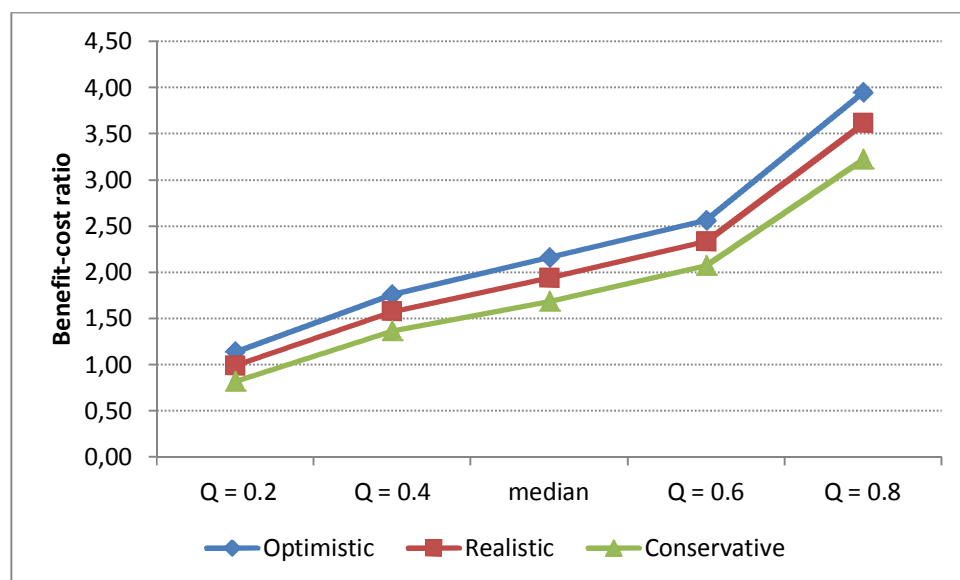
Annual total consumption benefits in year 1, year 2 and year 5 are taken from the impact estimates. Since there is no survey data for year 3 and 4, we interpolate the impact estimates between year 2 and 5 assuming a linear change. For year 6 onwards (item f in the table), we assume that the impacts of the program on annual consumption observed in year 5 continues for another 15 years. The present value of this future consumption gain is estimated using 5 percent discount rate. The impact estimates on assets and savings from year 5 are included with the assumption that these are one-off benefits. If a household keeps their savings in future years without consuming them, including those would result in double counting benefits on savings. This is the same for asset values since the stock of assets remain the same if not consumed and do not accrue additional benefits. Since all the

estimates were already deflated to baseline price level, the values until year 5 are not discounted further.

Under these assumptions, the average benefit-cost ratio comes to 2.87, which means that for every dollar spent the social return in economic terms for the beneficiary household is 2.87 dollars. The table also shows the same estimates at different quintiles. The reason for looking into the quintile distribution is that it is possible to find positive average effects if the benefits are highly unequal among the beneficiaries. For example, if the most successful beneficiary households can pull the average up although majority of the households have a benefit-cost ratio of less than 1. It is important to note here that the ratio is very close to 1, even at the bottom quintile. This shows that the project yielded a positive return for the investment even for the low performing households.

Figure 18 shows the benefit-cost ratios at different quintiles<sup>19</sup> with sensitivity analysis. The ‘realistic’ estimates are from the table above. The optimistic estimates assume a 4 percent discount rate and continuation of the consumption benefits for 20 years. (It is important to note that benefit-cost analyses typically use 30 years of consumption benefits.) The median estimate in realistic assumptions is 2.0, which means majority of the FSUP beneficiaries have benefitted by at least 200 percent of the intervention costs. In the conservative estimate, the length of consumption benefits is assumed to sustain for 10 years with a discount rate of 8 percent. We see that the median of the conservative benefit-cost ratio is 1.69. The estimate is marginally below 1 only at the poorest end. The stark jump in benefit-cost ratios between third and fourth quintile is also noteworthy. This shows that although the benefit-cost ratio is between 1.5 and 2.5 for most of the beneficiaries, there are about 20 percent beneficiaries who have benefitted by a much larger margin than the rest. Overall, these results are testimony of the long-term cost-effectiveness of FSUP interventions.

**Figure 18: Benefit-cost ratios under different assumptions**



<sup>19</sup> Quintile analysis essentially shows whether the overall benefits are concentrated in a particular group of highly successful people or more equally distributed.

## 9. Conclusion

Bangladesh has made substantial progress in reducing extreme poverty since early 2000. While various social programs have contributed to this success, the long-term sustainability of these interventions is critical in achieving the new development goals of eradicating extreme poverty. This paper investigates the long-term impacts of the FSUP programme. While earlier impact evaluations showed that this project was successful in creating livelihood impacts for the beneficiaries at the end of the intervention period, the long-term sustainability of these impacts can contribute to the national agenda of eradicating extreme poverty by showing an effective means of getting people out of extreme poverty and keeping them above the poverty line. We find that the FSUP model has been effective in sustaining most of the livelihood impacts even after 3 years from the end of interventions. More importantly, the beneficiary households are found to be on an accelerated asset accumulation pathway. We find that, 3 years into the post-intervention period, the impacts on total household assets is about Tk 53,000, which is 33 percent higher than the impact at the end of intervention and almost four times the size of cash transferred to purchase the assets. We also find significant positive effects on income, consumption and saving in the long run.

The study finds that households have been shifting their asset portfolio and income sources away from livestock rearing towards cultivation. Such dynamics demonstrates much more than just sustainability of impacts. For rural households in Bangladesh, such move towards land ownership and farming is transformative for the ultra poor. Cost-benefit analysis from the sustainability assessment shows that the project yields a 287 percent return on the total investment per ultra poor household. Moreover, these benefits are not driven by a small proportion of the households having very large impacts. On the scale of benefit spectrum, even the households at the lowest quintile have a benefit-cost ratio of 100 percent.

We also find intra-household spillover effects on nutritional outcomes of children. Children in beneficiary households have lower wasting and underweight than the comparison group. However, there is still high level of under-nutrition for both groups with one third of the children being stunted and about half of them being underweight. Considering the life-long implications of child malnutrition creating an inter-generational poverty trap, this is an area that deserves more attention. Some progresses are observed on child care practices that were directly addressed in the project, but any future rollout of the FSUP approach should strengthen nutritional aspects.

In our analysis of the determinants of poverty dynamics, we do not find any strong correlation between household characteristics and long-term changes. However, households, which are more successful in retaining the initial investment in livestock for a longer time, have a more stable income and asset growth path. Moreover, livestock rearing generates higher income than their preferred crop production. In future, such a program can build in a rigorous assessment of the marginal effects of encouraging the households to continue their IGA for longer before diversifying as a means of improving project effectiveness. Another aspect of the project that could potentially strengthen further is the SHKMG. These groups seem to have become largely inactive after interventions are phased out, which is partly due to strategic decision of returning savings to the depositors. Although the evidence on the effectiveness of such groups is not conclusive yet, this has the potential of facilitating sustainability of the impacts. Overall, the project model is found to be a highly cost-effective approach for sustainable reduction in ultra-poverty in Bangladesh.

## References

- Ahmed, A. U., Quisumbing, A. R., Nasreen, M., Hoddinott, J. F. and Bryan, E. (2009) "Comparing food and cash transfer to the ultra poor in Bangladesh", Research Monograph 163, IFPRI, Washington, DC.
- Bandiera, O., Burgess, R., Das, N., Gulesci, S., Rasul, I. and Sulaiman, M. (2015), "The Misallocation of Labor in Village Economies", EOPP working paper 43, LSE.
- Banerjee, A., Goldberg, N., Karlan, D., Osei, R., Parienté, W., Shapiro, J., Thuysbaert, B., and Udry, C. (2015) "A multifaceted program causes lasting progress for the very poor: Evidence from six countries", *Science Magazine*, Vol. 348, No. 6236.
- BBS (2011) "Bangladesh household income and expenditure survey: Key findings and results", Bangladesh Bureau of Statistics and the World Bank, Dhaka.
- BDI (2010) "Food security for the ultra poor (FSUP) project: Baseline survey report", Brac Institute of Development, Dhaka.
- BDI (2012) "Food Security for the ultra poor (FSUP) project. Outcome Survey Report 2012. Dhaka.
- Carter, M. and Barrett, C. B. (2006) "The economics of poverty traps and persistence poverty: An asset based approach", *Journal of Development Studies*, Vol. 42(2): 178-199
- Ellis, F. (2000), "Rural livelihoods and diversity in developing countries", Oxford University Press
- GED (2015) "Millennium development goals: Bangladesh progress report 2015", General Economic Division, Bangladesh Planning Commission, Dhaka.
- Karlan, D., Thuysbaet, B., Udry, C., Cupito, E., Naimpally, R., Salgado, E. and Savonitto, B. (2012) "Impact assessment of savings groups: Findings from three randomized evaluations of CARE village savings and loan associations programs", IPA.
- Mukherjee, A. and Chaturvedi, R. (2014) "Significance of the Self Help Groups: A Critical Evaluation", *Golden Research Thoughts*, Vol. 4(2).
- Maslow Abraham (1943), "A Theory of Human Motivations", *Psychological Review*, 50(4), 370-96
- Rahman, R. I. and Islam, R. (2013) "Female labour force participation in Bangladesh: Trends, drivers and barriers", ILO, DWT, India.
- Umaria, W., Das, N. C., Hashemi, S. M., Jahan, F., Mosaddeq, I. and Siddiki, O. F. (2011) "Food security for the ultra poor (FSUP): Annual outcome survey report", Brac Development Institute and WFP.
- Yoshida, N., Uematsu, H. and Sobrado, C. E (2014). "Is extreme poverty going to end? An analytical framework to evaluate progress in ending extreme poverty", Policy Research Working Paper 6740, World Bank, Washington, DC

## Annexure 1: Details of qualitative data collection

SI	Tool	With Whom	Number	Objectives
01.	Case Study (Life history method)	Intervention (beneficiary) household	20	To compare and contrast the experiences of the beneficiary and non-beneficiary households in order to understand the process through which the livelihood strategies have been developed; to identify factors and to analyze the sustainability of these strategies
		Comparison household	10	
02.	In-depth Interview	Ultra poor households not included in beneficiary group	40	To understand spill-over effects
03.	Group Discussion	Self Help Knowledge Management Group Level	10	To understand the impact of social capital
04.	KII (In each intervention village)	Elites/ NGO personnel/ Market actors/ Government service providers/ Local political leaders	1 in each intervention village	Triangulation; To understand the nature and extent of social connections, networks, access to services, market structure, i.e. the institutional factors

## Annexure 2: Descriptive statistics of asset ownership

Type of asset	Baseline		First outcome (2011)		Second outcome (2012)		Sustainability (2015)	
	Comparison	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison	Intervention
Livestock	47%	31%	46%	82%	50%	63%	43%	44%
Poultry	40%	42%	44%	56%	42%	44%	57%	59%
Land	41%	40%	45%	59%	56%	85%	58%	65%
Transport	21%	20%	17%	30%	19%	33%	37%	36%
Agriculture tools	96%	98%	98%	99%	98%	97%	99%	100%
Household durable	100%	100%	100%	100%	98%	97%	100%	100%
Grain	22%	17%	5%	15%	37%	46%	37%	66%