The return on investment of Self-Help Groups in India: Evidence from the Jeevika program in Bihar

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Background

Self-help groups (SHGs) are an increasingly popular strategy to promote women's livelihoods and empowerment and improve women's long-term economic outcomes in South Asia, especially in India. SHGs aim to enhance women's economic outcomes by first promoting financial inclusion through group savings and access to formal credit, followed by linking group members to income-generating and livelihoods activities with a vision to achieve women's economic empowerment. While overall evidence remains mixed, various studies have shown positive effects of SHGs on women's economic outcomes and empowerment (e.g., Brody et al., 2017; Diaz-Martin et al., 2022). Only very few studies have examined the cost-effectiveness of SHGs. The few studies that looked into the costs and cost-effectiveness of SHGs either showed aggregate costs without differentiating between cost categories (Deininger & Liu, 2015), or presented cost-effectiveness ratios for a small number of outcomes (Grantham-McGregor et al., 2020; Siwach, Paul, & de Hoop, 2022).

This study estimates the return on investment (ROI) of a large-scale SHG program (JEEViKA) in the state of Bihar, India, operated by the Bihar Rural Livelihoods Promotion Society under the National Rural Livelihoods Mission (NRLM). In 2007, the Government of Bihar (with support from the World Bank) launched the Bihar Rural Livelihoods Project (BRLP) or JEEViKA. The program was launched as a community-driven development project in six priority districts with the aim of mobilizing poor households into SHGs. In 2011-12, with the launch of the NRLM and with additional financing from the World Bank, JEEViKA expanded its services and scale to cover the entire state. By the end of 2018, the program had mobilized over 10 million women into SHGs. It is now one of the largest networks of group-based programs in the world.

Methodology & Data

To estimate the cost-effectiveness of the program, we estimated three ROIs – (1) Early phase ROI (2.5 years of program exposure against no program exposure for the control group); (2) Late phase ROI (seven years of program exposure against 2 years and 7 months of program exposure for the control group); and (3) Full ROI (seven years of program exposure against no program exposure). To estimate benefits for the third case, we combined findings from the two evaluations with assumptions based on the program theory of change to simulate 2018 counterfactual outcomes for the control group when they would not have been exposed to the program.

Corresponding to the impact evaluations, we estimated average costs using annual program expenditures between 2008 and 2018 from JEEVIKA audit statements. We combined the estimated costs with impact estimates from two impact evaluations– (1) Hoffman et al. (2021) evaluated the program in the early stages of its expansion in 2012 (early phase), comparing households from *Gram Panchayats* (village councils) that were exposed to the program from 2012 to 2014 against households in *Gram Panchayats* that were not exposed to the program yet. (2) Using the same sample, Kochar et al. (2020) updated the evaluation in 2018 by looking at

longer-term outcomes. By 2018, however, the program had also rolled out in the original control *Gram Panchayats*. Therefore, this evaluation (late phase) compared outcomes of households with 7 years of exposure to the program with households that on average had 5 years and 5 months of exposure to the program. Cost data include four broad components of program expenditures – Community Institution Development (CID), Community Investment Fund (CIF), Special Technical Assistance Fund (STAF) and Project Management (PM).

We outline the hypothesized and tested mechanisms of impact of the JEEViKA program below:

▪ Early phase – Program households accessed formal credit at lower rates of interest than informal credit, resulting in significant benefits in terms of interest savings. However, the evaluation found no meaningful short-term impacts on consumption, likely because livelihoods support activities often start after disbursement of the community investment fund (CIF), which usually happens in year 3. These CIFs are disbursed in response to plans for setting up individual or collective farm or non-farm enterprises or to address other vulnerabilities such as health and food security risks.

▪ Late phase – Both treatment and control households accessed loans at low rates of interest, reducing the difference in interest savings between the treatment and control group. However, treatment households had higher (though statistically insignificant) consumption levels, likely because of long-term investments in livelihoods activities.

We estimated two measures of ROI for each phase based on the hypothesized and tested mechanisms – (1) Ratio of increased consumption to costs; and (2) Ratio of interest savings (amount saved because of lower costs of borrowing) to non-CIF costs. We excluded CIF costs because benefits from interest savings started before the CIF disbursement (within 2 years of program start). All benefits and costs were converted to 2018 INR using the Consumer Price Index.

Findings

ROI early phase – 2.5 years of program exposure vs. no exposure

JEEViKA generated a positive ROI in the initial years, primarily because of an increase in interest savings. The program returns Rs. 1.16 (USD 0.015) for every 1 Rupee invested in the first year when considering interest savings against non-CIF costs. However, the program is not cost-effective for generating consumption benefits in the first 2.5 years of program implementation, because there were no impacts observed on consumption within this time frame.

ROI late phase – 7 years of program exposure vs. 5 years and 5 months of program exposure

Every Rupee invested per household in providing the program for an additional 1 year and 7 months after 5 years and 5 months leads to an additional consumption benefit of Rs. 2.63 (USD 0.034) if benefits last only one year, and up to Rs. 10.98 (USD 0.14) if benefits last up to 5 years. However, these estimates are not statistically significant at conventional levels of significance (5%). On the other hand, the impacts on interest savings were statistically significant, even after both groups had been exposed to the program and the difference was therefore narrower. The program leads to a return of Rs. 0.82 (USD 0.011) on every Rupee invested in financial inclusion if interest savings are last for 1 year, and returns Rs. 3.44 (USD 0.044) if interest savings last 5 years. We expect that benefits specifically related to lower interest rates will last beyond one

year because JEEViKA helps SHG members open bank accounts, enabling them to have continued access to credit at lower rates of interest.

ROI for overall economic benefits of the program – 7 years of program exposure vs. no exposure

Over seven years, every 1 Rupee invested in the program generates between INR 0.3 (USD 0.0039) and INR 0.75 (USD 0.0097) in consumption benefits under the most conservative assumption that consumption effects only show up in year 7. On the other hand, if consumption effects show up in year four and last up to year 7, the program generates a Rs 2.8 (USD 0.036) to Rs 4.9 (USD 0.063) return in consumption benefits for every 1 Rupee invested. The 95% confidence intervals cover zero because the initial effects (at midline) were not statistically significant, but the consumption effects after 7 years compared to no exposure to program were statistically significant at a 10% level of significance. Exhibit 1 depicts the findings.

Exhibit 1. ROI on 7 years of program exposure
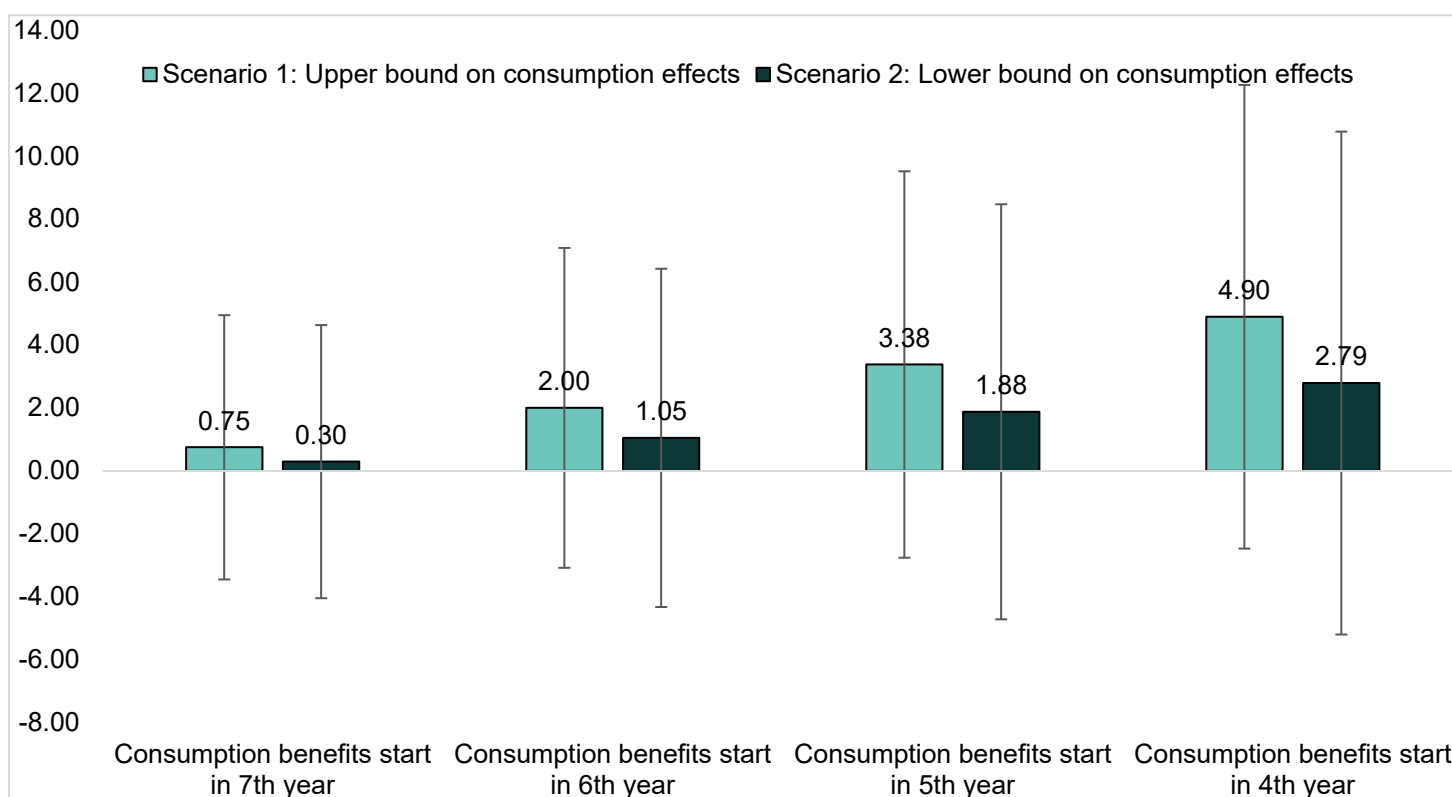
Note: we estimate two measures of impact / ROI based on the imputed values of the endline consumption for the control group – an upper bound (assuming annual growth between the Midline and the Endline is the same as annual growth between baseline and Midline), and a lower bound (assuming annual growth between the midline and the endline is 1.22 times the annual growth between baseline and Midline)

ROI Comparison with Other Programs

Estimates from our study indicate that by year 7, JEEViKA generated a return of at least 75%, and likely higher. Our analysis suggests that the lower bound of 75% can likely be rejected because by endline, consumption gains were also found for the control group which had been exposed to the program for over 5 years, indicating that consumption gains start earlier than year 7.

We compared these estimates with the ROI of three other programs – (1) District Poverty Initiatives Project (DPIP) SHG program in Andhra Pradesh (Deininger and Liu, 2009); (2) the graduation program in six countries, which provided members with a productive asset grant, training and support, life skills coaching, temporary cash consumption support, and access to saving accounts (Banerjee et al., 2015); and the (3) GiveDirectly cash transfer program in Kenya (Haushofer & Shapiro, 2016; 2018). Findings are presented in Exhibit 2.

Our estimates suggest that JEEViKA may be at least as cost-effective as cash transfers or the graduation program in achieving economic outcomes, but there are notable differences across these programs, specifically in the duration of period over which program benefits are realized and the scale of program implementation, which complicates the comparability of the ROIs across programs. In the evaluation of the pilot graduation program, Banerjee et al. (2015) assumed that annual benefits estimated in third year after the program will last in perpetuity, which is different from our assumptions. The evaluation also did not focus on a program implemented at scale and had a shorter time frame. The cash transfer program in Kenya considers three-year impacts of a one-time transfer (as opposed to the 7-year period for the JEEViKA program) and also did not focus on a cash transfer program implemented at scale by the government; cash transfer programs implemented by the government usually rely on smaller but more regular cash transfers (Handa et al 2018). While more research is needed to compare the longer-term cost-effectiveness of Jeevika program with other scaled up economic inclusion/poverty alleviation programs, evidence suggests that the range of benefit-cost ratios that we present are within the range of benefit-cost ratios of other cash transfer programs including graduation programs. Column 3 of Exhibit 2 adds more context to the findings.

Exhibit 2. Comparative ROI Analysis

Program	ROI	Context
DPIP, Andhra Pradesh, India	190% to 440%	The study estimates an ROI of 190% assuming that benefits last one year and an upper bound of 1,540% assuming that benefits are realized in perpetuity. We estimated an ROI of 440% as a more conservative upper bound – assuming that benefits last 3 years.
Graduation program, India	260% in Ethiopia; 133% in Ghana; -198% in Honduras; 433% in India; 179% in Pakistan; and 146% in Peru	The study of the pilot program assumes that the benefits realized in the third year will last in perpetuity. Assuming a more conservative upper bound that benefits last 3 years, we estimated an ROI of 29% in Ethiopia, 18% in Ghana, -20% in Honduras, 49% in India, 22% in Pakistan, and 13% in Peru. However, it is likely that the benefits of the graduation program would last longer than 3 years, because of asset transfer which is likely to continue improving consumption in the future. At the same time, it is unclear whether the program can achieve the same benefits at scale.

Program	ROI	Context
GiveDirectly, Kenya	Assuming benefits last three years: 227%	The midline evaluation was conducted 9 months after the transfer and the endline evaluation was conducted after 3 years. Both showed positive effects on consumption. We estimate the ROI assuming that annual consumption benefits are realized for all 3 years. Longer-term evaluations of one-time lump sum cash transfers may show smaller effects after convergence of the control group (Blattman, Fiala, & Martinez, 2020).
JEEViKA, Bihar India	ROI assuming benefits start in year 2 and last up to year 7: 75 % to 490%	The midline evaluation was conducted in the third year of the program and showed positive increase in interest savings. We assume that for a 7-year period of participation, annual benefits last from year 3 to year 7, though the rate of benefits changes with time, with consumption benefits showing up after year 3.

Conclusion

We find a positive ROI of the JEEVIKA program after the scale-up because the program generates savings from substituting away from high-cost informal debt to lower-cost formal credit and because of consumption benefits. Our analysis shows that the JEEViKA program primarily contributes to the successful financial inclusion of poor women from the missing middle who have limited livelihood resources by linking them with the formal banking system and providing them with access to lower-cost formal credit. The program also seems to generate longer-term positive effects on consumption. In addition, the costs per program participant reduce significantly over time because of economies of scale (Siwach et al., 2022) Therefore, from a policy perspective, group-based livelihoods programs may continue to be cost-effective as they scale up, especially if they include formal bank-linkage, which can likely be achieved at a low cost.

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