

COVID -19 Lockdown and Collective Activities: Evidence from the World's Largest Self-Help Group Program

Garima Siwach¹, American Institutes for Research

Thomas de Hoop², American Institutes for Research

Chinmaya Holla Udayakumar³, American Institutes for Research

Sapna Desai⁴, Population Council

¹ Corresponding author: Dr. Garima Siwach, Senior Economist, American Institutes for Research. Email: gsiwach@air.org

² Managing Economist, American Institutes for Research. Email: tdehoop@air.org

³ Research Associate, American Institutes for Research. Email: cholla@air.org

⁴ Associate II, Population Council. Email: sdesai@popcouncil.org

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ABSTRACT

We study the impact of the COVID-19 lockdown in 2020 on monthly savings of Self-Help Groups (SHGs) in India, and the role of SHGs in mitigating the economic effects of the lockdown. Administrative data suggest that monthly savings of SHGs declined by 66% between March and July of 2020, with larger declines in areas with more stringent lockdowns. Survey data revealed that SHG and non-SHG households had similar consumption and income losses during the lockdown. Households with SHG members and those that received assistance from SHGs in procuring ration or accessing community kitchens reported significantly higher food security, however.

JEL Codes: I31, I38

INTRODUCTION

COVID-19 and the associated policy responses have had severe economic effects the world over, especially on the lives of women (e.g., O'Donnell et al., 2021; Wenham et al., 2020). In India, the Government enforced a nationwide lockdown on March 25, 2020, which was gradually lifted after May 2020. The country's gross domestic product fell by 24% in the April-June quarter of 2020 (National Statistics Office, 2020). Despite the health consequences of the pandemic in 2021, the government did not re-enforce a nationwide lockdown, partly given its impact on the economy and the lives of vulnerable populations. Women saw larger employment losses than men even after the relaxation of the lockdown in June 2020 (Abraham, Basole, & Kesar, 2022; Deshpande, 2020; Desai, Deshmukh, & Pramanik, 2021). These livelihood losses were associated with increased food insecurity, poverty, indebtedness, asset loss, and isolation (Agarwal, 2021).

The economic and health implications of the lockdown brought into focus the role of India's formal and informal institutions in supporting resilience. The pandemic highlighted the role of large-scale social protection programs, including interventions that promote women's economic empowerment, like women's self-help groups (SHGs). SHGs are groups of 10-15 members that focus on collective savings to facilitate access to formal credit in addition to providing women with social networks, working capital, and livelihoods training to stimulate women's empowerment and economic outcomes. Both during and after the lockdown, SHGs in India partnered in the community response by producing masks and personal protective equipment, distributing rations, and running community kitchens. However, the pandemic severely impacted the economic activities of SHG members as well as SHG functioning. Early reports revealed challenges such as depleting SHG savings, reduced funds available for loan

repayment due to job losses, and losses for women's micro-enterprises that invested their savings in mask production (Tankha, 2020; Kudumbashree, 2020).

This study investigates the impact of the lockdown on SHG activities and the extent to which SHGs may have contributed to economic resilience in 2020. COVID-19's second wave in India in 2021 had far more severe health implications than the first wave. However, the data used for this study were not available or collected after 2020. Therefore, we focus on the immediate to six-month effects of the lockdown, highlighting the implications for SHGs going forward.

We first examine the effects of the lockdown on SHG monthly savings under the Deendayal Antyodaya Yojana National Rural Livelihoods Mission (NRLM). With almost 80 million rural households mobilized into 7.4 million women's SHGs, the NRLM is one of the world's largest livelihoods programs for women. A recent evaluation of the NRLM suggests that longer duration of SHG participation led to positive effects on income, savings, and access to formal credit (Kochar et al., 2020). Indian states implement the NRLM through the State Rural Livelihoods Missions (SRLMs), which mobilize women into SHGs. These SHGs start with a period of collective savings and are gradually connected to additional finance, trainings, and market linkages. Regular group savings demonstrate members' trust, facilitate intragroup lending, and enable formal bank linkages (Deshpande, 2021; RBI, 2018). Regular savings also are one of the five key elements of SHG practices,¹ which determine SHGs' eligibility to receive financial assistance from SRLMs and bank loans (RBI, 2018). Disruption of group meetings and savings therefore poses a threat to the sustainability of SHGs. This paper uses administrative data from the NRLM to examine the impact of the COVID-19 induced lockdown on monthly savings

¹ These five elements, referred to as the "Panchsutras", include regular meetings, savings, inter-lending, timely repayment, and up-to-date books of accounts.

mobilized by SHGs. We scraped monthly block-level data on SHG savings between April 2018 and July 2020, where a block is an administrative unit comprising a cluster of villages.

Monthly SHG savings per household declined by 81.47 rupees (Rs.), equivalent to 1.10 USD, or by 66.4% after the lockdown (during March through July 2020). While we cannot strictly establish causality, results from a difference-in-differences estimation suggest that reductions were more severe in areas that imposed more stringent restrictions on mobility and economic activity. Because the COVID-19-induced lockdown was the largest nation-wide shock in India during March to July 2020, our findings provide evidence that the lockdown had large negative effects on SHG savings.

We also examined the impact of the lockdown on consumption, economic activity, and food security, for both SHG and non-SHG households. We used three waves of survey data collected by researchers from IDinsight, in collaboration with the World Bank, the Development Data Lab, and Johns Hopkins University in six Indian states (Andhra Pradesh, Bihar, Jharkhand, Madhya Pradesh, Rajasthan, and Uttar Pradesh). We compared differences in outcomes between SHG and non-SHG households to examine the potential role of SHG membership in supporting economic resilience. Our analyses suggest substantial losses in income-generating work, household consumption, and food security among both SHG and non-SHG households. A small percentage of SHG (7.3%) and non-SHG households (5.4%) reported receiving food support (rations or community kitchens) from SHGs during the lockdown. These households were 6 percentage-points more likely to report being food secure during the pandemic. SHG members also were 5 percentage-points more likely to report being food secure, though we exercise caution in interpreting these estimates because household food security data were only available for post-pandemic months.

Our results align with findings from an evidence synthesis suggesting that SHGs and other women's groups focused on financial inclusion can mitigate negative economic consequences during covariate shocks, but these same shocks tend to deplete group resources because of reduced savings and credit (Walcott et al., 2021). For example, restrictions on public movement and market closures during the Ebola outbreak led to income losses of savings group members in Sierra Leone. During this crisis, the joint savings of groups were used to support emergency needs such as burial services or orphaned children, which disrupted investments in income-generating activities (Androsik, 2020). In Liberia, Ebola led to increased absenteeism in savings group meetings, decreased contributions to and availability of funds for loans, and eventually, suspension of group activities (Langlay, 2014). Evidence on related shocks in India, while sparse (Deshpande, 2021), demonstrates that exposure to a cyclone in Odisha led to significant reductions in household expenditures, and while SHG participation was able to mitigate some of the reductions in household nonfood expenditures and women's consumption, SHG participation did not mitigate declines in food expenditures (Christian et al., 2019). We conclude that while SHGs can mitigate some of the negative consequences of large covariate shocks, they also require support for long-term sustainability and resilience after crises.

CONTEXT

The Government of India launched the NRLM in June 2011 to support women's SHGs through SRLMs. The NRLM follows a federated structure in which SHGs are federated into primary-level entities known as Village Organizations, which are further organized into Cluster-Level Federations. Federations are designed to function as community-owned institutions, which support SHGs through investments in livelihoods, social and economic support, and collective action.

The NRLM provides three kinds of funds as resources to SHGs and their federations (NRLM, 2020). First, SHGs receive revolving funds as an initial grant that may serve as catalytic capital to leverage bank finance. Second, federations may receive community investment funds as seed capital to meet the credit needs of SHG members and working capital needs of collective activities. Third, the NRLM provides vulnerability reduction funds to address food and health insecurities among members and groups. During the lockdown in 2020, the Government advised the SRLMs to prioritize the release of these funds to ensure availability of resources for loan disbursement and to support SHG responses to COVID-19 (MoRD, 2020). Meanwhile, SHGs provided training and produced hand sanitizers and protective gear, in addition to running community kitchens. The MoRD (2020) reported that about 300,000 SHG members from 60,000 SHGs produced more than 200 million masks, resulting in temporary income sources for SHG members (de Hoop et al., 2021). During this time, SHG member's and other women's microenterprises faced challenges because of inventory loss, cancellation of orders, lack of transportation and raw materials, and delayed payments (Kudumbashree State Mission, 2020).

The nationwide lockdown in 2020 resulted in a halt in economic activity at various levels, specifically between March and August of 2020. The government announced the nationwide lockdown on March 25, 2020, initially until mid-April 2020, and then extended it through May 2020, with conditional relaxation for regions with lower COVID-19 incidence. Because of the lower COVID-19 incidence in rural areas, rural agriculture and industrial activities were allowed to operate during the transition period. During and after May 2020, the stringency of restrictions continued to vary based on COVID-19 incidence and state-level policies. On May 1st, 2020, the Government released an order that classified districts under “Red” (infection hotspots), “Orange” (limited infection hotspots), or “Green” zones (no

infection). While most economic activities resumed in Green and Orange zones in May 2020, social and economic activities remained restricted in Red zones. In June and July 2020, the Government gradually relaxed the lockdown, but states and local authorities continued to impose restrictions in locally identified containment zones.

DATA

NRLM & COVID-19 Zone Classification Data

We extracted longitudinal data on NRLM activities by scraping the NRLM monthly progress reports from the NRLM Management Information System (MIS). These data included monthly block-level information on reporting status; savings mobilized by SHGs; the number of households mobilized into SHGs; amounts disbursed for revolving, community investment, and vulnerability reduction funds; and the number of SHGs and federations that received these funds. To control for seasonal trends before the pandemic, we extracted data for fiscal years 2018-19, 2019-20, and 2020-21 (up to July 2020, when we started the analysis).

We constructed a balanced panel of all blocks that reported data in every month starting from April 2018 up until June 2020. The NRLM MIS data vary in terms of quality and consistency across time and blocks, resulting in considerable noise in the outcomes of interest for several reasons. First, states that have their own MIS may not report monthly data to the national MIS. For example, we had no data from Andhra Pradesh and Telangana.² Second, among states that report monthly data, not all blocks had monthly progress reports approved through the MIS monitoring by a district-level officer, who verifies the reliability and authenticity of data. To

² While we explored the possibility of accessing the data relevant for this paper from the SRLM websites of these states, monthly savings data were not publicly available for these states.

retain a balanced panel, we collated data from blocks with an approved monthly progress report in every month between April 2018 and July 2020. However, we found a significant drop in the proportion of blocks that had entered and approved data in July 2020 (Appendix figure A1), likely due to insufficient follow-up time between the entry and our data extraction. Therefore, we retained the sample of blocks with an approved report in every month up to June 2020, while noting that not all blocks in our sample reported data in July 2020.

We obtained a final sample of 1,841 blocks across 374 districts, with consistently reported and approved data in every month from April 2018 to June 2020.³ We first removed 43% of 5,627 blocks that were covered by NRLM because they did not have monthly reports entered and approved in all months. We then excluded blocks where NRLM started after 2018 to retain a balanced panel and because new blocks usually focus on community outreach and group mobilization in the initial year (before taking on other activities).

To assess differences by lockdown stringency, we extracted and merged the following data: (1) district-level containment zone classification from the Ministry of Home Affairs; (2) district-level, biweekly confirmed COVID-19 cases (COVID-19 India, 2021); and (3) state-level mobility indices from Google mobility reports (following Ravindran and Shah, 2020). As shown

³ Our conversations with World Bank staff who support the NRLM MIS, revealed that the quality of these monthly progress reports depend on block-level users (data entry operators) who are required to punch in values monthly. This process leads to possibilities for significant reporting errors, and NRLM is now moving towards a transactions-based system of data reporting. However, the development of this system faced some setbacks and the old monthly progress report system remained active at the time of our study. We tried to minimize the scope of errors in the analysis by restricting analysis to blocks with an approved report in every month of NRLM operations.

in figure 1, the prevalence of COVID-19 cases was highest in Red zones through August 2020 (1,630 cases per million population), followed by Orange (1,087 cases per million population) and Green zones (990 cases per million population). Google mobility index reports at the state level showed that Red zones had lower mobility throughout the period of our analysis (Appendix figure A2). Appendix figure A3 shows the zone distribution of blocks in our final study sample.

A robustness check comparing the characteristics of areas included in the sample and those that were dropped because of insufficient data suggests that the two groups looked similar in demographic indicators and access to resources, and had a similar percentage of blocks falling in Red zones (20% of retained blocks and 18% of dropped blocks) (Appendix table A1). Almost half of the blocks dropped from the sample started the program in 2018 or later, which was expected because we intentionally dropped these blocks to retain a balanced panel between April 2018 and June 2020. Among the remaining dropped blocks, most started the program prior to 2012, suggesting that older blocks were less likely to consistently report data. However, the comparison generally suggests that there were limited observable differences in terms of demographic or socioeconomic factors between our sample and the blocks that were dropped.

World Bank Survey Data

To triangulate our findings with information on household economic outcomes, we used three rounds of the “COVID-19 related shocks survey in rural India” collected from six states. These data were collected through three rounds of phone-based surveys in May 2020, July 2020, and September 2020, and include information on demographics, income, consumption, migration, access to relief, health, agriculture, and household-level SHG membership. Of the 9,411 households that participated over the three waves, 3,482 households reported having an SHG member. The data- follow a pseudo-panel structure with different sampling frames in each

round, while maintaining some overlap across the different survey rounds. The sample size was 4,550 in the first round, 5,005 in the second round, and 5,200 in the third round.

Table 1 shows descriptive statistics indicating that SHG households included more socioeconomically vulnerable populations than non-SHG households. SHG households had lower weekly consumption expenditure pre-pandemic (based on recall data) than non-SHG households. They were more likely to belong to Scheduled Castes, demonstrating the NRLM's focus on vulnerable households. Additionally, 40% of both SHG and non-SHG households reported receiving some assistance from SHGs during the lockdown. Most of this assistance was in the form of accessing facemasks, sanitizers, and health and hygiene information. In terms of economic support, 2% of SHG households and 1% of non-SHG households reported receiving SHG assistance in accessing loans for economic activities, and 1% of both SHG and non-SHG households reported receiving SHG assistance for loans for consumption.

EMPIRICAL STRATEGY

Impact of Lockdown on SHG Savings

We estimate the impact of COVID-19 and related lockdown measures on SHG savings using the following regression model:

$$Y_{bmy} = \alpha + \beta_1 Post_{my} + \beta_2 Red_b + \beta_3 (Post_{my} \times Red_b) + \gamma_b + \lambda_m + \psi_y + X_{bmy}\delta + \epsilon_{bmy} \quad (1)$$

In equation (1), Y_{bmy} is the savings amount mobilized per SHG household in month m of year y in block b . $Post_{my}$ is a dummy variable that is 1 for post-lockdown months (March through May of 2020) and 0 otherwise. We interact post-lockdown months with an indicator for whether a block fell in the Red zone (Red_b). β_1 and β_3 are the parameters of interest, with β_1 indicating the change in savings post lockdown, and β_3 indicating the additional difference for blocks in Red zones. The regression controls for block fixed effects (γ_b), month fixed effects (λ_m), and year

fixed effects (ψ_y), to control for seasonal fluctuations. Further, we control for block-level time-varying NRLM program indicators including the number of SHG members mobilized upto a given month, and fiscal-year targets of SHG savings; district-level demographics including the population size and the proportion of the rural population (extracted from Census, 2011, and imputed based on linear trends). Because COVID-19 related lockdown measures and zone classifications depend on district and time, we clustered our standard errors at the district-time level.⁴ In addition to the main specification in equation (1), we also explored differences in early versus late effects because of the initial stringency of the lockdown between March and May 2020, and the later relaxation of these measures in June and July. We did this by adding two different Post dummy variables – one indicating early months (March, April, and May 2020) and the second indicating later months (June and July 2020).

We assess the identifying assumption underlying our primary specification in equation (1) using a visual inspection of the pre-COVID-19 trends in monthly mobilization of savings. Figure 2 plots coefficients from regressions of program households' savings on month-time dummy indicators for fiscal years 2018-19 and 2019-20. Relative to February 2020, the omitted category, we find no clear trend in monthly savings between April 2019 and February 2020, except for a small yet significant increase in June 2019. The decline in savings started only in March 2020, and accelerated for two months before savings started increasing again. Table A2 in the Appendix presents placebo tests, looking at comparisons between March-July of 2019 and 2020, compared to 2018. Compared to 2018, we find no significant difference in monthly savings in 2019, but a significant and substantive decline in 2020. While we cannot fully

⁴ Our primary results are robust to clustering at the block- and district- levels.

establish causality, this analysis lends some credibility to the identifying assumption of stable pre-lockdown trends in savings.

SHGs & Economic Resilience

We next assess change in economic outcomes of SHG households and non-SHG households, and the association between SHG membership and economic resilience using the following regression:

$$Y_{it} = \alpha + \beta_1 SHG_i + \beta_2 Post_t + \beta_3 Red_i + \beta_4 (SHG_i \times Post_t) + \beta_5 (Post_t \times Red_i) + \beta_6 (SHG_i \times Post_t \times Red_i) + \beta_7 PreCovid X_i + \epsilon_i \quad (2)$$

In equation (2), Y_{it} is the outcome of interest. We consider three outcomes – household monthly consumption expenditures, whether the household had no income generating work, and household food security.⁵ SHG_i is a dummy variable indicating whether the household had an SHG member; $Post_t$ is a dummy variable which is 1 for all post-lockdown survey rounds and 0 for recall values for the pre-pandemic period (February 2020); Red_i is a dummy variable, which is 1 for districts under Red zone and 0 otherwise; $PreCovid X_i$ includes respondent characteristics including gender, age, religion, caste, household size, and state. To analyze the role of SHGs in providing resilience against food insecurity, we also estimate the association between food security and receiving food assistance from SHGs, reported by both SHG and non-SHG households. The regressions on food security outcomes use post-pandemic observations only, because the dataset does not include recall data for food security. Self-selection and the possibility of spillovers limit our ability to present conclusive evidence on the causal impact of

⁵ Food secure households are those that reported “none of the above” to: “Because of lack of money or resources, the household limited portion size or reduced meals; or ran out of food; or someone in the household was hungry but did not eat; or someone in the household went without eating for a whole day.”

SHG membership on resilience. However, the analysis provides indications for the potential role of SHGs in influencing resilience.

RESULTS

Change in SHG Savings During Lockdown

Figure 3 presents the pre- and post-pandemic trends in savings by zone classification. Beginning in March 2020, SHG monthly savings declined in all areas, with a steeper decline in Red zones where savings fell below those of non-Red zones from April to May. The final two months (June and July 2020) saw an increase in monthly savings, likely due to resumption of group meetings and activities. Before March 2020, blocks in Red zones consistently reported higher savings than other blocks, likely because areas with a higher prevalence of COVID-19 are more urban. In our sample, the rate of the rural population in Red zones was 60% compared to 77% outside Red zones. We also find seasonal variation in savings at the beginning of the new fiscal year (April 2019), and relatively stable trends thereafter.

Formalizing the estimates in a regression framework, table 2 shows that after the start of COVID-19 lockdown, monthly household savings declined by Rs. 81.47 (1.10 USD at 2020 exchange rate). While the decline in monthly savings for non-Red zone households was Rs. 69.99 (0.94 USD), households in Red zones had an additional decline of Rs. 53.99 (0.73 USD). Further differentiating between early and late effects (column 3), we find an average decline in monthly savings of Rs. 89.61 (1.21 USD) from March to May 2020, and Rs. 67.45 (0.91 USD) from June to July 2020. This suggests that savings started to bounce back during the gradual relaxation of the lockdown. The difference in savings between households in Red zones and other zones was larger, though statistically insignificant, in late months (column 4). This difference likely relates to the variation in the degree of lockdown relaxation in later months.

Economic activities resumed with greater intensity in areas that had limited virus spread, while areas with a high number of COVID-19 cases still experienced large restrictions.

We conducted two main robustness checks. First, we added block-specific monthly trends in our primary specification to control for time-varying trends in savings across blocks. Second, we restricted the sample of blocks to those with an approved monthly progress report in every month through July 2020 (1,082 of 1,841 blocks). Results in table 3 indicate no meaningful changes in our primary findings after controlling for block-specific monthly trends (column 1). While the overall estimates are somewhat smaller after restricting the sample to a balanced panel of blocks that reported data through July 2020 (column 2), the estimates for reductions in savings in Red zones were larger. Blocks that failed to report monthly data in July 2020 seem to have faced larger negative consequences of the shocks, indicating that the estimates of our study may underestimate the actual effects of COVID-19 on SHG savings.

SHGs & Economic Resilience

We next analyze the change in household resources during COVID-19, by examining the economic outcomes of both SHG and non-SHG households in the “COVID-19 related shocks survey in rural India”. As shown in figure 4, both SHG and non-SHG households reported sizeable declines in income-generating work and consumption expenditures during the lockdown.⁶ Both outcomes improved in July and September but remained lower than their pre-pandemic levels. Recall data on pre-pandemic consumption (for February 2020) suggest that SHG households were more economically vulnerable than non-SHG households before the pandemic. Slightly over 60% of households were food secure during the lockdown, which

⁶ The question about primary occupation was asked to non-agricultural households only. The proportion of non-agricultural households was 33% in round 1, 40% in round 2, and 39% in round 3.

increased to more than 75% by September 2020. While we do not observe a discernible difference in food security by SHG membership before controlling for other characteristics, households that received assistance from SHGs to access food were less likely to face food insecurity compared to households that did not receive SHG assistance.

Formalizing these findings in a regression framework suggests that average household weekly consumption expenditure declined by Rs. 362.30 (4.89 USD) in the post-lockdown period (table 4; column 1). We did not see significant differences in the change in consumption across SHG and non-SHG households, or across households in Red zones and non-Red zones (column 2). Households in Red zones did have higher consumption expenditures before COVID-19, again indicating the urbanicity of areas classified as Red zones. The likelihood of no income-generating work increased by 35 percentage-points in the post-lockdown period (column 4). We did not find differences between SHG and non-SHG households. While households in Red zones were 3 percentage-points more likely to report no income-generating work post-COVID-19 lockdown, the difference was not statistically significant.

SHGs may have contributed to food security for SHG members and for other households in their community by actively participating in community responses, such as ration distributions and community kitchens. Regressions that do not control for recall data on pre-pandemic consumption show no significant difference in food security for SHG households and non-SHG households after the pandemic (table 5; panel A, column 1). However, estimates that control for recall data on pre-pandemic consumption suggest that SHG households were 5 percentage-points more likely to be food secure during the pandemic (panel A, column 2). Additionally, households that received assistance from SHGs in procuring food grain or accessing community kitchens during the lockdown were 5 to 6 percentage-points more likely to be food secure (panel

B, columns 4 and 5). The association between SHG membership or assistance and food security did not vary significantly across Red zones and areas outside Red zones (columns 3 and 6).

While SHGs were successful in mitigating food insecurity when they actively participated, the actual prevalence of these practices may have been low, as only 6% of all households reported receiving SHG assistance for food procurement.

DISCUSSION & CONCLUSION

This study presents evidence on how COVID-19 and the associated lockdown affected SHG activities and how SHG members may have contributed to the resilience of their members in India. We show that SHG monthly savings reduced by 66% between March and July 2020. The decline was greater in areas with more stringent lockdown, likely due to a combination of limited group meetings, livelihood losses, or alternative uses of savings. Findings from household survey data from six states suggest that both SHG and non-SHG households experienced income losses following the lockdown. These results are aligned with findings from a small survey of SHG members in Odisha. That survey revealed that women-led sources of income, such as daily wage work, cattle rearing, and small businesses, showed a sharp decline during lockdown, and a large majority of respondents was at high risk of food insecurity (Sanyal et al., 2021).

SHG activities during the lockdown did partially mitigate the negative consequences, however. SHG membership was positively associated with household food security during the pandemic (after controlling for pre-pandemic consumption expenditures). SHG assistance in the form of community kitchens and other services provided both SHG and non-SHG households with means to combat food insecurity during the pandemic. This finding is consistent with information indicating that trained SHG members provided rural citizens with information and support on COVID-19 relief services like free rations at Public Distribution System shops,

distribution of food packets for children enrolled in government *anganwadis*, and availability of gas cylinders under the national *Ujjwala Yojana* scheme (LEAD at Krea University, 2021).

While potentially effective, these efforts were possibly small in scale; only 6% of rural households in the survey reported receiving assistance from SHGs in obtaining food.

The results are also consistent with a recent evidence synthesis on women's groups and covariate shocks (such as drought, floods, or conflict-related shocks), which found that households with exposure to women's groups had lower food insecurity, higher consumption, and higher income after weather shocks, compared to other households (Walcott et al., 2021; Demont, 2022; Christian et al., 2019; Karlan et al., 2017; Wineman et al., 2017). While SHGs may help members absorb some shocks, group membership seldom fully mitigates the effect of the shock. Acute covariate shocks can deplete group resources, thus resulting in challenges for group sustainability (Walcott et al., 2021). It is critical to understand the longer-term implications for group savings because regular savings are the central activity of women's economic groups. Regular savings, when consistently accumulated over time, can bind women in a transactional relationship, facilitate bank linkages, support intra-group trust, and help women engage in productive livelihoods (Deshpande, 2021). Disruptions in this critical activity can therefore have adverse consequences for group sustainability (Walcott et al., 2021).

Our study does face some limitations. First, several experts familiar with the NRLM MIS data pointed out that these data are often incomplete, as confirmed by our analysis. Our analysis excluded two states (Telangana and Andhra Pradesh) that have India's longest-running and, likely, some of the highest-quality SHG programs, because they did not report data to the national MIS. In addition, we restricted the study to blocks with consistently approved reports in every month between the start of implementation and June 2020 to retain a balanced panel,

which may have limited external validity. While we did not find any notable differences in population characteristics in blocks that were included and those that were dropped from the sample, there may have been localized variation in the stringency of the lockdown within Red zones and other areas. Zone restrictions may also have influenced the quality of reporting and the approval process, suggesting that we need to exercise some caution in interpreting the estimates. Second, our analysis only covers the pandemic up to September 2020. While SHG savings began to rise again in July 2020, they remained lower than the pre-pandemic levels. Similarly, household-reported income-generating activities were still substantially lower in September 2020. More research on longer-term effects is important to guide policymaking to mitigate the longer-term effects of the pandemic.⁷

Despite these limitations, our findings have several important policy implications. The pandemic and the related lockdowns had significant negative effects on the core activity of a program that has reached over 80 million women nationwide. It is crucial to understand whether and how these disruptions affect the longer-term institutional capacity of the NRLM and the sustainability of more than 6 million SHGs. There also is a critical need to update and track data on NRLM activities on a timely and comprehensive basis and to identify when and how group activities are disrupted. More frequent MIS data can also support monitoring of group activities and savings, which policymakers could use to set thresholds of collective savings and other vulnerability indicators, below which SHGs can receive vulnerability reduction funds. These funds could potentially mitigate some of the negative impacts of shocks, including, but not limited to, COVID-19. For example, the NRLM MIS data indicated that blocks that had some

⁷ At the time of completing this study (December 2021), block-level data on NRLM savings were not available on publicly accessible monthly progress reports any longer.

fund disbursement during the lockdown months experienced no significant decline in average SHG member savings (Appendix figure A4). While fund disbursement during the pandemic is likely endogenous (these blocks had lower savings prior to the pandemic), fund disbursements to SHGs during crisis could mitigate negative economic consequences of covariate shocks and limit the negative effects on group sustainability. It is also important considering the positive effects of NRLM-supported SHGs on income, savings, and access to credit (Kochar et al., 2020).

Finally, our findings suggest that if leveraged effectively, SHGs can play an important role in addressing food security risks during covariate shocks, especially when they are implemented on a considerable scale. The NRLM reports that between April 2020 and January 2021, SHGs ran 1,22,682 community kitchens across the country; 2,237 SHGs were involved in running vegetable delivery units; and 31,198 SHGs were involved in distributing dry rations. We present evidence on spillovers of these and similar activities by showing the ability of SHGs to reduce the risk of food insecurity after COVID-19. SHGs under the NRLM provided assistance during COVID-19 to both SHG and non-SHG households, highlighting their role as a community partner in providing resilience against shocks. The potential of SHGs in mitigating crises, therefore, may extend beyond individual groups to the community. However, it is important to emphasize that SHG members and their own livelihoods or economic activities are also impacted by shocks, as shown in our study. Leveraging the infrastructure of SHGs to achieve wider population effects on food security requires a program design that accounts for the way covariate shocks influence SHG and their members. In particular, it may require dedicated and timely funds for SHGs and crisis amelioration funds to improve the resilience of their members.

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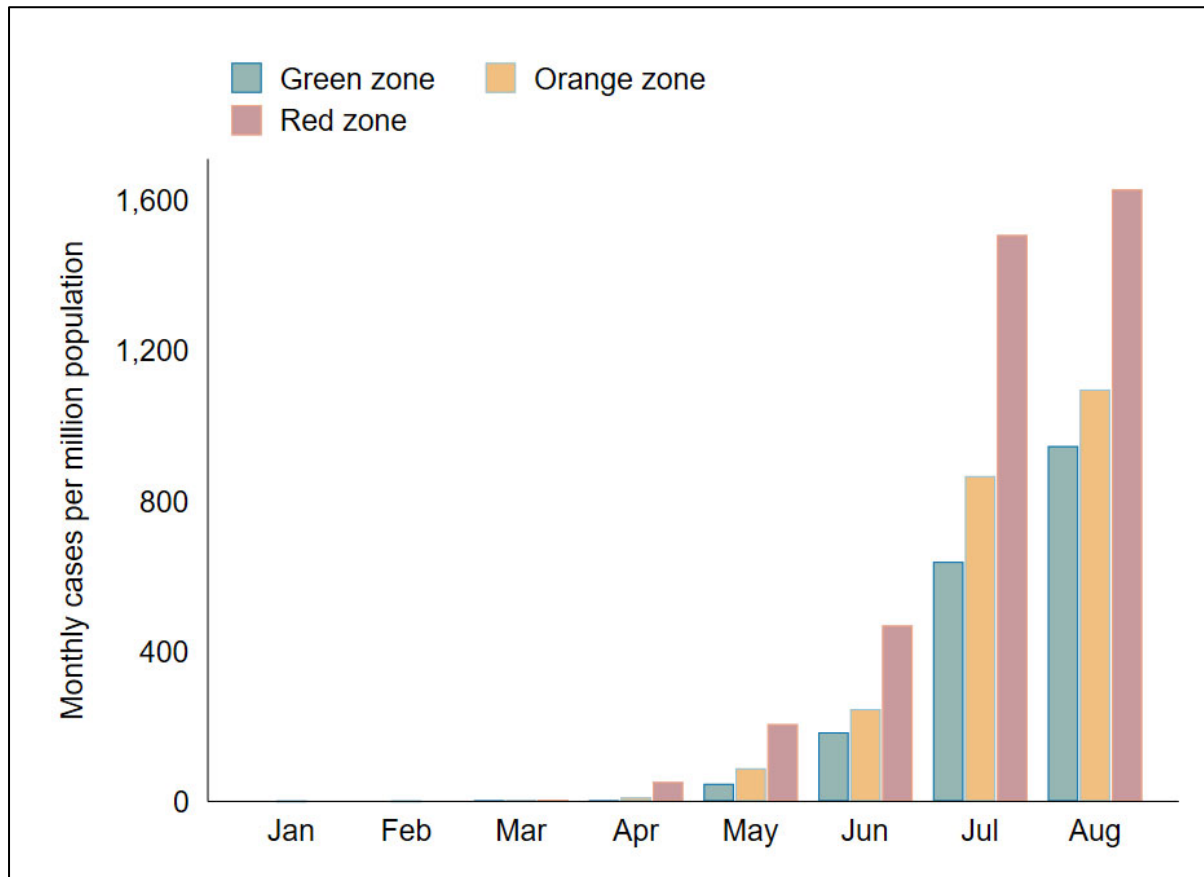
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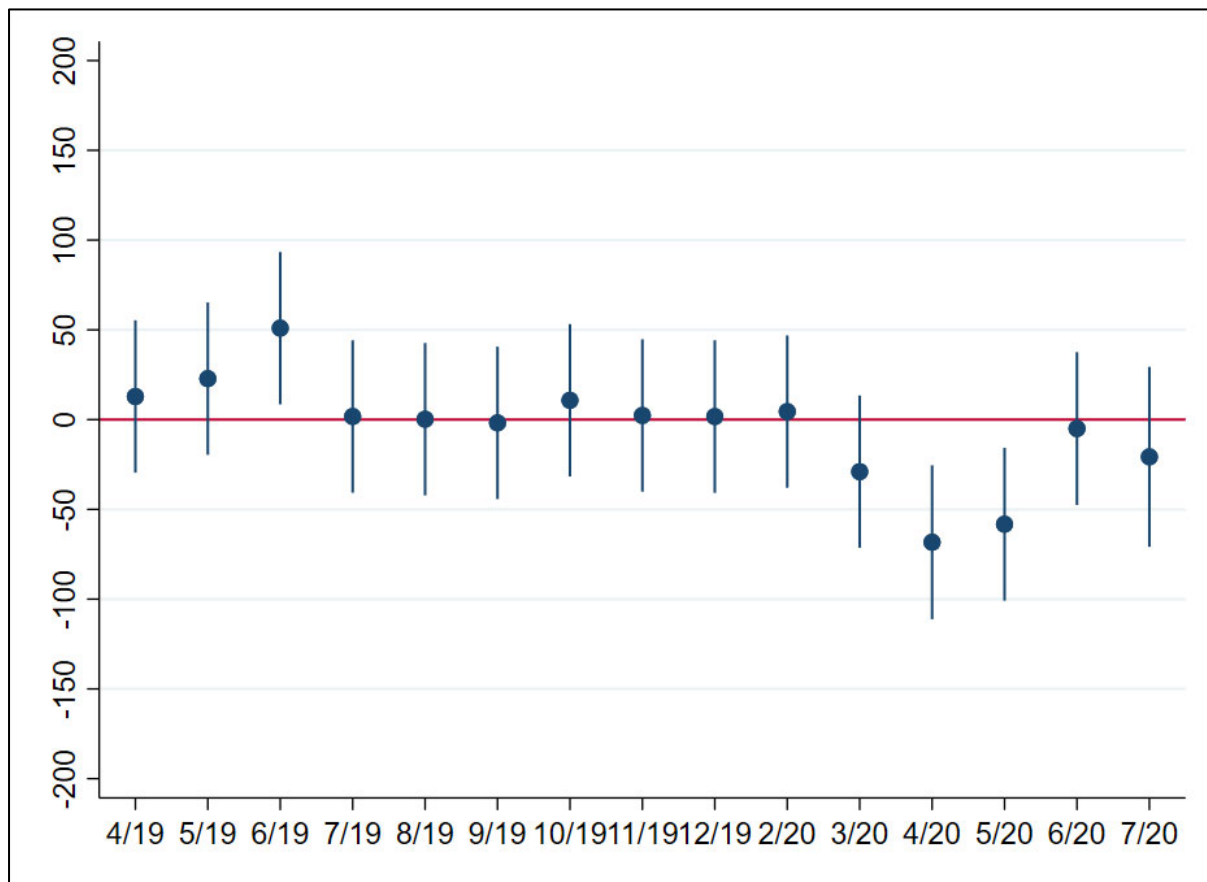
FIGURES & TABLES

Figure 1. COVID-19 monthly registered cases by containment zone, January to August 2020



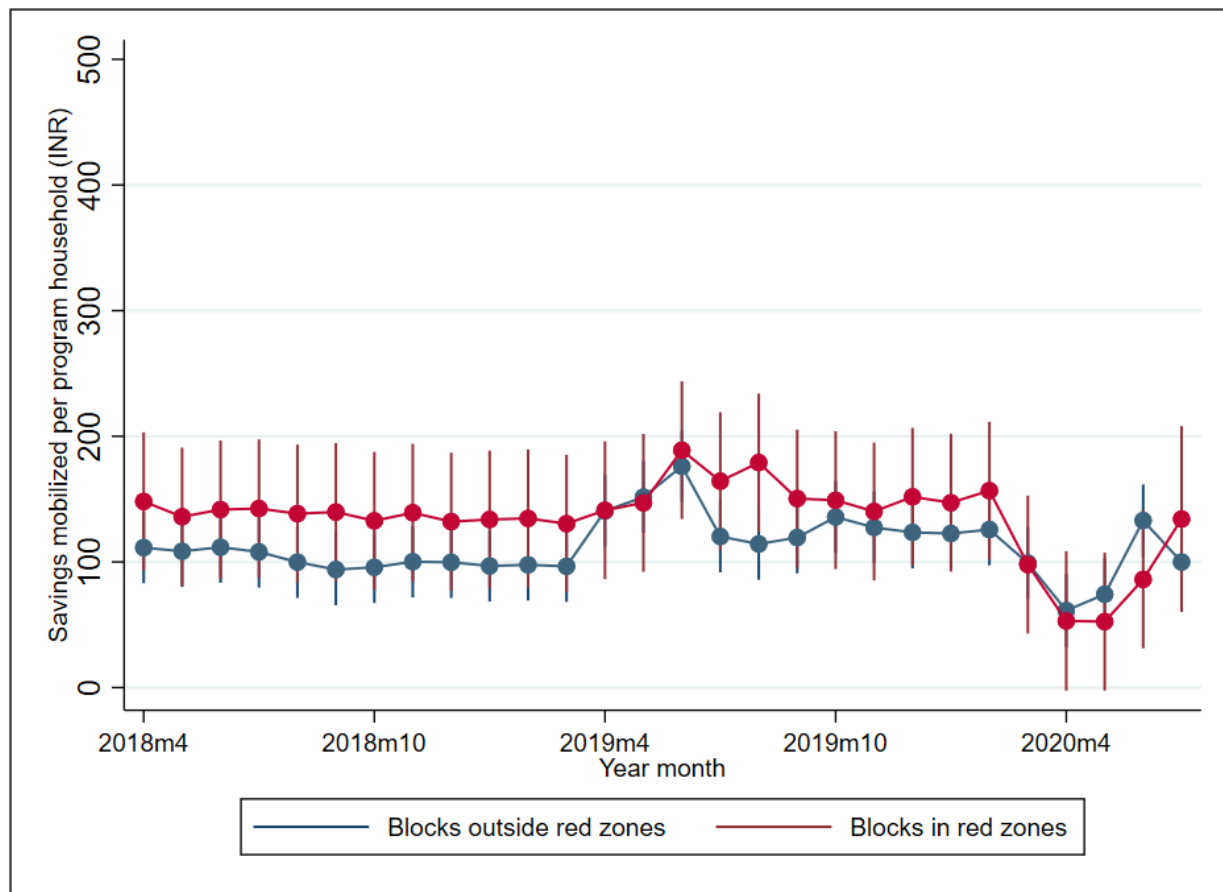
Note. Total sample includes 667 unique districts.

Figure 2. Trends in savings per SHG member



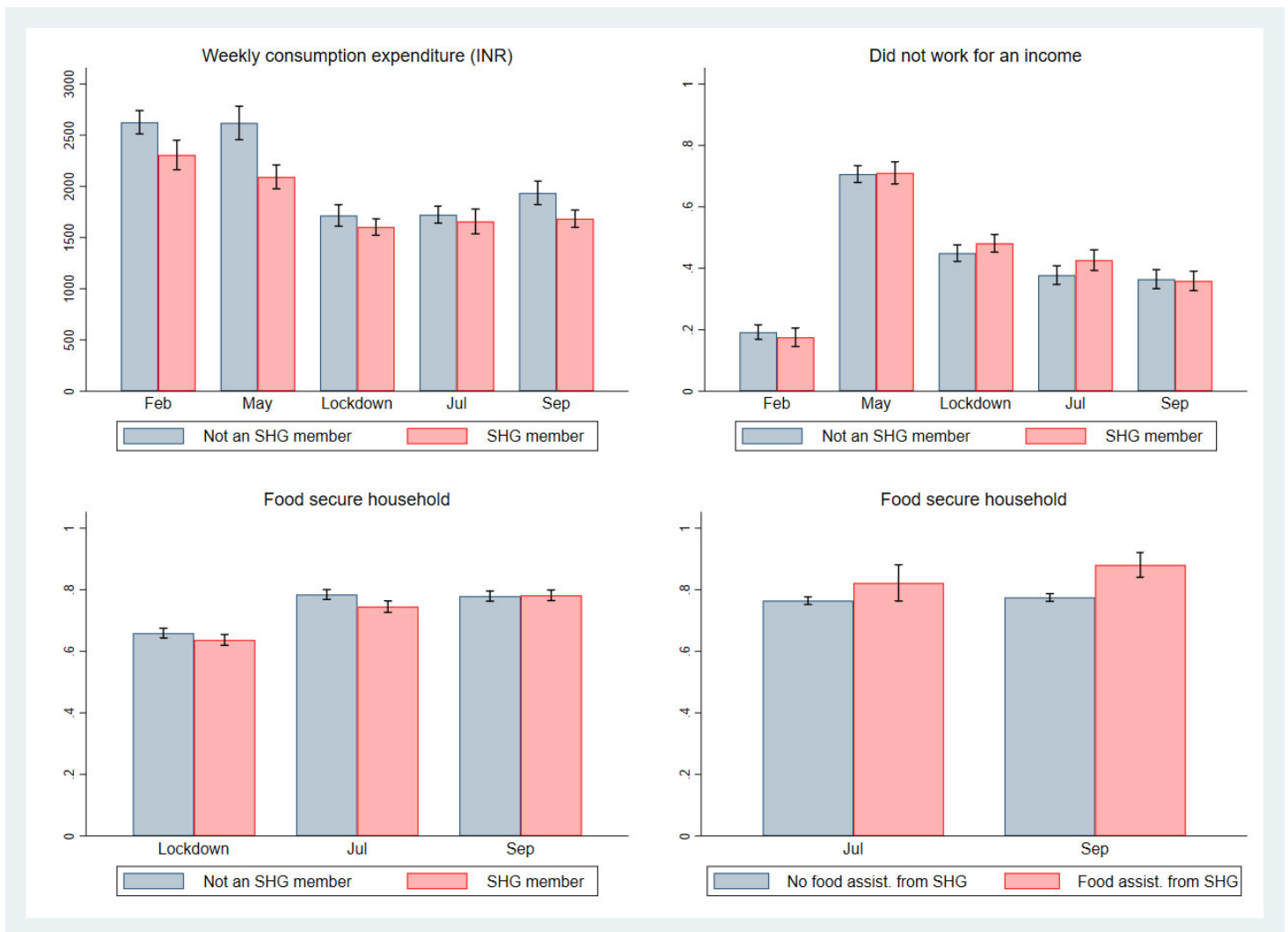
Note. The sample includes 1,841 blocks that entered NRLM before 2018. X-axis denotes Month/year. Blue bars indicate 95% confidence intervals around point estimates.

Figure 3. Savings mobilized per program household by Red zone classification



Note. The sample includes 1,841 blocks that entered NRLM before 2018, with 363 blocks falling under Red zones, and 1,478 blocks under non-Red zones. X-axis denotes Year and month number. Bars around point estimates indicate 95% confidence intervals.

Figure 4. Household economic outcomes before and after lockdown



Note: Surveys do not include any recall data on food security. Work for income is only asked to non-agricultural households.

Table 1. Summary statistics – SHG & non-SHG households

	SHG	Non-SHG
Household economic characteristics		
N household members	6.47	6.55
Respondent age	38.62	39.93
Weekly consumption expenditure in Feb 2020	2306.33	2626.13
Didn't work for an income in Feb	0.17	0.19
Agricultural household	0.59	0.62
Demographic characteristics		
Male respondent	0.81	0.89
Caste: General	0.11	0.19
Caste: SC/ST	0.50	0.42
Caste: OBC	0.38	0.40
Religion: Hinduism	0.88	0.89
Religion: Islam	0.06	0.07
Religion: Other	0.05	0.04
SHG assistance during lockdown		
Received assistance (any form) through SHG	0.40	0.39
Received SHG assistance in loan for economic activity	0.02	0.01
Received SHG assistance in loan for consumption	0.01	0.01
Number of households	3,842	4,859

Table 2. Impact on monthly savings mobilized per program household

	(1)	(2)	(3)	(4)
	Savings mobilized per program household			
Panel A. Post COVID-19 months				
Post Feb 2020	-81.47*** (14.22)	-69.99*** (14.40)		
Red zone * Post Feb 2020		-53.99* (31.10)		
Panel B. Early (March-May) versus late (June-July) effects				
March to May 2020			-89.61*** (17.73)	-84.35*** (18.99)
June to July 2020			-67.45*** (18.64)	-52.65*** (18.85)
Red Zone * March to May 2020				-24.47 (44.76)
Red Zone * June to July 2020				-69.56 (51.10)
Observations	44,539	44,539	44,539	44,539
R-squared	0.57	0.57	0.57	0.57
Dep. Var. Mean	120.1	120.1	120.1	120.1
Includes Red Zone interactions	N	Y	N	Y

Robust standard errors clustered at district-time level in parentheses. Estimates control for block, month, and year fixed-effects. ***

p<0.01, ** p<0.05, * p<0.1.

Table 3. Robustness checks on effects on savings mobilized per program household

	(1)	(2)
	Robustness check – 1 Controlling for block- specific monthly trends	Robustness check – 2 Restricting to balanced panel of blocks
Post Feb 2020	-70.78*** (15.54)	-48.91*** (18.06)
Red zone * Post Feb 2020	-53.27 (36.26)	-122.59*** (45.46)
Observations	44,539	25,521
R-squared	0.65	0.63
Dep. Var. Mean	120.1	129

Robust standard errors clustered at district-time level in parentheses. Estimates control for block, month, and year fixed-effects. Column 1 also controls for district-wise linear time trends. *** p<0.01, ** p<0.05, * p<0.1.

Table 4. Change in consumption and employment during and post-lockdown

VARIABLES	(1) Weekly consumption expenditure	(2) Weekly consumption expenditure	(3) Did not work for an income	(4) Did not work for an income
SHG household	-131.30 (94.62)	-53.50 (115.31)	-0.01 (0.02)	-0.01 (0.03)
Post COVID-19 lockdown	-362.30*** (61.28)	-319.80*** (68.94)	0.36*** (0.02)	0.35*** (0.02)
Post COVID-19 lockdown * SHG	20.30 (101.25)	-20.85 (126.69)	0.03 (0.02)	0.03 (0.03)
Red zone		297.44** (125.52)		-0.04 (0.03)
SHG * Red zone		-257.09 (210.12)		0.01 (0.04)
Post COVID-19 lockdown * Red zone		-103.42 (123.92)		0.03 (0.03)
Post COVID-19 lockdown * SHG * Red zone		66.30 (204.73)		-0.02 (0.05)
Includes Red zone interactions	N	Y	N	Y
Observations	17,789	17,789	8,067	8,067
R-squared	0.04	0.04	0.09	0.09
Dep. Var. Mean	2030	2030	0.427	0.427

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Columns 1 and 3 of the table report estimates from a regression of weekly household consumption expenditure (in INR) and no work for income, on SHG membership, Post-lockdown period and interactions. Columns 2 and 4 add Red zone, and three-way interactions. All regressions control for household demographic characteristics.

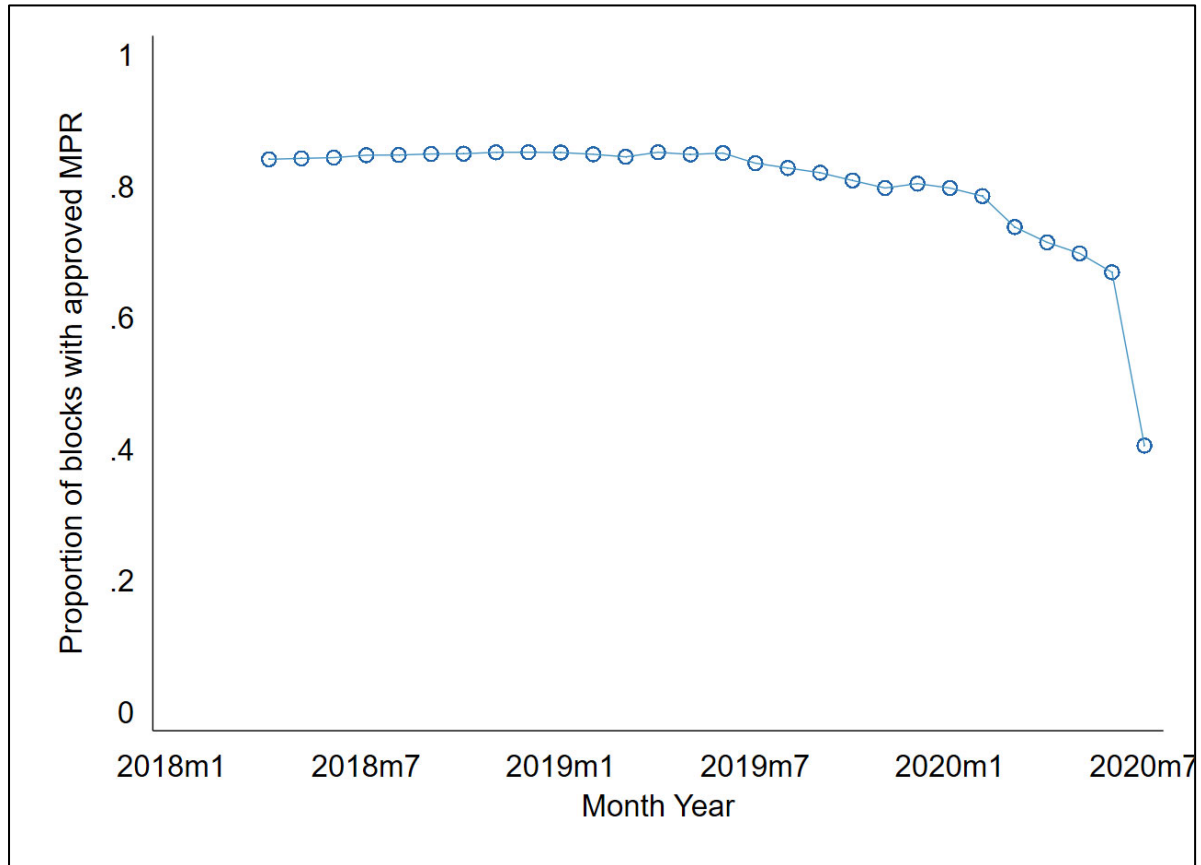
Table 5. Change in food security during and post-lockdown

	(1)	(2)	(3)	(4)	(5)	(6)
	Household was food secure during COVID-19					
Panel A. SHG membership and food security						
SHG household	-0.01 (0.01)	0.05*** (0.02)	0.05*** (0.02)			
Red zone			0.05*** (0.02)			
SHG * Red zone			-0.03 (0.03)			
Panel B. Food assistance from SHGs and food security						
Received food assistance from SHGs				0.06*** (0.02)	0.05* (0.03)	0.06** (0.03)
Red zone						0.05*** (0.01)
Received food assistance from SHGs * Red zone						-0.04 (0.07)
Controls for pre-pandemic consumption	N	Y	Y	N	Y	Y
Includes Red zone interactions	N	N	Y	N	N	Y
Observations	12,493	4,477	4,477	7,623	2,682	2,682
R-squared	0.05	0.03	0.03	0.03	0.01	0.01
Dep. Var. Mean	0.748	0.824	0.824	0.791	0.861	0.861

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Panel A reports estimates from regression of post-lockdown household food security on SHG membership. Panel B reports estimates from cross-sectional regression of post-lockdown household food security on food assistance from SHGs. Columns 2 and 5 control for pre-pandemic levels of household consumption, and columns 3 and 6 add interactions with Red zones. The data do not include pre-pandemic levels of food security. The sample size reduces after controlling for pre-pandemic consumption because of the difference in sampling frames across waves.

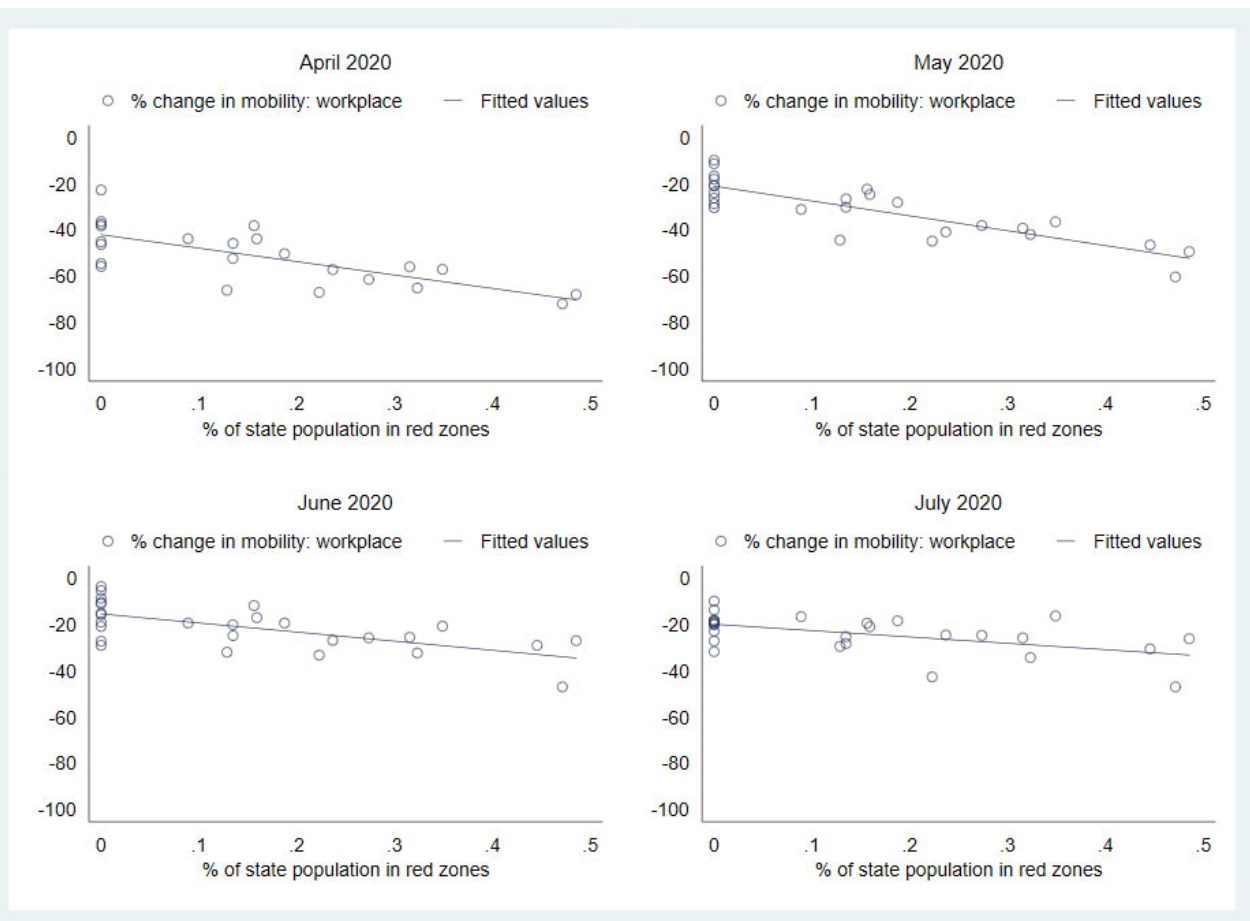
APPENDIX

Appendix Figure A1. Monthly progress reporting by month-year



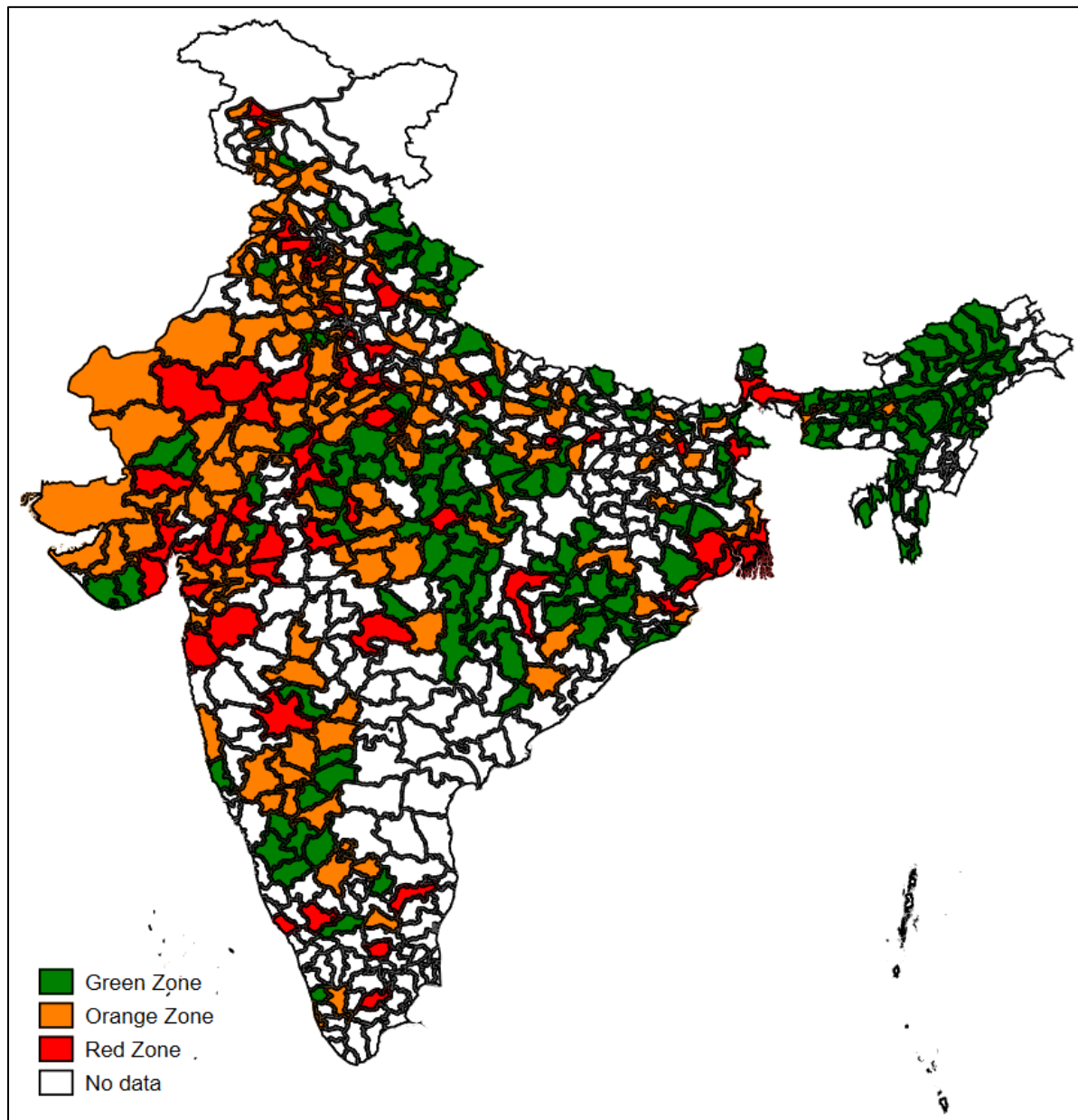
As shown in the figure, the proportion of blocks with approved MPR is lower for more recent months suggesting a lag between data entry and data approval.

Appendix Figure A2. Workplace mobility and containment zone



Note: These mobility reports chart movement trends over time by geography, across different categories of places like retail, groceries, parks, public transit and workplace. We merged these data to our sample using state names and found that states with a larger proportion of population in districts categorized as Red zones had a greater decrease in workplace mobility between April and August 2020

Appendix Figure A3. Distribution of containment zones – Final districts in sample



Note. The chart shows districts included in the final sample by containment zone classification. No data indicates districts that were excluded from our final sample.

Appendix Figure A4. Savings by fund disbursement

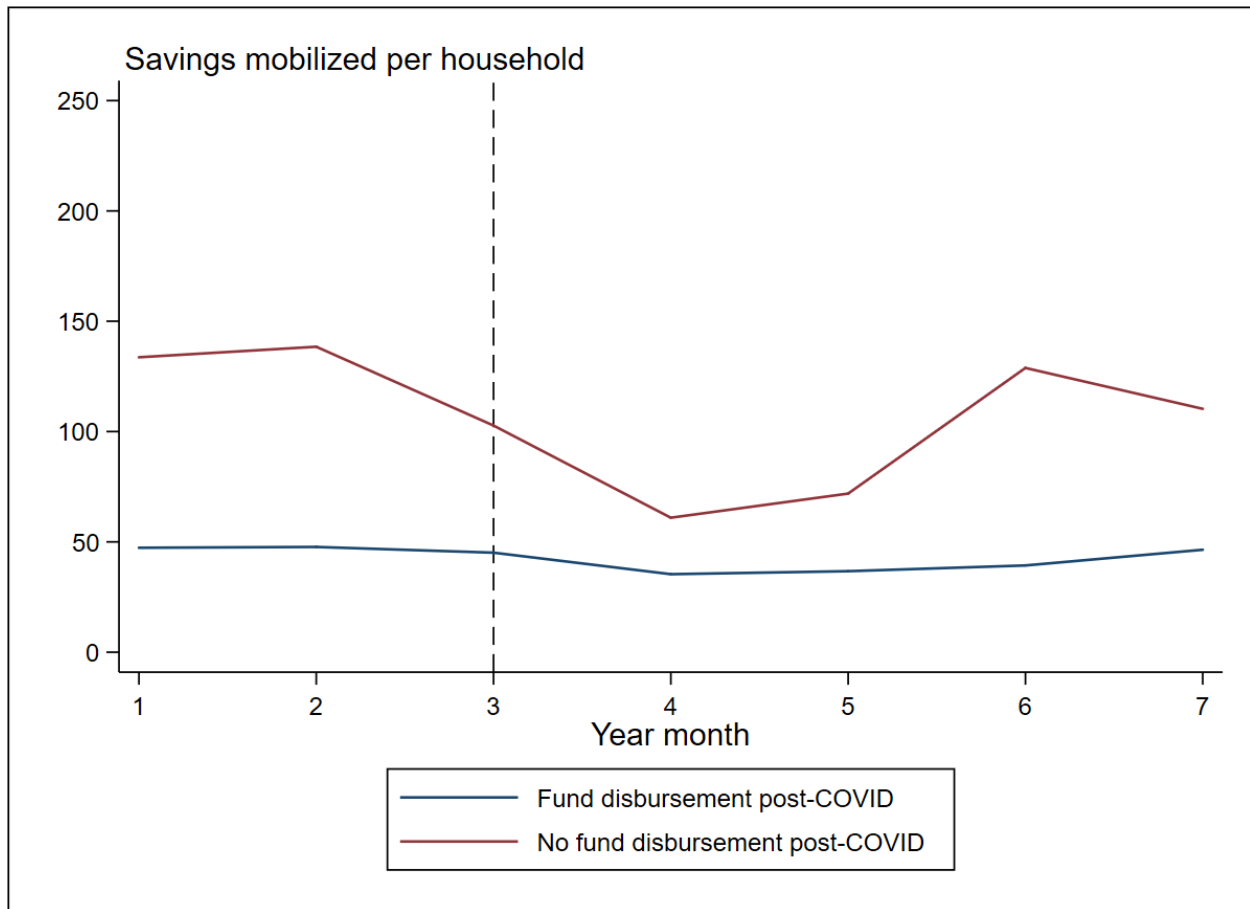


Table A1. Block characteristics by attrition status

	Blocks retained in sample	Blocks dropped from sample
District demographics		
Percent population rural	77%	76%
District population	2,139,131	2,529,098
Female to male ratio	95%	96%
Households using clean fuel for cooking	36%	38%
Households with electricity	87%	86%
Households with improved drinking water source	88%	90%
Women who are literate	67%	68%
Men who are literate	85%	84%
COVID-19 zone classification		
Red zone	20%	18%
Orange zone	40%	50%
Green zone	41%	32%
Year of NRLM implementation		
2012 or before	15%	21%
2013	13%	9%
2014	7%	7%
2015	13%	2%
2016	15%	6%
2017	37%	6%
2018 or later	0.1%	49%
Total number of blocks	1,841	3,776

Note. District demographics are based on 2011 Census and NFHS-4.

Table A2. Placebo tests for pre-COVID-19 trends in monthly SHG member savings

VARIABLES	(1)
	Savings mobilized per program household
March to May 2019 (compared to March-May 2018)	-9.04 (15.55)
March to May 2020 (compared to March-May 2018)	-95.07*** (19.07)
June to July 2019 (compared to June-July 2018)	13.82 (17.21)
June to July 2020 (compared to June-July 2018)	-60.13*** (16.03)
Observations	44,539
R-squared	0.57
Dep. Var. Mean	120.1
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1	