USING SOCIAL NETWORKS TO IMPROVE RURAL WOMEN'S LIVELIHOODS IN INDIA

April 2023

3ie
International
Initiative for
Impact Evaluation

vrotti™
LIVELIHOOD IMPACT PARTNERS
Ensuring small producers are 3 times more profitable.

Highlights

- The performance of programs that rely on social groups or networks, such as India's Deendayal Antyodaya Yojana National Rural Livelihoods Mission (DAY-NRLM), will be affected by the social composition of the group in question.

- Research on the importance for income mobility of "vertical" links across households suggests the value of large groups that combine individuals from different socio-economic background. Within DAY-NRLM, this applies to Village Organizations (VOs) that federate small Self Help Groups (SHGs) from the village to achieve the scale that is critical for income growth.

- The descriptive analysis of this note finds that VOs with mixed membership with regard to socio-economic status are associated with more effective SHGs across performance indicators such as average loan amounts, maintenance of financial registers and the use of penalties for loan default.

- Despite the constraints of small size and high social homogeneity in villages of some states, deliberate policy attempts can still affect the composition of VOs. Examples include the formation of multi-village VOs whose membership spans SHGs in adjoining villages and federation at the level of the Gram Panchayat, as in Odisha, rather than at the level of the village.

- Further research is required on the causal effects of the social composition of VOs and on the impact and effectiveness of the policy alternatives suggested in this note.

The policy challenge

A new generation of livelihood programs move beyond the traditional focus on microfinance and Self Help Groups (SHGs), embracing a federation of community-based institutions. A leading example of this approach is India's Deendayal Antyodaya Yojana National Rural Livelihoods Mission (DAY-NRLM), the government's flagship program for enhancing women's livelihoods. Launched in 2011, DAY-NRLM supports a federation of community-based institutions with SHGs of approximately 10 women drawn from the same residential neighbourhood as the basic unit. Approximately 10-20 SHGs are federated at the level of the village into Village Organizations (VOs) that are in turn federated, as they mature, into Cluster Level Federations (CLFs). The DAY-NRLM currently supports over 8 million SHGs across 28 states, comprising over 86 million women.[1]

Does this new approach work? Does it work equally well in all states? If not, are there contextual factors behind the variation? Are there policies that can be implemented to improve performance in underperforming regions? This learning note, based on a longer academic paper, addresses these questions and provides some policy options that decision-makers can consider.

The value of federations

The policy shift to a federated approach follows past experience with programs that supported SHGs but not more expansive groups such as VOs. On average, these programs generated only modest improvements in household incomes. While several factors account for these marginal effects, recent academic research suggests the importance of an additional factor: the socioeconomic homogeneity of the membership of any given SHG.

This research notes that the benefits of layering economic programs on social networks or groups vary with the group's characteristics. Small homogeneous groups—comprised of members with similar socioeconomic and cultural backgrounds—are well suited for transactions that require collective action and trust, such as risk sharing. Larger and more heterogeneous (diverse) groups that support "vertical ties" amongst members from different socio-economic backgrounds are necessary to improve poorer members' incomes (Jackson 2021; Calvó-Armengol and Jackson 2004). It's this diversity that enables new opportunities and knowledge and allows more experienced members to mentor and guide others.

This provides the theoretical underpinnings for DAY-NRLM's success: institutional arrangements that combine SHGs into more expansive networks to deliver the diversity needed to increase incomes. Recent research by Chetty et al. (2022) provides empirical support.
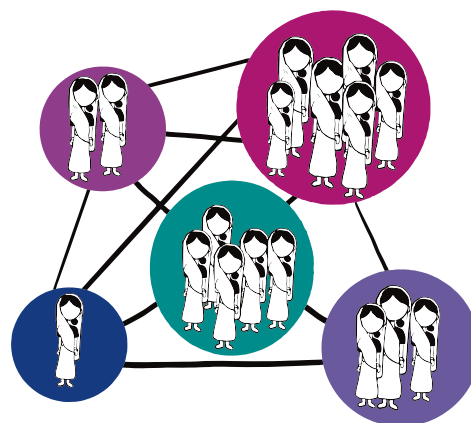
Using Facebook data on friendships, the authors find that "economic connectedness," or relationships with individuals of high socio-economic status, is among the strongest predictors of upward income mobility. According to Granovetter (1973), economic connectedness provides access to new information on job opportunities, technologies and market opportunities. Further, groups characterized by vertical ties may be more willing to adopt formal accounting mechanisms that in turn enable transactions with individuals outside their social networks (Greif and Taballini 2017; Kumar and Matsusaka 2009).

This last point is particularly relevant for the DAY-NRLM, given its reliance on VOs for enhancing the capacity or quality of SHGs through monitoring, mentoring and support. VOs are responsible for ensuring that SHGs develop and use business plans, maintain and update books of accounts, and use the modern accounting practices necessary to partner with formal institutions such as banks to access the instruments of economic growth. A VO's ability to serve this role requires a diverse socio-economic membership.

NRLM's effectiveness

Evaluations of DAY-NRLM (Kochar et al. 2020) document its success in enhancing incomes. They also support the importance of its federated structure: SHGs are more effective and perform better when federated into VOs.

The considerable difference in the social heterogeneity of these two institutions suggest that the vertical ties enabled by VOs may help explain their value. We demonstrate the difference in the composition of SHGs and VOs using data from Bihar's Management and Information System (MIS). This database provides a census of all SHGs in the state, details the socio-economic category of members of each SHG, and links SHGs to VOs.[2] The listed socioeconomic categories are scheduled castes, scheduled tribes, other backward and economically disadvantaged castes, and "other" households that include members of higher castes and minorities. We note that this categorization serves as a very rough approximation to members' socio-economic status and emphasize the need for supportive research based on finer data.

Using the available data, we compare the social heterogeneity of SHGs to that of the VOs with which they are affiliated. For this, we use an index that measures the extent to which membership of SHGs (and, separately, VOs) is divided across the five socio-economic groups listed in the MIS. This "fractionalization" index takes the value 0 if the group is completely homogeneous (all members coming from the same socio-economic group). The value of the index rises as groups become more mixed, with the highest value being 1. Thus, a group in which all members are from scheduled tribes would have a fractionalization index of 0, as would a group in which all members are from economically backward castes. An SHG whose membership is equally divided across all five groups would have a fractionalization index of 1.

Figures 1a and 1b display fractionalization indices for SHGs and VOs, respectively. Figure 1a shows that the overwhelming majority of SHGs are comprised of members are from the same broad socio-economic group (index value of 0). The comparison with VOs is striking; VOs are far more heterogeneous (figure 2b). However, equally striking is the variance in the fractionalization index across VOs in the state. A significant number of VOs display low levels of fractionalization (less than 0.4) including a sizeable number that exclusively comprise members from the same broad socio-economic group. Such VOs offer limited vertical ties. An equally large number of VOs are characterized by high levels of heterogeneity.

The importance of VO heterogeneity can be gauged by comparing the performance of SHGs that are federated into relatively homogeneous VOs (with a fractionalization index below the mean value) and those that are members of more heterogeneous VOs. Because SHGs that primarily comprise members of relatively low socio-economic status stand to benefit the most from vertical links, we divide SHGs into two groups: Those whose membership is drawn primarily from members of scheduled castes and tribes and those whose membership comes mainly from other social groups. Figure 2a compares the performance of SHGs federated into low and high fractionalized VOs for the former group while figure 2b does the same for the latter (primarily non-SC/ST SHGs). The performance indicators we consider are average loan amounts, the maintenance of financial registers and the use of penalties by the SHG in the case of loan default.
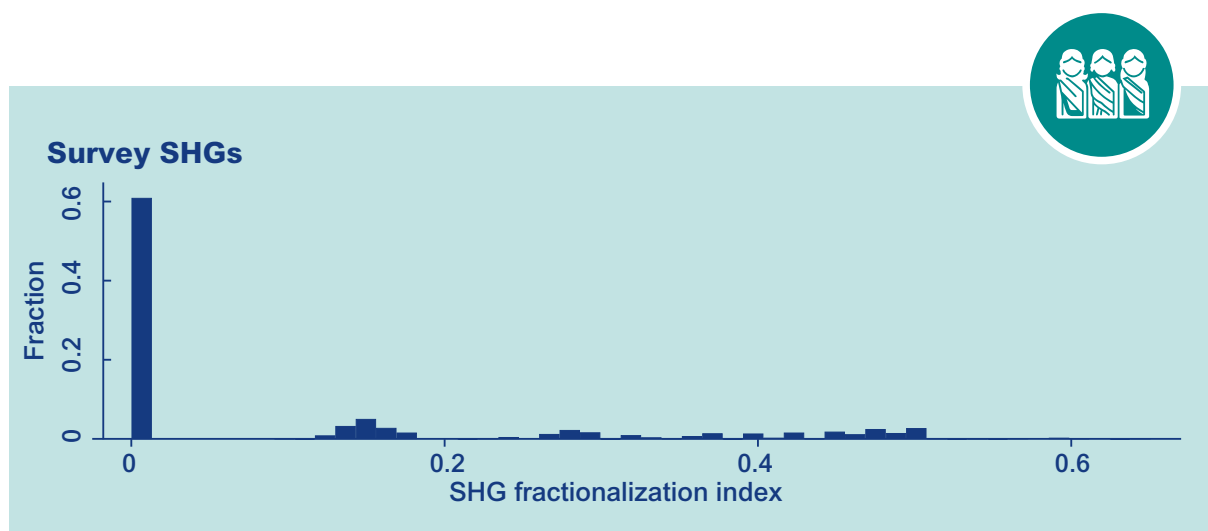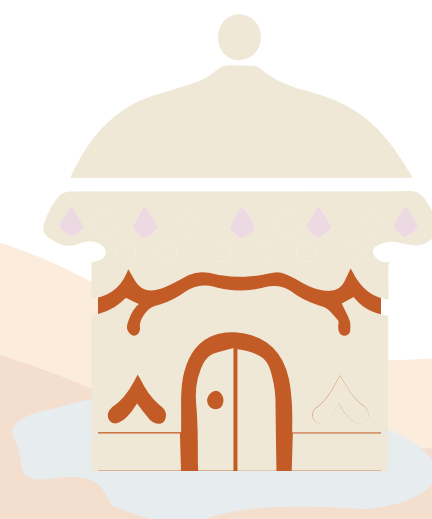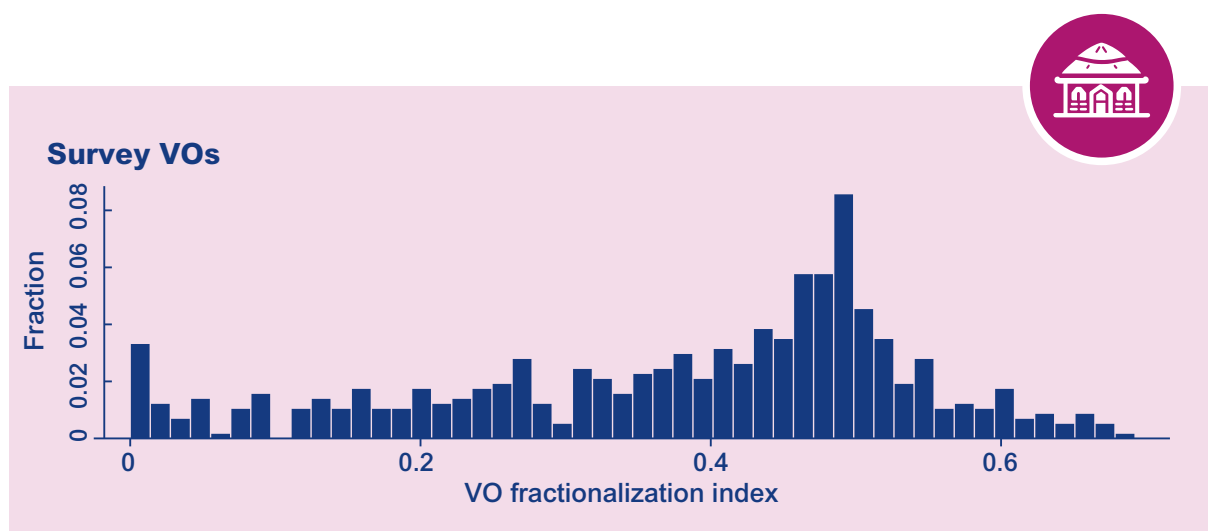
Figure 1a: SHG caste fractionalization, Bihar

Survey SHGs

Fraction

SHG fractionalization index

Figure 1b: VO caste fractionalization, Bihar

Survey VOs

Fraction

VO fractionalization index

For primarily SC/ST SHGs, those that are members of high-fractionalized VOs perform significantly better across all three outcomes. In contrast, Figure 2b suggests fewer benefits of high-fractionalized VOs for SHGs composed primarily of members from groups other than scheduled castes and tribes. For this set of SHGs, though membership in heterogeneous VOs is associated with a greater likelihood of imposing penalties for loan default, there is no difference in the proportion reporting regular maintenance of financial registers. Additionally, their loan amounts are smaller.

The improved performance of SC/ST SHGs in heterogeneous VOs suggests that exposure to women from higher socio-economic strata can help the transition to a system with modern bookkeeping methods and greater adherence to formality. We emphasize, however, that these figures graph the association or correlation between SHG performance and the socio-economic composition of VOs and are not evidence of a causal relationship. Establishing the causal mechanisms that link heterogeneous VOs to better-functioning SHGs is a topic that requires further study. Additionally, the analysis of this note assumes that the 5 socio-economic groups listed in the MIS data are good proxies for the socio-economic status of SHG members. Data that provides better measures of socio-economic standing would enable robustness checks and provide more insights.

Figure 2a: Performance of SC/ST SHGs in low and high fractionalized VOs
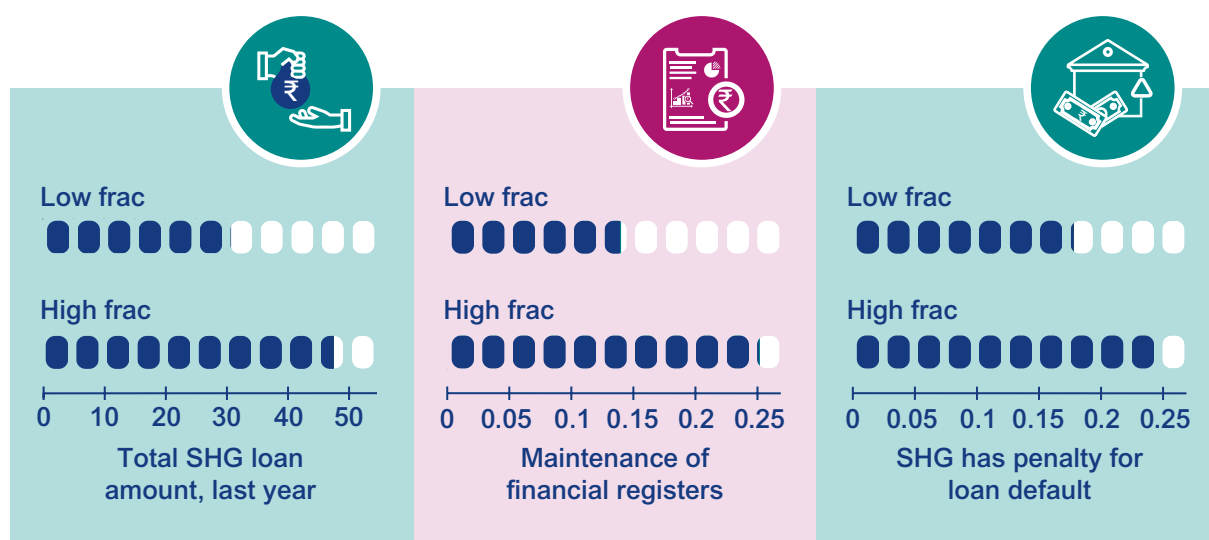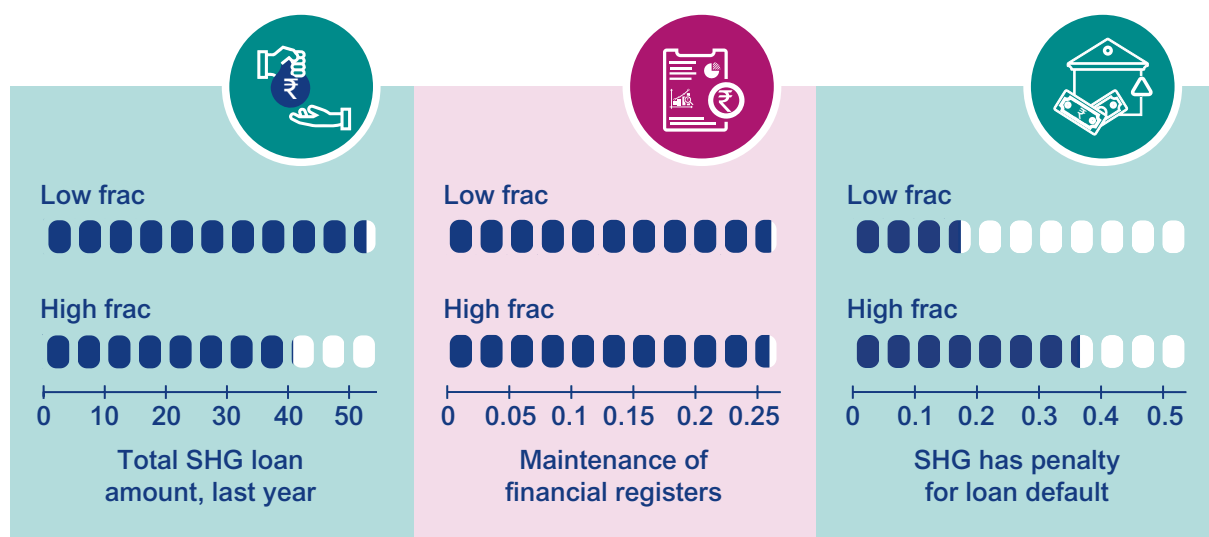

Figure 2b: Performance of non-SC/ST SHGs in low and high fractionalized VOs
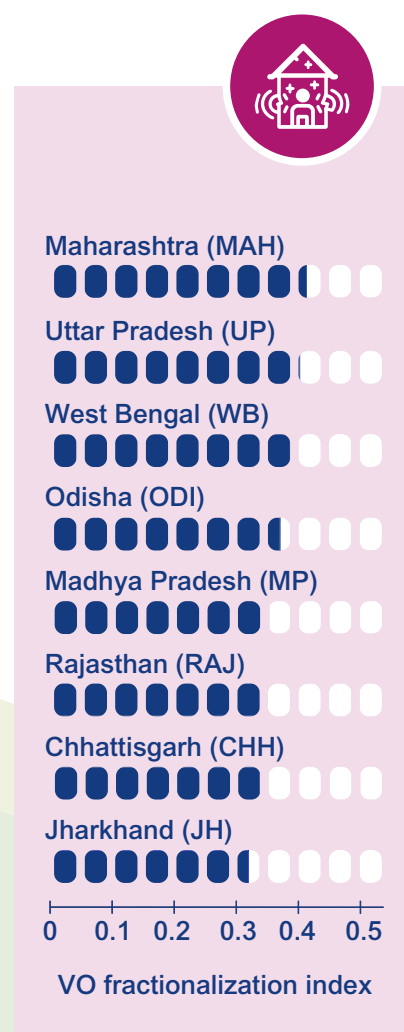
A poverty trap?

It seems almost tautological to state that the performance of programs that rely on social networks will depend on their social composition. And, indeed, the close attention that is accorded to the social composition of SHGs and microfinance groups suggests that this principle is well understood. Despite this, similar attention is rarely conferred on the social composition of larger networks such as VOs and CLFs despite the greater importance of these groups for income growth.

This may reflect the belief that VOs, being village-wide institutions, inherit the socio-economic characteristics of the village in which they are located, limiting the discretion of governments to optimally select their membership. Indeed, data from eight of India's northern states reveal the considerable variation across states in the mean value of the fractionalization index for VOs (Figure 3). VOs are far more heterogeneous in more developed states such as Maharashtra compared to the poorer states of Jharkhand and Chhattisgarh. This, in part, reflects differences in socioeconomic conditions in villages of these states, differences that we subsequently discuss.

This suggests a classic poverty trap: the socio-economic composition of villages in richer states lends itself to the formation of VOs that are better able to promote income growth, while poorer states lag behind despite their implementation of the same program.

Figure 3: Mean VO fractionalization indices, select states (2022 MIS data)

Maharashtra (MAH)

Uttar Pradesh (UP)

West Bengal (WB)

Odisha (ODI)

Madhya Pradesh (MP)

Rajasthan (RAJ)

Chhattisgarh (CHH)

Jharkhand (JH)

0   0.1   0.2   0.3   0.4   0.5

VO fractionalization index

Policy options

As previously noted, India's states differ considerably in average village size and hence in the social composition of villages. Villages in the southern states are approximately twice as large as those in India's north, with the average village size in Andhra Pradesh and Tamil Nadu being 2,144 and 2,454 respectively (2011 Census). Kerala is an outlier, with an average village population of 17,179. These states clearly have more flexibility in combining SHGs to form VOs that can best promote income growth. In contrast, policy options are more limited in states such as Chhattisgarh, Jharkhand and Odisha where the average village population is just 1,002, 850 and 733 respectively. These small village sizes partly reflect the geography of these states, specifically their larger forest areas and greater tribal populations.

However, notwithstanding the dependence of the characteristics of VOs on socioeconomic conditions in the village, there are ways of reducing this dependence and improving the program's effectiveness even in states with relatively small and homogenous villages. We draw on the experiences of different state governments to illustrate this point.

Bihar's model: Broader eligibility

Amongst the northern states, only Bihar has villages of comparable size (2,363) to those in the southern states, allowing discretion in the construction of VOs. The state fully utilizes this advantage by adapting the eligibility rules for the program to ensure wide coverage, targeting coverage of 80% of the households in each village. Consequently, villages include SHGs that differ significantly in the socio-economic status of their members, yielding VOs with similarly varied membership.

Breaking the local connection

The significantly smaller village populations in other northern states implies that successful models of federation in Kerala and Andhra Pradesh will not have the same results in these states. In states such as Chhattisgarh,

Jharkhand and Odisha, small village size provides little discretion in the formation of VOs; their composition will be more closely linked to the characteristics of the village economy. Correspondingly, "local" approaches that work through village-level institutions are unlikely to transform village economies. In these states, these institutions are more likely to be "poor institutions" in terms of their capabilities.

For these states, the solution lies in breaking local ties by embracing options that extend village boundaries. One method of doing so is to form multi-village VOs whose membership spans SHGs in adjoining villages. Such VOs account for approximately 25% of the total in Rajasthan and Odisha; their numbers are low in Chhattisgarh, Madhya Pradesh and Jharkhand. However, existing multi-village VOs are not a consequence of a deliberate policy attempt to shape their social composition. Instead, they emerge in an ad-hoc manner because the process of VO formation within a block happens over time in successive "rounds." If, in any given round, sufficient numbers of un-federated SHGs do not exist in a village, existing SHGs are combined with those in nearby villages to form a multi-village VO. To date, there is little research on the effectiveness of multi-village VOs despite the importance of this topic.

Odisha's model: a less local approach

Another model is to shift the responsibilities of VOs to higher units of the federation, a model followed by the Odisha government. VOs play a relatively minor role in this state, with most of their conventional tasks falling on the Gram Panchayat Level Federation (GPLF) that spans several villages. The GPLF's responsibilities include the capacity development of SHGs; providing banks, insurance companies and business advisory services; and resolving conflicts between and within SHGs.

Aggregating SHGs at the level of the Gram Panchayat rather than the village results in more heterogeneous networks with greater potential for vertical links. We demonstrate this for Jharkhand, comparing fractionalization indices for existing VOs to those that result from aggregating SHGs at the level of the Gram Panchayat. These indices are plotted in figures 4a (VOs) and 4b (Gram Panchayat). Federating at the level of the GP significantly reduces the proportion of institutions which display high homogeneity (fractionalization index less than 0.4, including fully homogeneous VOs with a fractionalization value of 0), shifting the distribution to the right.

**Figure 4a: Existing VO fractionalization, Jharkhand**
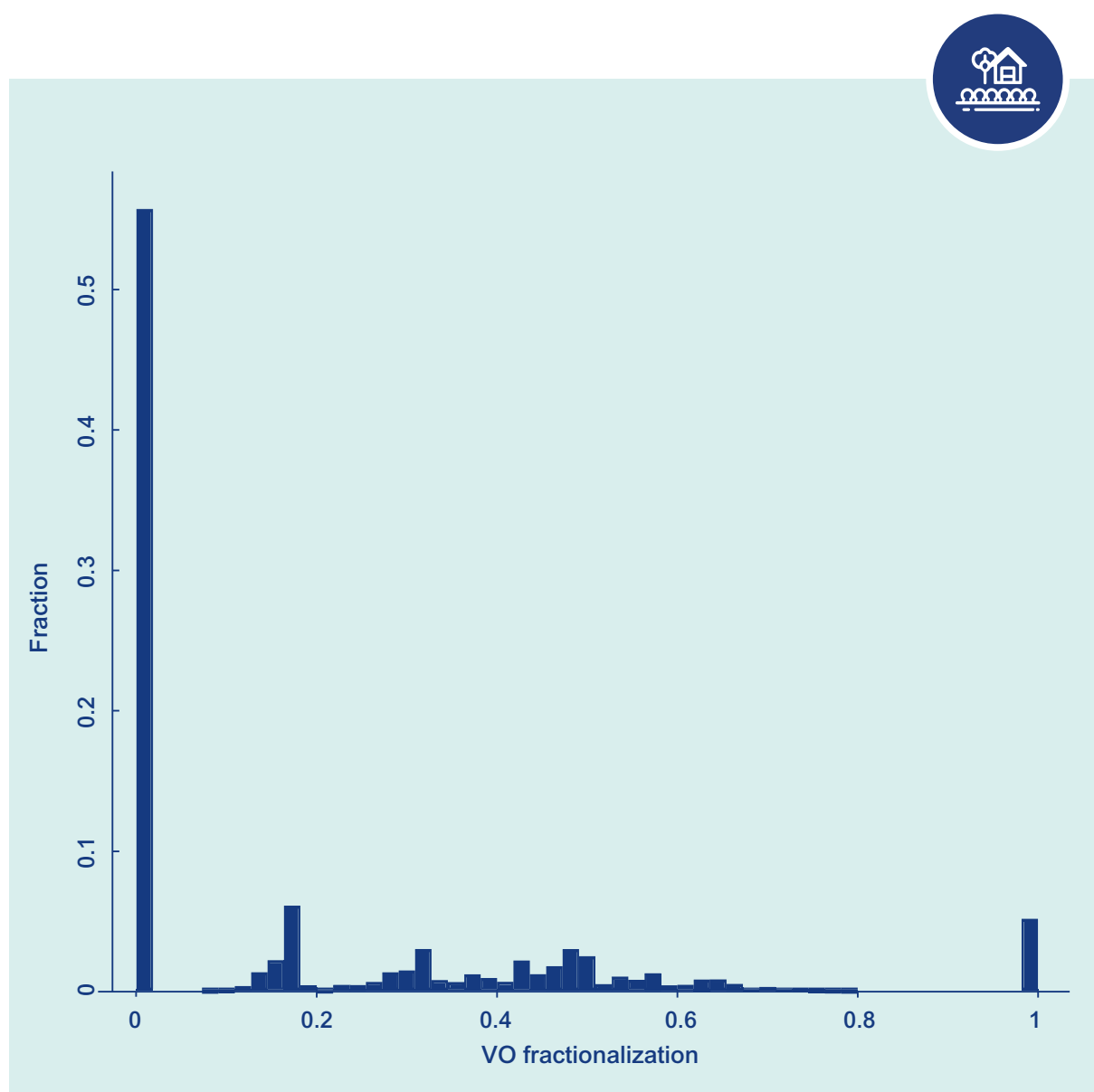
Using external administrators

A final method of reducing the importance of the local economy is to recruit village-level administrators from other clusters, blocks and even states, rather than relying on the membership of local SHGs to fill these positions. This is the model that was used by DAY-NRLM in early years of its implementation. Lacking local capacity at this stage, states relied on "external" community resource persons (eCRPs) from states such as Andhra Pradesh, Kerala and Bihar, which had initiated early versions of the program before its formal launch in 2011. External CRPs were phased out in all states and replaced by "internal" CRPs from within the cluster and frequently from within the village. Delaying the replacement of external CRPs in states where VOs lack capacity may provide an alternative way of breaking the connection between VO capacity and the socio-economic characteristics of the village population.

Figure 4b: Predicted fractionalization with GP level federation, Jharkhand
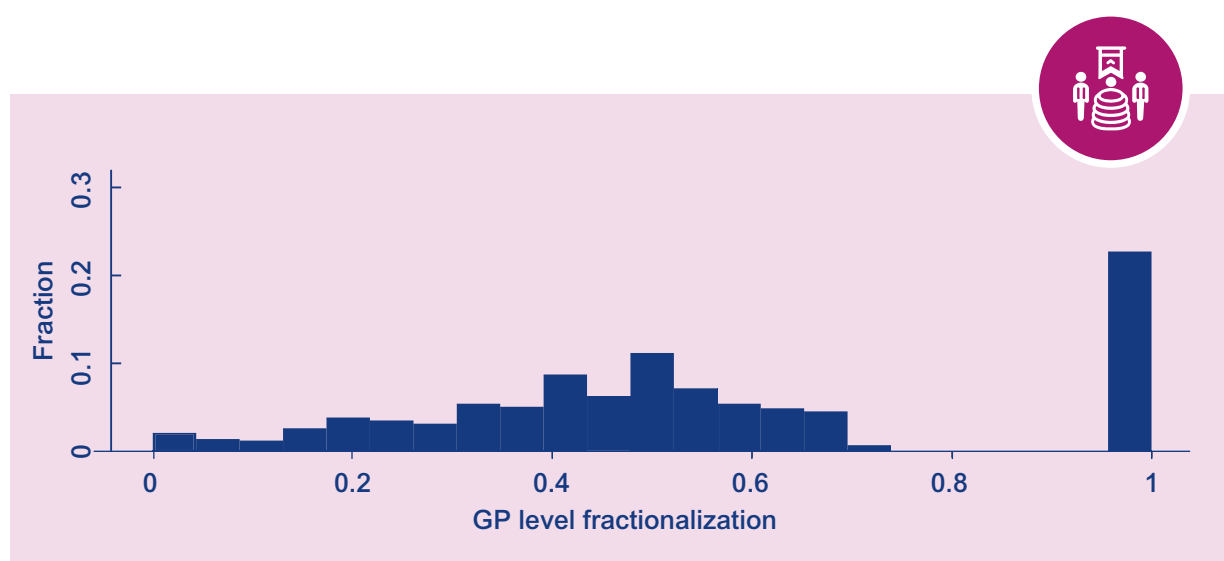
Endnotes

[1] Details are available at https://aajeevika.gov.in

[2] These data do suffer from several shortcomings. For the purpose of this note, the main concern relates to the accuracy of the listed data as a measure of the group's current socio-economic profile. These concerns in turn emanate from delays in updating the MIS data and the lack of information on those SHGs that may no longer be functioning. While it is unlikely that these concerns would significantly alter the broad difference in the socio-economic composition of SHGs relative to VOs in any given state, we note that the results are subject to this assumption.

References

Calvó-Armengol, Antoni and Matthew O. Jackson. 2004. "The Effects of Social Networks on Employment and Inequality." *American Economic Review* 94(3): 426-454.

Chetty, R., Jackson, M.O., Kuchler, T. et al. 2022. "Social capital I: measurement and associations with economic mobility. " *Nature* 608: 108–121.

Granovetter, Mark S. 1973. "The strength of weak ties." *American journal of sociology* 78 (6): 1360-1380.

Greif, Avner and Guido Tabellini. 2017. "The clan and the corporation: Sustaining cooperation in China and Europe." *Journal of Comparative Economics* 45: 1-35.

Jackson, M. O. 2021. Inequality's economic and social roots: the role of social networks and homophily. SSRN https://doi.org/10.2139/ssrn.3795626.

Kochar, Anjini, Bidisha Barooah, Chandan Jain, Geeta Singh, Nagabhushana Closepet, Raghunathan Narayanan, Ritwik Sarkar and Rohan Shah. 2020. *Impact Evaluation of the National Rural Livelihoods Project*. International Initiative for Impact Evaluation.

Kumar, Krishna B. and John G. Matsusaka. 2009. "From families to formal contracts: An approach to development." *Journal of Development Economics* 90: 106-119.

About this note

About the learning note series

International Initiative for Impact Evaluation

vrotti™
LIVELIHOOD IMPACT PARTNERS
Ensuring small producers are 3 times more profitable.

The International Initiative for Impact Evaluation (3ie) develops evidence on how to effectively transform the lives of the poor in low- and middle-income countries. Established in 2008, we offer comprehensive support and a diversity of approaches to achieve development goals by producing, synthesizing and promoting the uptake of impact evaluation evidence. We work closely with governments, foundations, NGOs, development institutions and research organizations to address their decision-making needs. With offices in Washington DC, New Delhi and London and a global network of leading researchers, we offer deep expertise across our extensive menu of evaluation services.

For more information on 3ie's Learning brief, contact info@3ieimpact.org or visit our website.

3ieimpact.org

April 2023

@3ieNews   /3ieimpact   3ieimpact   /company/3ieimpact   /3ievideos