Impacts of National Rural Livelihoods Mission

Results from a quasi-experimental study

New Delhi, 9-Jan-2020
History of Indian Rural Livelihoods

- In early 1980s, several NGOs and development agencies launched SHG-based interventions
- The approach was scaled-up under SGSY but there was lack of focus on institutional building, capacity building and livelihoods
- National Rural Livelihoods Mission was setup with a focus on institutional building and livelihoods activities
- Incorporating lessons from successful large scale projects in Andhra Pradesh and Bihar
World Bank and Rural Livelihoods

• In early to late 2000s, large scale rural livelihoods pilots were launched in five states

• Projects in AP, Bihar, and TN were highly successful

• An `intensive’ approach of focusing on additional resources for mobilization and capacity building was piloted through a World Bank project - NRLP

• The intensive model has already reached scale with 59 million women as members of SHG groups

• This model is now being scaled-up across India
## Key activities of NRLM

<table>
<thead>
<tr>
<th>0-6 Months</th>
<th>Month 1 onwards</th>
<th>Month 6 onwards</th>
<th>Month 12 onwards</th>
<th>Month 24 onwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor households</td>
<td>All SHG groups</td>
<td>Mature SHG groups</td>
<td>Mature SHG groups</td>
<td>Producer Groups</td>
</tr>
<tr>
<td>Social Mobilization &amp; Institution Building</td>
<td>Savings &amp; Inter-loaning</td>
<td>Access to Loans</td>
<td>Social Empowerment</td>
<td>Livelihoods interventions</td>
</tr>
</tbody>
</table>

- **Mobilization of poor and poorest HHs into SHGs**
- **Regular meetings**
- **Basic group management, accounting & financial management training**
- **Book-keeping**

- **Regular savings**
- **Regular inter-loaning of savings**
- **Basic business planning training**
- **Preparation of micro-credit plans**
- **Reduce vulnerability**

- **Successful groups access loans from banks and community grants**
- **Micro-business plan needed to access loans**
- **Higher investments in productive assets**
- **Retiring of high-cost debts**

- **Demand-based livelihoods interventions for women**
- **Higher allocation of intra-household resources for women**
- **Setting up of federations of SHGs.**
- **Stronger social networks**
- **Higher Female Labor Force Participation**

- **Technical livelihoods and micro-entrepreneurship training**
- **Convergence with local government, private sector and social entrepreneurs**
- **More productive assets**
- **Increased Income**
Impact Evaluation of NRLM – Evaluation Questions

• What is the impact of NRLM interventions on intermediate outcomes such as labor force participation, savings, access to loans and migration?

• What is the impact of NRLM interventions on final outcomes including assets, entrepreneurship, and household income?

• What is the extent of distributional impacts of NRLM interventions?

• Should the intensive model be scaled-up?
## Impact Evaluation of NRLM – Study Sample

<table>
<thead>
<tr>
<th></th>
<th>Jharkhand</th>
<th>Madhya Pradesh</th>
<th>Maharashtra</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Districts</td>
<td>4</td>
<td>12</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Blocks</td>
<td>10</td>
<td>27</td>
<td>13</td>
<td>50</td>
</tr>
<tr>
<td>Villages</td>
<td>212</td>
<td>208</td>
<td>307</td>
<td>727</td>
</tr>
<tr>
<td>Self-help Groups</td>
<td>858</td>
<td>550</td>
<td>893</td>
<td>2301</td>
</tr>
<tr>
<td>Households</td>
<td>1260</td>
<td>1237</td>
<td>1819</td>
<td>4316</td>
</tr>
<tr>
<td>SC/ST Households</td>
<td>1051</td>
<td>946</td>
<td>1069</td>
<td>3066</td>
</tr>
</tbody>
</table>
Impact Evaluation of NRLM –Methodology

• Self-selection and program placement biases needed to be addressed

• Non-experimental approach was followed-
  Matching algorithms
  • Selection Model
  • Balancing Tests
  • Robustness Checks

• Quasi-experimental approach: Instrumental Variable Methodology
  • Village level enterprise index on 2012
  • Village average cultivable land net of own
  • Mechanisms, Exclusion restrictions, Placebo, Robustness
Key Indicators of Interest

• **Intermediate outcomes:**
  • Female labor force participation
  • Household savings
  • Access to loans and cost of borrowing
  • Migration trends

• **Final outcomes**
  • Assets ownership
  • Rural entrepreneurship
  • Household income
Results on Female WPR

- The study has looked at Working Participation Rate (WPR) as per the Census:
  - Counts any paid or unpaid work (0-3 months) as marginal worker
  - Any paid or unpaid work for more than 3 months as main worker
- Baseline values of treatment and control villages for WPR were exactly the same at around 49% (un-matched) according to the population census
- Although it is hard to compare census data to sample survey data but here the trends for the general population from the sample:
  - For the whole sample Female WPR has fallen to 43% in 2016
  - In the treatment group the fall is much narrower than the control group
  - After the matching, the Female WPR in treatment group has fallen from 49% to 46%
  - In control group, the Female WPR has fallen from 49% to 40%
Results on Female WPR (contd...)

• Overall, NRLM has been able to bring \textbf{7.7\%} women of productive age in the village back to work in just 2.5 years (or a \textasciitilde 14\% increase when compared to control group)

• Largest gains have been in women participating in high value agriculture, self-employment (farm and non-farm) and salaried jobs

• Large gains in paid livelihoods as well.

• Overall, these trends signify shift away from casual and unpaid work to formal and better paid work
Mechanisms, Placebo, and Robustness

- **Mechanisms**
  - Productive assets specially livestock (5 more livestock and INR 1300 higher livestock income)
  - Access to and use of formal credit (0.77 more loans and 0.84 less unproductive loans)

- **Placebo**
  - No impact on male WPR

- **Threats to identification**
  - Matching and IV
  - Alternative data generating processes
Borrowings, savings & assets

• Overall savings by households
  • Increase of **18.6%** in treatment versus control areas (coming mainly from formal sources)

• Extent and nature of household borrowing
  • **4.9%** reduction in the cost of borrowing (annual interest rate)
  • **24%** more households have an outstanding loan in the treatment areas compared to control areas
  • Average increase in loan size by almost 2 times

• The average loan size for an SHG loan is only Rs. 12,830 and the median is only Rs. 10,000

• Assets status of the households
  • Due to the small loan sizes, there is limited impact on productive asset ownership (except livestock)
• Penetration of MFIs and commercial banks remains to be very low in rural areas but NRLM has made a significant difference (expanding the reach of SHG financial services in treatment areas)
• In intensive areas, combined reach of MFI and commercial banks in the survey areas is less than 3%, compared to NRLM’s reach of 35% HHs having SHG loans
• In non-intensive areas, access to loans and in particular formal loans is very low, with only 6% (vs 36% in treatment areas) having any formal loans
Migration, Entrepreneurship & Income

• Seasonal Migration
  • Large increase in the number of nights that household members from program areas spent outside their village (9.35 versus 4.80)
    • Mostly to take up ‘better employment’ (Rs. 1636 versus Rs. 718)

• Enterprise level outcomes
  • Small but significant increase in intensity (more households have started non-farm businesses)
  • Increased borrowing, treatment households were able to invest around 15 percent more funds in enterprises
Migration, Entrepreneurship & Income (cont...)

- HH Income by various sources
  - Migration, agriculture, livestock, casual wages, non-farm enterprises, fisheries, full-time wage employment, public and private transfers and any other sources was collected.

- For most categories of income and total income, we did not find any significant change in mean of the overall sample

- However, median incomes have gone up significantly
  - And several other sub-populations (quantiles) have also witnessed an income increase due to program participation.
# Distributional Impacts - Quantile Results

<table>
<thead>
<tr>
<th>Percentile</th>
<th>(a) Total Income</th>
<th>(b) Income from migration</th>
<th>(c) Total amount borrowed for outstanding loan</th>
</tr>
</thead>
<tbody>
<tr>
<td>20&lt;sup&gt;th&lt;/sup&gt;</td>
<td>1228.82 (1327.749)</td>
<td>5348.84*** (1656.53)</td>
<td>866.67** (405.85)</td>
</tr>
<tr>
<td>30&lt;sup&gt;th&lt;/sup&gt;</td>
<td>3619.79*** (1334.27)</td>
<td>5000.00*** (1685.18)</td>
<td>803.85 (598.34)</td>
</tr>
<tr>
<td>40&lt;sup&gt;th&lt;/sup&gt;</td>
<td>3730.35** (1541.42)</td>
<td>5973.79*** (2152.47)</td>
<td>0.00 (810.05)</td>
</tr>
<tr>
<td>50&lt;sup&gt;th&lt;/sup&gt;</td>
<td>4715.64*** (1420.70)</td>
<td>4860.74 (2980.30)</td>
<td>-1241.38 (1724.742)</td>
</tr>
<tr>
<td>60&lt;sup&gt;th&lt;/sup&gt;</td>
<td>4168.37*** (1580.20)</td>
<td>7213.87* (4265.21)</td>
<td>-5000** (2207.42)</td>
</tr>
<tr>
<td>75&lt;sup&gt;th&lt;/sup&gt;</td>
<td>5984.59*** (2264.57)</td>
<td>1080.00 (3943.17)</td>
<td>-10033.33*** (2839.16)</td>
</tr>
<tr>
<td>90&lt;sup&gt;th&lt;/sup&gt;</td>
<td>2653.62 (5923.55)</td>
<td>0.0 (451.26)</td>
<td>-15333.33 (12255.81)</td>
</tr>
</tbody>
</table>
Conclusion

- Initial results of NRLM’s intensive model provide a promising solution to reduction in FLFP
- Primary objective of savings and loans have been met
- Small loan size when compared to other such previous state level interventions has resulted in limited impact on assets
- Median incomes have gone up but no significant results on mean income
Way Forward

• More research is needed to better understand the long-term impacts of SHG based programs.
  • Future studies should look at detailed FLFP effects of NRLM

• Should we do rural enterprise surveys to measure and analyze enterprises level impacts of SHG-based rural livelihoods program?

• Do these results suggest that female withdrawal from the workforce is being stemmed by these investments?
Thank you
Overlap Condition

Kernel Density of Households in Treatment Areas

Kernel Density of Households in Control Areas
## First Stage Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Participation in NRLM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simpson's Village Enterprise Index 2012</td>
<td>0.149** (0.06)</td>
</tr>
<tr>
<td>Village Land Net-of-Own</td>
<td>-0.0006*** (0.00)</td>
</tr>
<tr>
<td>Status of Primary Health Sub-Center in Village</td>
<td>0.080 (0.077)</td>
</tr>
<tr>
<td>Status of Veterinary Center/Hospital in Village</td>
<td>0.041 (0.09)</td>
</tr>
<tr>
<td>Status of Primary School in Village</td>
<td>0.26*** (0.07)</td>
</tr>
<tr>
<td>Observations</td>
<td>4250</td>
</tr>
<tr>
<td>Hansen J statistic (Instrument exogeneity)</td>
<td>0.399</td>
</tr>
<tr>
<td>Kleibergen-Paap LM Statistic (Instrument relevance)</td>
<td>38.87***</td>
</tr>
<tr>
<td>Kleibergen-Paap Wald F Statistic (Weak instrument)</td>
<td>19.82***</td>
</tr>
<tr>
<td>Wu-Hausman F Statistic (Exogeneity of regressor)</td>
<td>9.913***</td>
</tr>
</tbody>
</table>
## Second Stage Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Program</th>
<th>Standard Error</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Livelihoods of Female Household Members</td>
<td>0.812***</td>
<td>0.278</td>
<td>4,316</td>
</tr>
<tr>
<td>WPR for Female Household Members with Self-Employed Livelihood Activity</td>
<td>0.165*</td>
<td>0.087</td>
<td>4,250</td>
</tr>
<tr>
<td>WPR for Female Household Members with Self-employed livelihoods Farm</td>
<td>0.184**</td>
<td>0.085</td>
<td>4,250</td>
</tr>
<tr>
<td>WPR for Female Household Members with Casual Livelihoods Farm &amp; Non-farm</td>
<td>0.105**</td>
<td>0.051</td>
<td>4,250</td>
</tr>
<tr>
<td>WPR for Female Household Members with Any Livelihood Activity</td>
<td>0.219**</td>
<td>0.095</td>
<td>4,250</td>
</tr>
<tr>
<td>WPR for Adult (15 to 65 years) Female Household Members with Any Livelihood Activity</td>
<td>0.298***</td>
<td>0.112</td>
<td>4,114</td>
</tr>
<tr>
<td>WPR for Adult (15 to 65 years) Female Household Members with Any Livelihood Activity (Paid Only)</td>
<td>0.280***</td>
<td>0.095</td>
<td>4,114</td>
</tr>
<tr>
<td>Total Number of Livestock Assets Owned Now</td>
<td>5.588*</td>
<td>2.896</td>
<td>4,316</td>
</tr>
<tr>
<td>Number of Members Migrated to Rural Areas for Employment or Search of Employment</td>
<td>0.074*</td>
<td>0.039</td>
<td>4,316</td>
</tr>
<tr>
<td>Households cultivating HVA crop (Non Paddy-Wheat-and-Millet)-(Y/N)</td>
<td>0.219*</td>
<td>0.123</td>
<td>4,316</td>
</tr>
</tbody>
</table>
Measurement of FLFP

- Two primary ways to measure FLFP:
  - **Working Participation Rate as per the Census**: Counts any paid or unpaid work (0-3 months) as a marginal worker and more than 3 months as main worker
  - **LFPR as per NSSO**: Measures labor force participation based on their principal and subsidiary status for paid and unpaid activities
  - **Worker Population Ratio as per NSSO**: Includes all paid and unpaid workers that have worked for at least 30 days in the last 365 days
- **NRLM Household Survey**:
  - Asks if a person done any paid or unpaid in the last 365 days
  - Closest to the Working Participation Rate of Census