

Protecting the Vulnerable:

The Design and Implementation of Effective Safety Nets



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Measuring the Impact of
the Zambia Social Fund:
Practical Lessons for Evaluators

Robert S. Chase
(Johns Hopkins University - SAIS)
and
Lynne Sherburne-Benz
(The World Bank)

Social Funds 2000 Study

◆ Country Coverage

- Armenia
- Bolivia
- Honduras
- Nicaragua
- Peru
- Zambia

◆ Issues: First use of extensive HH-level surveys to assess:

- Targeting
- Benefits
- Sustainability
- Cost Effectiveness

➤ **Process** – Collaborative between WB, SF, local researchers, other regions, national statistical agencies



Zambia Case Study: Central Questions

- ◆ **Targeting:**
 - Did resources reach poor areas and poor people, especially when no sophisticated targeting mechanism?
- ◆ **Household Health and Education Impact:**
 - Do these investments translate into improvements in well-being?
- ◆ **Social Capital Investment:**
 - Does support for community initiatives beget additional community involvement?
- ◆ **Sustainability of Investments:**
 - Are investments well-maintained, adequately equipped and staffed?

Zambia Social Fund Background: Social Recovery Projects

- ◆ Social Recovery Project I launched 1991
- ◆ Social Recovery Project II launched 1995
- ◆ Micro Projects Unit supported ~1400 sub-projects
 - Education 76%
 - Health 14%
 - Water Supply 7%
- ◆ World Bank disbursements for sub-projects: \$45 million
- ◆ Additional financing sources: GRZ, EU, ZERP, FINNIDA, NORAD, SIDA



Household Data

- ◆ Living Conditions Monitoring Survey 1998
 - Follow from 1991, 1995
- ◆ Nationally representative sample (N=13000)
- ◆ Oversampling in 99 social fund communities (N=2950)
 - 80% completed projects
 - 20% approved but not completed
 - Stratified by rural/urban, province and project type
- ◆ Additional questionnaire module
 - Awareness of project
 - Recent community infrastructure changes



Facilities Data

- ◆ “Matching” by geographic area
- ◆ 68 primary schools
- ◆ 30 health posts
- ◆ 59 MPU vs. 39 non-MPU
- ◆ Retrospective questions

Evaluation Approaches: Propensity Score Matching

- ◆ Estimate propensity function

$$\Pr(P_j = 1|Z_j) = \Phi(Z_j \mathbf{b}), \forall j$$

- ◆ Predict community propensity score

$$\hat{\Phi}_j = \Phi(Z_j \hat{\mathbf{b}}), \forall j$$

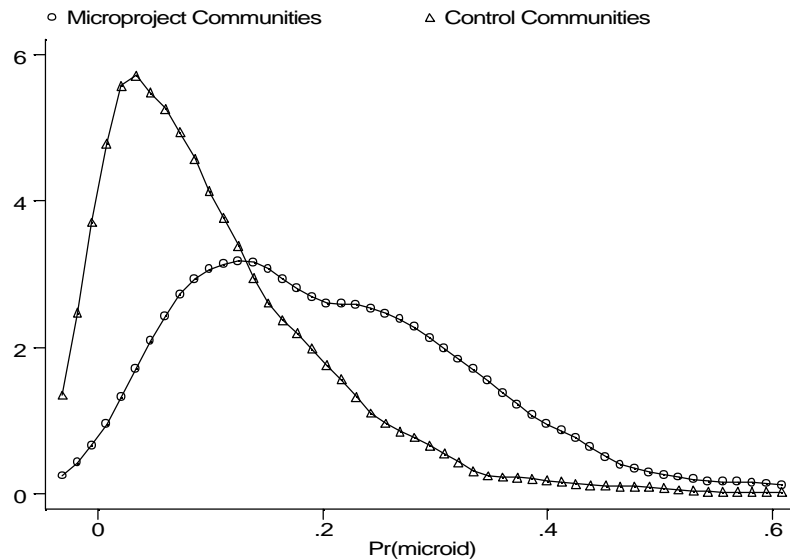
- ◆ Match communities by minimum distance of propensity scores

- ◆ Issues:

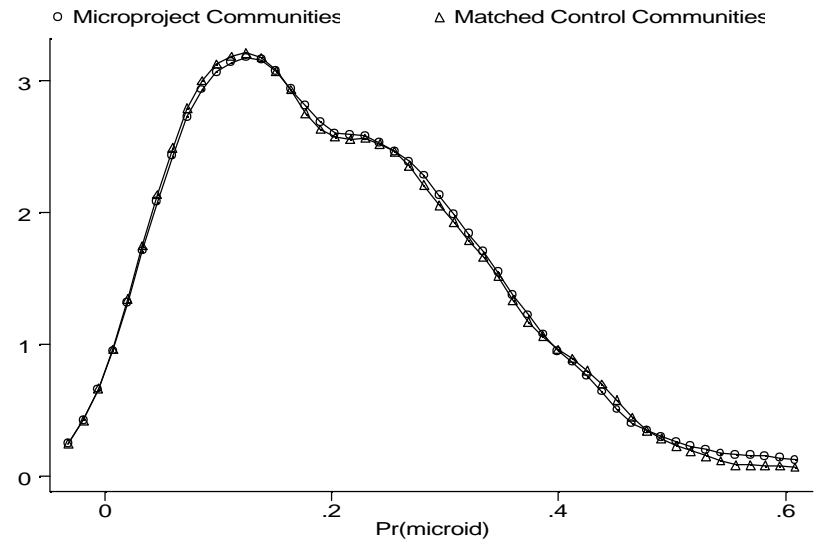
- Propensity Function summarizes project selection
- Variables measured before program began
- Propensity Function includes no variables used for evaluation
- Ease of matching treatment and control?

Community Propensity Score Matching

Pre-Match



Post-Match





Evaluation Approaches: “Pipeline” Matching

- ◆ Communities had a sub-project approved
- ◆ Primary service infrastructure improvements not yet started
- ◆ Issues:
 - What caused implementation delay?: inappropriate comparisons
 - Changes in project approval characteristics over time

Community Self-Targeting?

	Non-MPU	All MPU	Education MPU	Health MPU
Expenditures (Per Adult Equiv.)	62,360	61,307 0.38	61,251 0.30	59,096 0.42
+ Rural	44,662	40,073 1.48	29,954 3.56 **	51,603 0.84
+ Urban	79,681	88,669 1.88 *	93,791 2.38 **	72,270 0.50
- Lusaka	93,540	124,107 4.28 **	125,286 3.91 **	-.-
- Urban Non-Lusaka	75,311	68,018 1.18	72,400 0.37	-.-
Log Expenditures (Per Adult Equiv.)	10.47	-8.1% 3.71 **	-9.0% 3.22 **	-3.1% 0.52
+ Rural	10.08	-11.9% 3.96 **	-29.5% 7.38 **	23.0% 3.01 **
+ Urban	10.85	8.9% 3.28 **	14.6% 4.43 **	-18.4% 2.26 **
- Lusaka	11.07	22.5% 5.25 **	23.4% 4.70 **	-.-
- Urban Non-Lusaka	10.78	-5.0% 1.48	0.6% 0.15	-.-

Education Outputs

	Treatment	Propensity Match Control T-stat	Pipeline Match Control T-stat	Non - Matched T-Stat
Attendance	78%	75% 1.40	71% 2.68 **	71% 4.93 **
+ Urban	86%	82% 1.68 *	78% 1.80 *	82% 2.39 **
+ Rural	70%	67% 1.32	69% 0.27	59% 5.16 **
Attendance in grade	37%	35% 1.24	25% 3.86 **	33% 2.75 **
+ Urban	44%	40% 1.07	33% 1.69 *	39% 1.88 *
+ Rural	30%	26% 1.52	23% 1.91 *	24% 2.98 **
Education Shares	4.6%	3.9% 2.13 **	3.4% 2.43	4.1% 2.07 **
+ Urban	5.1%	4.5% 1.52	3.7% 1.66 *	5.0% 0.28
+ Rural	4.1%	3.2% 1.87 *	3.3% 1.19	3.0% 2.70

Illness Prevalence

Variable	Treatment	Propensity Match	Pipeline Match	Non-Matched
HH member sick	49%	41% 2.87 **	41% 2.63 **	41% 2.77 **
+ Urban	44%	39% 1.04	37% 1.49	38% 1.40
+ Rural	52%	42% 2.54 **	43% 2.15 **	45% 1.95 **
Diarrhea (if sick)	8.6%	14% 1.80 *	14% 1.63 *	14% 1.85 *
+ Urban	7.5%	16% 1.55	12% 0.82	15% 1.44
+ Rural	9.2%	12% 0.81	15% 1.42	13% 1.15
Diarrhea (all households)	4.2%	5.6% 1.01	5.5% 0.92	5.6% 1.10
+ Urban	3.3%	6.1% 1.22	4.2% 0.43	5.5% 1.04
+ Rural	4.7%	5.0% 0.16	6.3% 0.83	5.8% 0.64

Health Facilities Use

Variable	Treatment	Propensity	Pipeline	Non- Match
Went to hospital (if treated)	31%	46% 2.29 **	45% 1.95 **	37% 0.97
+ Urban	48%	55% 0.65	64% 1.47	46% 0.18
+ Rural	16%	36% 2.24 **	32% 1.80 *	25% 1.24
Went health center (if treated)	72%	60% 1.66 *	57% 2.02 **	66% 0.88
+ Urban	59%	51% 0.77	41% 1.60	59% 0.06
+ Rural	82%	72% 1.17	67% 1.67 *	75% 0.89
Went hospital (all hhds)	5.4%	9.1% 2.21 **	8.6% 1.83 *	6.7% 0.88
+ Urban	10.8%	11.2% 0.12	13.2% 0.68	9.0% 0.69
+ Rural	2.4%	6.7% 2.42 **	5.8% 1.99 **	4.2% 1.34
Went health center (all hhs)	13%	11% 1.04	11% 1.17	12% 0.48
+ Urban	13%	10% 1.24	8% 1.79 *	11% 0.66
+ Rural	13%	13% 0.11	12% 0.20	13% 0.02

Social Capital Investment – Education Projects

Additional Activities	Communities where MPU supported school rehab.	All Non-MPU Match Communities	Non-MPU Match Communities That did school Rehab.
Build New Health Post + Urban + Rural	9%	6% 4.09 **	7% 1.53
	7%	5% 1.43	8% 1.08
	12%	6% 3.96 **	6% 2.92 **
Rehabilitate Health Post + Urban + Rural	23%	25% 1.06	40% 8.66 **
	27%	34% 3.13 **	50% 8.60 **
	20%	14% 2.91 **	25% 1.98 **

Zambia Case Study: *Analytic Conclusions*

- ◆ Self – targeting
 - Progressive in rural areas, particularly education
 - Regressive in urban areas
- ◆ Household Effects
 - Increased education demand
 - No effect on illness
 - Increased use of primary facilities
 - More child vaccinations
- ◆ Social Capital Investment
 - Increased rural community involvement
 - Less successful than urban comparators

Methodological Problems to Avoid

- ◆ Inadequate buy-in from implementing agency and World Bank project team
- ◆ Insufficient resources for facilities surveys
 - Larger samples (statistical significance)
 - Randomly sampled
 - Adequate control groups
- ◆ Lack of access to administrative data: essential for establishing baselines

Methodological Successes to Emulate

- ◆ Piggy back on large household collection exercise gives lots of data for analysis
 - Major cost savings on data collection
 - Propensity matching data intensive
 - NB: large data sets can be cumbersome and require analytic expertise
- ◆ Other similar projects being done in country left opportunities for precise comparisons



What do differently?

- ◆ Include evaluation strategy into project design
- ◆ Ensure early on that evaluation effort has operational relevance
- ◆ Seek to incorporate institutional baseline data, facilities data and household data analysis