

THE CONTRIBUTIONS OF INTERNATIONAL NGOS TO SELF-RELIANCE IN SIDAMA NATIONAL REGIONAL STATE OF ETHIOPIA

By:

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ABSTRACT

Self-reliance (SR) denotes communities' capacity to sustainably mobilize and manage resources to meet essential needs. This mixed-methods study assesses the contributions of international non-governmental organizations (INGOs) to SR in Ethiopia's Sidama National Regional State, focusing on interventions by World Vision, Food for the Hungry, and Plan International across Hula, Shebedino, and Dara Otilicho districts. Quantitative data from 533 households (395 beneficiaries; 138 non-beneficiaries) and qualitative evidence from 70 key informant interviews and eight Focus Group Discussions were analyzed using robust statistical and thematic techniques. Results indicate statistically significant SR indicators among beneficiary households ($p < .001$). The result specifically highlights improved income, social participation, resource management, and adaptive capacity. The result found no significant differences across the three INGOs ($p = .339$), suggesting harmonized implementation. Overall, INGOs substantially enhance SR through integrated capacity-building and empowerment strategies, underscoring the need for strengthened community ownership, sustainability planning, and government-INGO coordination.

Keywords: Self-Reliance; International Non-Governmental Organizations; Capacity Building; Empowerment

INTRODUCTION

Self-Reliance (SR) is the process through which people build their abilities to meet essential needs sustainably and independently. In the African context, SR reflects not only economic independence but also empowerment, resilience, and social cohesion (Chambers, 2014; World Bank, 2018, UNDP 2020). The concept of SR has gained renewed attention in development discussions, highlighting the capacity of individuals and communities to sustain livelihoods through their own initiatives and resource use. The goal of social empowerment should be to enable individuals and communities to address social inequalities, participate fully in society, and contribute to the well-being of all community members (Martinez, 2022). SR represents a vital development goal, demonstrating communities' ability to sustain livelihoods through autonomous resource mobilization and management (World Bank, 2018).

In Ethiopia's rural regions, persistent poverty, food insecurity, and institutional constraints necessitate external development support. International Non-Governmental Organizations (INGOs) have emerged as vital partners complementing government efforts through technical assistance, financial resources, and institutional capacity building (Bekele, 2017). Despite visible INGO contributions to service delivery, questions persist regarding their effectiveness in cultivating sustainable SR, communities' capacity to maintain progress without external assistance. Many interventions risk perpetuating dependency despite explicit SR objectives (Mulder, 2023). The subsequent sections present the problem, methods, findings and conclusion.

Statement of the Problem

While INGOs have made visible contributions to poverty reduction and service delivery, the extent to which they have enhanced SR, which is largely seen as the ability of communities to sustain improvements without external assistance, remains underexplored. Many INGO programs emphasize capacity building and SR, yet long-term dependency persists, particularly in rural Ethiopia. This paradox raises critical questions about INGOs' intervention sustainability and their contribution to sustainable development goals.

Existing studies on INGOs in Ethiopia have primarily focused on program effectiveness, financial accountability, or partnership dynamics (Dinku, 2019; Fentahun, 2019). Few have systematically analyzed the structural, cultural and behavioral dimensions of SR at the community level. Moreover, regional variations in INGO performance, arising from differences in geography, institutional support, and socio-economic contexts of beneficiary communities and vulnerable groups are poorly documented.

This study addresses these gaps by empirically assessing INGO contributions to SR in Sidama National Regional State (SNRS). It moves beyond output-based evaluation to examine how INGOs enhance skills, leadership, and institutional capacity, foundational elements for sustainable community empowerment.

Research Objectives

The study aimed to (a) evaluate INGO contributions to community participation and leadership capacity; (b) examine economic SR through livelihood diversification; (c) assess strengthening of local organizations and social capital; (d) identify implementation challenges; and (e) explore intervention sustainability.

Research Questions

The research questions include (a) To what extent have INGOs contributed to improving SR among communities in SNRS? (b) What specific strategies have INGOs implemented to enhance economic and institutional independence? (c) What are the strengths and limitations of local organization and social capital? (d) What are the challenges and limitations of these approaches? (e) How sustainable are the outcomes of INGO interventions after program completion?

Significance of the Study

This study is significant both theoretically and practically. Theoretically, it extends the discourse on SR and empowerment by integrating community capacity building with participatory development frameworks. Practically, it provides empirical insights for policymakers, development practitioners, and INGOs on how to design and sustain interventions that foster long-term community independence. For local governments, the findings can inform policy alignment with INGO programs to strengthen institutional synergy. For INGOs, it highlights the need to integrate exit strategies and local ownership mechanisms into program design. Moreover, the study offers a replicable analytical framework for evaluating INGO contributions to SR across different regions.

Scope and Limitations

The study focuses on the SNRS and three selected districts, Hula, Shebedino, and Dara Otilicho. It examines the activities of three INGOs—WV, FH, and PI. While findings offer valuable insights, the study is limited by its cross-sectional nature, which restricts causal inference regarding long-term outcomes. Nevertheless, triangulation with qualitative data strengthens validity and contextual understanding.

THEORETICAL AND CONCEPTUAL FRAMEWORK

Literature Review and Theoretical Framework

The concept of Self-Reliance (SR) has both theoretical and practical roots in development discourse. It encompasses an *economic dimension*, the capacity to meet essential needs independently and a *psychosocial dimension* that includes confidence, initiative, and autonomy (World Bank, 2018). Within development theory, SR is intertwined with *capacity building*, *empowerment*, and *sustainability* (UNDP, 2020). This study integrates four complementary theoretical perspectives to analyze INGO contributions to SR.

Paradox Theory explains tensions in externally driven localization efforts. Mulder (2023) demonstrated how Ethiopian local actors navigate contradictory legitimacy demands, balancing donor accountability requirements with genuine community ownership. This paradox reveals that localization initiatives often reproduce external control despite intentions to promote autonomy.

Social Capacity Building Theory conceptualizes development as strengthening individuals, organizations, and networks to achieve collective goals (Chaskin, 2001). The Aspen Institute (1996) defines community capacity across three levels, individual (skills, knowledge), organizational (governance, management), and network (collaboration, information sharing). *Sustainable transformation* occurs when communities mobilize internal resources rather than relying solely on external aid.

Empowerment Theory emphasizes agency development and power redistribution (Zimmerman, 2000). It operates across individual (self-efficacy), organizational (inclusive governance), and community (collective action) levels. INGOs facilitate empowerment by providing resources, enabling participation, and supporting *community-driven solutions*, shifting *beneficiaries from aid recipients to development co-creators* (Fawcett et al., 1995).

Self-Reliance Theory emphasizes autonomy, sustainability, and local initiative (Rodney, 1981). It encompasses economic dimensions (income generation, resource management) and psychological dimensions (confidence, motivation) that mutually reinforce each other (Chambers, 2014). INGOs foster SR through participatory processes that build both structural capacity and psychosocial agency. These theories form an integrated capacity–empowerment–sustainability nexus positioning INGOs as facilitators of endogenous development rather than perpetual aid providers.

This integrated framework aligns closely with the *Sustainable Development Goals (SDGs)*, particularly SDG 1 (No Poverty), SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities) (Amponsah et al., 2021; Kara et al., 2021). Empirical evidence from Ethiopia supports this nexus. Microfinance initiatives promoted by INGOs enable households to invest in agriculture, education, and health, reducing poverty and enhancing resilience (Amponsah et al., 2021). Gender-focused interventions—such as Oxfam’s women’s self-help groups—expand access to credit and strengthen decision-making power (Kara et al., 2021; Hufstader, 2024). Furthermore, rural savings and credit cooperatives (RUSACCOs, 2023) demonstrate how collective financial structures institutionalize economic empowerment.

Regarding the role of INGOs in building SR of communities (including institutions), in the literature, two important concepts are addressed, *mind-set* and *attitude*. The interventions regarding SR focuses on balanced targeting of (1) education 2) health, 3) employment, 4) family home production and storage, 5) family finances, and 6) spiritual strength. Access to such services enables poor households to smooth consumption, invest in productive activities, manage risks, and build assets, thereby enhancing resilience and welfare (Hanning, 2010; Kuada, 2019). Examples may include growing their food, making their soap, weaving their fabrics, and sewing their clothing.

Conceptual Framework of the Study

Based on this synthesis, the study conceptualizes INGO contributions to SR as a process involving *inputs*, *processes*, and *outcomes*. *Inputs* include training, financial resources, and institutional capacity support; *processes* focus on participation, leadership development, and partnership; and *outcomes* are measured with enhanced SR through economic independence, governance capacity, and social cohesion. This relationship can be summarized as:

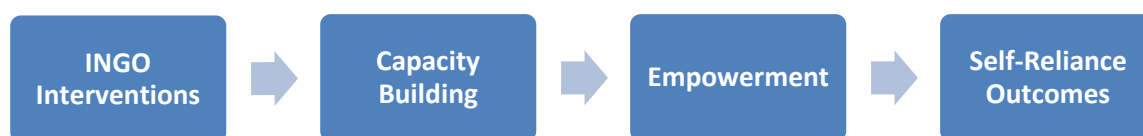


Figure 1: Self-reliance framework (own design)

The model assumes that INGO interventions enhance both *structural capacity* (skills, institutions) and *psychosocial capacity* (confidence, leadership), resulting in improved self-reliance at individual and community levels.

Theoretical Implications

The theoretical implications include, (a) *Redefining Development Roles* that INGOs should act as facilitators of local transformation rather than long-term providers of aid (Connolly & York, 2003). (b) *Sustainability through empowerment*, that capacity building must be linked to empowerment to avoid dependency (Zimmerman, 2000). (c) *Local Ownership* focuses on participation and decision-making by communities are central to sustainable outcomes (UNDP, 2020). (c) *Bridging Human and Institutional Systems* includes strengthening both individuals and organizations, ensuring long-term self-management (Fetterman et al., 2015). (d) *Policy Alignment* meaning INGO efforts should align with national and regional development frameworks to maximize synergy and avoid duplication.

METHODOLOGY

Study Area and Context

Ethiopia is located in the Eastern part of Africa, and this study was conducted in Sidama National Regional State (SNRS), situated in Southeastern Ethiopia. The SNRS is one of Ethiopia's twelve regional states and covers an estimated area of 6,992 square kilometers, and has a population of approximately 4.86 million, of whom about 84% reside in rural areas (SNRS Planning and Development Bureau (2020/21).

The regional capital, Hawassa, hosts more than half of the region's commercial bank branches, resulting in limited financial service outreach to rural districts. This study focused on three rural districts where three INGOs are operating, Food for the Hungry (FH) in Shebedino District, World Vision (WV) in Hula district, and (Plan International (PI)) in Dara Otilicho district. These districts were purposively selected due to their high poverty incidence, chronic food insecurity, and their status as intervention areas for the selected INGOs. These districts represent diverse agro-ecological zones and livelihood patterns dominated by smallholder agriculture. Figure 2 below presents the study areas in the context of Sidama National Regional State.

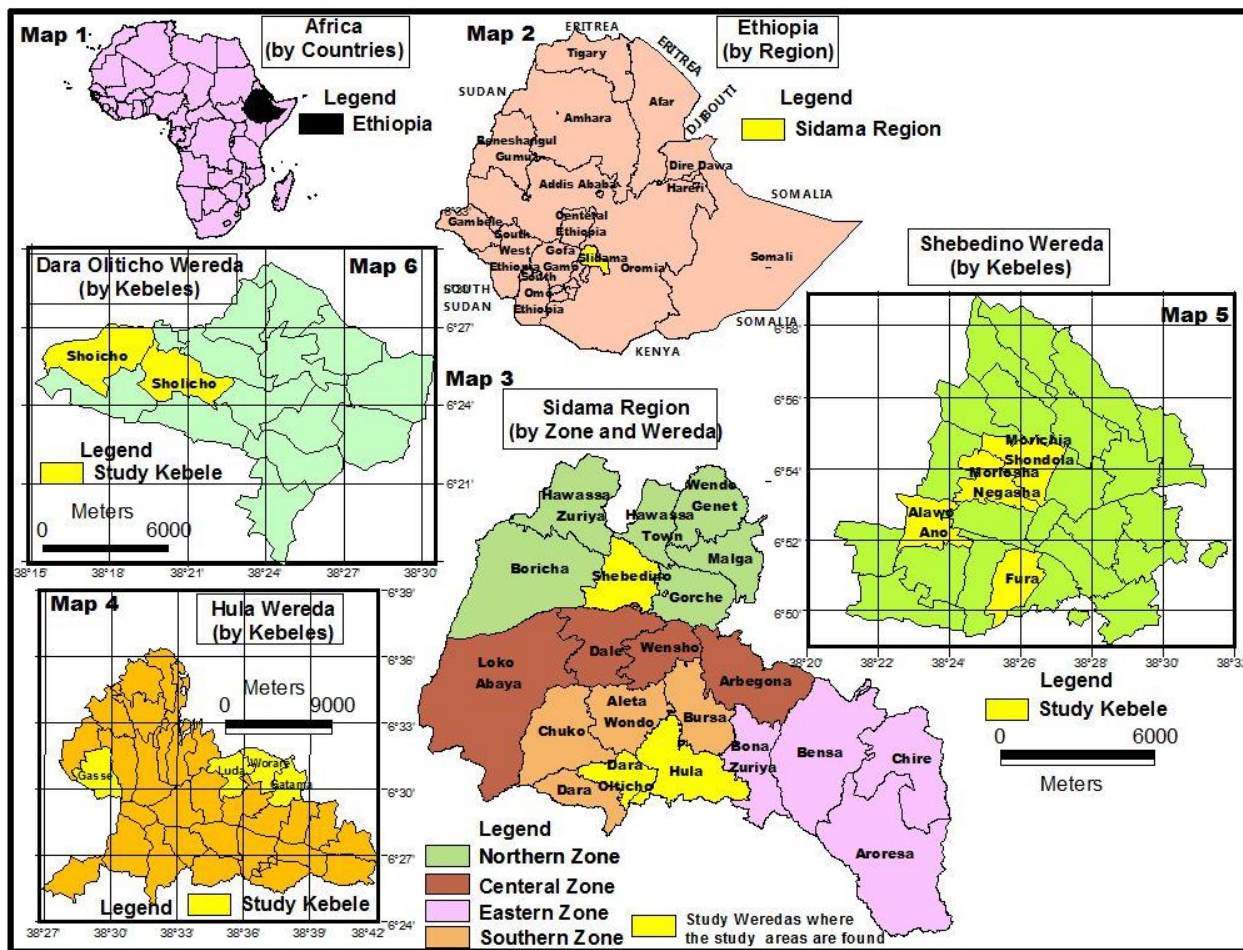


Figure 2: Maps 1–6 illustrate the geographical location of Ethiopia, SNRS, and the selected districts

Source: CSA, 2012. "Wereda" is a local name for "district".

Research Design and Philosophical Orientation

The study adopted a pragmatist research paradigm design (Kaushik & Walsh, 2019) and employed a concurrent mixed-methods design integrated quantitative and qualitative data collection and analysis (Creswell & Plano Clark, 2018). This approach captured both measurable SR impacts and contextual processes shaping outcomes.

Population and Sampling Procedures

The combined rural population of the three districts was 429,693. Of these, 162,306 individuals (37.77%) were beneficiaries of the three INGOs, Food for the Hungry (60.05%), World Vision (26.45%), and Plan International (13.50%) (SNRS Finance Bureau, 2023). The treatment group consisted of households participating in INGO-supported programs, residing in 10 rural kebeles which are smallest administrative units, these kebeles were selected from the districts, such as Hula 4 Kebeles), Shebedino 4 Kebeles, and Dara Otilicho 2 Kebeles.

For the quantitative survey, a sample size formula for known population using Yamane's (1969) formula at a 95% confidence level and a 5% margin of error, yielding a base sample of 400 households.

$$n = \frac{N}{1 + Ne^2}$$

Where:

N = Population size (total beneficiaries)

e = Margin of error = 0.05

This formula yielded a base sample of 400 (however, complete data is 395 because 5 were found incomplete).

To determine the sample size of the control group for the quantitative survey, the study finds no single “accepted size” for the stated group. As a general guideline and rule of thumb, a control group size of 25-30% of the total sample size often strikes a good balance between power and practical consideration (Source: Stack exchange <https://stats.stackexchange.com>). The researcher decided 35% of 395 or 138 individuals and total sample size increased to 533 to account for design effect and ensure sufficient subgroup representation, 26% of 533 or 138. The treatment group consisted of INGO program beneficiaries, while the control group consisted of non-beneficiary households in comparable or same kebeles (the smallest administration unit).

For the qualitative sampling, purposive sampling selected participants with relevant experience.

Key Informant Interviews (KIIs), in total, 70 KIIs (13 Female, 57 Male) were selected by the positions they hold, availability and willingness to participate. Out of 70 KIIs, 12 of them were from Federal level, 10 at the Regional level and 48 at the district and kebele levels. This is in line with KIIs minimum size determination of 30–50 for larger qualitative designs that provide adequate information.

Focused Group Discussion (FGD) size determination, Creswell stated that 6 to 12 is an ideal size per group and 8 is a popular size and insured at least 8. Then eight FGD groups were formed of which four were male female mixed (one from Hula woreda administration staff, one from WV staff, one from Hula community, one from Hula Shebedino districts. Two groups of female-only FDGs, one youth female-only and adult female-only from Shebedino district and one male-only from Shebedino district. This has helped to probe group experiences by gender. The total of 67 FGD participants (33 Female and 34 male) were purposely selected.

Data Collection Methods

Quantitative Survey

Primary quantitative data was collected between July and September 2024 using a structured household questionnaire adapted from the Ethiopian Socio-Economic Survey. The questionnaire covered demographic characteristics; economic self-reliance, social self-reliance, resource management, adaptability and resilience. The questionnaire was translated into Amharic and Sidama, pre-tested in Hula District, and administered in respondents’ preferred language.

Qualitative Data Collection

Semi-structured interview and discussion guides were used for KIIs and FDGs. Topics included perceptions of INGO interventions, barriers to individual, local organization and community to SR. Interviews and discussions were audio-recorded with consent, transcribed verbatim, and translated into English for analysis.

Variables and Measurement

Self-Reliance was operationalized through four indicators measured on five-point Likert scales: (a) economic SR (income generation, savings practices), (b) social SR (institutional participation, leadership roles), (c) resource

management (land, water, financial resources), and (d) adaptability and resilience (response to shocks). Composite indices were created by averaging related items within each dimension (Cronbach's $\alpha > .80$). The questionnaire consisted of both closed and Likert-scale items and was pretested in a non-sample kebele to ensure clarity and reliability. Enumerators fluent in Sidamigna and Amharic languages were trained for three days on research ethics, data handling, and interviewing techniques.

Data Analysis

Quantitative data underwent descriptive and inferential analysis using SPSS v.26. Independent *t*-tests compared SR levels between beneficiary and non-beneficiary groups. One-way ANOVA tested performance differences among INGOs. Propensity score matching (PSM) isolated treatment effects controlling for confounding variables (age, education, household size).

Qualitative data underwent thematic analysis following Braun and Clarke's (2006) six-step approach: familiarization, coding, theme generation, theme review, theme definition, and report production. Triangulation integrated quantitative and qualitative findings during interpretation.

Ethical Considerations

The study adhered to established ethical standards for social science research (Israel & Hay, 2006; Resnik, 2015). The study obtained informed consent from all participants. Confidentiality and anonymity were assured. Permissions were secured from SNRS Bureau of Finance and local government offices overseeing civil society operations. Information drawn from secondary sources was appropriately paraphrased and cited in accordance with APA 7th edition standards.

Reliability and Validity

The study ensured methodological rigor through both quantitative and qualitative reliability measures. For quantitative instruments, internal consistency was assessed using Cronbach's alpha (> 0.8). For qualitative data, credibility was strengthened by triangulating sources and confirming findings through member validation. Transferability was achieved through detailed contextual descriptions, allowing readers to assess the applicability of findings to similar settings. Moreover, methodological consistency was maintained throughout data collection and analysis to minimize researcher bias and ensure accuracy. The level of significance was set at $p \leq 0.05$. Reliability of measurement scales was assessed using *Cronbach's alpha*, with values above 0.80 , indicating strong internal consistency. Validity was ensured through expert review and pilot testing.

Limitations of the Methodology

While the mixed-methods design provided comprehensive insights, several limitations were acknowledged, (a) *Cross-sectional design*, it captured effects at a single point in time and could not measure long-term sustainability; and (b) *Self-reported data*, responses may be subject to social desirability bias, especially regarding perceived empowerment and participation. Despite these limitations, the study's use of triangulation and comparative analysis enhances the reliability and validity of its conclusions.

RESULTS

Sample Characteristics

The sample comprised 533 respondents (74% beneficiaries, 26% controls; 53% female). Beneficiaries demonstrated higher literacy rates (81.27% versus 58.70%) and larger household sizes (66% with 5–8 members versus 42.75% of controls), reflecting INGO targeting strategies (Table 1).

Table 1: Characteristics of the Respondents

Characteristics		Treatment status				Total	
		Treated		Control		No	%
		No	%	No	%		
Sex	Female	209	52.9	74	53.62	283	53.1
	Male	186	47.1	64	46.38	250	46.9
Age	Below 15	7	1.77	0	0	7	1.31
	15-29	76	19.2	59	42.75	135	25.3
	30-64	300	76	75	54.35	375	70.4
	>64	12	3.04	4	2.9	16	3
Marital status	Single	23	5.82	27	19.57	50	9.38
	Married	350	88.6	100	72.46	450	84.4
	Widowed	21	5.32	6	4.4.35	27	5.07
	Divorced	1	0.25	5	3.62	6	1.13
Level of education	No education	74	18.7	57	41.3	131	24.6
	Read & write	94	23.8	0	0	94	17.6
	Primary	167	42.3	42	30.43	209	39.2
	Secondary & Above	60	15.2	39	28.26	99	18.6
Family size	1-4	90	22.3	64	46.38	154	28.9
	5-8	266	66	59	42.75	325	61
	>8	403	11.7	15	10.87	54	10.1

Source: Own computation from the survey

The Main Economic Activities of Respondents

The surveyed group served by INGOs are agriculture (97.7%), supplementary activities include small business (47.85%), and craftsmanship (15.7%). The control group includes agriculture (93.43%), small business (36.5%), and craftsmanship (23.36%) (Table 2).

Table 2. The main economic activities

No	Economic activity		Treatment status				Total	
			Treated		Control			
			No	%	No	%	No	%
1	Agriculture	Yes	378	95.7	128	93.43	506	95.11
		No	17	4.3	9	6.57	26	4.89
2	Small business	Yes	189	47.85	50	36.5	239	44.92
		No	206	52.15	87	63.5	293	55.8
3	Employment in local industry	Yes	5	1.27	10	7.3	15	2.82
		No	390	98.73	127	92.7	517	97.18
4	Craftsmanship	Yes	62	15.7	32	23.36	94	17.67
		No	333	84.3	105	76.64	438	82.33

Source: Own computation from the survey

Economic Self-Reliance

INGO beneficiaries reported significantly stronger economic improvements than controls ($p < .001$). Specifically, 55.58% of beneficiaries reported significant income and employment improvements versus 18.12% of non-beneficiaries. Livelihood diversification was evident, 47.85% of beneficiaries engaged in small businesses compared to 36.50% of controls. Savings group participation (e.g., saving for Transformation initiatives) enabled financial resilience and entrepreneurship (Table 3).

Table 3: Economic Self-Reliance

		Treatment status				Total		Wilcoxon rank-sum test
		Treated		Control				
		No	%	No	%	No	%	
How has the support from INGOs impacted your income and employment opportunities?	Improved significantly	219	55.58	25	18.12	244	45.86	P= 0.0000
	improved somewhat	162	41.12	51	36.96	213	40.04	
	No change	10	2.54	61	44.2	71	13.35	
	Worsened somewhat	2	0.51	0	0	2	0.38	
	Worsened significantly	1	0.25	1	0.75	2	0.38	

Source: Own computation from the survey

Resource Management and Adaptability

Beneficiaries reported more effective resource management (64.21% versus 56.52%; $p = .041$) and superior adaptability to shocks (76.20% versus 28.99%; $p < .001$). Communities demonstrated enhanced capacity to navigate economic shifts and environmental challenges through collective action mechanisms. (Table 4).

Table 4. Resource management and adaptability

		Treatment status				Total		Wilcoxon rank-sum test
		Treated		Control		No	%	
		<u>No</u>	%	<u>No</u>	%			
How effectively is your community managing its local resources (e.g., land, water, financial resources)?	Very effectively	253	64.21	78	56.52	331	62.22	P= 0.0411
	Somewhat effectively	125	31.73	44	31.88	169	31.77	
	Neutral	8	2.03	10	7.25	18	3.38	
	Somewhat ineffectively	8	2.03	5	3.62	13	2.44	
	Very ineffectively	-	-	1	0.72	1	0.19	

Source: Own computation from the survey

Social Self-Reliance

Beneficiaries demonstrated significantly stronger social SR ($p < .001$). Sixty-two point nine-four percent reported strengthened social networks versus 21.74% of controls. Seventy point eight-one percent played very active community roles versus 49.28% of non-beneficiaries. Women's participation in leadership structures increased substantially through INGO-facilitated platforms (Table 5).

Table 5. Social self-reliance

		Treatment status				Total		Wilcoxon rank-sum test
		Treated		Control		No	%	
		<u>No</u>	%	<u>No</u>	%			
How has the support from INGOs impacted your income and employment opportunities?	Strengthened significantly	248	62.94	30	21.74	278	52.26	P= 0.0000
	Strengthened somewhat	133	33.76	60	43.48	193	36.28	
	No change	9	2.28	33	23.91	42	7.89	
	Weakened somewhat	4	1.02	15	10.87	19	3.57	
	Weakened significantly	-	-	-	-	-	-	
	Very active role	279	70.81	68	49.28	347	65.23	P= 0.0000

What role do you play in supporting other community members and addressing common challenges?	Somewhat active role	97	24.62	42	30.43	139	26.13
	Neutral	7	1.78	2	1.45	9	1.69
	Somewhat inactive role	6	1.52	24	17.39	30	5.64
	Very inactive role	5	1.27	2	1.45	7	1.32

Source: Own computation from the survey

Adaptability and Resilience

Seventy-six point two percent of the respondents reported that they have adapted very well and 20.76% reported somewhat well adapted. Not served by INGOs who reported very well are only 28.99% (Table 6).

Table 6. Adaptability and resilience

		Treatment status				Total		Wilcoxon rank-sum test
		Treated		Control		No	%	
		No	%	No	%			
How has your community adapted to changing circumstances or challenges (e.g., economic shifts, environmental changes)?	Adapted very well	301	76.20	40	28.99	341	63.98	P= 0.0000
	Adapted somewhat well	82	20.76	61	44.2	143	26.83	
	Neutral	9	2.28	1	0.72	10	1.88	
	Adapted somewhat poorly	3	0.76	34	24.64	37	0.38	
	Adapted very poorly	-	-	2	1.45	2	0.38	

Source: Own computation from the survey

Self-Reliance Based on Treatment Status

To measure the level of self-reliance, four indicators were used, the strength of social structures and networks, the role these structures play in supporting other community members and addressing common challenges, the effectiveness of the community in managing local resources, and the community's ability to adapt to changing circumstances or challenges. These indicators were combined to create a single index of social self-reliance. Then, a t-test was conducted to determine whether there is a significant difference in self-reliance between beneficiaries and non-beneficiaries of NGOs. The results revealed a statistically significant difference between the two groups. Communities located in areas with NGO presence demonstrated higher levels of self-reliance compared to those in non-NGO areas ($p = 0.000$) (Table 7).

Table 7: Mean level of self-reliance by treatment status

Two-sample t-test with equal variances

Group	Obs	Mean	Std.err.	Std. Dev.	(95% conf. interval)	
0	138	3.748188	.0512006	.6014705	3/646943	3.849434
1	395	4.370253	.023203	.4611506	4.324636	4.41587
Combined	533	4.209193	.024695	.5701288	4.160682	4.257705
Diff		-.6220648	.0495536		-.7194098	-.5247197

diff = mean(0) - mean(1) t = -12.5534
H0: diff = 0 Degrees of freedom =531
Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 1.0000

Source: Own computation from the survey

One-Way Analysis of Variance (ANOVA) Result

Comparative INGO Performance, One-way ANOVA revealed no statistically significant SR differences among the three INGOs ($F = 1.084, p = .339$), suggesting consistent implementation approaches. This homogeneity likely reflects shared national frameworks, donor requirements, and coordination through the Civil Society Council of SNRS (Table 8).

Table 8. ANOVA Results: Differences among INGOs

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.428	2	0.214	1.084	0.339
Within Groups	102.312	519	0.197	—	—
Total	102.740	521	—	—	—

Source: Own computation from the survey

Further ANOVA on difference between three districts

To further more evaluate whether there were differences in these outcomes across the various districts served by different NGOs, an Analysis of Variance (ANOVA) was conducted and the results revealed that, regardless of the NGO involved, there were no significant differences in access to social self-reliance (Table 9).

Table 9: Results from further ANOVA for Self-reliance

	Number of obs =	395	R-squared =	0.0041	
	Root MSE =	.461365	Adj R-squared =	-0.0009	
Source	Partial SS	df	MS F		Prob> F
Model	.3476454	2	.1738227	.82	0.4427
District	.3476454	2	.1738227	.82	0.4427
Residual	83.440329	392	.21285798		
Total	83.787975	394	.21265983		

Source: Own computation, 2025

Propensity Score Matching (PSM) Results

In analyzing the effect of the presence of INGOs on access to financial services, capacity building, and self-reliance propensity score matching was used. It was done using the “pscore” command in STATA to predict a propensity score between the two groups (see Table 10). The propensity score ranges from 0.451 to 0.912 with a mean of 0.741. The propensity score for households served by NGOs fall in the range of 0.451 and 0.912 with a mean of 0.752. While the propensity score for households living not in areas served by NGOs ranges from 0.536 to 0.912 with a mean 0.708 (Table 10).

Table 10: Summary of matching score by groups

Treat	Mean	Sd	Min	Max
Control	0.708	0.105	0.536	0.912
Treatment	0.752	0.077	0.451	0.912
Total	0.741	0.873	0.451	0.912

Source: Own computation, 2025

Checking for overlap and common support

As indicated on Figure 3 (Ps-graph for propensity scores), the common support and overlap region for both control and treatment groups lie between 0.536 and 0.912. Having common support and overlap region tells us the two comparison groups can make matching. Accordingly, 6 households (shown by green color) from the treatment group were dropped from analysis of average treatment effects.

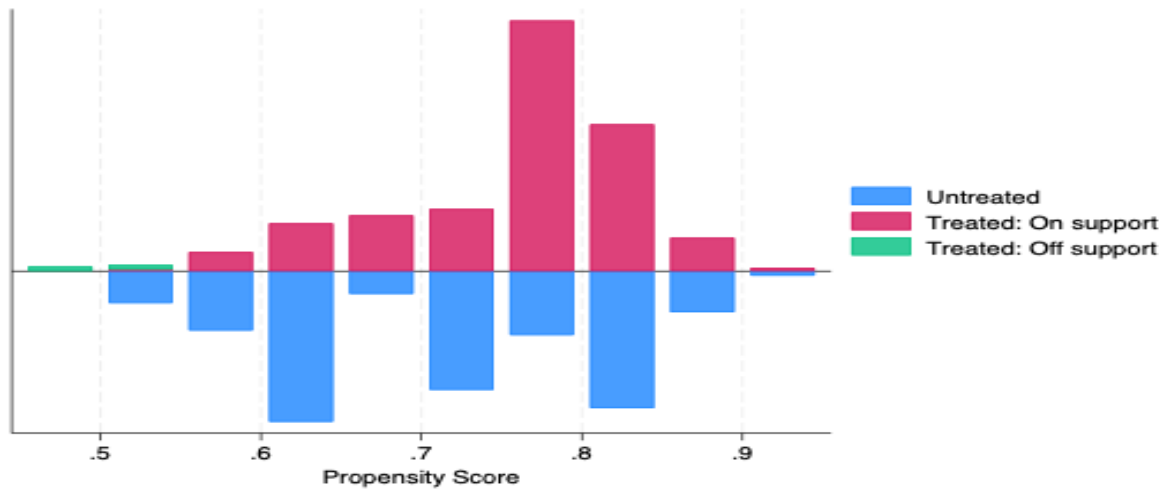


Figure 3: Ps-graph for propensity scores

Source: Own computation, 2025

Matching Algorithm

Once the common support region identified, the next step is searching for the appropriate matching algorithms. The appropriate matching algorithm should be chosen based on three criteria observed in the results: the balancing test, the reduction in standard bias, pseudo-R², and the matched sample size (Rosenbaum & Rubin, 1983). The matching algorithm that best balances the explanatory variables, yields a low pseudo-R² value, reduces standard bias the most, and produces a large matched sample size should be selected. As shown in Table 11, the kernel matching algorithm was found to be the most appropriate for the data in this study.

Table 11: Matching algorithms comparison

No	Matching algorithm	Reduced bias	Psedo-R ²	Matched sample size
1	Nearest Neighboring (1)	6.4	0.006	527
2	Nearest Neighboring (5)	5.4	0.004	527
3	Radius Caliper (0.1)	1.9	0.008	527
4	Kernel Matching	1.2	0.001	533

Source: Own computation, 2025

1. Nearest Neighboring with 1 closest neighbor and common support
2. Nearest Neighboring with 5 closest neighbors and common support
3. Radius Matching with 0.1 caliper and common support
4. Kernel Matching with common support

Matching of Variables Based on Covariates

After selecting the appropriate algorithm, the propensity score and covariates should be assessed using the chosen procedure. As shown in Table 12, there is a standardized bias difference for all covariates before and after matching. The

results indicate that two variables were statistically significant at the 1% significance level before matching, but no variables remained significant after matching.

Table 12: Matching of variables based on covariates

Variable	Matching Status	Treated Mean	Control Mean	% Bias	% Bias Reduction	t-value	p> t	V(T)/V(C)
Pscore	Unmatched	0.7525	0.7084	47.9	–	5.23	0.00	0.55*
	Matched	0.7565	0.7556	1	97.9	0.18	0.86	0.92
Sex	Unmatched	1.4709	1.4638	1.4	–	0.14	0.89	1
	Matched	1.4704	1.4834	-2.6	-82.8	-0.36	0.72	1
Age	Unmatched	2.8025	2.6014	38.2	–	3.94	0.00	0.85
	Matched	2.8303	2.8351	-0.9	97.6	-0.15	0.88	1.07
Family Size	Unmatched	1.8709	1.6449	36.6	–	3.88	0.00	0.69*
	Matched	1.8843	1.8757	1.4	96.2	0.22	0.83	0.95
Education	Unmatched	2.5392	2.4565	7.3	–	0.79	0.43	0.56*
	Matched	2.5347	2.538	-0.3	96	-0.04	0.97	0.53*

Source: Own computation, 2025

Matching Quality Indicators

Additionally, the results showed that after matching, the pseudo R² value decreased from 0.068 to 0.008, the likelihood ratio dropped from 41.56 to 8.29, and the chi-square test became insignificant (see Table 13). Therefore, these findings indicate that the treated and control groups had similar distributions of covariates after matching. This similarity allows for a more accurate evaluation of the impact of NGO presence, as beneficiaries and non-beneficiaries were comparable in their observable pre-intervention characteristics (Table 13).

Table 13. Ps-test result summary

Sample	Ps R2	LR chi2	p>chi2	Mean Bias	Med Bias	B	R	%Var
Unmatched	0.068	41.56	0.000	26.3	36.6	63.6*	0.50*	60
Matched	0.001	1.16	0.949	1.2	1.0	7.7	1.19	20

Source: Own computation, 2025

The Impact of Existence of NGOs on Self-Reliance

The estimated results of the Average Treatment Effect on the Treated (ATT) for the outcome variable self-reliance, obtained using Propensity Score Matching (PSM) techniques—namely Nearest Neighbor Matching (NNM), Radius Caliper Matching (RM), and Kernel Matching (KM) with various measurements under the common support assumption—revealed that the presence of NGOs had a positive and significant impact on capacity building. Using Kernel Matching with a bandwidth of 0.1 and common support, selected based on matching quality indicators, the impact of NGOs on self-reliance was estimated as presented in Table 14.

Average Treatment on Treated (ATT)

Below, the impact of INGO presence on SR is discussed. These effects were estimated using the average treatment effect on the treated (ATT) with the selected algorithm: Kernel matching with a bandwidth of 0.1 and common support.

Propensity Score Matching Validation

After matching, beneficiary households maintained significantly higher SR scores (mean = 4.37) than controls (mean = 3.75), with a treatment effect of 0.62 ($p < .001$). Sensitivity analysis using Rosenbaum bounds ($\gamma = 3$) confirmed result robustness against unobserved confounders (Figure 3).

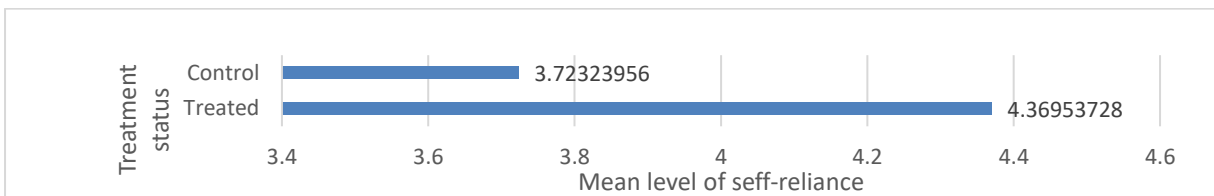


Figure 4: ATT of self-reliance of treated and control groups.

Source: Own computation, 2025

Sensitivity Analysis

The validity of matching estimators for impact evaluation depends on the primary assumption which is the Conditional Independence Assumption (CIA) also known as un-confoundedness (Rosenbaum and Rubin, 1983). CIA states that the treatment assignment conditional on observed Covariates (X) is independent of the post intervention outcome. This assumption implies that the counterfactual outcome in the treated group is the same as the observed outcomes for the control group. The CIA assumption requires that the set of explanatory variables/Covariates (X) should include all the variables that together influence the outcome with and without treatment. The need of doing sensitivity analysis is to made diagnosis on how robust the estimated ATT are with respect to possible deviations from these conditions. This is because any unobservable factor affecting treatment leads to biased ATT. Thus, the sensitivity of matching estimates to unobserved heterogeneity was tested using the Rosenbaum bounds method (r-bound) in STATA18.

Accordingly, the Rosenbaum bound (r-bounds) sensitivity analysis results by kernel matching band width (0.1) matching algorithm estimator showed that the impacts of existence of NGOs on access to financial services, capacity building, and self-reliance is not sensitive, even up to $\gamma = 3$ which is a very high value. It is significant at 1 % significance level (see Table 14). Therefore, we can conclude that the average treatment effects estimated are highly robust (insensitive) to the presence of unobserved characteristics.

Table 14: Sensitivity analysis test for the estimated ATT (Rosenbaum bounds to outcome variables)

Gamma	sig+	sig-	t-hat+	t-hat-	CI+	CI-
1	0	0	.752078	.752078	.7418	.760386
1.2	0	0	.743008	.760386	.731499	.769287
1.4	0	0	.734478	.765654	.72311	.77249
1.6	0	0	.727436	.771293	.71687	.776316
1.8	0	0	.720528	.77273	.709665	.781036
2	0	0	.715907	.777071	.705241	.783637
2.2	0	0	.711777	.780195	.702038	.786598
2.4	0	0	.70625	.783156	.698155	.787441
2.6	0	0	.705241	.784239	.694005	.791935
2.8	0	0	.702038	.787137	.693219	.792824
3	0	0	.698155	.787441	.690289	.795146

* gamma - log odds of differential assignment due to unobserved factors

sig+ - upper bound significance level

sig- - lower bound significance level

t-hat+ - upper bound Hodges-Lehmann point estimate

t-hat- - lower bound Hodges-Lehmann point estimate

CI+ - upper bound confidence interval (a= .95)

CI- - lower bound confidence interval (a= .95)

Own computation, 2025

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Discussion

Summary of Findings

- INGOs significantly enhanced SR in SNRS through training, leadership development, and livelihood diversification.
- Economic and institutional indicators showed measurable improvement in intervention areas compared to non-intervention areas.
- No significant variation was found among the three INGOs, indicating consistent and effective approaches.
- Challenges such as dependency, limited coordination, and contextual barriers persist but can be mitigated through integrated planning and community ownership.

Qualitative Corroboration

- Thematic analysis confirmed quantitative findings.

Key informants highlighted enhanced local leadership capacity:

"Before INGOs, decisions came from elders alone. Now youth and women co-lead development committees" (District official, Shebedino). Focus group participants emphasized transformed mindsets: "We no longer wait for handouts. We identify problems and solve them ourselves" (Female beneficiary, Hula).

Institutional sustainability was evident that community cooperatives maintained functionality post-project completion through member ownership and transparent governance.

Overall, both quantitative and qualitative findings confirm that INGOs have played a transformative role in promoting sustainable SR in SNRS.

Conclusion

This study demonstrates that INGOs significantly enhance Self-Reliance in rural Ethiopia through integrated interventions targeting capacity building, income enhancement, and empowerment of program beneficiaries. The study proves statistically significant results measured on specific indicators of SR, which in turn demonstrates differences between beneficiary and non-beneficiary communities sampled in this research for ($p < .001$) validating INGOs' transformative potential given interventions emphasize peculiar challenges of beneficiaries that draws on participation, empowerment, and capacity building, all of which are geared to SR than service delivery alone.

One-Way Analysis of Variance (ANOVA) Result on Comparative INGO Performance, revealed no statistically significant SR differences among the three INGOs ($F = 1.084$, $p = .339$), suggesting consistent implementation approaches. This homogeneity likely reflects shared national frameworks, the existence of effective coordination within Ethiopia's regulatory framework, donor requirements, and coordination through the Civil Society Council of SNRS (Table 8). The Civil Society Council of SNRS facilitates harmonized approaches, preventing duplication and ensuring complementary interventions. This finding challenges assumptions that organizational differences necessarily produce divergent outcomes, suggesting contextual factors and coordination mechanisms may outweigh organizational characteristics.

INGO success stems from addressing both structural and psychosocial dimensions of SR in the study districts. Economic interventions (livelihood diversification, savings groups) built material foundations while participatory governance structures cultivated agency and collective efficacy. This dual approach aligns with Self-Reliance Theory's emphasis on mutually reinforcing economic and psychological dimensions (Chambers, 2014).

The study documents some challenges that are persisting with INGOs interventions. Some communities exhibited residual dependency attitudes despite SR gains. Geographic barriers limited service access in remote areas. Cultural norms occasionally constrained women's full participation despite targeted inclusion efforts. These limitations underscore that SR development remains context-dependent and non-linear.

The findings extend Paradox Theory by demonstrating that genuine localization requires deliberate power-sharing, not merely participatory rhetoric. INGOs that helped decision-making authority to be enhanced within community structures achieved stronger sustainability outcomes. This insight challenges externally driven localization models that maintain donor control despite participatory facades (Mulder, 2023).

INGOs have made significant contributions to SR in SNRS through participatory capacity building, economic empowerment, and institutional strengthening. Communities demonstrated measurable improvements across economic, social, resource management, and adaptability dimensions. Critically, SR gains reflected transformed mindsets—from dependence to self-initiated problem-solving.

Recommendation

Policy Recommendations based on both qualitative and quantitative results, and literature review, there is a need to enhance:

- Institutionalize coordination mechanisms, to strengthen the Regional Coordination Platform to synchronize INGO programs with local development priorities.
- Embed SR in regional planning, to integrate SR as a crosscutting objective in SNRS's Growth and Transformation Plan.
- Promote multi-sectoral partnerships to foster collaboration among INGOs, government bureaus, and private enterprises to leverage complementary resources.

Programmatic Recommendations

- Design robust exit strategies; establish graduation frameworks that gradually transfer leadership and resources to community structures while maintaining technical mentorship.
- Deepen inclusion; prioritize women's entrepreneurship and youth-led innovation through targeted capacity building and resource access.
- Strengthen local institutions; support legal registration, governance training, and financial sustainability of community cooperatives and committees.

Suggestions for Future Research

- Conduct longitudinal studies; track communities beyond project closure to assess SR sustainability.
- Undertake comparative analyses; examine SR outcomes across Ethiopia's diverse regions to identify contextual success factors.
- Refine theoretical integration; further develop frameworks combining Paradox, Empowerment, Capacity Building, and Self-Reliance theories with empirical validation.
- INGOs function most effectively as catalysts, not perpetual providers, of development. Their ultimate contribution lies not in sustained service delivery but in cultivating community capacity for autonomous progress. Ethiopia's development trajectory will benefit from strategic INGO-government-community partnerships that prioritize sustainable SR over short-term outputs.

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