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Who is poor?

Reconciling the Official Consumption Definition and Communities' Perception of Poverty in Tanzania

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Abstract

This paper evaluates the three key steps of household targeting in Tanzania's large-scale and national Productive Social Safety Net (PSSN) social protection program; geographical selection, community selection, and PMT (Proxy Means Test) score selection. The analysis reveals that all three stages positively contribute to identifying consumption-poor households. It also highlights that communities perceive other households than the consumption-poor as poorest. Introducing adjustments for equivalence and economies of scale for the consumption-poor, particularly the OECD square-root scale, substantially reconciles the differences between community-identified poor households and consumption-poor households. The overlap between the two groups increases by 50 percent when using the OECD square-root scale and by 62 percent with an even larger correction for economies of scale combined with equivalence scales that assign lower weights to children and higher weights to the elderly. Households identified as poor by both the community selection process and the OECD square-root scale compared to the current consumption-poor definition are characterized by; they possess significantly fewer durable assets, they have fewer household members in employment, they are more likely to be female-headed, and they have a higher proportion of elderly members and a lower proportion of children. All these aspects are usually associated with the perception of being poor, indicating that the square-root scale might be better capturing the truly poor.

1 Introduction

This paper examines how community-defined poverty, as identified by communities nominating households for a social protection program, compares to the consumption-based definition of poverty. It identifies significant differences in the characteristics of households considered poor by communities versus those identified as poor based on consumption levels. The paper explores whether these differences can be explained by the lack of adjustments for economies of scale and equivalence scales in the consumption-based poverty definition.

It is well established that household and individual needs—and their ability to meet those needs—are not necessarily a linear function of total consumption, as assumed in per capita consumption measures of poverty. The adequacy of consumption in meeting needs depends on various factors, including age, gender, disability, and other household-specific characteristics. Equivalence scales are commonly used to account for these differences in needs. Additionally, many resources are shared among family members with little loss to any individual. For example, the cost of a new roof is the same regardless of the number of people living under it, as long as the roof size remains unchanged. This concept is captured by the use of economies of scale.

The application of equivalence scales and economies of scale is essential for accurately defining poverty profiles. While this is widely recognized, there are no universally accepted methods for determining these adjustments. To the authors' knowledge, no Sub-Saharan African country currently incorporates economies of scale into its poverty definition. Research has shown that using a per capita definition of poverty results in higher poverty rates among children, whereas using equivalence scales that assign lower needs to children than adults mitigates this effect ([8], [12], [11], [15]). Despite this, most Sub-Saharan African countries rely on per capita consumption for poverty measurement, and this is the method used for global poverty figures by the World Bank [10]. In contrast, the OECD employs several different scales, including the square-root scale, which corrects for economies of scale but not equivalence scales [10]. A recent study highlights that applying the square-root scale to the World Bank's global poverty data significantly alters the identification of poor households compared to the current practice of using the per capita measure [10].

In a review of community-based poverty targeting, Browne [9] finds substantial evidence that community participation improves targeting accuracy. Further, the study also suggests that attempts to externally verify the accuracy of community targeting, such as using a proxy means test, may undermine the benefits of local knowledge rather than enhancing the performance of social protection programs. Olken [14] finds that community-revealed equivalence scales closely align with those based on per capita consumption, suggesting that both community targeting and consumption-based measures tend to select similar households as poor. Alatas et al [2] come to a different conclusion in their experiment where they target with community selection, PMT and a hybrid. They find that communities appear to apply a different concept of poverty and that community targeting results in higher satisfaction. Experimenting with different types of community targeting, Abay et al. [1] contribute with interesting results on community-based targeting by altering the opportunities and constraints community leaders have to decide under.

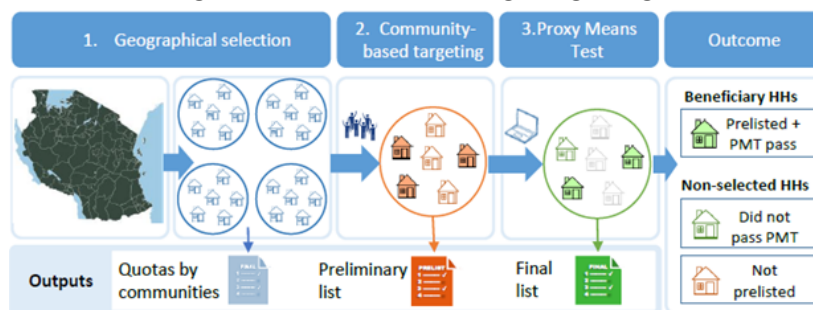
The paper is organized as follows: Section 2 describes how the social protection pro-

gram combines geographical, community-based, and PMT-based targeting for poverty identification. Section 3 outlines the data sources and their characteristics. Section 4 presents the analytical results, while Section 5 discusses the implications of these findings and explores the potential reasons and implications from the results.

2 The Productive Social Safety Net’s Household Targeting

Tanzania has a large national social protection program named the Productive Social Safety Net (PSSN) program, which is implemented by the Tanzania Social Action Fund (TASAF). The program’s objective is *”To improve access to income-earning opportunities and socio-economic services for targeted poor households while enhancing and protecting the human capital of their children”*. Like many social protection programs in Africa , the PSSN program relies on a 3-step targeting approach (Figure 1). Stage 1 is a Geographical stage where poorer villages are selected, Stage 2 the Community stage where communities select poor households within the community, and then finally Stage 3 the PMT Score where households are selected based on the PMT Score - a proxy for consumption poverty. The latter is in part implemented to guard against fraud and to use a more objective measure of poverty that is also consistent across the entire country.

Figure 1: The Three Targeting Stages



Source: World Bank [7]

Details on the selection stages:

- Stage 1: Geographical Selection. Villages are selected based on estimated consumption poverty levels based on a poverty map [6], with 2/3 of villages within the designated Project Area of Authority (PAA) being visited and participating in Stage 2 [16].
- Stage 2: Community Selection. In geographical selected communities, communities were asked to select the poorest households considering the following selection criteria: 1. Households without a reliable source of income, food insecure, and/or living in precarious shelter. 2. Households with children that are not enrolled, not attending, or left the school caused by their condition. 3. Households with children below 5 years old but not attending a clinic/health facility[16].

- Stage 3: PMT Score Selection. Among households identified by the communities in Stage 2, households are further evaluated for entry into the program based on a PMT score. A PMT score is a proxy estimate of consumption poverty. The PMT model for Tanzania is documented in TASAF [17].

3 Data

The analysis relies on two datasets:

1. **TASAF Administrative Data.** This dataset includes information collected from community-selected poor households which would receive a PMT score in Stage 3. Data collection occurred in two rounds. In round 1 (2012–2015) 1,359,139 households were interviewed, of which 65 percent enrolled in the program. In round 2 (2021) 602,997 households were interviewed, of which 82 percent enrolled. A total of 1,375,564 households enrolled across both rounds out of 1,962,136 interviewed (equivalent to a 70 percent enrollment rate). For the analysis only round 2 of data collection is available. Further, households in Zanzibar (27,684) are excluded from the analysis as the Household Budget Survey does not cover Zanzibar. Hence, the final dataset for this analysis consists of 574,173 households identified by communities as poor during the second round.
2. **Household Budget Survey (HBS) 2017–18.** This multipurpose household survey includes a consumption module used for poverty assessment. The sample includes 9,465 households and covers mainland Tanzania. The survey is publicly available and documentation can be accessed on the National Bureau of Statistics website (www.nbs.go.tz).

3.1 Combining Data Through Matching

To evaluate households selected at each of the three selection stages and their consumption poverty level, we need to combine the administrative data with the household survey data. To achieve this, we identify, through matching, the households in the 2017-18 Household Budget Survey that are most similar to the households selected by the communities in the TASAF Administrative Data.

To implement the matching, we note that there are 1.934.452 households identified by communities as poor for the PSSN program (excluding Zanzibar), which is equivalent to 17 percent of households in the country being interviewed and 11.9 percent of households enrolling in the program when divided by the 11.4 million households in Tanzania (outside Zanzibar) according the household survey.

The matching uses propensity score matching as this matching method arguable reduces biases when used in large samples [5]. For implementation the command `pscore` in stata was used to generate a score reflecting how similar community-selected households are to any household in the survey. Table 4 in the appendix shows observable characteristics for the full household survey population, the survey households identified as community selected through matching, as well as the actual community selected households based in the TASAF Administrative Data. The guidelines used by communities to select households as listed in Section 2 should be used for the matching.

However, the guidelines are compounded and not directly related to data collected in the TASAF Administrative data nor the HBS Survey. We proxy the guidelines in the data as follows:

- “Households without a reliable source of income, food insecure, and/or living in precarious shelter”, is proxied by a)the number of adults in the household with waged employment or being an employer, b)households self-reporting to be food insecure, and c)households that do not have improved roof, floor or walls.
- “Households with children that are not enrolled, not attending, or left the school caused by their condition” is proxied by children between 6 and 12 that are not enrolled in school.

A fitting proxy for “Households with children below 5 years old but not attending a clinic/health facility” was not found in the HBS Survey and this aspect is not included in matching. To increase the quality of the matching a number of other variables are also used, including a range of assets and demographics, like household size and composition. Table 4 in the Appendix shows the variable means for households in the HBS survey, the matched households and the TASAF Administrative Data.

The remainder of the analysis relies on the household survey data with community selected households being identified by this matching.

4 Analysis and Results

Through-out the analysis we will be referring to the following key groups of households:

- **Consumption Poor:** These are the current poor households according to consumption, which is also the official measure of poverty in Tanzania. Further details on the definition in Section (4.3).
- **Geographical Poor:** These are the households living in villages identified as poor villages at the first stage of the targeting for the PSSN program, as outlined in Section 2.
- **Community Poor:** These are the households identified as the poor by the community as part of the PSSN selection process as outlined in Section 2, but before the final stage of selection using the PMT Score.
- **PSSN Selected:** These are the households entering the PSSN program based on the PMT Score for the community identified households, as outlined in Section 2.
- **Equivalent and Economy Scale Poor (EES poor):** These are the poor based on consumption, when consumption is corrected for equivalent scales and economy of scale within each household.

Analysis and results are presented in three sections. Section 4.1 analyses the household characteristics after each of the three stages of selection; geographical, community and PMT Score. This reveals notably differences in the Consumption and Community Poor. Section 4.2 asks if this divergence is due to the guidelines and selection criteria

provided to communities or something else. Analysis shows that the provided selection criteria are positively correlated with consumption poverty, though the selection criteria only explain a small share of community selection indicating that communities also express a clear opinion about who are the poorest beyond the guidance provided. Section 4.3 takes this information one step further and asks if the lack of correction for individual needs and economy of scale in consumption poverty might be the reason for the divergence in those seen as poor between the communities and the consumption poverty definition. The analysis shows that correction for economy of scale more than doubles the congruence between the Community Poor and the Consumption Poor, indicating that this aspect is indeed key.

4.1 Decomposing the Selection of Households for the PSSN Program

4.1.1 Method

Using the household survey, we can evaluate which households enter the PSSN program. To evaluate this, we need to identify the households that qualify in each of the three selection stages. Households eligible for the program at each stage is identified as follows:

- **Stage 1: Geographical Selection.** In the survey households are asked if they are currently participating in the PSSN program. A village that has at least one household participating in the program is considered a PSSN geographical selected village ¹.
- **Stage 2: Community Selection.** The matching as explained in Section 3.1 is used to identify the 17 percent of households in the survey that are most similar to the households identified by the communities in the TASAF Administrative Data ². To maximize the power of the matching the results in Stage 2 identification of households is not conditional on Stage 1.
- **Stage 3: PMT Score Selection.** The PMT model is replicated in the survey data, generating a PMT Score for each household. Reflecting the TASAF Administrative data, where 70 percent of the households identified by the communities were enrolled in the program, the 70 percent of households with the lowest PMT Scores are identified as PSSN Selected.

To evaluate the types of households selected at each of the stages, we evaluate the following characteristics: 1) proxies for the selection criteria given to the community, 2) an asset index ³, 3) demographics, including households size, age and gender of the household head, the dependency ratio, and the age distribution within households.

¹Recall this is a sample, so there are likely to be more households in the same location, though obviously they could also have moved

²Using the households that are actually enrolled in the program, which are used to identify villages in Stage 1, would not be correct as this would confound the characteristics of the household when they enrolled and the impact of the program as they are observed post support from the program

³The asset index is the first principal of a principal component analysis that has been standardized to a scale of 1 to 100. Household ownership of the following durable assets are included: tv, mobilephone,

4.1.2 Results

Table 1: Selection Stages 1, 2 and 3

Column	(1)	(2)	(3)	(4)	(5)
	All HHs	Stage 1	Stage 2	Stage 3	Cons poor
Share food insecure	0.11	0.11	0.17	0.17	0.19
Share not attending school	0.02	0.02	0.05	0.06	0.04
Share precarious shelter	0.02	0.02	0.03	0.03	0.03
Number of income sources	0.98	0.95	0.39	0.40	0.96
Asset index	8.20	5.94	1.85	1.60	2.96
Male HH head	0.72	0.71	0.45	0.51	0.74
Age household head	46.5	47.4	55.4	53.2	48.2
HH size	4.64	4.83	3.67	4.28	6.38
Dependency ratio	1.03	1.12	1.34	1.50	1.40
Share of children aged 0 - 5	0.16	0.16	0.12	0.14	0.18
Share of children aged 6 - 14	0.20	0.21	0.22	0.26	0.28
Share of adults aged 15 - 64	0.57	0.54	0.47	0.47	0.48
Share of elderly aged 65 or more	0.07	0.08	0.19	0.13	0.05
Consumption poor (11.9 percent poorest)	0.12	0.13	0.19	0.25	1.00
PSSN Selected (11.9 percent poorest)	0.12	0.15	0.70	1.00	0.25
Share of all households in the country	1	0.39	0.17	0.12	0.12

Table 1 shows households characteristics in each of the three stages, we observe the following:

Stage 1: Geographical Selection

- Geographical Poor (column 2) show limited differences to the general population (column 1) in terms of food security, school enrollment, precarious housing, and demographics. Differences in consumption poverty and asset ownership are also minimal, although selected villages have slightly fewer durable assets.⁴ Also note that as the geographical selection of villages does not make a large contribution to poverty targeting, which also means that it implicitly contributes to a deselection of the Consumption Poor as there are many poor in the one-third of villages that were never interviewed as part of the program design. In fact, according to the household survey only 39 percent of households lives in villages that are covered by PSSN, indicating that many poor never had the opportunity to enroll in PSSN (see Table 1).

Stage 2: Community Selection

- Community Poor (column 3) align with the provided guidelines: they are more food insecure, have lower school enrollment rates, fewer employed members, and

electric bicycle, plot of land, mosquito net, fan, radio, lantern, car, sofa, boat, table, laptop, dvd, hifi, taperecorder, subwoofer, cookpots, books. The asset index excludes all durable assets used in the PMT model so that this does not confound the results.

⁴This result is based on the survey and covers the full country and therefore not related to the matching that is based on Round 2 enrollment only

more precarious housing compared to the geographical selected villages (column 2) and the general population (column 1). The differences in precarious housing are less pronounced.

- Community Poor are smaller households, possess fewer assets, and have older and more female heads compared to the Geographical Poor (column 2) and the general population (column 1). Further, the dependency ratio is higher due to communities selecting households with fewer children but more elderly members, compared to the general population and the Geographical Poor.
- Only 19 percent of Community Poor overlap with Consumption Poor (column 3). In comparison to 12 percent for the full population (column 1) and 13 percent for the Geographical Poor (column 2).
- The Community Poor compared to the Consumption Poor (column 5) are characterized by: being smaller households, having fewer durable assets, having more female and older household heads and having fewer income sources. For instance, the share of female headed households is 65 percent among the Community Poor and 26 percent among the Consumption Poor. The Community Poor on average have 0.4 income sources compared to 1.0 among the Consumption Poor.
- The Community and Consumption Poor have a similar dependency ratios, while the type of dependents very notably. The Community Poor have fewer children and more elderly (column 3), compared to the Consumption Poor that have more children and less elderly (column 5).
- The above observations suggest that communities do identify different households as poor than the consumption definition, though other aspects (assets, employment etc) still indicate that these households are indeed households that would be seen as poor by most. This also suggest that the community selection is not dominated by elite capture as often feared.

Stage 3: PMT Score Selection

- The PMT Score selection in Stage 3 leading to the PSSN Selected households (column 4), enhances some characteristics of those selected at Stage 2. In particular the households now have fewer assets, a higher dependency ratio and the overlap with the Consumption Poor increase from 19 to 25 percent, as should be expected given that the PMT Score is a proxy for consumption.
- The PMT Score selection also counters many of the characteristics of those selected at Stage 2 (column 4). In particular, the households are notably larger households, have younger and fewer female heads. The increase in dependency ratio and increase in households size also mask a reversal of the community selection (column 3) back towards more children and fewer elderly.
- The PMT Score selection does not impact the selected households in terms of the original community guidance criteria (income sources, food security school enrollment and precarious housing)

4.2 Decomposing Stage 2 Community Selection

That the households selected by communities in Stage 2 and those selected by the PMT Score in Stage 3 have opposite impact on the types of households entering the program is an interesting finding in its own right, but also deserves further exploration as the intension of both elements is to select poor households. The Stage 3 PMT Score is designed to select Consumption Poor, while Stage 2 is also supposed to guide communities to select Consumption Poor. Why do they differ?

4.2.1 Method

To investigate which household characteristics that are most important for community selection, one could look at partial correlations or a regression analysis of the community selection. However, due to correlations among variables, an OLS regression would not reliably isolate the individual contributions of each factor. To address this limitation, we use a Shapley decomposition. This method allows us to determine the relative importance of predictor variables in linear regression, even when those variables are moderately to highly correlated. It does not establish causality but it shows which characteristics are most correlated with community selection, controlling for the other characteristics.

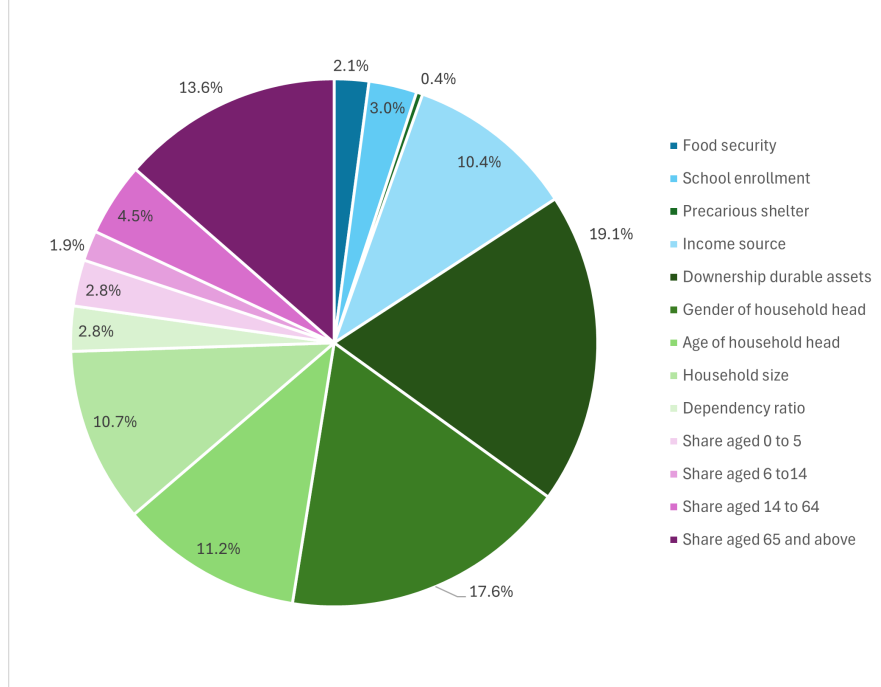
4.2.2 Results

Partial correlations (Appendix Table 5) show that the guidance criteria provided to communities are indeed correlated with consumption, as expected. Food insecurity, lack of school enrollment, and precarious housing are negatively correlated with consumption, while the number of employed household members is positively correlated. These correlations indicate that the guidance does assist communities in targeting Consumption Poor, as also reflected in the increase in the share of Consumption Poor from 12 percent in the general population to 19 percent among households selected in Stage 2 (Table 1).

Figure 2 presents the results of the Shapley decomposition for the characteristics listed in Table 1. The decomposition reveals that the guidance criteria account for only 16 percent of community selection (the blue colors), with employment being the most influential criterion, contributing 10 percent (Figure 2). This highlights that Community Poor are more strongly correlated with other characteristics (selected by the authors for this analysis) than with the proxies for the guidance criteria provided to communities. This suggests that communities rely heavily on additional factors beyond the provided guidance when identifying poor households.

For instance, Figure 2 shows that ownership of durable goods and the gender of the household head are individually more influential than the combined guidance criteria as these factors account for a larger share of the decomposition than the 16 percent explained by the guidance criteria. These findings imply that community selection reflects broader considerations, potentially incorporating local perceptions of poverty that extend beyond the provided guidelines.

Figure 2: Decomposition of Contribution to Community Selection



Notes: Figure shows a Shapley decomposition of characteristics explaining selection of Community Poor.

4.3 Reconciling Consumption and Community Poor

The divergence in Consumption and Community Poor, which cannot be explained by the guidelines provided to communities, raises critical questions about why these differences arise and which definition of poverty best captures the "true" poor.

Consumption poverty has limitations when it comes to taking individual household members' differing needs and the economies of scale in household consumption into account [3], and this section explores whether the divergence between Consumption and Community Poor arises because the consumption poverty measure does not sufficiently adjust for equivalence scales and economies of scale in consumption.

In Tanzania, the definition of Consumption Poor does not account for economies of scale within households. Economies of scale acknowledge that larger households can share common resources more effectively than smaller households, reducing per-capita costs for shared goods and services. Adult equivalence scales, explicitly accounting for the differing needs of individuals within a household, on the other hand are used in Tanzania.

Tanzania adopts equivalence scales developed by the World Health Organization [4], as summarized in Table 2. These scales assign the highest weight to individuals in their growing or most productive years, particularly males aged 13 to 18, while attributing lower weights to young children, the elderly, and females. As such these equivalence scales primarily reflect differences in caloric needs, aligning consumption weights with nutritional requirements. However, they may not fully capture other essential needs beyond caloric intake.

Table 2: Consumption Poverty Equivalence Scales utilized in Tanzania

Age	Male	Female
0 to 2	0.40	0.40
3 to 4	0.48	0.48
5 to 6	0.56	0.56
7 to 8	0.64	0.64
9 to 10	0.76	0.76
11 to 12	0.80	0.88
13 to 14	1.00	1.00
15 to 18	1.20	1.00
19 to 59	1.00	0.88
60 and above	0.88	0.72

Source: Anderson et al. [4]

4.3.1 Method

There are numerous approaches to accounting for household composition when defining consumption poverty, particularly through the use of equivalence scales and adjustments for economies of scale. In this analysis, we focus exclusively on equivalence scales based on age, assuming uniform equivalence weights for individuals within the same age category. Additionally, we evaluate only three levels of economies of scale. To explore a range of equivalence scales that reflect varying needs for children and the elderly, as well as different assumptions about economies of scale, the generic formula in Equation 1 is employed:

$$hhs\text{ize} = (\text{NumAdult} + \text{NumChildren} \cdot b + \text{NumElderly} \cdot c)^a \quad (1)$$

Here:

- b represents the weight assigned to children.
- c represents the weight assigned to elderly individuals.
- a reflects the degree of economies of scale.

The evaluation considers five weights for children (b) ranging from 0.1 to 1, seven weights for elderly individuals (c) ranging from 0.1 to 1.6, and three economies of scale (a) between 0.2 and 1. This setup generates 105 unique household size definitions ($5 \times 7 \times 3$) and, consequently, 105 different Equivalent and Economy Scale Poor (EES Poor) rankings. These combinations reflect variations in assumptions about the relative needs of children and elderly individuals, as well as the degree to which larger households benefit from shared resources. Notably, this range includes commonly used equivalence scales, such as:

- **Per capita scale** ($b = 1, c = 1, a = 1$), where all individuals are weighted equally, and no economies of scale are applied.

- **OECD square-root scale** ($b = 1, c = 1, a = 0.5$) as described in [13], which assumes moderate economies of scale.

Using these parameters, we rank all households in the 2017/18 household survey according to their EES Poor level. We then compare the 17 percent poorest EES Poor, as identified by each combination of equivalence scales and economies of scale, to the Community Poor (also 17 percent of the population).

4.3.2 Results

The degree of congruence between the EES and Community Poor reveals whether adjustments for equivalence scales and economies of scale align community-based definitions with consumption-based ones. Higher congruence would suggest that communities implicitly account for these factors in their selection, potentially highlighting an unaddressed deficiency in the standard consumption poverty definition. If so, this could imply that community selection serves as an indicator of revealed equivalence and economies of scale, providing valuable insights into improving consumption based poverty measurement frameworks. Congruence is measured by the share of the Community Poor that are also ESS Poor.

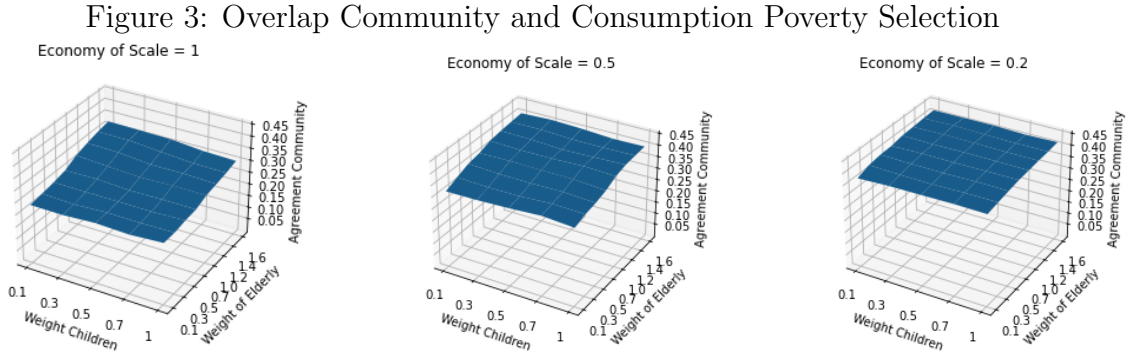


Figure 3 shows the percentage of Community Poor that are also ESS Poor for each setting of ESS. The following observations highlight the factors contributing to greater congruence (Figure 3):

- Economy of scale corrections are crucial. Congruence between Community and ESS Poor increases as the degree of economy of scale correction grows. This is evident in the higher values (measured as elevations in Figure 3) when comparing figures from left to right. A setting of $a = 1$ in Equation 1 corresponds to no correction for economies of scale - the figure on the left. A setting of $a = 0.5$ represents the square-root scale, which assumes moderate benefits from resource sharing - the figure in the middle. A setting of $a = 0.2$ reflects a larger benefit from households sharing living space - the figure on the right in Figure 3. As a decreases (indicating stronger economies of scale), congruence consistently rises, as reflected by the higher values in the figure.
- Impact of equivalence scale weights without economy of scale correction. When there is no correction for economies of scale ($a = 1$), lower weights assigned to

children and higher weights assigned to elderly individuals result in higher congruence. This effect is most pronounced in the back corner of the leftmost figure in Figure 3. The increased congruence is primarily driven by higher weights for elderly individuals, but the effect is amplified when lower weights are simultaneously assigned to children.

- Interaction effects with the square-root scale ($a = 0.5$). When the square-root scale is applied, congruence also increases with higher weights for elderly individuals and lower weights for children, particularly when these two factors occur together (as seen in the far back corner of the middle figure in Figure 3). However, the dominant factor remains the economy of scale correction itself, as indicated by the overall higher elevation of the plane.
- High congruence with strong economy of scale corrections ($a = 0.2$). When large corrections for economies of scale are applied, congruence is high across all combinations of weights for children and elderly individuals. While congruence is still slightly higher for settings with low weights for children and high weights for elderly individuals, this effect is minimal compared to the overall impact of economies of scale.

Overall, corrections for economies of scale emerge as the most significant factor influencing the alignment between Community and ESS Poor as evidenced by the higher elevations across Figure 3.

Table 1 illustrated how household characteristics evolve across the different selection stages. Table 3 extends this analysis by presenting the same characteristics for households identified as ESS Poor under the various equivalence and economy of scale settings. The following poverty definitions are selected for comparison, all showing the characteristics of the 17 percent poorest: 1) The Community Poor, 2) The Consumption Poor, 3) Per capita consumption ($a = 1$, $b = 1$, and $c = 1$), 4) Highest congruence with no economy of scale ($a = 1$, $b = 0.3$, and $c = 1.6$), 5) The OECD square-root scale. ($a = 0.5$, $b = 1$, and $c = 1$), 6) Highest congruence with economy of scale=0.5 ($a = 0.5$, $b = 0.3$, and $c = 1.4$), and 7) Highest congruence with economy of scale=0.2 ($a = 0.2$, $b = 0.3$, and $c = 1.4$).

Its notable that the current definition of Consumption Poor compared to the selected alternatives have: 1) The lowest overlap with Community Poor, 2) Households with the most durables assets, 3) Households with the highest number of income sources, 4) Households with the lowest share of female headed households. Hence, if the official definition of Consumption Poor would utilize any of the selected equivalent and economy scales the characteristics of the Consumption Poor would move in those directions.

Comparing each of the columns to the Consumption Poor the table also shows:

- Using the per capita measure (column 3) as opposed to the current definition (column 2), increase overlap with Community Poor from 26 to 28 percent. Hence, even using per capita as a consumption definition is slightly closer to the community perception of poverty, than the current definition that prioritize young men in their productive years.
- Adding equivalent scales but no economy of scale (column 4) increase the overlap with Community Poor to 33 percent. The equivalent scales also reduces the

average household size of the poor (from 6.2 to 5.3), increase the share of elderly in the household (from 0.05 to 0.17) while it reduces the proportion of children. This is to be expected given the high weight given to elderly (1.6) and low weight to children (0.3) in the equivalent scales.

- Using the OECD square root scale (column 5) brings the household characteristics much closer to the Community Poor. The overlap increase to 39 percent and household size decline (from 6.2 to 4.4, the asset index falls (from 3.1 to 2.6), the share of female heads increase from 27 percent to 36 percent, and the share of elderly increase from 5 to 11 percent. Further, adding equivalent scales (column 6) increases the overlap marginally further to 40 percent.
- Using an even larger correction for economy of scale and same equivalent scales (column 7) increase the overlap to 42 percent, and especially impact the average household size (falls to 3.1), the share of female heads (increase to 40 percent), and lower the number of income sources (falls to 0.6).

Table 3: Characteristics of Consumption Poor under Selected Equivalent and Economy of Scales

Column	(1) Community poor	(2) Current poor	(3) EcS=1 PC	(4) EcS=1 Eq	(5) EcS=0.5 OECD	(6) EcS=0.5 Eq	(7) EcS=0.2 Eq
Share food insecure	0.17	0.18	0.18	0.17	0.19	0.17	0.17
Share not attending school	0.05	0.04	0.04	0.03	0.02	0.02	0.02
Share precarious shelter	0.03	0.02	0.03	0.03	0.03	0.03	0.03
Number of income sources	0.39	0.96	0.90	0.82	0.67	0.64	0.58
Asset index	1.85	3.07	3.02	3.01	2.62	2.67	2.72
Male HH head	0.45	0.73	0.71	0.69	0.64	0.65	0.60
Age household head	55.44	48.25	47.33	53.65	48.29	51.28	49.63
HH size	3.67	6.20	6.30	5.29	4.42	3.87	3.12
Dependency ratio	1.34	1.37	1.56	1.24	1.32	1.10	0.99
Share of children aged 0 - 5	0.12	0.18	0.23	0.16	0.19	0.15	0.14
Share of children aged 6 - 14	0.22	0.27	0.27	0.19	0.21	0.16	0.14
Share of adults aged 15 - 64	0.47	0.49	0.44	0.48	0.49	0.52	0.55
Share of elderly aged 65 or more	0.19	0.05	0.05	0.17	0.11	0.17	0.17
Poorest 17 current consumption	0.26	1.00	0.85	0.74	0.67	0.60	0.46
Poorest 17 community	1.00	0.26	0.28	0.33	0.39	0.40	0.42

5 Discussion

The results indicate that Stage 1 geospatial selection has limited impact, as the selected locations are largely similar to the general population. In contrast, the community selection in Stage 2 has a substantial impact. While communities generally adhere to the provided guidance — which correlates with consumption — they nonetheless identify households that differ substantially from those classified as Consumption Poor.

Our analysis shows that when equivalence and economy of scale adjustments are applied, the characteristics of ESS Poor (consumption poor when using equivalence and economy of scale) align more closely with those selected by communities.

While there is no definitive answer to whether community preferences are entirely reliable, the evidence suggests they may provide valuable insights. Communities tend to select households with fewer assets and more female-headed households compared to those identified as Consumption Poor. This points to community selection as a potentially robust indicator of poverty and vulnerability, and maybe community selections being a form of revealed preference that could guide the development of equivalence and economy of scale measures.

A particularly interesting finding is that communities often perceive small households and households with many elderly members as the poorest. This could indicate that communities consider factors beyond immediate consumption and situation, such as long-term vulnerability or chronic poverty. Small households with elderly members may have limited options for improving their circumstances, making them more likely to remain poor over time. Conversely, households with many children might be seen differently as children represent a short-term financial burden but could be perceived as an asset in the long term. Cultural factors may also influence these decisions, with elderly individuals prioritized for support due to social norms or traditions. This is could be relevant in Tanzania, where few elderly people are covered by formal old-age pensions.

Communities may also consider interactions with existing formal and informal safety nets when selecting households for support. For example, limited access to pensions or other forms of assistance could prompt communities to prioritize elderly individuals for public support. Similarly, informal safety nets may already provide some relief to other groups, leading communities to focus on filling gaps in support for those perceived as most vulnerable.

6 Appendix

Table 4: Means of matching variables

	HH survey	Matched in HH survey	Community Selection
Share not attending school	0.02	0.05	0.10
Number of income sources	0.98	0.39	0.28
HH size	4.64	3.67	3.49
Male HH head	0.72	0.45	0.44
Age household head	46.47	55.44	58.22
Share of children aged 0 - 5	0.16	0.12	0.11
Share of children aged 6 - 14	0.20	0.22	0.22
Share of adults aged 15 - 64	0.57	0.47	0.43
Share of elderly aged 65 or more	0.07	0.19	0.25
Urban	0.35	0.22	0.18
Torch	0.48	0.43	0.36
Fan	0.09	0.00	0.00
Radio	0.42	0.10	0.06
Car	0.04	0.00	0.00
Sofa	0.20	0.02	0.01
Boat	0.00	0.00	0.00
Table	0.64	0.18	0.13
Laptop	0.04	0.00	0.00
DVD	0.08	0.00	0.00
Subwoofer	0.14	0.00	0.00
Books	0.11	0.01	0.01
Fridge	0.09	0.00	0.00
TV	0.23	0.01	0.01
Mobilephone	0.77	0.35	0.25
Motorcycle	0.10	0.00	0.00
Chicken	0.44	0.34	0.32
Plough	0.09	0.00	0.00
Iron	0.26	0.01	0.01
Bajaj	0.00	0.00	0.00
Plot	0.32	0.44	0.62
Mosquitonet	0.83	0.68	0.58
Cattle	0.18	0.04	0.03
Goat	0.19	0.08	0.05
Sheep	0.07	0.03	0.02
Pig	0.05	0.02	0.01

Table 5: Stage 2: Correlation Community Criteria and Consumption Poverty

	Correlation coefficient	Significance value
Share food insecure	-0.129	0.00
Share not attending school	-0.078	0.00
Share precarious shelter	-0.046	0.00
Number of income sources	0.024	0.02

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