Wealth Matters: An assessment of indicators that predict food insecurity in the Sidama and Wolayta zones of Southern Ethiopia

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BACKGROUND:

The term "food security" defines the imperative that all people at all times should have access to sufficient, nutritious, & culturally appropriate food in order to live a healthy life. Studies demonstrate that food security is linked to positive **individual** health outcomes. Moreover, food security is linked to **community** health outcomes, and is essential for robust local & regional economies, political stability, effective education, & a resilient environment. Consequently, measuring food security & understanding its influencing factors are important tasks for stakeholders from across sectors. Four domains have been developed to help describe and measure the food security experience of a given locality: uncertainty/worry, inadequate quality, insufficient quantity, & social unacceptability. The subsequent answers are used to classify households (HHs) into food security levels (*i.e.,* food secure, & mild, moderately, & severely food insecure) to asses food security changes over time and compared with other regions.
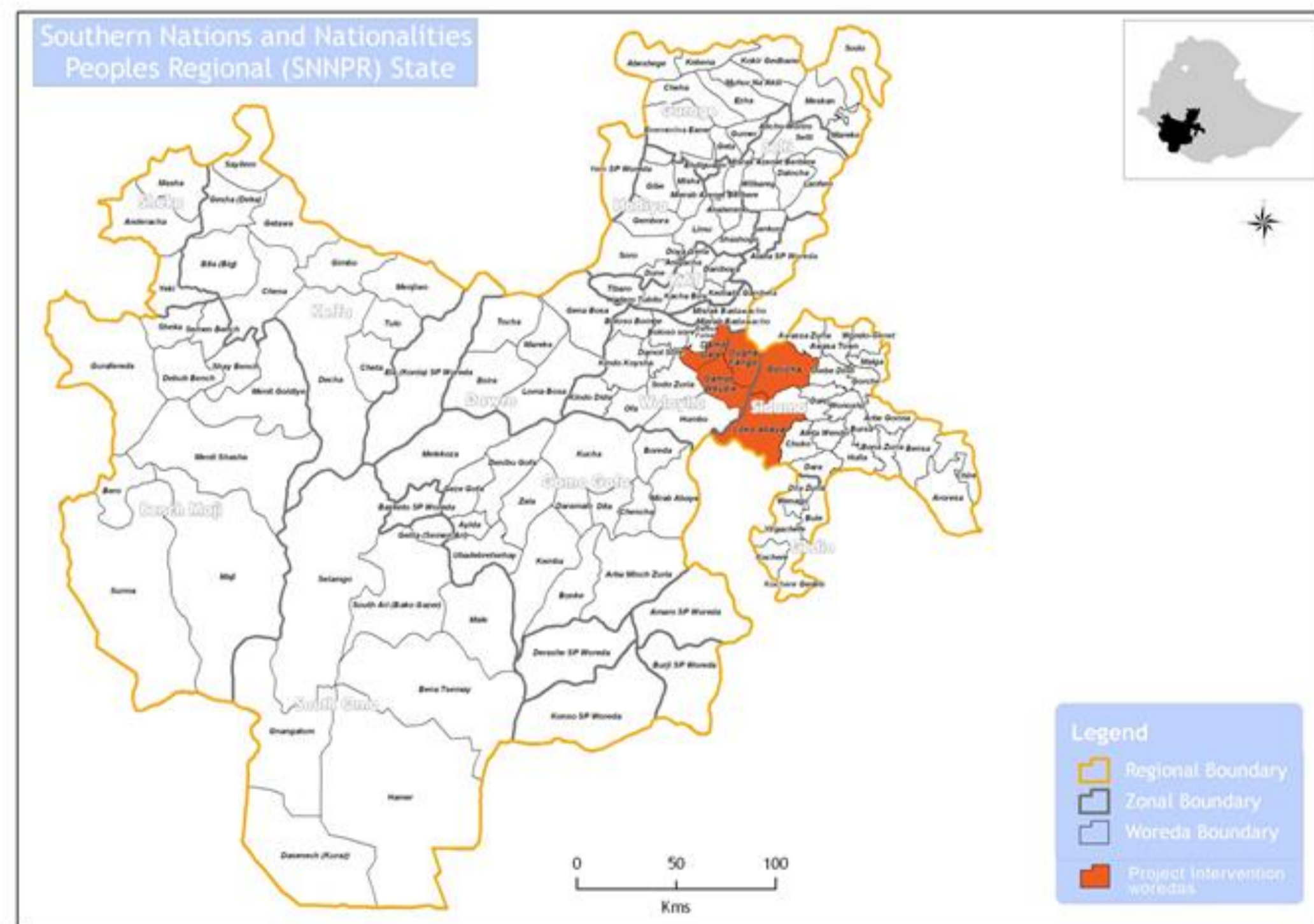
OBJECTIVES:

This report summarizes the prevalence of HH food insecurity among from 5 *woredas* from the Southern Nations, Nationalities and Peoples Region (SNNPR), Ethiopia, and evaluates the potential predictive factors specific to this region which have implications for the design of community nutrition and agriculture programs, monitoring and evaluation, and policies.

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METHODS:

Data were taken from baseline surveys conducted in 150 SNNPR HHs that will receive future agriculture and nutrition trainings that emphasize improving the production & consumption of orange fleshed sweet potatoes. The surveys were conducted in April-May 2013 by trained enumerators. Respondents were either/both the head of household and/or his wife. Surveys were analyzed using IBRM SPSS® version 21 for quantitative analysis. The baseline values serve as benchmarks that will be compared against end-line results to evaluate program impact on agricultural production, nutrition, and health outcomes.

RESULTS:

All households experienced at least one time in the past 12 months when there was not enough food to feed all household members. Among the food security domains, there was variation among the five *woredas* in the severity in which they experienced food insecurity (Table 1). Overall, 87% of households experience mild food insecurity and 41% experience severe food insecurity.

Table 1: Comparison of reported food insecurity domains by *woreda*

	Boricha (n=30)	Damot Gale (n=30)	Damot Woyide (n=30)	Duguna Fango (n=30)	Loko Abaya (n=30)	P-Value
In past 30 days, have you experienced:						
Worry about food?	90%	86%	100%	73%	83%	0.01
Shortage of food/money?	47%	46%	59%	57%	33%	0.27
Limited variety of foods?	90%	71%	94%	80%	70%	0.05
Your children not having enough to eat?	73%	64%	75%	60%	40%	0.04
Asking neighbor for food/money?	73%	68%	59%	63%	53%	0.56
Going to bed hungry	43%	32%	44%	50%	33%	0.59
In the past 12 months, have you experienced:						
At least one month where your HH did not have enough to eat?	100%	100%	100%	100%	100%	n/s

Socio-economic status indicators: The *woredas* were not statistically different in terms of the age of the HH head, HH size, # of live children, and occupation. However, there was significant differences (p<0.001) in education levels and wealth indices (total livestock holdings, phone ownership, radio ownership, and farmer group membership).

Food security indicators: Survey data were analyzed to assess what variables may predict food insecurity. Ten predictive variables were compared against responses from mild (Table 2) and severe (Table 3) food insecure households to assess their ability to serve as accurate and significant variables.

Table 2. Predictive variables against mild food insecurity

	Mild food insecurity (n=130)	Food secure (n=20)	p-value
Significant variables			
Cell phone	71.90%	28.10%	< 0.0001
No cell phone	97.70%	2.30%	< 0.0001
Total livestock	6.79	22.5	< 0.0001
Total land holdings	4.06	10.45	< 0.0001
Radio	72.30%	27.70%	0.0005
No radio	93.20%	6.80%	
Mean education level attained (0-5)*	1.585	2.600	0.0026
Thatch roofing material used in home	96.30%	3.70%	0.0093
Tin roofing material used in home	81.25%	18.75%	
Variables without significance			
Total family size	7.03	7.75	0.0526
Dirt flooring in home	88.32%	11.68%	0.0530
Tile flooring in home	69.23%	30.77%	
Total live children	5.4	6.2	0.1340
Received tech assistance	90.00%	10.00%	0.7482
No tech assistance	86.40%	13.60%	

0: Illiterate. 1: read/write. 2: Primary (1-6). 3: Secondary (7-10). 4: Vocational. 5: College or above

Table 3. Predictive variables against severe food insecurity

	Severe food insecurity (n=60)	mild or moderate food insecurity (n=89)	p-value
Significant variables			
Total land holdings	3.34	5.99	< 0.0001
Cell phone	23.40%	76.60%	0.0002
No cell phone	53.50%	46.50%	
Mean education level attained (0-5)	1.246	2.045	0.0013
Total livestock	5.79	11.01	0.0029
Radio	25.50%	74.50%	0.0108
No radio	47.60%	52.40%	
Thatch roofing material used in home	53.70%	46.30%	0.0148
Tin roofing material used in home	33.30%	66.70%	
Variables without significance			
Dirt flooring in home	42.34%	57.66%	0.1767
Tile flooring in home	23.08%	76.92%	
Total family size	7	7.21	0.4083
Total live children	5.3	5.6	0.5084
Received tech assistance	50.00%	50.00%	0.5340
No tech assistance	40.00%	60.00%	

0: Illiterate. 1: read/write. 2: Primary (1-6). 3: Secondary (7-10). 4: Vocational. 5: College or above

Among households with mild food insecurity, wealth-related indictors showed a strong positive association with food security. In contrast, total family size, type of floor, # live children, and technical assistance did not exhibit significance. On average, food secure HHs had more than twice as much land, and had 3.31 times as many head of livestock than HHs that exhibited mild food insecurity. Among HHs facing more severe food insecurity, similar predictive factors were observed. Wealth-related indicators again were found to have a positive association with food security. On average, food secure HHs had 1.79 times as much land and roughly twice as many livestock as severely food insecure HHs. HH size, total live children, and technical assistance were not shown to have a predictive association. The level of education of HH heads was significantly higher in food secure HHs compared to both mildly and severely food insecure HHs.

DISCUSSION:

Baseline results indicate that wealth proxies such as radio, cell phone, education, land, and livestock ownership are predictors of both mild and severe food insecurity. This is consistent with the literature, where wealth can buffer against food shortages in a number of ways. Livestock, for instance, can boost yields by serving as a source of agricultural power, improve incomes, increase nutrition, and serve as a liquid asset in times of stress. Assessing wealth directly and controlling for incomes would indicate whether observed correlations are a wealth effect or something different. It is debatable whether education levels, which were significant in both cases, serve as an additional wealth proxy. Land access and productivity is constrained in the SNNPR, and other regional studies have found that having a large HH is a predictor of food insecurity. Interestingly, these SNNPR findings on HH size (measured both by total number of living children and total family count) are not consistent with this. The association found (mildly positive) instead suggests a greater number of children may be associated with greater food security. Finally, agronomic technical assistance was not significant in our study, while fertilizer use and agronomic techniques have been strong predictors of food security in other published research. In order to more directly assess the effect of agronomic choices, questions about fertilizer use and cropping patterns should be included in future surveys. The findings of this survey may not be applicable in other regions.

CONCLUSION:

These preliminary results warrant follow-up qualitative analysis to understand community members' feedback and find out if these wealth indicators align with local values.