Linking Social Capital and Measures of Food Security In Tigray, Ethiopia

Tufts University | Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy

Kim, J., Christianson, K., Maxwell, D., Houser, R., Vaitla, B.

Feinstein International Center

Introduction

Social capital is a concept that encompasses dynamic relationships and networks between people, communities, and institutions. As a result, studies' findings often lack consistency and universal application. It is often analyzed through the lenses of "social connectedness (bonding, bridging and linking within, between and beyond communities)", social networks and groups, relations of trust, reciprocity and exchange, common rules, and norms and sanctions (institutions)[123]. The study aims to further clarify the relationship between the social networks dimensions of social capital and measures of food security. It was our hypothesis that there would be a positive but varying relationship between social capital proxy variables and food security status. The more social capital a household had, the more food secure a household would be. We also hypothesized that there would be variable relationships between social capital variables and four food security scales. Social capital has been previously associated with decreased risk of hunger, even after controlling for household-level socioeconomic factors, and is thought to infer protective benefits to not just that household but those in that shared network[4].

1. Misselhorn, A. (2005). What drives food insecurity in southern Africa? A meta-analysis of household economy studies. Global Environmental Change. 15: 33-43.
2. Adger,W. N. (2003). Social capital, collective action, and adaptation to climate change. Economic Geography 79 (4): 387-404.
3. Pretty, J. (2003). Social Capital and Capital: issues and implications. CTA Working Document No. 8032. The ACP-TU Technical Centre for Agricultural and Rural Cooperation (CTA). UK.
4. Martin, K., Rogers, B., Cook, J., Joseph, H. (2004). Social Capital Is Associated with Decreased Risk of Hunger. Social Science & Medicine 58: 2645-654.

Analysis

During the Hunger Season, *Individual Support Network* or the number of friends that respondents reported that their households could turn to for help did not have any significant effect on food security status across all scales.

Also during the Hunger Season, under the HFIAS scale, *Individual Emergency Network* size was significantly associated ($p<0.05$) with food security status of households; households that reported one or more people were *less likely* to be *moderately to severely food insecure.* Conversely, under the SAFS scale, households that had five or more people in their emergency network were *more likely* to be *mildly food insecure*; this was significant at a $p<0.1$ level.

During the Post-Harvest season, under CSI, households that reported at least one member was very active and/or a leader of a church group were *more likely* ($p<0.1$) to be *mildly food insecure* than those households that reported having no members who participated in a church group. Additionally, under the SAFS scale, households that reported that at least one member was somewhat active in a church group were *more likely* ($p<0.05$) to be *slightly food insecure* than those households that reported having no members who participated in a church group.

Results

Multinomial logistic regression of social capital characteristics associated with food security status among households in Tigray, Ethiopia, Lean Season (August 2012)

	Food Security Scales						
	Mildly Food Insecure			Moderately to Severely Food Insecure			
	CSI (n 70)	rCSI (n 47)	SAFS (n 65)	CSI (n 76)	rCSI (n 67)	SAFS (n 72)	HFIAS (n 137)
INDIVIDUAL SUPPORT NETWORK							
0 ppl	Reference	Reference	Reference	Reference	Reference	Reference	Reference
>0 ppl	1.03 (0.88-1.20)	1.14 (0.96-1.35)	1.09 (0.94-1.26)	0.95 (0.81-1.13)	1.08 (0.92-1.30)	1.05 (0.90-1.22)	0.99 (0.84-1.17)
INDIVIDUAL EMERGENCY NETWORK							
0 ppl	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1-2 ppl	0.33 (0.07-1.58)	0.43 (0.09-2.13)	1.39 (0.30-6.52)	**0.22**** (0.05-1.02)	0.45 (0.11-1.92)	0.87 (0.22-3.40)	**0.05*** (0.01-0.30)
3-4 ppl	0.72 (0.15-3.38)	0.58 (0.13-2.65)	2.99 (0.68-13.20)	0.30 (0.06-1.43)	**0.23**** (0.05-1.03)	0.89 (0.22-3.61)	**0.12*** (0.02-0.74)
≥5 ppl	0.38 (0.88-1.64)	0.43 (0.10-1.88)	**3.41**** (0.83-14.02)	0.30 (0.07-1.27)	0.45 (0.12-1.76)	0.80 (0.21-3.02)	**0.11*** (0.02-0.64)
VILLAGE COMMUNITY NETWORK							
Agree strongly	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Disagree strongly	1.43 (0.35-5.86)	0.88 (0.21-3.74)	**4.10**** (0.99-16.80)	0.94 (0.22-4.00)	0.95 (0.24-3.82)	0.94 (0.22-4.08)	0.69 (0.15-3.21)
Disagree somewhat	1.05 (0.27-4.06)	1.67 (0.44-6.32)	1.98 (0.54-7.30)	2.39 (0.69-8.25)	2.87 (0.80-10.35)	1.93 (0.57-6.49)	1.31 (0.35-4.93)
Not sure	**5.60*** (1.40-22.43)	2.46 (0.64-9.51)	**9.45*** (2.36-37.82)	2.34 (0.52-10.51)	**3.47**** (0.93-12.97)	**10.59*** (2.78-40.36)	0.90 (0.22-3.72)
Agree somewhat	**2.87*** (1.04-7.93)	2.28 (0.76-6.82)	1.69 (0.60-4.70)	**4.31*** (1.53-12.20)	**4.82*** (1.66-13.95)	2.62 (0.99-6.93)	**3.90*** (1.32-11.56)
PARTICIPATION IN CHURCH GROUP							
No one in the HH participates in the group	Reference	Reference	Reference	Reference	Reference	Reference	Reference
≥1 HH member – somewhat active	0.46 (0.17-1.22)	0.89 (0.32-2.43)	2.06 (0.80-5.32)	0.51 (0.19-1.37)	1.06 (0.41-2.76)	1.33 (0.54-3.27)	1.04 (0.39-2.80)
≥1 HH member – very active/a leader	0.43 (0.14-1.28)	1.07 (0.35-3.29)	0.43 (0.56-4.98)	0.50 (0.16-1.55)	1.03 (0.34-3.13)	1.52 (0.55-4.19)	0.41 (0.13-1.31)

P-values: * refers to significance at 0.05; ** refers to significance at 0.1; Reference group: Food Secure for all Food Security Models
HFIAS *Mildly Food Insecure* Category is omitted from this table as there were too few households (*n 14*)

^Please note that the results shared here are only a portion of those analyzed

Methods

This study utilized data from the Livelihoods Change Over Time (LCOT) study, a four-round panel survey that was conducted between August 2011 and February 2013 in the northern state of Tigray in Ethiopia. The panel data included a sample of 300 rural households collected biannually for two years, at the height of the hunger season in August 2011 and 2012 and in the middle of postharvest season in February 2012 and 2013. A prior analysis of the LCOT data that showed that the various measures of food security status were well correlated but captured different elements of food insecurity[1]. A critical shortcoming of *the status quo* approach to food security measurement is that different instruments tend to measure different aspects of food (in)security. It is with this gap in mind this study ran eight separate regressions for each of the equation presented above for four major scales of food insecurity: *Coping Strategies Index (CSI); Reduced Coping Strategies Index (rCSI); Self-Assessed Food Security (SAFS); and Household Food Insecurity and Access Scale (HFIAS).* Based on the available literature, we included the following variables for social capital variables: *Individual Support Network; Individual Emergency Network; Village Community Network;* and *Participation in Community Organization.* We conducted a lag analysis; running regression models with the measures of social capital and control household characteristics from a preceding data collection round (ex. round 2) with food security scales from the subsequent data collection round (ex. round 3).

1. Maxwell, D., Vaitla, B., Coates, J. (2014). How do indicators of household food insecurity measure up?: An empirical comparison from Ethiopia. Food Policy. 47: 107-116.

Conclusions

Of this study, three variables *(individual emergency network, community support,* and *participation in a church group*) demonstrated statistically significant associations with food insecurity.

While these associations were not consistently *positive* as hypothesized, they were nonetheless indicative of the influence households' social capital may have on their food insecurity. These relationships also highlighted the fact that these scales reflect he four aspects of social capital which were analyzed in some level of sensitivity to measures of household social capital.

While different aspects of household-level social capital may be predictive of food security status, these associations were not consistent *across* or *within* scales. In turn, our analysis indicates a need for a more nuanced approach to social capital and its association to food insecurity.

Further research is needed to explore this relationship, and determine which food security scale is most appropriate to use.