Social capital effects on food security resilience: evidence from Kyrgyzstan

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Motivation
Limited attempts to conceptualize household resilience towards food insecurity
Need to conceptualize resilience to food insecurity in the presence of social capital indicators
Understand the role of social aspects of neighborhood in Kyrgyzstan for strengthening food security resilience

Objectives
Estimate pillars (factors) and resilience under Resilience Index Measurement and Analysis (RIMA)
Construct social capital indicator through Trust and Group Membership
Analyze the impact of Trust and Group Membership on resilience pillars and resilience itself

Data
The life in Kyrgyzstan (LiK) data for individual, household, community and agriculture surveys
The LiK data for 2013 and 2016 years
3,000 households and 8,000 individuals over seven Kyrgyz regions (oblasts) and two cities

Methodology

$$ RCI_h = f(IFA_h, ABS_h, AP_h, AC_h) $$

where

RCI = Resilience Capacity Index; IFA = Income and Food Access; ABS = Access to Basic Services; AP = Agricultural Practices; AC = Adaptive Capacity

$$ Pillars/RCI_h = \beta_0 + \beta_1Trust_h + \beta_2Membership_h + \beta_3X_h + u_h $$

where

$h =$ Household; $Trust =$ Individual trust level (household head); $Membership =$ Individual group membership (household head); $X =$ Household characteristics; $u =$ Error term

$$ Trust_h = \gamma_0 + \gamma_1Z_h + \gamma_2X_h + v_h $$

$$ Membership_h = \eta_0 + \eta_1Z_h + \eta_2X_h + \omega_h $$

where

$Z =$ Instrumental variable (the existence of mosques and churches in the community); $Y =$ Instrumental variable (the existence of groups in the community); $v$ and $\omega =$ Corresponding error terms

Results and Conclusions

Both constructed Trust and Group Membership positively impact on majority pillars (IFA, AP and AC) and resilience capacity (RCI) (Table 1).

<table>
<thead>
<tr>
<th>Pillar</th>
<th>IFA</th>
<th>ABS</th>
<th>AP</th>
<th>AC</th>
<th>RCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust</td>
<td>1.19***</td>
<td>0.66***</td>
<td>1.02***</td>
<td>0.47***</td>
<td>0.87***</td>
</tr>
<tr>
<td>Group</td>
<td>1.61***</td>
<td>-4.62***</td>
<td>3.11***</td>
<td>0.98***</td>
<td>1.15***</td>
</tr>
</tbody>
</table>

Table 1: Social Capital and Resilience (2SLS Bootstrapping Method)

**p<0.01, ***p<0.05, ****p<0.1


Household control variables: head age, head female, head married, head education, household size and community stability
Regional control variables: Issyk-Kul and the Tian Shan, Ferghana valley, and Bishkek and the Northwest.

Other Robust Models: IV-SEM and 2 SLS

Robustness checking: There are three clustered households according to resilience levels (Figure 1).

High Trust and Group Membership are observed in highly resilient households (Table 2).

<table>
<thead>
<tr>
<th>Pillar</th>
<th>Low Resilient</th>
<th>Medium Resilient</th>
<th>High Resilient</th>
<th>P-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust</td>
<td>0.58</td>
<td>0.62</td>
<td>0.66</td>
<td>0.000</td>
</tr>
<tr>
<td>Group</td>
<td>0.15</td>
<td>0.15</td>
<td>0.16</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 2: Trust and Membership across Resilience Classes

Building household resilience depends on strengthening multi factors (pillars in our case).

Social capital, particularly trust and membership, potentially improves resilience to food insecurity.

Future interventions should recognize trust in the community and individual group membership.

Publication