The impact of food assistance on food insecure populations during conflict

Insights from a quasi-experiment in Mali

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Rationale

- Role of conflict and fragility in health and nutrition (e.g. SOFI 2017)
  - 5/5 emergencies currently listed on WFP website are a direct result of conflict
  - Food security has worsened in conflict situations
  - Conflict a key driver of situations of severe food crisis and famines
  - Call for conflict-sensitive approach in food assistance
Rationale

• Empirical literature on conflict and health/nutrition focuses on “direct exposure to conflict”

• Exposure defined as:
  – Deaths/injuries of HH members because of violence
  – Proximity to violent events

• This literature does not look at wider, indirect, effects of conflict
Rationale

• Most conflicts in the world are of low or medium intensity
  – Likelihood for individuals to be directly affected by violence is quite low

• Conflict/instability can hurt welfare indirectly through their effects on:
  – Coping strategies (e.g. markets cease functioning; building savings becomes dangerous etc)
  – State absence (no access to services and to aid)
  – Governance
  – Social fabric...
Rationale

Figure 5: Overlaid Graph of Monthly Rates of Village Out-Migration in Peaceful and Conflict-Affected Mandals

Source: authors’ calculations based on the Young Lives data.

Tranchant, Justino and Mueller (2014)
Study scope

• Aimed at evaluating the impact of food assistance on household food security and child nutrition status in rural populations affected by conflict in the Mopti region of Mali

• Builds on a unique pre-crisis baseline to provide evidence on the effects of humanitarian assistance during conflict

• 2 sets of key questions
  – Descriptive: What were the main characteristics of conflict and food assistance?
  – Inferential: What was the impact of food assistance during conflict?
Mali conflict intensity peaked in 2013

Conflict events in Mali between 1997 and 2016, total by year and event type (Source ACLED).
Conflict mainly concentrated in the North

Total conflict events in Mali between 1997 and 2016 by region (Source: ACLED)
Pre-conflict baseline data
Study methods: Data

- Longitudinal study based on two rounds of surveys
  - Baseline survey undertaken as part of RCT in January 2012
  - Rich data set including ~1500 households & caregivers, over 2,500 children
- Follow-up undertaken after 5 years
  - Attrition rate at follow-up ~12%
High level study timeline

- **January 2012**
  - Baseline
  - Fighting in Northern Mali intensifies
  - March 2012 Coup d’état

- **April 2012**
  - Tuareg rebels declare new state in the North

- **January 2013**
  - Battle of Konna, rebel advance is halted by French air strikes, Operation Serval begins
  - WFP emergency operation scaled-up
  - Caseload/coverage of WFP operations in Mopti progressively reduced

- **January 2012-2017**
  - Overall conflict intensity progressively diminishes
  - Food assistance

- **January 2017**
  - Follow-up
Direct exposure to violence

- 28% of respondents declare political violence happened in their village in last 4 years (banditry, political/terrorist violence, kidnappings)
- 6% of respondents directly affected by political violence
- 0.4% of respondents report physical harm due to political violence

➢ In estimations, we do not characterize conflict at household level
Indirect exposure to violence

- We create an index of violent conflict intensity
- The index is based on presence and frequency of each violent event (0 if event did not happen, 1 if happened once or rarely, 2 if happened a few times, 3 if happened frequently)
- The indices are aggregated up at village level and we then create a categorical Violence conflict intensity index

➢ The violent conflict intensity index is strongly clustered at village level (ICC=35%, reliability>91%)
Presence of armed groups

• It may be that presence of armed groups (and state absence) matters more than violence per se
• The relationship between violence and rebel control is likely not linear (Kalyvas 2006)
• We use community leaders questionnaire to create a categorical variable of armed groups presence since 2012 (0 if no rebels, 1 if rebels in wider region but not in village, 2 if rebels in village)
• Service disruption variable (18 villages out of 66 experienced disruption in provision of key services)
Presence of armed groups and violence

Graphs by rebel2
Presence of armed groups and violence
Conflict and food assistance

% people receiving GFD in last 24 months

Violent conflict intensity

lowess v_cov_gfd24m avg_conflictviolenceintensity
Conflict and food assistance

% people receiving school feeding in last 24 months

Violent conflict intensity index
## Conflict and food assistance

### Availability of food assistance programs and presence of armed groups, Mali.

% Households with access to:

<table>
<thead>
<tr>
<th></th>
<th>No armed groups</th>
<th>Armed groups in region</th>
<th>Armed groups in village</th>
<th>Pearson Chi-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any type of food assistance</td>
<td>100</td>
<td>90</td>
<td>76</td>
<td>61.7***</td>
</tr>
<tr>
<td>No food assistance program</td>
<td>0</td>
<td>10</td>
<td>24</td>
<td>61.8***</td>
</tr>
<tr>
<td>1 food assistance program</td>
<td>60</td>
<td>31</td>
<td>35</td>
<td>54.3***</td>
</tr>
<tr>
<td>2+ food assistance programs</td>
<td>40</td>
<td>59</td>
<td>41</td>
<td>35.5***</td>
</tr>
<tr>
<td>GFD</td>
<td>91</td>
<td>84</td>
<td>76</td>
<td>16.6***</td>
</tr>
<tr>
<td>GFD + TSF</td>
<td>31</td>
<td>43</td>
<td>12</td>
<td>69.4***</td>
</tr>
<tr>
<td>GFD + SF</td>
<td>20</td>
<td>43</td>
<td>41</td>
<td>37.8***</td>
</tr>
</tbody>
</table>

% Households receiving:

<table>
<thead>
<tr>
<th></th>
<th>No armed groups</th>
<th>Armed groups in region</th>
<th>Armed groups in village</th>
<th>Pearson Chi-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any type of food assistance</td>
<td>40</td>
<td>28</td>
<td>33</td>
<td>10.7***</td>
</tr>
<tr>
<td>No food assistance</td>
<td>60</td>
<td>71</td>
<td>67</td>
<td>10.5***</td>
</tr>
<tr>
<td>1 food assistance program</td>
<td>30</td>
<td>22</td>
<td>29</td>
<td>8.2**</td>
</tr>
<tr>
<td>2+ food assistance programs</td>
<td>10</td>
<td>7</td>
<td>4</td>
<td>5.7*</td>
</tr>
<tr>
<td>GFD</td>
<td>31</td>
<td>17</td>
<td>26</td>
<td>22.7***</td>
</tr>
<tr>
<td>SF</td>
<td>16</td>
<td>13</td>
<td>9</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Observations 475 718 141
Evaluation strategy

- Access to food assistance was not randomised
  - Building on Gilligan et al. (2009), we evaluate impact of MVAC by combining propensity score matching and difference in difference (DID) methods
  - First estimate logit model to predict probability of programme participation using range of household and community level characteristics on sample of beneficiaries and non-beneficiaries
  - Apply kernel propensity-score matching DID estimated on the “common support” of the propensity score
Conflict and aid

• Two fold strategy to deal with interaction between conflict and aid:

1. Estimate the probability for households to receive aid over the period 2014-2016 based on baseline characteristics and exposure to conflict in the period 2012-2014

2. Assess whether the impact of food assistance is heterogeneous with respect to exposure to conflict and estimate the propensity score separately for the subgroup of conflict-affected areas and the subgroup of non-affected areas
Logit model

- Programme participation

<table>
<thead>
<tr>
<th>Types of aid</th>
<th>Any aid</th>
<th>GFD</th>
<th>SF</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary school within 5km</td>
<td>-0.056</td>
<td>0.019</td>
<td>-0.31</td>
<td>0.070</td>
<td>-0.49</td>
</tr>
<tr>
<td>Market within 5km</td>
<td>-0.85***</td>
<td>-0.95***</td>
<td>-0.64**</td>
<td>-0.68***</td>
<td>-1.92***</td>
</tr>
<tr>
<td>Past project</td>
<td>0.74***</td>
<td>0.76***</td>
<td>0.73***</td>
<td>0.63***</td>
<td>1.16***</td>
</tr>
<tr>
<td>Very unsafe</td>
<td>-0.62**</td>
<td>-0.91**</td>
<td>-0.16</td>
<td>-0.52</td>
<td>-1.10*</td>
</tr>
<tr>
<td>Age household head</td>
<td>-0.0021</td>
<td>-0.00045</td>
<td>-0.0025</td>
<td>-0.0022</td>
<td>-0.0062</td>
</tr>
<tr>
<td>Expenditures per capita</td>
<td>2.1E-06</td>
<td>6.9E-07</td>
<td>3.3E-06</td>
<td>1.7E-06</td>
<td>3.0E-06</td>
</tr>
<tr>
<td>Household size</td>
<td>0.040</td>
<td>-0.014</td>
<td>0.052</td>
<td>0.040</td>
<td>0.059</td>
</tr>
<tr>
<td>Dependency ratio</td>
<td>0.033</td>
<td>0.0016</td>
<td>0.16</td>
<td>-0.016</td>
<td>0.0083</td>
</tr>
<tr>
<td>Food groups consumed</td>
<td>-0.0018</td>
<td>0.034</td>
<td>-0.057</td>
<td>-0.0022</td>
<td>0.046</td>
</tr>
<tr>
<td>Polygamous household</td>
<td>-0.18</td>
<td>-0.12</td>
<td>-0.17</td>
<td>-0.13</td>
<td>-0.45</td>
</tr>
<tr>
<td>Worker</td>
<td>0.73*</td>
<td>1.06***</td>
<td>-0.12</td>
<td>0.71*</td>
<td>1.39**</td>
</tr>
<tr>
<td>Land cultivated</td>
<td>-0.0059</td>
<td>-0.030</td>
<td>0.024</td>
<td>-0.0047</td>
<td>-0.015</td>
</tr>
<tr>
<td>1st quintile expenditures</td>
<td>0.47</td>
<td>-0.19</td>
<td>1.14</td>
<td>0.42</td>
<td>0.69</td>
</tr>
<tr>
<td>2nd quintile expenditures</td>
<td>0.68</td>
<td>0.19</td>
<td>1.00</td>
<td>0.62</td>
<td>0.71</td>
</tr>
<tr>
<td>3rd quintile expenditures</td>
<td>0.15</td>
<td>0.062</td>
<td>-0.19</td>
<td>0.15</td>
<td>0.22</td>
</tr>
<tr>
<td>4th quintile expenditures</td>
<td>0.33</td>
<td>0.18</td>
<td>0.31</td>
<td>0.27</td>
<td>0.56</td>
</tr>
<tr>
<td>% of food in budget</td>
<td>0.043</td>
<td>0.90</td>
<td>-1.77**</td>
<td>0.013</td>
<td>-0.52</td>
</tr>
<tr>
<td>Logarithm of value of assets</td>
<td>0.042</td>
<td>-0.075</td>
<td>0.23***</td>
<td>0.014</td>
<td>0.067</td>
</tr>
<tr>
<td>Armed groups in village</td>
<td>0.14</td>
<td>0.60**</td>
<td>-0.73**</td>
<td>0.28</td>
<td>-0.46</td>
</tr>
<tr>
<td>Armed groups in region</td>
<td>-0.41**</td>
<td>-0.53**</td>
<td>-0.34</td>
<td>-0.45**</td>
<td>-0.25</td>
</tr>
<tr>
<td>Observations</td>
<td>981</td>
<td>975</td>
<td>975</td>
<td>981</td>
<td>975</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01
Summary of results: Food security

• Positive effect of food assistance on household expenditures (non-food and food), and nutrient availability
  – Mostly in households receiving 2 forms of aid
• In areas indirectly affected by conflict
  – Improved household nutrient availability, including calories and some micronutrients
  – In households receiving 2 forms of aid, large positive effect on the height of children in cohort aged 2-5 at baseline
Summary of results: Education

• School feeding: Strong positive effect on enrolment and grade attainment
  – Effect on enrolment driven by boys while impact on attainment was mostly driven by girls

• General food distribution: Reduced grade attainment and attendance, driven by effect on boys
Discussion

• During 5 years since conflict peaked, households experienced continued food insecurity and varied exposure to conflict

• Analysis suggests that food assistance had important impacts on food security and education
  – Heterogenous effects, depending on transfer modality and level of conflict exposure

• Scope to improve the design of food assistance

• Humanitarian operations in conflict-affected settings face some critical trade-offs
Next steps...

• **Methods work**
  – Descriptive analysis on conflict exposure
  – Unpack pathways

• **Impact assessment**
  – Agriculture production and marketing
  – Reproductive health
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