Strengthening Producer Organizations in Uganda: The Impact on Labor and Non-labor Inputs

Markus Olapade¹, Markus Frölich², Ruth Vargas Hill³, Eduardo Maruyama⁴
¹International Initiative for Impact Evaluation, ²University of Mannheim, ³World Bank, ⁴International Food Policy Research Institute

Corresponding Author’s contact information: molapade@3ieimpact.org
3ie, 2nd Floor, West Wing, ISID Complex, Plot No. 4, Vasant Kunj Institutional Area, New Delhi 110070, India


Copyright 2014 by Markus Olapade. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.
Introduction:

Rural Producer Organizations (POs) are member-based and in theory achieve economies of scale which improves the members’ market situation. POs struggle with low participation of members in joint activities. This renders the organizations ineffective: Joint sales delay payment to members and in many cases payments are not transparent.

Two interventions were implemented to improve attractiveness of PO activities: Cash-on-delivery, to reduce delays in payments and a system of SMS messages to provide members with information on the POs final sales.

Research Questions:

Do members adopt their behavior in anticipation of improved PO sales?

Does trust in PO leaders play an important role and do the interventions have an effect on the members’ trust in PO leaders?

Are there any heterogeneous effects along the lines of type of crop, land constraints, etc?

Methods:

We conducted a randomized controlled trial with three treatment arms among 167 rural POs. 42 POs were allocated to receive cash-on-delivery (CoD), 42 POs received Information-on-sales (IoS), 40 POs received both interventions (Both), 43 served as controls. The full sample amounts to 305 farmers.

We estimate Intention-to-Treat effects using OLS:

$$ Y_i = \alpha + \beta CoD_i + \gamma IoS_i + \delta Both_i + \eta X_i + \sum_{i=1}^{n} \lambda_i DC_{i,s} + \epsilon_i $$

Results:

We found positive effects on labor and non-labor inputs for the Information-on-Sales (IoS) intervention. The effects were significant only for family labor, use of pesticides and purchase of seeds.

While we expected Cash-on-delivery (CoD) to affect the demand of hired labor by reducing cash constraints, no significant effects were found here. Sample size might play a role.

Heterogeneous effects: Among members who trust their PO leaders the IoS results are emphasized.

Conclusions:

The Information-on-Sales intervention, which provides truthful information on sales prices and amounts sold, promises to reduce asymmetric information. This promise suffices to change the members’ input behavior.

The Cash-on-Delivery intervention, which reduces the delay in payments promises to alleviate cash constraints at harvest time. Farmers react to this with increased investment in inorganic fertilizer.

These results provide evidence that the way POs function can play an important role for unleashing untapped labor resources and for adopting innovative agricultural techniques.

### Summary Statistics for Labor Input

<table>
<thead>
<tr>
<th></th>
<th>Trial Farming Season</th>
<th>Second Farming Season</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Labor Days</strong></td>
<td>33.4</td>
<td>36.2</td>
</tr>
<tr>
<td><strong>Hired Labor Days</strong></td>
<td>4.7</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Household member labor days</strong></td>
<td>28.7</td>
<td>31.8</td>
</tr>
</tbody>
</table>

### OLS Estimates of the Impact on Labor Inputs

<table>
<thead>
<tr>
<th></th>
<th>First Season</th>
<th>Second Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>CoD</td>
<td>0.04</td>
<td>0.13**</td>
</tr>
<tr>
<td>IoS</td>
<td>0.04</td>
<td>0.11**</td>
</tr>
<tr>
<td>Both</td>
<td>0.05</td>
<td>0.12**</td>
</tr>
</tbody>
</table>

### OLS Estimates of the Impact on Non-Labor Input Use

<table>
<thead>
<tr>
<th></th>
<th>Manure Fertilizer</th>
<th>Inorganic Fertilizer</th>
<th>Pesticide/Fungicide</th>
<th>Traditional Seeds</th>
<th>Hybrid Seeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>CoD</td>
<td>0.07**</td>
<td>0.10**</td>
<td>0.06</td>
<td>0.04</td>
<td>0.09</td>
</tr>
<tr>
<td>IoS</td>
<td>0.04</td>
<td>0.09</td>
<td>0.07</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>Both</td>
<td>0.06</td>
<td>0.10**</td>
<td>0.08</td>
<td>0.09</td>
<td>0.10</td>
</tr>
</tbody>
</table>

The endline of the study is now complete and conclusions can be drawn.

---

Strengthening Producer Organizations in Uganda: The Impact on Labor and Non-labor Inputs

Markus Olapade1, Markus Frölich2, Ruth Vargas Hill3, Eduardo Maruyama4

1International Initiative for Impact Evaluation, 2University of Mannheim, 3World Bank, 4International Food Policy Research Institute

### Research Questions

- Do members adopt their behavior in anticipation of improved PO sales procedures?
- Does trust in PO leaders play an important role and do the interventions have an effect on the members’ trust in PO leaders?
- Are there any heterogeneous effects along the lines of type of crop, land size, trust in leaders, etc?

### Methods

- We conducted a randomized controlled trial with three treatment arms among 167 rural POs. 42 POs were allocated to receive cash-on-delivery (CoD), 42 POs received Information-on-sales (IoS), 40 POs received both interventions (Both), 43 served as controls. The full sample amounts to 305 farmers.
- We estimate Intention-to-Treat effects using OLS:

$$ Y_i = \alpha + \beta CoD_i + \gamma IoS_i + \delta Both_i + \eta X_i + \sum_{i=1}^{n} \lambda_i DC_{i,s} + \epsilon_i $$

### Results

- We found positive effects on labor and non-labor inputs for the Information-on-Sales (IoS) intervention. The effects were significant only for family labor, use of pesticides and purchase of seeds.
- While we expected Cash-on-delivery (CoD) to affect the demand of hired labor by reducing cash constraints, no significant effects were found here. Sample size might play a role.
- Heterogeneous effects: Among members who trust their PO leaders the IoS results are emphasized.
- Heterogeneous effects: There is evidence for heterogeneous impacts by crop type (maize vs. coffee)

### Conclusions

- The Information-on-Sales intervention, which provides truthful information on sales prices and amounts sold, promises to reduce asymmetric information. This promise suffices to change the members’ input behavior.
- The Cash-on-Delivery intervention, which reduces the delay in payments promises to alleviate cash constraints at harvest time. Farmers react to this with increased investment in inorganic fertilizer.
- These results provide evidence that the way POs function can play an important role for unleashing untapped labor resources and for adopting innovative agricultural techniques.