HOW DO STORAGE PRACTICES AFFECT SMALLHOLDER FARMERS’ MARKET PARTICIPATION IN BENIN?

Didier Kadjo1, Jacob Ricker-Gilbert2, Abdoulaye Tahirou3, 4Nasser BACO
1PhD candidate, 2Associate Professor; Purdue University, USA
3Outcome /Impact Economist; IITA; Nigeria
4Assistant Professor; University of Parakou, Benin


Corresponding author
Didier Kadjo, Purdue University
dkadjo@purdue.edu
Phone: +1 765-494-7960

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Didier Kadjo¹, Jacob Ricker-Gilbert², Abdoulaye Tahirou³, ⁴Nasser BACO

¹PhD Candidate, Massachusetts Institute of Technology, USA
²Assistant Professor, Purdue University, USA
³Director, IITA Benin, Benin
⁴Professor; Purdue University, USA

**Abstract**

Smallholder farmers in Sub-Saharan Africa store maize at home to make small grain sales during market opening periods. However, post-harvest maize quality and market access are based on storage practices. The study uses a two-step wave of data collected after the harvest seasons 2011/2012 and 2013/2014 for a total of 618 rural household in 8 of the 12 départements in Benin. The study examines the effect of observable storage practices (chemical, physical, and biological) on the quality of maize and farmers’ market access (nutritional value, product market, and price). The study concluded that there is a positive effect of storage practices on maize quality and market access.

**Identification Strategy and Data**

A model of market participation in two steps following a double hurdle approach

\[ \mathbf{y} \sim \begin{cases} \text{Binomial} & \mathbf{y} \in \{0, 1\} \\
\text{Normal-Negative Binomial} & \mathbf{y} > 0 \end{cases} \]

**Econometric results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Probit-MIC</th>
<th>Truncated-Normal-MIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical use (0.09)</td>
<td>0.09*** (0.04)</td>
<td>0.09*** (0.04)</td>
</tr>
<tr>
<td>Drying duration (5.94)</td>
<td>22.65** (8.12)</td>
<td>22.65** (8.12)</td>
</tr>
<tr>
<td>Storage duration (0.07)</td>
<td>25.93** (8.07)</td>
<td>25.93** (8.07)</td>
</tr>
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</table>

**Conclusions**

- An increase in expenditure for chemical protectant is associated with a higher probability that farmers will participate in markets. This effect is likely because they need to cover the cost of chemical applications.
- Farmers who use chemical protectant sell lower stored maize when they are aware of the risk of chemical use. They expect high marginal value for maize quality (N insect damage & Residues) that markets cannot pay for.
- Farmers who used chemical protectant sell more stored maize when they are aware of the risk of chemical use. They might perceive a higher health risk from applying chemicals to stored-maize. They can move risky maize stocks into markets on chemical contamination decreases the marginal value of stored maize.

**References**


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