The Role of Peasant Marketing Institutions in Market Access for Smallholders: A Micro-evidence from Rural Java

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Backgrounds & Objectives

- Rural smallholders face market access to High Value Chain (HVC) like Supermarket in developing countries. A lot of research focused on how HVC change marketing system in developing countries and how traditional marketing in urban area is transformed by emerging HVC.
- However, there are little empirical studies about how smallholders in rural area change their traditional marketing institutions, resulted from emerging supermarket (Reardon and Timmer, 2007). The traditional marketing system is recognized to complement the incompleteness of market by reducing transaction costs.
- Motivation from peasant marketing institutions “Tebasan” in rural Java: A common marketing institution in rural Java is “Tebasan”. It is standing crop selling before harvesting...“Tebasan” improve market access by reducing monitoring cost of harvesting and avoid cream skimming by middlemen (Hayami and Kawagoe, 1993).

Objectives

- We investigate how local marketing practice between farmers and middlemen change under pressure of high quality products. Thus, we clarify fundamental properties of “Tebasan” and how market condition influence the modes of “Tebasan” by comparing West and East Java.

Model of marketing contracts

Based on Leffeler and Rucker (1991), we consider two types of standing crop selling contract; lump-sum (typical “Tebasan”) and per unit payment contract.

- In lump-sum contracts total payment amount is determined at the time the contract is signed. The model is a sealed-bid auction with common-values.
- In per unit contracts a payment schedule and the value is determined by actual volume. And it is modeled as

\[
\max \ P_q Q_p - \gamma_q(Q_p) - \epsilon \cdot \left( P_{Q_p} - Q_p \right) \geq 0
\]

where \( P_{Q_p}, Q_p, \gamma_q, \epsilon, \) selling price of farmer, market price, quantity sold, optimal quantity, middlemen, incentive cost for farmers, production cost and harvesting cost respectively.

- We assume middlemen don’t binding zero-profit constraint, though middlemen compete heavily. This model expects that increasing market price decrease farmer’s revenue from this contracts toward others.

Hypothesis: “Tebasan” vs market-oriented

1. “Tebasan” is lump-sum contract, then decreasing of pre-measurements for costs of each middlemen increase probability of lump-sum contract.
2. If “Tebasan” is per unit contract, then decreasing of enforcement costs increasing the probability, e.g. the cost increase with market price and value of crop increased
3. Increasing unit harvesting cost and transporting cost increase probability of contract

Hypothesis: Lump-sum vs per unit

1. Decreasing of private information costs for each middlemen increase probability of lump-sum contract.
2. Decreasing of enforcement costs increase probability of per unit contract.

Methods

- Data
- Plot-level transaction data were collected from two hamlets in Summer 2012, a hamlet from Clanjur District, West Java and the other from Malang District, East Java. We choose 774 transaction data completed in one year before July 2012.
- We carefully select the hamlets. In both of hamlets, infrastructure of market places is improved, main crops are vegetables, farmers’ plots are on up land area and geographical distance to urban area (Jakarta, Surabaya) is nearly the same. However, the hamlet in West Java is closer to a market place than the other hamlet in East Java. We assume that it captures potential difference on market access in Java.
- After omitting the data which relate minor crops and has deficit, we construct 443 sample.

Descriptions about marketing situation in sampled hamlets

- The case in West Java represent more pressure from Supermarkets than East Java. Although we select farmers trading with traditional marketing channel, some farmer’s association, private companies and itinerant traders trade with Supermarkets.
- In both of cases, farmers usually prefer to utilize “Tebasan”, otherwise farmers sell harvested crops mainly on farm gate.

Econometric method

1. Probit regression for testing hypothesis on two type of “Tebasan”.
2. Double-rout estimator for estimating causality effects of “Tebasan” to marketing performance after calculating propensity score using the probit model. Then we check the robustness by using minimum bias bias-correted estimator (Millimet and Tchernis, 2012).

Results

1. Examine type of “Tebasan”

<table>
<thead>
<tr>
<th>Dependent variable: selecting “Tebasan” = 1</th>
<th>Description of variable</th>
<th>Expected sign</th>
<th>Parameter estimate</th>
<th>T-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-measurement for estimating</td>
<td>Farmgate price (Rp/Kg)</td>
<td>-0.111***</td>
<td>0.00666</td>
<td>-18.63***</td>
</tr>
<tr>
<td>Per unit payment</td>
<td>Market price (Rp/Kg)</td>
<td>-0.014***</td>
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</tr>
</tbody>
</table>

2. Differences between West and East Java

<table>
<thead>
<tr>
<th>Variable</th>
<th>West Java</th>
<th>East Java</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmgate price (Rp/Kg)</td>
<td>3049 (2731)</td>
<td>1372 (1060)</td>
<td>-1677***</td>
</tr>
<tr>
<td>Market price (Rp/Kg)</td>
<td>3252 (2228)</td>
<td>1533 (1533)</td>
<td>-1028***</td>
</tr>
<tr>
<td>Distance to tract (km)</td>
<td>0.713</td>
<td>1.229</td>
<td>(0.999) (0.967) -0.515***</td>
</tr>
<tr>
<td>Quantity sold (Kg)</td>
<td>919 (764.9)</td>
<td>1099 (764.2)</td>
<td>-90.3</td>
</tr>
<tr>
<td>Land (ha)</td>
<td>782 (536.9)</td>
<td>1612 (604.2)</td>
<td>-830.1***</td>
</tr>
<tr>
<td>Tebasan (log)</td>
<td>-0.648</td>
<td>-0.478</td>
<td>(0.411) -0.173***</td>
</tr>
</tbody>
</table>

3. Effects of “Tebasan” to farmer’s profit

<table>
<thead>
<tr>
<th>Variable</th>
<th>All Sample</th>
<th>West Java</th>
<th>East Java</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit (Rp)</td>
<td>0.1236</td>
<td>-0.42</td>
<td>0.6156</td>
<td>-0.549</td>
</tr>
<tr>
<td>Quantity sold (Kg)</td>
<td>0.9402</td>
<td>16.802</td>
<td>-0.186</td>
<td></td>
</tr>
<tr>
<td>Farmgate price (Rp/Kg)</td>
<td>-0.279*</td>
<td>-0.024</td>
<td>-0.19</td>
<td></td>
</tr>
<tr>
<td>Sales value (Rp)</td>
<td>-0.219</td>
<td>0.427</td>
<td>0.544*</td>
<td></td>
</tr>
</tbody>
</table>

Discussion and Conclusions

- Fundamental properties of “Tebasan” seems to be based on per unit contracts, in which farmers have incentive to restrict competition among middlemen by negotiating with a limited number of middlemen. And it doesn’t affect market performance.

- A case in West Java revealed that the farmers avoid to select per unit contracts more than the other case in East Java. Because farmers may adopt lump sum sales to transact with more middlemen by using mobile phone. Their “Tebasan” may allow trading with Supermarket.

- Discussion
- For popular kinds of vegetables in West Java, farmers could not trade with Supermarket directly, but do it through “Tebasan” contract with middlemen, assuming that direct trade with Supermarket require large land and trade volume to farmers. Because farmers who have large land prefer to “Tebasan” similar with per unit contracts though their average harvesting area is relatively smaller than the case in East Java.

- Limitation
- Mechanism of horizontal integration for direct trading with Supermarket couldn’t be considered in this research. We need further investigation about it.

References