EXAMINING THE TRADE ADJUSTMENT ASSISTANCE FOR FARMERS IN THE U.S.: ROLE OF INCENTIVES IN PROGRAM PARTICIPATION

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## BACKGROUND

- The Trade Adjustment Assistance (TAA) program for farmers is a measure to assist farmers adversely affected by import competition via cash benefits and technical assistance.
- Since its introduction in 2002, the program has been underused by farmers. Only about 10% of authorized funding was used between the financial year (FY) 2003-08.
- The American Recovery and Reinvestment Act (ARRA) in 2009 modified the program rules. The changes include:
  - More lenient group eligibility criteria
  - More flexible definitions of terms
  - Change from coupled to decoupled cash payments

<Table 1> TAA Program Rules (Selected)

<table>
<thead>
<tr>
<th>Trade Act of 2002</th>
<th>ARRA of 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group Eligibility</strong></td>
<td></td>
</tr>
<tr>
<td>Price is less than 80% of the previous 5 year prices.</td>
<td>Price is less than 85% of the previous 3 year prices.</td>
</tr>
<tr>
<td>National average prices used.</td>
<td>Quantity/ value of production/ cash receipts may also be used.</td>
</tr>
<tr>
<td>Increases in imports contributed importantly to the decline in price.</td>
<td>Increases in imports contributed importantly to the decline in price.</td>
</tr>
<tr>
<td><strong>Individual Eligibility</strong></td>
<td></td>
</tr>
<tr>
<td>The producer’s net farm income should have decreased.</td>
<td>No requirement</td>
</tr>
<tr>
<td><strong>Cash Payment</strong></td>
<td></td>
</tr>
<tr>
<td>Cash payment formula based on the amount of production</td>
<td>Cash benefits to develop and implement business plans, with a maximum cap of $12,000.</td>
</tr>
<tr>
<td>No formula</td>
<td></td>
</tr>
</tbody>
</table>

## ROLE OF INCENTIVES

- Based on the model that assumes a representative farmer with a risk-averse preference, we derive the following testable hypotheses on incentives:
  - **H1**: Chances of participation increases if the commodity satisfies the TAA eligibility criteria.
  - **H2**: Chances of participation increases after the ARRA.
  - **H3**: Chances of participation increases if receipt of other government payments decreases, or vice versa.
  - **H4**: Chances of participation increases if a TAA petition was approved for the same or a similar commodity in the past.

## DATA

- We constructed a panel data set that encompasses prices, imports, TAA petition activities, and state farm characteristics of 202 field crops and two fishery commodities in all states in the periods of the first (2003-2007) and the second (2010) rounds of the TAA program.
- **Sources**: (1) Petition data: Federal Register Notices; (2) Price data: USDA NASS; (3) Import data: USDA FAS; (4) State farm characteristics: USDA ERS.

## EMPIRICAL STRATEGY

- We start with a Linear Probability Model (LPM):

  \[ Y_{ijt} = \beta_0 + \beta_1 I_{ijt} + \beta_2 F_{ijt} + \sum_{j} SC_{ij} + Y_{i0} T_{04} + \cdots + Y_{i7} T_{07} \]

  \[ + \lambda_{ijt} \]

  \[ Y_{ijt} = 1 \text{ if a TAA petition was filed by state } i \text{ for commodity } j \text{ in year } t. \]

  \[ Y_{ijt} = 0 \text{ otherwise.} \]

  \[ I_{ijt} \text{ is a vector of variables related to incentives.} \]

  \[ SC_{ij} \text{ is a state-commodity fixed effect.} \]

  \[ T_{ij} \text{ is a year dummy for year } i. \]

  \[ \lambda_{ijt} \text{ is a random error term.} \]

  - We further estimate the Rare Events Logistic (ReLogit) regression by King and Zheng (2001a, 2001b) to address issues stemming from large disparity of 1’s and 0’s in the dependent variable.

## RESULTS

- **VARIABLE**
  - Price Eligibility
  - Import Eligibility
  - % Increase in Gov. Pmt.
  - % Increase in Gov. Pmt. 1-year Lag
  - Previously Approved
  - Fishery Commodities
  - Yr 2010 (ARRA)

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>All Years</th>
<th>All Years</th>
<th>Before ARRA</th>
<th>After ARRA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Eligibility</td>
<td>0.007***</td>
<td>0.006***</td>
<td>0.012***</td>
<td>-0.007</td>
</tr>
<tr>
<td>Import Eligibility</td>
<td>0.005</td>
<td>0.005</td>
<td>-0.001</td>
<td>0.017***</td>
</tr>
<tr>
<td>% Increase in Gov. Pmt.</td>
<td>-0.005*</td>
<td>-0.006*</td>
<td>-0.008***</td>
<td>0.031***</td>
</tr>
<tr>
<td>% Increase in Gov. Pmt. 1-year Lag</td>
<td>-0.006**</td>
<td>-0.006**</td>
<td>-0.007***</td>
<td>0.014*</td>
</tr>
<tr>
<td>Previously Approved</td>
<td>0.146</td>
<td>0.413***</td>
<td>-0.188*</td>
<td>0.568***</td>
</tr>
<tr>
<td>Fishery Commodities</td>
<td>0.096***</td>
<td>0.254***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yr 2010 (ARRA)</td>
<td>0.019***</td>
<td>0.011***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>15,294</td>
<td>15,294</td>
<td>12,741</td>
<td>2,553</td>
</tr>
<tr>
<td>State FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Commodity FE</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

## DISCUSSIONS

- **Strict eligibility criteria was one of the factors that lowered farmers’ participation before the ARRA, confirming previous studies (Bacho and Goodwin (2008); U.S. Government Accountability Office (GAO) (2006)).**
- **Incentive to make up for the losses in other forms of government farm payments and to mitigate negative price risk were also the main factors that drove farmers’ participation before the ARRA.**
- **Different results before and after the ARRA possibly reflect the changes in farmers’ motivation for participation due to the changes in the program rules and structure.**

## References


## RESEARCH QUESTION

- Why has farmer’s participation been so low, even though the program provides cash benefits and technical assistance to farmers? Can incentives explain farmers’ participation behavior in the program?
- Has the ARRA been effective in terms of farmers’ participation?