Quality choice, competition and vertical relationship in a market of protected designation of origin

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Introduction

- Label for geographical indication – Protected Designation of Origin (PDO)
  - all stages of production must take place in a specific area

- Does a quality labeling policy have an impact on the decline in agricultural production?

- Both farmers and processors in a specific geographical area are involved in the development of a PDO
Introduction

Research questions

- Incentives of farmers and processors to provide high quality PDO good?

- How will the vertical relationship between farmers and processors affected the quality of a PDO good?

Model of PDO supply chain

- Farmers provide raw materials to processing firms
- Processors produce final goods
Depending on the structure of technology cost and demand characteristics, farmers’ and processors’ choice of quality might not be aligned.

Farmers prefer high quality if:
- demand for PDO is relatively inelastic
- or in the case of decreasing return to scale

When farmers and processors have conflicting incentives, bargaining power of farmers is important in the negotiation process.
The model

- In a given geographical area
  - $n$ (many) identical farmers face demand $p(X, \beta)$
  - $m$ (a few) identical producers $p(X)$

- $X$ quantity of PDO good
- $\beta$ level of quality that only affects farmers
- $C(q, \beta)$ cost of production of farmers ($C_\beta > 0$, $C_q > 0$, $C_{qq} > 0$)
- $w$ price of raw input
The model

- Timing – 3 stage game
  1. choice of $\beta$ – Nash Bargaining Solution
  2. Processors choose $x_i$ simultaneously (Cournot Competition)
  3. Farmers choose $q$ (Perfect Competition)
The model

- Each farmer chooses $q$ such that $w = C_q(q, \beta)$

- Equilibrium quantities of processors depend on 2 effects
  - oligopoly power effect
  - oligopsony power effect

- Choice of quality
Discussion

- Very general model – general demand and cost functions
  - Difficult to conclude because effects are going in both directions
  - Why not consider a linear demand and quadratic cost functions framework from the start?

- Quality standard affects aggregate profit of processors
  - Why not look at how quality standard affects individual profit?
  - An increase in $\beta$ could create differentiation in farmers products...
Discussion

- Bargaining process
  - With many firms there might be a high bargaining cost associated
  - There can be a transfer between farmers and processors

- Welfare analysis
  - Total welfare?
  - Consumers?