Provision of quality in the agro-food chain

An Industrial Organization perspective

Vincent Réquillart

INRA, IDEI. Toulouse

TOULOUSE DOLPHINS MEETING

2003, Feb. 10th

Issues

- Vertical structure
  - How does it work?
  - How producers organize the VS.
  - **Compatibility with competition policy**
- Consumers information
  - Imperfect information
  - Signaling
  - **Role of labeling, standards, ….**
- Public intervention
  - **Public vs private design of labels, standards, …**

Some key concepts

- Product definition
  - Bundle of characteristics (*Lancaster, 1966*)

- Product differentiation (*Hotelling, Lancaster, Mussa-Rosen*, ….)
  - Vertical differentiation (Quality)
  - Horizontal differentiation (Variety)

- Types of characteristics (*Nelson, 1974*)
  - Search : Before
  - Experience : After
  - Confidence : Never

Examples and typology

	Search	Experience	Confidence
	Color, aspect	Taste	Safety, organic
Quality		Red label PDO : Requirements Trademark	Organic food Non GMO
Variety		PDO : Origin PGI Trademark	

Organization of the food chain and competition policy

- Engage in label, PDO, PGI, …
- WHY : survive, increase profit
- HOW : differentiation
  decrease price competition
  prevent entry

How to organize the VS to provide a guarantee (on quality or specific characteristic) to consumers

COMPETITION POLICY

Organization of the food chain and competition policy

- COMPETITION POLICY GOAL :

ENHANCE ECONOMIC EFFICIENCY

- Even in regulated sectors competition policy applies. (with exemption if agreed explicitly by an other authority; min agriculture for food products)

Food chain and competition policy

- Literature on vertical restraints (Spengler, 1950; Scherer, 1983; Mathewson and Winter, 1984; Rey and Tirole, 1986; Rey and Stiglitz, 1988)
  - Better coordination in VS increases profits of agents in the VS
  - Can increase economic efficiency
  - Can increase economic surplus including consumers surplus
  - *Results highly dependent of the level of competition on upstream and downstream markets*

Food chain and competition policy

Competition rules (EU, 2000)

- Agreements that affect trade between MS (excl SME)
- Article 81(1) prohibits vertical restraints **but**
- Block Exemption Regulation renders 81(1) inapplicable to vertical agreements entered by companies with MS < 30% …… **but**
- BER contains 5 hardcore restrictions:
  - RPM (fix price but recomandations are possible)
  - …..
- BER not apply to VA concluded between competitors (horizontal aspects)

Food chain and competition policy

- Main argument invoked : Restrictions are needed in order to supply and guarantee product characteristics (Lucatelli, 2000)
- 2 main risks : monopolistic cartels, obstacles to new entrants.
- Prohibition of :
  - Measures to control supply
  - Discriminatory practice between incumbents and entrants

Food chain and competition policy

- Mainly depends on :
  - Market definition
  - Level of competition with other products (very different situations among PDO, PGI)
- Restraints in order to procure quality requirements are never a good argument
- No discrimination between suppliers (national vs imports, ex. Peach agreement 2002 challenged by Competition council)

STANDARDS, LABELS

PERFECT INFORMATION

STANDARDS and LABELS

- Setting standards does affect competition because ‘quality’ choices by producers are endogenous.
- Even in a perfect information world, setting standards has welfare implications because it affects the strategic choice of characteristics of the product

Welfare and competition effects of standards

- Setting a standard has an influence on competition between firms and therefore on welfare:
  - Monopoly (duopoly…) does not systematically provide optimal quality for products.
  - Monopoly undersupplies quality when the market is covered. When it is not, no distorsions in quality (only in prices). (See Lambertini 1998)
- Setting standards does change the strategic choice of quality of all producers (including those producing higher level of quality)

Welfare and competition effects of standards

- Minimum standard (Ronnen, 1991; Crampes and Hollander, 1995)
  - Raises profit of low quality firm except if cannot adapt
  - Lowers profit of high quality firm (increase competition between firms)
- Designation standard (Crampes and Hollander, 1995)
  - Easing standard: decrease profit of low quality firms and increase profit of high quality firms; consumers benefit; welfare ambiguous

Welfare and competition effects of standards

- All previously cited studies do not take into account informational impact of standards.

- They give the trade off in a perfect information world.

STANDARDS, LABELS

IMPERFECT INFORMATION

Information and the consumer

- Imperfect information about prices (…. Market failure. See for ex. Stiglitz, 1989):
  - With search cost, standard results do not hold:
    - Distribution of prices rather than one price
    - Larger number of sellers can increase market price
- Imperfect information about products' characteristics ….. Market failure
  - Akerloff, 1970; Experience good, unrepeated purchase
    - high quality market disappears
    - Adverse selection problem
  - Shapiro, 1982; Experience good, repeated purchase
    - Reputation model: equilibrium at price > marginal cost but
    - Entrant : signal by a low introductory price

Information and the consumer

How to signal quality to the consumers

- Price signaling :
  - monopoly of ‘high’ quality charges price > its full information monopoly price in order to signal quality
  - With competition, impossible
- Guarantees
- Brands
- Certification
- Labeling

Information and the consumer

- Labeling or certification is a way to transform a credence attribute in a search one.
- When certification is possible, certification if quality > Q* ;
- When labeling is possible, signal is less informative; ‘free riding’ of lower quality of the label (Linnemer and Perrot, 1997)

Information and the consumer

- Voluntary vs mandatory labeling
  - Segerson (1999) showed that for food safety the key point is related to perceived risks. If producers and consumers correctly perceive risks then voluntary labeling works well, otherwise mandatory labeling is needed.
  - Mojduska and Caswell (2000) showed that, in the US, mandatory nutrition labeling were likely to increase significantly the amount of information available to consumers.

Information and the consumer

- Common labeling and ‘cartelisation’:
  - Trade off between better information to consumers which improve welfare and collusion among producers which decreases welfare. (Marette, Crespi, Schiavina, 1999). Depends on the cost of certification:
    - Low cost of certification : high quality producers certify their products
    - High cost of certification : without common labeling no firms use the certification process. With common labeling they certify, collude but the net impact on welfare can be positive

Information and the consumer

- CERTIFICATION :
  - WHO CERTIFIES ?
    - Self certification
    - Public certification
  - HOW TO FINANCE CERTIFICATION ?
    - Public funds
    - User fees

Information and the consumer

- Certification and how to finance it; credence goods
  - Auriol, Schilizzi (2001). Private self certification is sub optimal; fixed cost of certification : public certification funded either by public funds or user fees depending on opportunity costs of funds.
  - Crespi and Marette (2001) : id; with per-unit cost of certification, user fees is the best solution. Certification can be done by private middlemen as far as there is competition on this market.
- Literature on strategic middlemen, experts, …

Evaluating the willingness to pay for specific attributes

- Hedonic approaches: widely used to evaluate how much a consumer is willing to pay for quality (Nimon and Beghin, 1999 on eco-labels, Loureiro and McCluskey, 2000 on PGI, Hassan and Monier, 2001 on PDO)
  - Interactions between the different signals of quality; decreasing marginal returns wrt quality or
- Mixed multinomial logit models …. Distribution of willingness to pay by consumers (Bonnet and Simioni, 1999 on PDO).

PUBLIC POLICY

Public vs private design of labels, standards

- With credence attributes, public regulation is needed (definition of the labels, control of certification activity). However, the certification process can be implemented by private companies.
- With respect to experience attributes, the literature mainly concludes that public regulation is not needed. Private sector under competition will perform better.

Public vs private design of labels, standards

- Difficulty to define in reality the limit between experience and credence goods;

- When different signals are present or possible (ex. certification plus labeling) signals are ambiguous (Linnemer, Perrot)
- Role of public sector : Limit the number of public signals

Perspectives

- NEED FOR BETTER UNDERSTANDING OF THE REAL IMPACT OF THE DIFFERENT TYPES OF SIGNALS IN FOOD SECTOR (LABELS, STANDARDS, PDO,PGI)
- NEED FOR EVALUATION OF SIGNALING ROLE OF STANDARDS? LABELS, ….
- NEED FOR EVALUATION OF CONSUMER W.T.P.

Some References

- Akerlof, G.A., 1970. The market for lemons': qualitative uncertainty and the market mechanism. *Quaterly Journal of Economics*, 84(3): 488-500.
- Auriol E. and S. Schilizzi, 1999. Quality signaling through certification. Mimeo, IDEI, Toulouse.
- Bonnet C. and M. Simioni, 2001. Assessing consumer response to protected designation of origin labelling: a mixed multinomial logit approach. *European Review of Agricultural Economics*, 28(4): 433-449.
- Crampes C. and A. Hollander, 1995. How many carats is gold? Welfare effects of easing a denomination standard. *Journal of regulatory Economics*, 7:131-143.
- Crampes C. and A. Hollander, 1995. Duopoly and quality standards. *European Economic Review*, 39: 71-82.
- Crespi J.M. and S. Marette, 2001. How should food safety certification be financed? *American Journal of Agricultural Economics*, 83(4): 852-861.
- Crespi J.M. and S. Marette, 2002. Some economic implications of public labeling. WP INRA-ERR Grignon.
- European Commission, 2002. Competition policy in Europe: the competition rules for supply and distribution agreements. Luxembourg.
- Hassan D. and S. Monier-Dilhan, 2001. Signes de qualité et qualité des signes. Cahier de recherches, 2001-07, INRA-ESR Toulouse.
- Lambertini L., 1998. Does Monopoly undersupply product quality?. Miméo, 18 p.
- Linnemer L. and A. Perrot (1997). Une analyse économique des "signes de qualité": labels collectifs et certification des produits. Document de travail 9732, CREST, Paris.
- Loureiro M.L. and J.J. mcCluskey. Assessing Consumer Response to Protected Geographical Identification Labelling. *Agribusiness*, 16(3): 309-320.
- Lucatelli S., 2000. Appellations of origin and Geographical indications in OECD member countries: economic and legal implications. OECD, Paris.
- Marette S., J.M. Crespi and A. Schiavina, 1999. The role of common labelling in a context of asymmetric information. *European review of Agricultural Economics*, 26(2): 167-178.
- Mathewson G.F. and R.A. Winter, 1984. An economic theory of vertical restraints. *Rand Journal of Economics*, 15: 27-38.
- Mojduszka E.M. and J.A. Caswell, 2000. A test of nutritional quality signaling in food markets prior to implementation of mandatory labeling. *American Journal of Agricultural Economics*, 82(2): 298-309.
- Nimon W. and J. Beghin, 1999. Are Eco-labels valuable? Evidence from the apparel industry. *American Journal of Agricultural Economics*, 81(4): 801-811.

Some References (continued)

- Rey P. and J.E. Stiglitz, 1988. Vertical Restraints and producers competition. *European Economic Review*, 32: 561-568.
- Rey P. and J. Tirole, 1986. The logic of vertical restraints. *American Economic Review*, 81(5): 1137-1145.
- Ronnen U., 1991. Minimum quality standards, fixed costs and competition. *Rand Journal of Economics*, 22: 490-504
- Scherer F.M., 1983. The economics of vertical restraints. *Antitrust Law Journal*, 52:687-707.
- Segerson K., 1999. Mandatory versus voluntary approaches to food safety. *Agribusiness*,15(1): 53-70.
- Spengler J.J., 1950. Vertical integration and antitrust policy. *Journal of Political Economy*, 58: 347-352.
- Stiglitz J.E., 1989. Imperfect information in the product market. Ch 13 *Handbook of Industrial organization*, Schmalense R. and R.D. Willig (Ed.). Elsevier.