Traceability and Country of Origin Labelling

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Outline

- Background: country of origin labelling and consumer responses
- Information asymmetry and quality signals
- Examples of livestock traceability systems
- Functions of a ‘traceability’ system
- Evaluating consumer willingness-to-pay for traceability information
- Trade implications

Country of Origin Labelling

- Do consumers value country of origin labelling?
- Intrinsically valued for ethnocentric reasons?
- Or as a quality signal?
- Or as a food safety signal?
- Previous consumer research is mixed on the purpose and potential value of COOL for consumers

Quality Signals

- Importance of food safety and food quality
- Intrinsic quality attributes

  e.g. fat content, colour, tenderness . . .
- Extrinsic quality cues e.g. brand name, price, country of origin
- Experience attributes e.g. food safety
- Credence attributes
  - ❖ Country of origin; GMOs; on-farm production methods; animal welfare; environment; many food safety problems

Information Asymmetry

- Consumers incur information costs in determining whether experience or credence attributes are present
- Solutions?
  - ❖ Signal presence of credence attributes
- Country of origin as a quality or safety signal?
- But proxy measures of value can lead to measurement errors for consumers (Barzel)
- More efficient to signal quality/safety directly

Individual Supply Chain Traceability Initiatives . . .

- Tracesafe (UK)
  - ❖ Differentiates beef on the basis of traceability to the farm of origin, with an implied safety assurance (Fearne)
- Van Drie Group (Netherlands)
  - ❖ Vertically integrated veal production system; traceable from retail shelf to farm of origin with quality assurances (Buhr)

Individual Supply Chain Traceability Initiatives

- Processors
  CEO Maple Leaf Foods:
  - ❖ Traceability is “the holy grail of the food supply chain”
  - ❖ Researching DNA identification technology to facilitate traceback to farm of origin
- Retailer driven:
  - ❖ On-farm QA requirements
  - ❖ But may not explicitly require traceability to the farm and may not label traceability

Industry-wide Traceability Initiatives

- Canadian Cattle Identification Agency
  - ❖ Facilitates traceback of cattle in the event of food safety or herd health problem
  - ❖ A preventative risk reduction strategy
  - ❖ Unique cattle ID number maintained to point of carcass inspection
- Australian National Livestock Identification System
  - ❖ Voluntary component - DNA sampling for traceback
  - ❖ Voluntary vendor declaration of production methods (feeding, hormones)
  - ❖ Focus on eating quality

Regulatory Initiatives . . .

- EU Beef Labelling Regulation (EC 1760/2000)
- Compulsory beef labelling and traceability

1. Cattle ID and registration
2. Labelling & traceability for beef products
   - ➔ traceability number
   - ➔ origin (born, reared, slaughtered, processed)
3. Rules for voluntary labelling with additional information

Regulatory Initiatives

- Agricultural Policy Framework (Canada)
  - ❖ Food safety and quality pillar
  - ❖ Target of 80% of domestic food traceable
  - ❖ Voluntary
- US mandatory Country of Origin Labelling
  - ❖ Born, raised and slaughtered in US to receive US COO label
  - ❖ Implications for traceability, logistics and record-keeping

Demystifying Traceability . . .

1) Reactive traceback function

- ❖ allows traceback of products or animals in the event of a food safety problem
- ❖ *ex post* cost reduction (private & social costs)
- ❖ protects firms who practice due diligence from free riders

➔ **most livestock traceability systems**

CCIA - Reasons for Cattle ID

"**If a health or safety issue were to happen in Canada**, over half of our production could suddenly be without a market. We need to do what we can today to ensure market access, both domestically and internationally. A National Identification Program will help protect our markets. . . . If we as an industry do not put into place our own national identification system, we will lose market share and may find a system not of our choosing imposed upon us" (CCIA, 2002).

Demystifying Traceability . . .

2) Enhance the effectiveness of Tort Liability law as an incentive for firms to produce safe food

- ❖ civil legal penalties & loss of reputation
- ❖ reduces monitoring and enforcement costs for downstream food processors & retailers

➔ also an ***ex post*** **information** function

Demystifying Traceability

3) Reduce information costs for consumers

- ❖ labelling the presence of credence attributes
  e.g. animal welfare, environmentally-friendly, food safety, country of origin
- ❖ proactive information provision and quality verification

➔ an ***ex ante*** information function

Ex Post Traceback Vs Ex Ante Quality Verification

- Most livestock identification & traceability systems are **reactive**, they allow traceback in the event of a problem
- But this does not allow *ex ante* provision of information on credence attributes
- An *ex post*, reactive traceability system does not reduce consumer information asymmetry from credence attributes

EU Beef Labelling/ Traceability Regulation

- On the surface seems to consumers offer ex ante quality verification ……...
- BUT in reality it is an *ex post* reactive labelling system:

“ . . . Member States report that their consumers, even when well informed, have not notably changed their patterns of consumption of beef.”
(Commission of the European Communities, 1999)

The Challenge

- Transform credence attributes into search attributes through identification & labelling
- This requires **ex ante** provision of information on process attributes

- What do consumers really want?

Consumer WTP: Myth or Reality?

- Researching consumers' willingness-to-pay
- Collaboration with DeeVon Bailey and David Dickinson, Utah State University - USDA funded project: USA, UK, Japan, **Canada**
- Additional funding from AAFC
- Willingness to pay for traceability, food safety and on-farm production assurances in meat

Experimental Auctions

- Laboratory markets/experimental auctions
- Elicit non-hypothetical bid data
- Subjects given a free lunch, including beef (ham) sandwich and Cdn$20
- Bid to **exchange** their sandwich for a sandwich with additional verifiable characteristics

Four ‘Auction’ Sandwiches

1) An extra assurance of **humane animal treatment**
2) An extra assurance regarding **food safety** standards over and above the industry norm
3) Meat that was **traceable** to the farm of origin
4) Meat **traceable** to the farm of origin, with an extra assurance of **humane animal treatment** and an extra assurance of **food safety**

Canadian Experiments

- Saskatchewan & Ontario in 2002
- 204 respondents (104 beef, 100 pork)
- Groups of 12-14
- Range of demographics
  - ❖ Saskatchewan: faculty, professional staff, students, maintenance staff
  - ❖ Ontario: subjects recruited from consumer research company database

Bidding

- Vickrey 2nd price auction
- 10 rounds of bidding for each sandwich
- Sealed-bid
- “Market information” provided at the start of each round (2nd highest bid)
- At the end of 10 bidding rounds, one sandwich and one round randomly selected as the binding round/sandwich
- Only one sandwich is ‘auctioned’ off
- Auction ‘winner’ exchanges sandwich and pays the exchange price (2nd highest bid price)
- Rational strategy is to bid true WTP

Figure 1: Average WTP Bids - Beef

N=100

(Base sandwich value = $2.82)

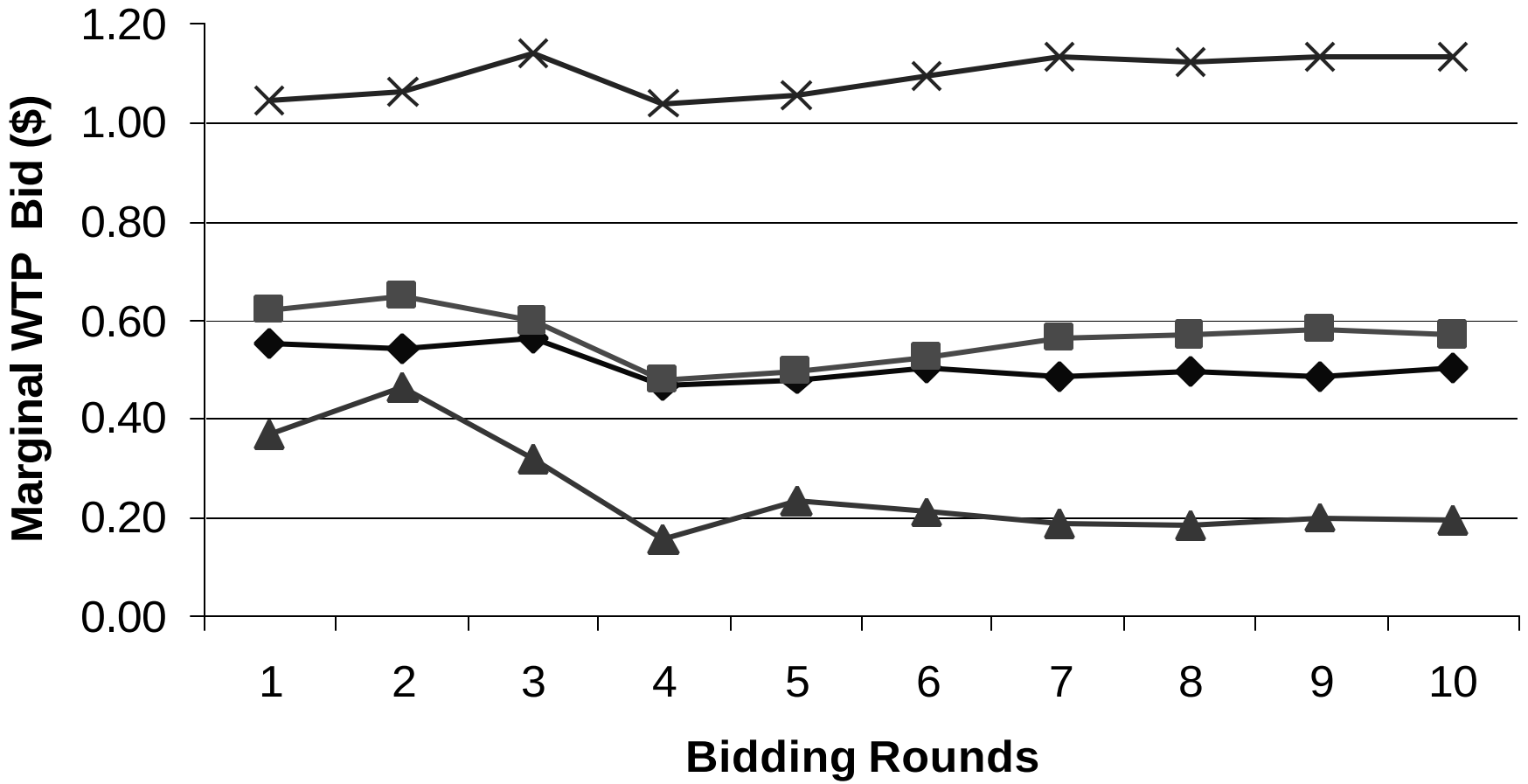
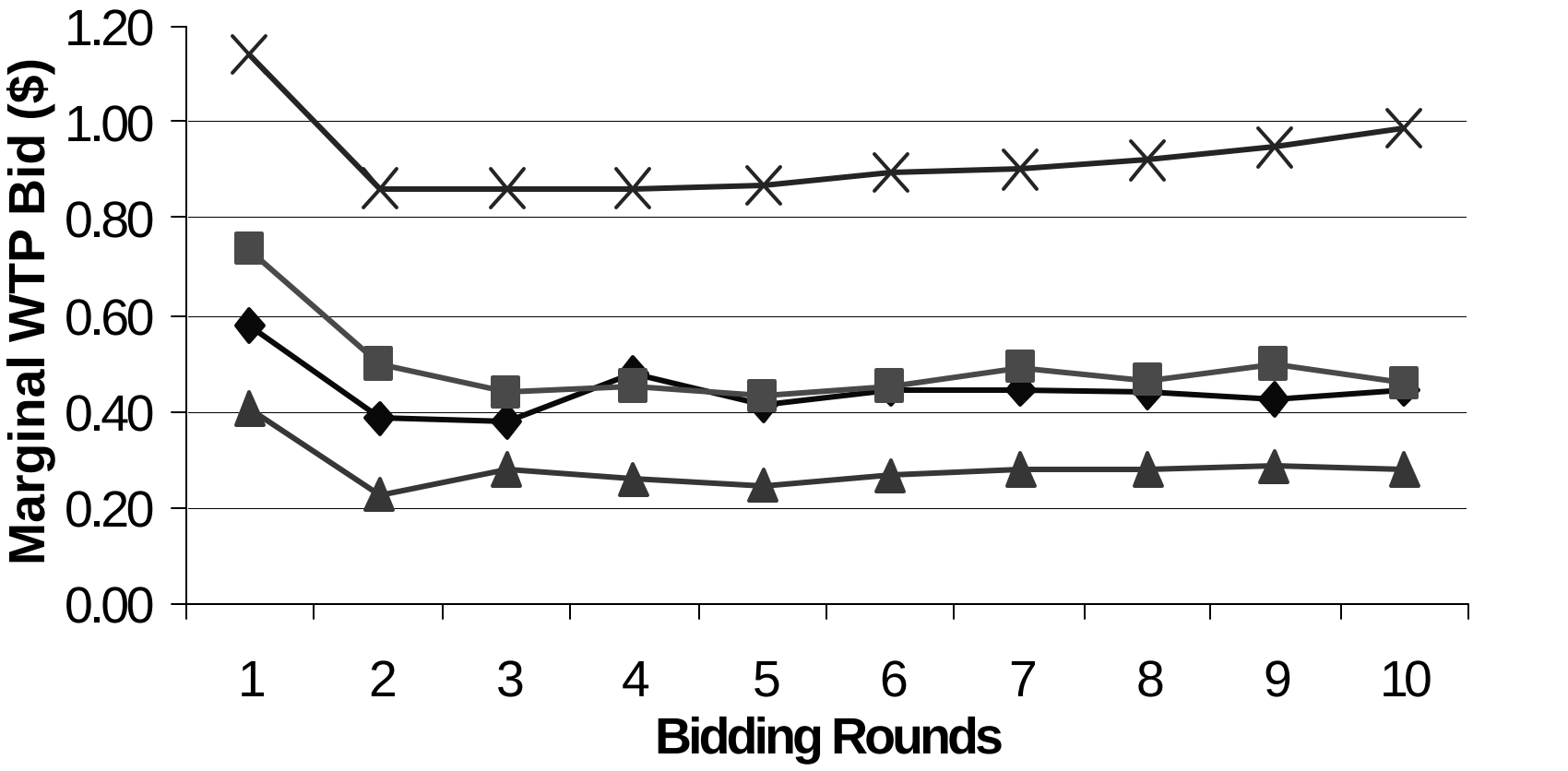


Figure 2: Average WTP Bids - Pork
N=100
(Base sandwich value = $2.85)



Average Willingness to Pay - Canadian Results

Averaged across all subjects, last 5 rounds.
(Canadian dollars; percentages as a % of base sandwich value)

ATTRIBUTE	BEEF	PORK
• Basic traceability	**20¢ (7%)**	**28¢ (10%)**
• Extra food safety assurance	**56¢ (20%)**	**47¢ (17%)**
• Humane animal treatment assurance	**50¢ (17.6%)**	**44¢ (15.6%)**
• Traceability plus two assurances	**$1.12 (40%)**	**93¢ (33.4%)**

Average Willingness to Pay

US Results

(Bailey & Dickinson, 2002)

ATTRIBUTE	BEEF	PORK
• Basic traceability	**23 ¢ (7.6%)**	**50¢ (16.7%)**
• Extra food safety assurance	**63 ¢ (21%)**	**59¢ (17.6%)**
• Humane animal treatment assurance	**50 ¢ (16.7%)**	**53¢ (20%)**
• Traceability plus two assurances	**$1.06 (35%)**	**$1.14 (38%)**

***US dollars. Percentage of base sandwich value = US$3**

What do we really mean by ‘Traceability’?

- “Traceability” by itself may not deliver much value to **most** consumers
- Most people want to know their food is safe before the eat it!
- Quality assurances with respect to specific credence attributes, bundled with traceability, have more appeal
- Traceability may be a necessary but not sufficient condition for ex ante verification of quality attributes

Trade Implications

- COOL allowed under Article IX - Marks of Origin provided that it does not:
  - ❖ seriously damage product
  - ❖ materially reduce its value
  - ❖ unreasonably increase its cost
- National Treatment principle of WTO
  - ❖ Will raise costs for US industry
  - ❖ US livestock & meat packing industry probably ill-prepared

Traceability: Conclusions

- Important to understand consumer attitudes to food safety & food quality issues, traceability & labelling
- **Traceability** ➔ can reduce the costs and risks of food safety problems
- **Traceabilit**y ➔ can reduce supply chain monitoring and enforcement costs
- But **traceabilit**y needs to be bundled with other quality assurances to deliver value to consumers

COOL: Conclusions

- Do consumers value COOL intrinsically or only as a quality or safety cue?
- More efficient to have a direct quality signal e.g. third party certification or regulation of safety standards/processes
- COOL could backfire without the quality and safety standards in place to back the ‘brand’ or if there is free-riding.