Food Safety: What is Economists' Value Added?

Julie A. Caswell

Department of Resource Economics

caswell@resecon.umass.edu

Presented at the WCC-72 Meeting

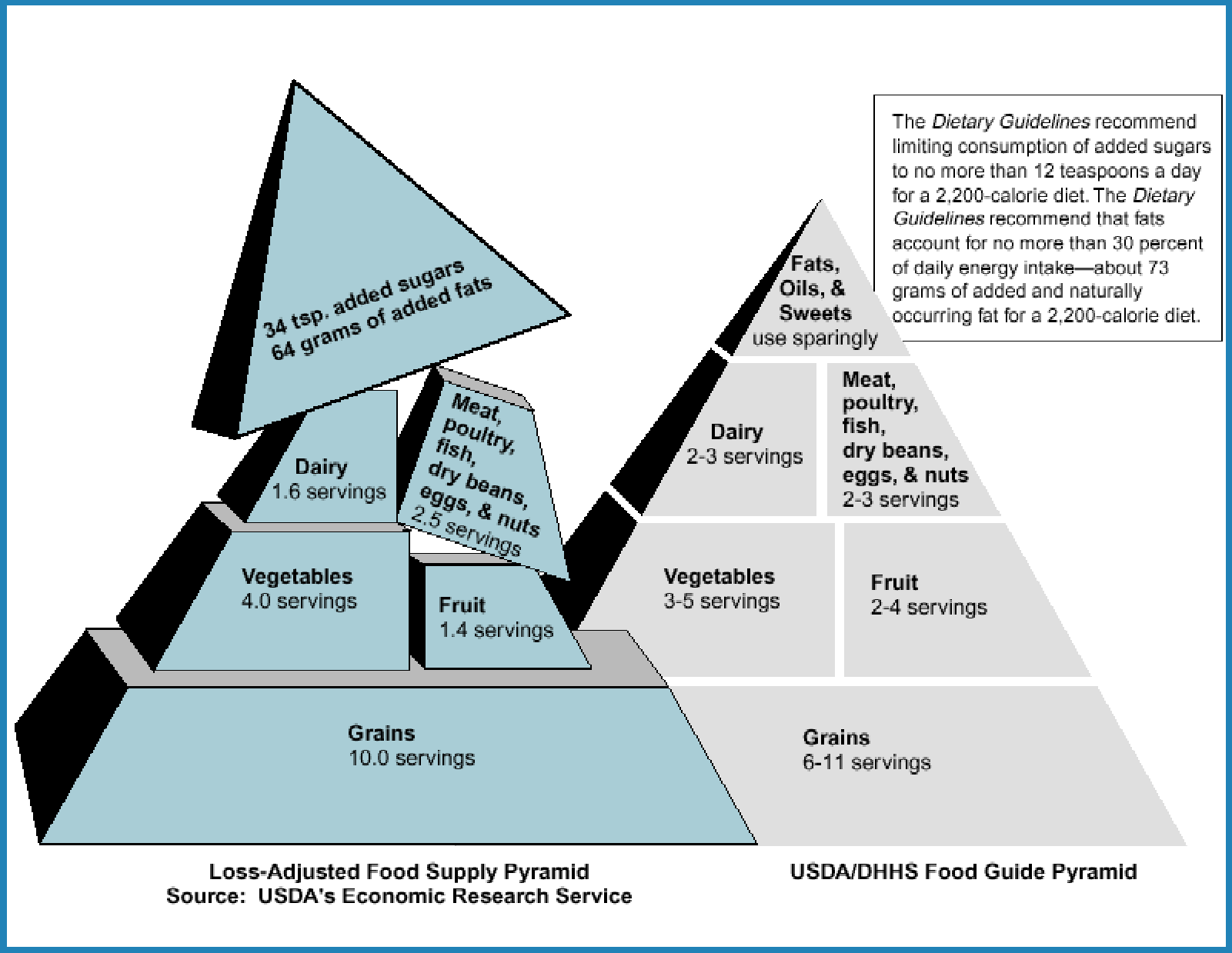
Las Vegas June 9, 2003

Food Markets

- Safety and other quality attributes are more central features due to:
  - Income increases
  - Better technical knowledge
  - Higher trade volumes

The Food Safety Landscape in the US

- Foodborne disease levels remain significant
- Access to sufficient food remains a problem for some
- A key role for nutrition and diet issues
  - The “super sized” American


34 tsp. added sugars
64 grams of added fats
Meat, poultry, fish, dry beans, eggs, & nuts
2.5 servings
Dairy
1.6 servings
Vegetables
4.0 servings
Fruit
1.4 servings
Grains
10.0 servings
Loss-Adjusted Food Supply Pyramid
Source: USDA's Economic Research Service
Fats, Oils, & Sweets
use sparingly
Dairy
2-3 servings
Meat, poultry, fish, dry beans, eggs, & nuts
2-3 servings
Vegetables
3-5 servings
Fruit
2-4 servings
Grains
6-11 servings
USDA/DHHS Food Guide Pyramid
The Dietary Guidelines recommend limiting consumption of added sugars to no more than 12 teaspoons a day for a 2,200-calorie diet. The Dietary Guidelines recommend that fats account for no more than 30 percent of daily energy intake—about 73 grams of added and naturally occurring fat for a 2,200-calorie diet.

Final Line of Defense for Food Safety

- Demographic trends
  - % of adult women in workforce is 60%
  - % of food dollar spent away from home is nearly 50%
- Result: time pressed people or hired help are on the final line

What Economists Are Contributing

- Understanding of how markets for attributes work

Dimensions of Quality

- **Intrinsic/extrinsic**
  - Intrinsic attributes (e.g., nutritional content)
  - Extrinsic indicators and cues (e.g., brand name) of those attributes

Intrinsic Quality Attributes

1. Food Safety
- foodborne pathogens
- pesticide residues

2. Nutrition

3. Sensory/Organoleptic
- taste and tenderness
- color

4. Value/Function
- compositional integrity

5. Process
- environmental, organic, animal welfare, GMO use

Extrinsic Quality Indicators and Cues

1. Test/Measurement Indicators
- quality management systems
- certification (e.g., traceability)
- labeling

2. Cues
- price
- brand name
- store name
- advertising
- packaging

Dimensions of Quality

- **Intrinsic/extrinsic**
  - Intrinsic attributes
  - Extrinsic indicators and cues
- **Information environment**
  - Search, experience, credence
- **Vertically/horizontally differentiated**

What Economists Are Contributing

- Understanding of how markets for food safety work

For Example:

- Food safety is partially a private good
  - Some market imperfections because information is:
    - Incomplete (frequently credence)
    - Often asymmetric (seller knows more than buyer)
- Also has aspects of public goods
  - Some market failure due to:
    - Externalities
    - Common goods

In US, Food Safety Is

- Premier attribute for consumers
- Vertically differentiated but little differentiation in the market
- Intrinsic because extrinsic indicators/ cues are relatively rare
- Largely credence in nature (at least in areas where regulators are active)

The Economist's Value Added (So Far)

- Demand analysis
  - Analysis of the marketability of food safety

Assessing Consumer Demand for Quality

- When quality attribute(s):
  - Are not currently sold in the market, set up **hypothetical markets** to value attributes
    - Contingent valuation
    - Conjoint analysis (choice experiment)
    - Auction
  - Are or can be sold in the market, look at **real markets** to value attributes
    - Hedonic pricing models
    - Market trials

The Economist's Value Added (So Far)

- Estimation of **consumer level benefits** from risk reduction
  - Cost of illness + demand analysis

Lessons from the Benefits Side

- Predominant emphasis is on measuring the value of avoiding adverse health outcomes
  - Highlights key importance of doing benefit measures
- Some efforts to count other benefits

The Economist's Value Added (So Far)

- Estimation of company level costs and benefits of risk reduction
- Supply side analysis
- Incentives for QA adoption in supply chain

Benefits and Costs of QA for Firms

- Benefits
  - Price premia
  - Market share maintenance or growth
  - License to produce?
- Costs
  - Production costs
  - Transaction costs
  - Liability costs
- How are benefits and costs shared?

The Economist's Value Added (So Far)

- Evaluation of alternative regulatory options
  - Process standards
  - Performance standards
  - Use of certification and labeling
- Benefits and costs
- Incentives

Lessons from the Cost Side

- Measuring costs of regulation is more difficult for foodborne risks because of mix of incentives
- Marginal cost of risk reduction is likely rising
- Flexible regulatory approaches that allow choice will likely be more cost effective
- Redistribution rather than level of costs is likely to be most prominent effect of regulations

The Economist's Value Added (So Far)

- Evaluation of trade issues related to food safety
  - SPS Agreement
  - More v. less developed countries

The Economist's Value Added (To Do)

- **Better and more**

What is the impact of _____?

What is the impact of _____ and _____, while doing _____?

In the Public & Private Sectors

- Risk reduction management
- Opportunity management

Complex Environment

Choosing Effective Regulations is Difficult

- Multiple risks
- Complex private incentives
- Many potential regulatory approaches
- Fragmentation of responsibility

Prioritizing Risk Reduction Opportunities and Interventions

Risk Assessment
(Causes & Incidence of Illness)

Risk Management I
(Evaluating Current Interventions)

Risk Management II
(Evaluating Potential Interventions)

Risk Assessment

- Is the:

HUMMER® LIKE NOTHING ELSE.™

Risk Management

- Is the:


GVX

Risk Management Is Not Doing Enough to

- Understand private/public incentives to reduce risk
- Set priorities for risk reduction using input from risk assessment
- Choose most effective regulatory mechanisms and organization
- Understand the benefits and costs of choices

Role of Science (& Risk Assessment)

"Science only gives you data. Then you have to decide between ConAgra and the consumer."

Carol Tucker Foreman

Food Policy Institute

Consumer Federation of America

The Economist's Value Added (To Do)

- **Better and more**

What is the impact of _____?

What is the impact of _____ and _____, while doing _____?

Bi-Polar Disorders

- At home, away from home food
- Farm, non farm
- FSIS/FDA
- US/EU
- Food safety/biosecurity

Mad Cows-Mad Borders?

- Border closings

COOL or unCOOL?

- Let's implement Country of Origin Labeling (COOL)
- But let's not think about:
  - How it's integrated into current tracking systems
  - Linking it to food safety traceability

Defining Traceability

- The ability to trace a product through all stages of production and distribution
- A traceability system is defined by:
  - The attribute(s) being traced (e.g., product origin, production practices)
  - The degree to which detailed information is communicated along the supply chain (i.e., internal v. external traceability)

(United Kingdom Food Standards Agency 2002)

When to Trace ?

- For product recall and remedial actions
  - Safety-related
  - Fraud-related
- For verifying product or process attributes that can’ be tested for in the final product
  - Organic production
  - Geographical source
  - Animal welfare practices
  - Freshness

Mandatory Traceability?

- In United States
  - May be where deemed necessary to assure food safety, aid in recall
  - Unlikely for any other type of quality assurance
  - But then there is COOL (Country of Origin Labeling)
- In European Union
  - Being built into all types of quality assurance schemes
  - Question of interaction with private programs

Who Is (Should Be) Responsible for Food Safety?

- End the relatively free ride for farmers/ranchers
- Performance standards, enforcement teeth for processors & food service operators
- ☺What about us?☹

The U.S. Place in the World

- Keeping our own house in order
- "Prudent" use of the WTO dispute process

Overall Trends

- Dominant approach to safety will be ratcheting up of regulatory standards
  - Although some segments will buy products further differentiated on safety attributes
- Private standards and accountability are also ratcheting up

Directions for Future

- HAVE to get more integrative in analysis
  - Across attributes
  - Across approaches to quality assurance

Adding Value

- It takes a lot of work to
  - Understand what is happening
  - Predict what's going to happen
  - Evaluate what did happen
- Need to do good risk management
  - Public sector
  - Private sector
- Economists need to play a bigger role