Economics Aspects of Animal Welfare

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Animal Welfare and Current Industry Issues for Livestock Producers
Nebraska Locations: West Point, Lincoln, Kearney, and Gering
February 6-9, 2012
Background & Motivation

• Consumer interest in production methods is growing
  – Think about discussions on food safety, farm size, GM-feed, hormone use, etc.….
  – Includes animal welfare
    • well-being, care, and handling of livestock being raised for meat, milk, and egg production (Tonsor)
Events Summary

• State-by-State: Ballot initiatives & Legislature
  - FL (02’), AZ (06’), CA (08’) & OR (07’), CO (08’), ME (09’), MI (09’)
  - OHIO:
    • Ohio Livestock Care Standards Board (09’)
    • Agreement w/ HSUS (June 10’)
      – Phase out gestation stalls by Dec. 2025; no new facilities after Dec. 2010
      – No new permits for new egg facilities with battery cages
      – Downer cattle & humane euthanasia language included…

• Live Trade
  – May 11’: Australia banned live cattle exports to Indonesia because of inhumane treatment

• National Legislation & Labeling?
  – July 11’: UEP & HSUS agreement
4 Surveys Conducted
Drs. Glynn Tonsor and Christopher Wolf (MSU)
• Nov. 2007; 1,000 surveys in MI
  – 205 completes available for analysis
• June 2008; 1,001 surveys across U.S.
  – Focused on pork; gestation crate/stall use
• Oct./Nov. 2008; 2,001 surveys across U.S.
  – Focused on gestation crates/stalls, laying hen cages, dairy pasture access
• May 2010; 800 surveys across U.S.
  • There are multitudes more unanswered, economically relevant questions than one can begin to tackle…
When was the last time you visited a farm with animals/livestock being raised for milk, meat, or egg production?

- Never: 24%
- Over 10 years ago: 35%
- 6-10 years ago: 8%
- 1-5 years ago: 15%
- Within last year: 18%

67% not in last 5 years

Source: Survey of 2,000 U.S. residents
Please rank the following species in order of concern you have regarding current animal welfare/handling practices (1 being most concerned):

<table>
<thead>
<tr>
<th>Species</th>
<th>Oct/Nov 2008</th>
<th>May 2010</th>
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<tbody>
<tr>
<td>Beef cattle</td>
<td>2.47</td>
<td>2.51</td>
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<tr>
<td>Dairy cattle</td>
<td>3.01</td>
<td>3.03</td>
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<tr>
<td>Swine/hogs</td>
<td>3.28</td>
<td>3.26</td>
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<tr>
<td>Broilers</td>
<td>2.99</td>
<td>3.00</td>
</tr>
<tr>
<td>Laying hens</td>
<td>3.25</td>
<td>3.21</td>
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</table>

- Beef cattle have highest mean concern (Chino perceptions may underlie this…)
- Interesting difference from ballot initiatives…
How much do you agree that the following practices seriously reduce the welfare of farm animals?

- Castration, Tail Docking, Cages/Crates, Indoor Confinement
- Swine, Dairy Cattle, Beef Cattle, Laying Hens
  - Responses are grouped by production practice rather than species.
  - Suggests ‘no industry is immune’ and that concerns are global across species

Source: Survey of 2,001 U.S. residents
CA’s Proposition 2 Question:
Law would require farmers *nationally* to confine calves raised for veal, egg-laying hens, and pregnant pigs only in ways that allow these animals to lie down, stand up, fully extend their limbs, and turn around freely.

- CA actual vote (Nov 2008): 63% FOR
- Survey national question:
  - National support: 70% FOR (Oct/Nov 2008)
  - National support: 66% FOR (May 2010)

Source: Survey of 2,001 & 800 U.S. residents
Determinants of voting response in national Proposition 2 questions:

• State of residence not a factor

• Some observable socio-economic traits are influential

• Info. accuracy perceptions are most influential
  – Those perceiving livestock industry (consumer groups) to provide accurate AW information are much less (more) likely to vote FOR.

Source: Survey of 2,001 U.S. residents
Ballot Voting Implications

• Targeting residents is difficult (latent perceptions drive voting)

• Residents were insensitive to # years for producers to comply (6-8 is common).
  – 1\textsuperscript{st} or most heard voice may set adjustment timetable
  – Substantial costs of not being active or sending mixed signals
  – Industry may have opportunity to pursue longer implementation timetable

• Majority show voting support but not matching purchasing behavior…
## Perceived price impacts of g.c. ban:

### Entire Pop.

<table>
<thead>
<tr>
<th>Change in Price</th>
<th>Raw %</th>
<th>&quot;Know&quot; %s</th>
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<tr>
<td>Fall by 11% or more</td>
<td>4%</td>
<td>7%</td>
<td>5%</td>
<td>8%</td>
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<tr>
<td>Fall by 6-10%</td>
<td>3%</td>
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<td>2%</td>
<td>3%</td>
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<tr>
<td>Fall by 1-5%</td>
<td>2%</td>
<td>3%</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>Change by less than 1%</td>
<td>5%</td>
<td>8%</td>
<td>2%</td>
<td>3%</td>
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<tr>
<td>Increase by 1-5%</td>
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<tr>
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<td>12%</td>
<td>20%</td>
<td>7%</td>
<td>12%</td>
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<tr>
<td>Increase by 11% or more</td>
<td>26%</td>
<td>44%</td>
<td>42%</td>
<td>40%</td>
</tr>
<tr>
<td>Don't Know</td>
<td>42%</td>
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### FOR a G.C. Ban

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<td>25%</td>
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<td>33%</td>
<td>42%</td>
<td>70%</td>
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<td>Don't Know</td>
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Source: Survey of 1,001 U.S. residents
Mean vs. Median Issues...

• MI Pork Chop Choice Experiment:
  – 20% have preferences ‘justifying a gestation crate ban’
  – 80% “could be appeased” by voluntary production of gestation crate-free pork
    • So consumers may be valuing producer autonomy

• Egg Purchasing Analysis (Chang, Lusk, & Norwood, 2010)
  – Cage-free premium is 57%
    • driven by minority: <4% of sales nationally are cage-free
National Consumer Pork Preferences

- Consumers infer food safety and pork quality from gestation crate/stall use.
  - Common perception is that g.c use reduces food safety and pork quality.

- Supporting evidence:
  - Valuations of gestation crate/stall-free pork are lower when food safety & quality claims are present on pork chop labels.

Source: Survey of 1,001 U.S. residents
Impacts of Animal Welfare Media Coverage on Meat Demand
Methods: Media Indices
(collaborated w/ Nicole Olynk, Purdue Univ.)

• Lexis-Nexis searches (1980-2008) of major U.S. newspaper and magazine articles with key words:

“(animal welfare) or (animal friendly) or (animal care) or (animal handling) or (animal transportation) AND (food or diet or meat).”
Methods: Model

• Estimated aggregate demand model
  – Beef, pork, poultry, non-meat food
  – Allow for “cross-meat” and “out of meat” substitution impacts

• Control for time trends, quarterly seasonality, prices, total meat expenditures, and AW media impacts
Results Summary

- **Reject** null hypotheses of:
  - No AW media effects
  - AW media effects being contemporaneous only
  - AW media effects extending beyond 6 months
    
    • SO: AW media effects are significant in the quarter of article release & one subsequent quarter…

- **Fail to reject** null hypotheses of:
  - Cross-species spillover effects = 0

  • SO: AW impacts lead to expenditure reallocation to non-meat food rather than to increases in competing meats…
Results Summary

• AW media elasticities are notably smaller than price & expenditure effects

• Increases in AW media have:
  – Not directly impacted beef demand
  – Reduced pork demand (both in short- and long-run)
  – Reduced poultry demand (in long-run)

• 1999(1)-2008(4) pork & poultry AW media indices increased by 181% & 253%
  = 2.65% pork & 5.01% poultry demand reductions…
Implications

• Aggregate meat demand impacts exist. Do they cover avg. adjustment costs?
  • Highlights the resident voting vs. consumption decision dilemma …
  • Also consistent with limited “free market” disadoption observed to-date by livestock industry…

• Budget reallocation effects:
  – Supports notion of a broader meat industry response rather than species-specific responses
  – All species lose as expenditures leave meat complex…
Future Work Opportunities

• Reassessment & replication needed

• Net Information vs. Separating out “positive,” “negative,” and “neutral” articles…

• No delineation by source considered…

• Broader global “comparative advantage” consideration needed (pork exports: 20-25%)
Nature of “Media” is Changing…
How Influential are Today’s Videos?

• Information flows constantly and instantly
  – Mobile devices complement computers, TVs, print material
  – Videos related to food production are posted regularly
    • Yet impacts and effectiveness are largely unknown
  – Previous work suggests media (non-video) influences meat demand…
Methods: Video Treatments

• National online sample of 800; May 2010
• Three videos – randomly allocated
  1. “Happy Cow” video (CA dairy producers)
     • Check-off funded; very positive tone
  2. “Unhappy Cow” video (PETA)
     • Very negative tone – presumably seeks consumption reduction
  3. Farmers Feed Us video (Center for Food Integrity)
     • Farm family focused - $5k grocery lottery rollout
Video Study: Take Home Points

• Perceptions may be altered by videos
  – We assessed short-term, reaction impacts – what about persistence???

• Stated milk WTP is unaltered by videos
  – Altering perceptions (and hence votes) but not purchasing behavior = industry dilemma…
Mandatory Labeling of Animal Welfare Attributes: Public Support and Considerations for Policy Makers
Comparative Ad(dis)vantages = National Legislation???

- Adjustments of production practices varies across states

- Timelines of implementation vary across states
  - Possible support for national legislation to “level the field”
  - Increasingly pockets of producers may lead the call..

- July 7, 2011 UEP & HSUS agreement
  - call for national standards regarding laying hen housing
  - call for mandatory labeling of eggs
Objectives of this Study
(collaboration w/ Dr. Chris Wolf – Michigan State Univ.)

1. Examine U.S. resident support for mandatory labeling of AW information on pork and eggs

2. Outline considerations for assessment prior to implementing any mandatory labeling policies
Methods

• Oct/Nov 2008 national survey of 2,001
  • Purposely around CA’s Proposition 2 vote…
    – Assess awareness and perceptions w/r/t AW
    – Estimate demand for mandatory labeling of AW on pork and egg products
Results

- 62% in favor of mandatory labeling of pork (gestation crate/stall use) and eggs (laying hen cage use)
  - 44% reversed support with price considered
- WTP about 20% higher prices
  - Likely an upper bound
- Perceived accuracy of AW info. from livestock industries relative to consumer groups is critical demand driver
Pre-Mandatory Labeling Implementation Considerations

• Through benefit-cost assessment is needed
• Delineations needed:
  – Frequent consumer vs. advocates for change/bans
  – Producer impacts likely vary within industries
  – Mean vs. median economic welfare distinctions
• Alternative voluntary labeling consideration
• Consumer choice may not be enhanced
• Information overload possibility
• Composite AW index needed – AW isn’t univariate
Summary Points & Alternative Pathways for Industry Response
Summary Points: Consumers & Residents

• Consumer/resident desires regularly initiate change
  – Perception drives decisions
  – “Accurate knowledge” and familiarity is NOT necessary to be influential
  – No one individual can be “educated” on everything…

• Consumers associate “good AW practices” with smaller farms, higher food safety

• Ballot voting behavior & regulation impacts all:
  – Product choice set for all is impacted
    • Even if only a minority WTP>MC (mean vs. median distinction)
Summary Points: Consumers & Residents

• Voting and purchasing behavior mismatch = dilemma for industry...

• Meat demand impacts do exist and warrant industry consideration in strategy development

• National housing standards & mandatory labeling discussions picking up..
Big Unknowns: Consumers & Residents

• Little is known about true desires
  – E.g. Is group indoor housing sufficient or is outdoor pasture ‘necessary’ to concerned segments?

• Would ‘site unseen’ meat from other countries be accepted if U.S. production costs accelerate?

• If adjustments (i.e. remove stalls) increase farm size, will that trigger additional pressure?

• What impact do AW changes have on export demand?

• Will individual/group ID have a growing role in AW discussion?
Current Unknowns: Producers

- Limited research on adjustment costs
- Diverse producer impacts are largely driven by unknowns including:
  - farm size, facility age, region of production …
  - recognize public data sources on these issues is decreasing …
- Adjustments will likely involve environmental, food safety, and other impacts as well that require consideration
  - “nothing happens in a silo” …
An Additional Critical Point

• A state passing a ballot initiative isn’t likely necessary to cause change:
  – Packers or retailers may drive a switch:
    • Cost of segregation; switch at some critical volume
  – External pressures will likely continue to mount (e.g. Jan. 2012 HSUS video w/r/t OK pork; Wal-Mart PR pressure)

• Relevant “non AW” example: switch from cash-to lean-pricing of market hogs
  – Wasn’t mandated, but market encouraged transition

  • **Implication**: “Fighting ballot initiatives at all costs” may not be optimal
Alternative Industry Paths

• “Do Nothing”

PROS:
– Minimize current investment
– Wait for more information & avoid “building the wrong barn”

CONS:
– Limits nearly all ability to have influence if “not at the table”
– Misses opportunity as public views farmer/rancher to have most influence…

• Risk sending signal of indifference to AW…
Alternative Industry Paths

- "Proactive" Options {not necessarily mutually exclusive}:
  - Negotiate with concerned groups
    • Adjustment time and requirements may (or may not) be improved
  - Seek additional legislation
    • Ag. may have more influence than reacting to ballot initiatives
  - Support additional labeling of practices
    • Different from demand enhancing motives; (think in terms of “minimize maximum loss” rather than “maximize expected profit”)
    • However multiple trade impacts with severe consequences (E.g. WTO-MCOOL) so voluntary labeling warrants alternative consideration…
  - Support ‘phase-out’ as old buildings come out of production
    • May align w/ timetables in prior ballot initiatives & reduce adjustment costs
  - Invest in public image (e.g. Center for Food Integrity approach)
    • Reconnect (not necessarily defend) with public; may not be sufficient for short-run response but may be necessary for long-run survival
Wrap-Up Points

• AW discussion is here to stay
• No species nor state/region is immune
• Industry will increasingly face social pressures regarding food production practices
• Much more work is needed
  – Industry changes and policy consideration discussions are WAY ahead of current research based knowledge…
• Be aware, think carefully, and be proactive: “this isn’t your father’s world”…
### Livestock & Meat Marketing: Animal Well-Being and Welfare

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Date</th>
<th>Factsheet, Paper, Presentation, or Journal article</th>
<th>Video</th>
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<tr>
<td>Mandatory Labeling of Animal Welfare Attributes: Public Support and Considerations for Policymakers</td>
<td>Tonsor and Wolf</td>
<td>July, 2011</td>
<td>Journal Article</td>
<td>WMV MP4</td>
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<td>Consumer Preferences for Animal Welfare Attributes: The Case of Gestation Crates</td>
<td>Tonsor, Olynyk, and Wolf</td>
<td>December, 2000</td>
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<td>Consumer Use, Perceptions, and Demand Impacts of Alternative Animal Information Sources</td>
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<td>July, 2009</td>
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<td>Alternative Animal Welfare Responses: Options and Implications for Producers and Industry-at-Large</td>
<td>Tonsor</td>
<td>March, 2009</td>
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**Animal Welfare Videos by Dr. Glynn Tonsor**

- [Mandatory Labeling of Animal Welfare Attributes](#) **(New!)**
- Consumer Preferences for Animal Welfare Attributes: The Case of Gestation Crates
- Consumer Voting and Demand Behavior Regarding Swine Gestation Crates
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Dept. of Agricultural Economics
Kansas State University
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