

Media Coverage of Animal Handling and Welfare: Influence on Meat Demand

Glynn Tonsor, Nicole Olynk, Christopher Wolf
Michigan State University

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Introduction/Problem Statement

- Animal welfare is a growing issue with U.S. consumers
 - State-specific changes (e.g., 11/08' Proposition 2 in CA)
 - Burger King and others are sourcing %X from “crate-free sources”
- Existing work has assessed consumer preferences and demand
 - Primarily European consumer samples
 - Consumer level, rather than aggregate level analyses
- Demand literature has some applications of media information indices
 - Yet no sensitivity analysis (particularly w/r/t information source) has been conducted

Critical Questions/Objectives

- Has media coverage led to a net shift out of meat, a reallocation across meats, or no impact on meat demand?
- Does media coverage have spillover effects (i.e., coverage of swine handling impacting beef demand)?
- How long does media coverage impact meat demand?
- How sensitive are inferences to how media information is measured?

Methods

- Publically available information impacts quality perceptions, which influence consumption decisions
- Absolute-price Rotterdam
 - Beef, pork, poultry, and non-meat food

$$w_i \Delta \ln x_i = a_{io} + \sum_{j=1}^3 d_{ij} D_j + \sum_{j=1}^n c_{ij} \Delta \ln p_j + \beta_i \Delta \ln \bar{q} + \sum_{k=1}^K \sum_{l=0}^L \delta_{ikl} \Delta \ln M_{kl} + v_i$$

Methods: Media Indices

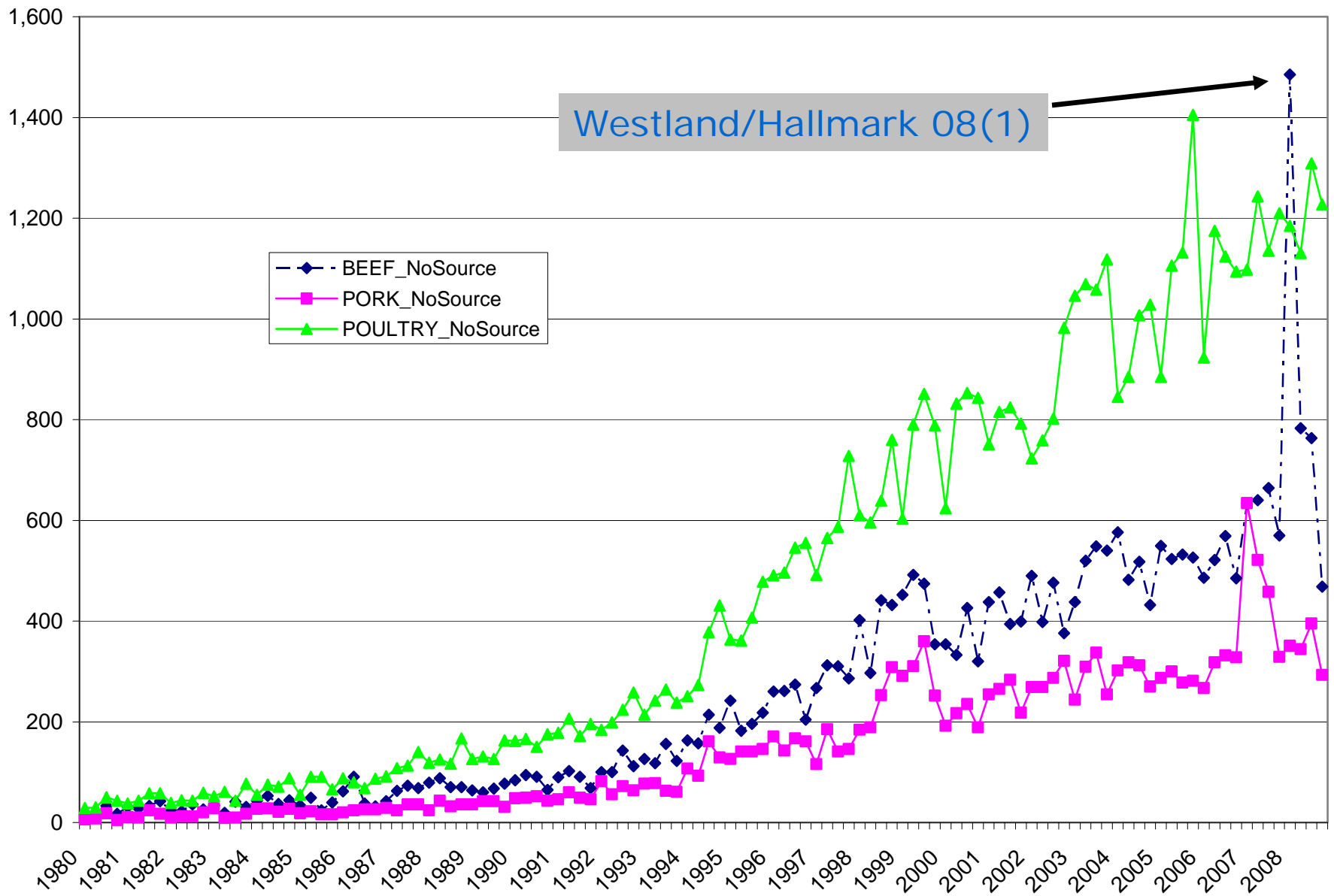
- Lexis-Nexis searches (1980-2008) for articles with key words:

“(animal welfare) or (animal friendly) or (animal care) or (animal handling) or (animal transportation) or humane or (humanely raised) or cage or crate or stall.”

Methods: Media Indices

1. General (1 index)
 - ❑ follows Kinnucan et al. (1997)
2. Species-Specific indices (3 indices)
 - ❑ Follows Piggott & Marsh (2004)
3. General_Government, General_Industry, General_ConsumerGroup (3 indices)
 - ❑ Attempt to capture entity source effects
4. Entity & Source Specific Controls (9 indices)

Species-Specific Indices



Summary Stats: Indices

Variable	Average	Std. Dev.	Minimum	Maximum
General Search ^b				
GENERAL	8,804.50	7,162.30	435	24,182.00
Species-Specific Searches ^b				
BEEF_NoSource	255.8	237.8	13	1,485.00
PORK_NoSource	149.4	134.7	5	634
POULTRY_NoSource	478.6	410.8	29	1,405.00
Source/Entity-Delineated Searches ^b				
GENERAL_Government	1,021.60	816.2	63	3,168.00
PORK_Government	31.8	33.3	0	122
POULTRY_Government	66.3	65.1	3	308
BEEF_Government	56.2	92.7	0	900
GENERAL_Industry	7.2	10.9	0	48
PORK_Industry	1.6	2.8	0	16
POULTRY_Industry	2.7	5.8	0	34
BEEF_Industry	2.1	4.3	0	22
GENERAL_Consumer	585.1	576.3	14	2,383.00
PORK_Consumer	14.9	19.1	0	100
POULTRY_Consumer	51.4	58.4	1	264
BEEF_Consumer	31.6	67.5	0	680

Compensated E's: General Index

with respect to:	Quantity of:			
	Beef	Pork	Poultry	Other Food
Beef Price	-0.5041 ^{**a}	0.0911 [*]	0.0023	0.0063 ^{**}
Pork Price	0.0504 [*]	-0.7992 ^{**a}	-0.1250 ^{**}	0.0064 ^{**}
Poultry Price	0.0013	-0.1250 ^{**}	-0.0731 ^{*,a}	0.0015 ^{**}
Other Food Price	0.4524 ^{**}	0.8331 ^{**}	0.1959 ^{**}	-0.0143 ^{**a}
Expenditure	0.2830 ^b	0.1052 ^b	0.0410 ^b	1.0219 ^{**b}
<i>Short Run AW Elasticities:</i>				
General	-0.0184	0.0790 ^{**}	-0.0118	-0.0003
<i>Long Run AW Elasticities:</i>				
General	-0.0633 ^{**}	0.0072	-0.1313 ^{**}	0.0015 ^{**}

Compensated E's: Species-Specific, Industry Indices

with respect to:	Quantity of:			
	Beef	Pork	Poultry	Other Food
Beef Price	-0.4812 ^{**a}	0.0730	0.0510	0.0059 ^{**}
Pork Price	0.0404	-0.7726 ^{**a}	-0.1450 ^{**}	0.0062 ^{**}
Poultry Price	0.0191	-0.0984 ^{**}	-0.1117 ^a	0.0011 [*]
Other Food Price	0.4217 ^{**}	0.7980 ^{**}	0.2058	-0.0131 ^{**a}
Expenditure	0.3133 ^{**b}	0.0440 ^b	0.1772 ^b	1.0213 ^{**b}

Short Run AW Elasticities:

BEEF_Industry	-0.0003			0.0000
PORK_Industry		-0.0066 [*]		0.0001 ^{**}
POULTRY_Industry			0.0078 [*]	-0.00004 [*]

Long Run AW Elasticities:

BEEF_Industry	-0.0006			0.0000
PORK_Industry		-0.0071 ^{**}		0.0001 [*]
POULTRY_Industry			0.0131 ^{**}	-0.0001 ^{**}

Compensated E's: Species-Specific, Consumer Group Indices

with respect to:	Quantity of:			
	Beef	Pork	Poultry	Other Food
Beef Price	-0.4415 ^{**} , ^a	0.0995 [*]	0.0927	0.0049 ^{**}
Pork Price	0.0550 [*]	-0.8418 ^{**} , ^a	-0.1215 ^{**}	0.0064 ^{**}
Poultry Price	0.0348	-0.0824 ^{**}	-0.1745 ^{**} , ^a	0.0011 [*]
Other Food Price	0.3517 ^{**}	0.8247 ^{**}	0.2033 ^{**}	-0.0123 ^{**} , ^a
Expenditure	0.2947 ^b	0.1289 ^b	0.1860 ^b	1.0208 ^{**} , ^b
<i>Short Run AW Elasticities:</i>				
BEEF_Consumer	0.0103 ^{**}	0.0084 ^{**}	-0.0001	-0.0002 ^{**}
PORK_Consumer	0.0205 ^{**}	-0.0106 ^{**}	-0.0078 ^{**}	-0.0002 ^{**}
POULTRY_Consumer	-0.0243 ^{**}	-0.0010	-0.0157 [*]	0.0004 ^{**}

Compensated E's: Species-Specific, Government Indices

with respect to:	Quantity of:			
	Beef	Pork	Poultry	Other Food
Beef Price	-0.4812 ^{**a}	0.0721	0.0610	0.0058 ^{**}
Pork Price	0.0399	-0.7606 ^{**a}	-0.1294	0.0060 ^{**}
Poultry Price	0.0229	-0.0878 ^{**}	-0.0666 ^a	0.0007
Other Food Price	0.4185 ^{**}	0.7763 ^{**}	0.1351	-0.0125 ^{**a}
Expenditure	0.3363 ^{*b}	0.0872 ^b	0.1219 ^b	1.0209 ^{**b}
<i>Short Run AW Elasticities:</i>				
BEEF_Government	0.0107 ^{**}			-0.0001 ^{**}
PORK_Government		-0.0013		0.0000
POULTRY_Government			0.0184 ^{**}	-0.0001 ^{**}
<i>Long Run AW Elasticities:</i>				
BEEF_Government	0.0085 [*]			-0.0001 [*]
PORK_Government		0.0067		-0.0001
POULTRY_Government			0.0086	0.0000

Conclusions

- Media attention has statistically significant but generally small (compared to price & expenditure) yet important impacts
 - Doubling of indices is common
 - Sheer value of meat makes 1-2% demand changes economically important

Conclusions

- Creation of media indices influences inferences regarding:
 - Spillover effects
 - Net impacts on total meat demand
 - Longevity of impacts
- Future work should take note of sensitivity and not simply adopt 1 approach

QUESTIONS

???

Compensated E's: Species-Specific Indices

with respect to:	Quantity of:			
	Beef	Pork	Poultry	Other Food
Beef Price	-0.4790 ^{**a}	0.0480	-0.0294	0.0065 ^{**}
Pork Price	0.0266	-0.8059 ^{**a}	-0.1549 ^{**}	0.0067 ^{**}
Poultry Price	-0.0110	-0.1051 ^{**}	-0.1196 ^{*,a}	0.0016 ^{**}
Other Food Price	0.4635 ^{**}	0.8629 ^{**}	0.3038 ^{**}	-0.0147 ^{**a}
Expenditure	0.3021 ^b	0.1270 ^b	0.1519 ^b	1.0209 ^b

Short Run AW Elasticities:

BEEF_NoSource	0.0113 [*]			-0.0002 [*]
PORK_NoSource		-0.0027		0.0000
POULTRY_NoSource			0.0223 [*]	-0.0001 [*]

Long Run AW Elasticities:

BEEF_NoSource	0.0346 ^{**}			-0.0005 ^{**}
PORK_NoSource		0.0152 [*]		-0.0001 [*]
POULTRY_NoSource			-0.0384 [*]	0.0002 [*]

Compensated E's: Industry & Consumer Group General Indices

with respect to:	Quantity of:			
	Beef	Pork	Poultry	Other Food
Beef Price	-0.4798 ^{**a}	0.0620	0.0120	0.0062 ^{**}
Pork Price	0.0343	-0.8431 ^{**a}	-0.2195 ^{**}	0.0072 ^{**}
Poultry Price	0.0045	-0.1489 ^{**}	-0.1549 ^{**a}	0.0019 ^{**}
Other Food Price	0.4410 ^{**}	0.9301 ^{**}	0.3624 ^{**}	-0.0152 ^{**a}
Expenditure	0.2581 ^b	-0.0027 ^b	0.1335 ^b	1.0226 ^{**b}
<i>Short Run AW Elasticities:</i>				
General_Industry	0.0042	-0.0053	-0.0039	0.0000
General_Consumer	-0.0037	0.0017	-0.0176 [*]	0.0001
<i>Long Run AW Elasticities:</i>				
General_Industry	0.0013	-0.0049	0.0008	0.0000
General_Consumer	0.0007	-0.0102	-0.0470 ^{**}	0.0003