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Evaluation of Beef Promotion Expenditures Under the U.S. Beef Checkoff Program

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Objective

Analysis

for Informed

Decision Making

The U.S. Beef Promotion and Research Act, part of the 1985 Farm Security Act, authorized a producer checkoff (Beef Checkoff Program) to enhance (shift) domestic and foreign demand for U.S. beef products. The checkoff assessment became mandatory when approved by 79 percent of producers in a 1988 national referendum vote.

Under the Beef Checkoff Program domestic and imported cattle are assessed a fee of \$1 per head, paid by the seller, in addition to a comparable assessment on imported beef and beef products. Of this amount, 50 cents is retained by the state beef councils and the other 50 cents is sent to the national-level Cattlemen's Beef Promotion and Research Board. State beef councils may also allocate a portion of their 50 cents to the national-level board.

The national-level Cattlemen's Beef Promotion and Research Board, subject to USDA oversight, administers the dollars which are principally allocated to beef promotion, research, and education and information (see Table 1).

On June 21, 2002 a South Dakota Federal District Court judge ruled the Beef Checkoff Program as unconstitutional because of violating the First Amendment rights under the U.S. Constitution. Revenues collected under the program were to have terminated July 15, 2002. However, in early July, the U.S. Eighth Circuit Court of Appeals granted an injunction stay, which allowed the checkoff assessments to continue during an appeals period.

The suit was filed by the Livestock Marketing Association (LMA), the Western Organization of Resource Councils

(WORC), and several other plaintiffs. The appeals action was pursued by the U.S. Department of Justice, Nebraska Cattlemen, Inc., and two individuals.

Beef Market Trends

Beef producers have faced severely declining real cattle prices, nominal prices adjusted for inflation, for several decades. For example, from 1980 to 2001, the real Nebraska fed steer price (1100-1300 lbs) declined from \$81.98/cwt to \$40.45/cwt, or a 51 percent decline. Real Oklahoma feeder steer price (600-650 lbs) declined from \$90.20/cwt to \$53.80/cwt, or a 40 percent decline.

A major reason for the long-term decline in cattle prices has been the reduction (shift) in per capita retail demand for beef. Per capita production of beef has also declined, but its rate of decline has been less than that of per capita demand.

From 1980 to 2001, retail demand for beef, measured by the choice retail beef demand index, declined by about 43 percent. The decline has been attributed to changing consumer preferences due to health, food safety, and product consistency problems. It has also reflected changing demographics and relatively lower competitive meat (pork and poultry) prices. For the same period, per capita beef production declined by about 3 percent. Total beef production, however, increased by about 22 percent. Cattle slaughter increased moderately by about 5 percent, but average dressed weights increased by about 13 percent. The later has been attributed to technology changes, breeding genetics, animal health, and feed nutrition that

Table 1: Allocation of Beef Checkoff Dollars, 1998-2001

	2001	2000	1999	1998
Revenues:				
Assessments	\$85,444,000	\$88,042,000	\$83,542,000	\$83,109,000
Interest	3,024,000	2,872,000	2,739,000	2,804,000
Other	334,000	375,000	501,000	319,000
TOTAL REVENUES	\$88,802,000	\$91,289,000	\$86,782,000	\$86,232,000
Expenses:				
<i>Program Expenses:</i>				
Promotion	43,876,000	44,676,000	39,854,000	42,929,000
Research	7,098,000	6,392,000	5,985,000	6,461,000
Consumer Information	11,493,000	12,962,000	12,677,000	12,245,000
Industry Information	4,342,000	4,260,000	5,203,000	5,184,000
Foreign Marketing	8,287,000	7,968,000	6,988,000	8,315,000
Producer Communications	4,987,000	4,261,000	5,619,000	3,427,000
Evaluation	75,000	165,000	121,000	93,000
Program Development	664,000	914,000	1,161,000	703,000
TOTAL PROGRAM EXPENSES	\$80,822,000	\$81,598,000	\$77,608,000	\$79,357,000
Depart. of Agriculture Oversight	170,000	195,000	173,000	171,000
Collections	1,429,000	1,393,000	1,508,000	1,461,000
Administration	5,796,000	5,900,000	5,648,000	5,368,000
TOTAL EXPENSES	\$88,217,000	\$89,086,000	\$84,937,000	\$86,357,000

have increased calf weaning weights and slaughter cattle weights.

Advertising Goals

The purpose of generic promotion under the Beef Checkoff Program is to enhance consumer demand for beef products, which had been declining since the late 1970s. If generic advertising results in increasing consumer demand for beef by more than checkoff costs, then farm-level demand and prices for livestock should increase, given adequate competition in the marketing channel. If there was little competition in the red meat channel, a positive change in consumer demand from advertising would primarily increase retailer or processor margins. Statistical studies have shown that increases in retail beef demand are transferred to the farm level prices, even though meat packer and retail grocery market concentration have increased (Brester and Marsh; Wohlgenant).

Allowing for by-product values and farm-to-retail product conversion (i.e., it takes 2.4 pounds of liveweight steer to produce one pound of retail beef), an increase in

retail beef price of one cent per pound does not necessarily mean an increase in live cattle price of one cent per pound (or one dollar per cwt). This is primarily due to marketing costs incurred by firms in the red meat channel to change the form, location, and timing of product coming to market.

Advertising Effectiveness

Generic advertising involves promoting general commodities such as beef or pork rather than brand name products of processing or retailing firms. A generic advertising example is the slogan, "Beef, It's What's For Dinner," which is supported by promotion dollars paid by producers under the Beef Checkoff Program.

Studies that have addressed the effects of generic advertising on the beef industry are generally inconclusive with respect to the effects of advertising expenditures, excluding private branding, on retail beef demand. Beef advertising studies published in research journals have varied by the economic models and statistical methods employed, sample

design and time periods, data measurements, and interpretation of results. Therefore, statistical results have shown that the effects of generic advertising expenditures on retail beef demand (i.e., to shift demand) range from extremely small to relatively large. The effect of generic advertising on beef demand is measured by an advertising elasticity, which is the percentage change in the beef demand due to a one percent change in advertising expenditures. For beef, the portion of checkoff dollars allocated to generic advertising are usually spent by advertising agencies, the target audience being the consumer.

For the U.S. beef market, one of the smaller advertising elasticities is that of 0.0005 reported by Altson, Freebairn, and James. This suggests that a 10 percent increase in beef advertising expenditures increases retail beef demand by only 0.005 percent (10.0 x 0.0005). Coulibaly and Brorsen obtained even smaller elasticities (i.e., such as 0.0003). The relatively larger advertising elasticity is that of 0.025 reported by Ward and Lambert. In their case, a 10 percent increase in beef advertising expenditures

increases retail beef demand by 0.25 percent (10.0×0.025).

The effects of generic advertising on Australian beef demand were also investigated. The estimated Australian advertising elasticities were slightly higher than that of Ward and Lambert's, i.e., from 0.03 to 0.05 (Piggott, *et. al.*; Piggott, Piggott, and Wright).

Other beef advertising research has reported advertising elasticities that are between these relatively low and high estimates. Cranfield gave an elasticity of 0.004 for Australian and Canadian beef. Brester and Schroeder gave an elasticity of 0.006, and Kinnucan, *et. al.* reported an advertising elasticity of 0.0011 for U.S. beef.

Using the coefficient of 0.006, for example, indicates a 10 percent increase in generic advertising increases retail beef demand by 0.06 percent. The paucity of these coefficients is due to the fact that generic beef advertising expenditures are and extremely small percentage of total consumer beef expenditures. This ratio is referred to as an advertising intensity.

Studies have shown these advertising intensities only average about 0.05 percent. In addition, the small coefficients are thought to reflect measurement problems of generic advertising. That is, aggregate data on promotion (checkoff) expenditures used in statistical models may obscure the true advertising effects by failing to account for the quantity and quality of messages consumers receive. Small advertising elasticities also reflect beef's substitute relationships with pork, poultry, and fish and average production costs (or scale economies) of firms in the red meat marketing channel.

Advertising Examples

The various estimates of beef advertising elasticities and their effects on producer prices and production can be demonstrated by using the above-cited elasticity range of 0.0005 to 0.025. My analysis assumes that eliminating beef checkoff expenditures precludes spending on generic advertising, that changes in retail beef demand subsequently changes livestock prices, that changes in producer prices changes calf crop production, and that branded beef advertising by

processors or retailers is not affected. In addition, cattle trade with Canada and Mexico is held unchanged.

The advertising elasticities are used in an econometric model of beef demand and supply at the retail and farm levels to estimate the cattle price and production effects. The focus is on feeder cattle price and calf-crop production of the cow-calf producer.

Overall, the model indicates that reductions in generic advertising reduces retail beef demand and, subsequently, feeder steer prices and calf crop production. The feeder price and production estimates are based upon an average price of \$95.30/cwt for a 650 pound feeder steer and a calf crop of 38.28 million head in 2001. The results of hypothetically eliminating the Beef Checkoff Program (from a promotion perspective) are: (1) using an advertising demand elasticity of 0.0005 results in a \$0.011/cwt (1.1 cents/cwt) reduction in feeder steer price and a calf-crop decline of about 4,200 head, and (2) using a demand elasticity of 0.025 results in a \$0.58/cwt reduction in feeder steer price and a calf-crop decline of about 214,000 head. An intermediate advertising elasticity, such as Brester and Schroeder's 0.006, results in a \$0.14/cwt decline in feeder steer price and a reduction in the calf crop of about 50,000 head.

The cost to cow-calf producers of advertising under the checkoff program is about \$0.51/head (i.e., about 51 percent of the \$1 checkoff fee went to promotion and pertinent administration costs in 2001). Of course, a feeder calf may be sold two or three times between weaning and slaughter. Thus, a total investment cost equal to 2.0 or 3.0 times \$0.51/head may be incurred, with the cost allocated among the different sellers.

Table 2 provides the estimated benefits and costs (per feeder) to cow-calf producers of generic beef advertising under the Beef Checkoff Program. The estimated benefits are conditional upon the range of advertising elasticities discussed above. The benefits are calculated as cow-calf revenues with the Beef Checkoff Program less cow-calf revenues without the Beef Checkoff Program. The estimates take into account reductions in both the feeder steer price and calf crop as advertising is eliminated. The promotion costs are \$0.51/hd and are

specific only to the \$1 checkoff levy on the cow-calf producer. The Net Benefits column is the Benefits column less the Cost column.

With the different advertising elasticities, the net benefits (shown in Table 2) range from negative to positive. For example, under the relatively small advertising elasticity of 0.0005, producer net benefits are -\$0.35/head and under the relatively large advertising elasticity of 0.025, producer net benefits are \$6.75/head. The advertising elasticity of 0.006 yields a moderate net benefit of \$1.22/head. Therefore, because of the varying advertising elasticities given by research, the producer effects of eliminating beef promotion expenditures cannot be established with certainty.

Concluding Remarks

The difficulty of determining generic advertising effectiveness of beef products does not preclude, from an industry perspective, necessary exposure in the consumer market. In all likelihood, there is some positive consumer demand response to increases in generic beef advertising. However, the promotion return to each checkoff dollar invested cannot be established with certainty. In addition, withdrawal of promoting U.S. beef products in foreign markets would not be wise, as producers depend upon expanded sales in these growth areas. Furthermore, it undoubtedly behooves beef producers to promote their product (and avoid losing market share) due to the promotion activities of their competitors in the pork and poultry industries.

The potential effects of eliminating the Beef Checkoff Program involves evaluating factors besides advertising. Checkoff dollars are also allocated to research, education, marketing, and industry information. There is incomplete information on which to examine the effects on demand of expenditures for research, education, and marketing and industry information. However, expenditures for these types of information undoubtedly have some degree of impact on producer prices and incomes since they target demand and production/marketing costs.

Table 2: Benefits and Costs to Cow-Calf Producers of Generic Advertising Using Different Advertising Elasticities
(dollars per 650 lb. feeder)

Variables			
Advertising/ Elasticities	Benefits (dollars/hd)	Costs (dollars/hd)	Net Benefits (dollars/hd)
0.0005	\$0.16	\$0.51	-\$0.35
0.006	\$1.73	\$0.51	\$1.22
0.025	\$7.26	\$0.51	\$6.75

Note: Calculations are based on elimination of generic beef advertising if the Beef Checkoff Program was eliminated

References for Advertising Elasticities

- Alston, M. J., J. W. Freebairn, and J. S. James. "Beggar-Thy-Neighbor Advertising: The Theory and Application to Generic Commodity Promotion Programs." *American Journal of Agricultural Economics* 83 (November 2001): 888-902.
- Brester, G. W., and T. C. Schroeder. "The Impacts of Brand and Generic Advertising on Meat Demand." *American Journal of Agricultural Economics* 26 (November 1995): 969-979.
- Cranfield, A. J. "Optimal Advertising with Traded Raw and Final Goods: The Case of Variable Proportions Technology." *Journal of Agricultural and Resource Economics* 27 (July 2002): 204-211.
- Kinnucan, H. W., H. Xiao, C. J. Hsia, and J. D. Jackson. "Effects of Health and Information and Generic Advertising on U.S. Meat Demand." *American Journal of Agricultural Economics* 79 (February 1997): 13-23.
- Piggott, N. E., J. A. Chalfant, J. M. Alston, and G. R. Griffith. "Demand Response to Advertising in the Australian Meat Industry." *American Journal of Agricultural Economics* 78 (May 1996): 268-79.
- Piggott, R. R., N. E. Piggott, and V. E. Wright. "Approximating Farm-Level Returns to Incremental Advertising Expenditure: Methods and an Application to the Australian Meat Industry." *American Journal of Agricultural Economics* (August 1995): 497-511.
- Ward, R. W., and C. Lambert. "Generic Promotion of Beef: Measuring the Impact of the U.S. Beef Checkoff." *Journal of Agricultural Economics* 44 (September 1993): 456-65.



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