



## Beggar-thy-Neighbor Aspects of Generic Commodity Promotion Programs

by

*Julian M. Alston and Jennifer S. James*

In the United States, generic commodity promotion programs spend around \$1 billion per year on domestic and export promotion, funded mostly by commodity taxes mandated by the government, commonly referred to as check-offs. Past economic evaluations have focused on the net benefits to the producers and handlers of the commodity covered by the program being evaluated; they have not considered or measured any effects on producers of related commodities not covered by the program. Clearly, however, when the promotion of a particular product successfully increases the demand for that product, the demands for related commodities are likely to shift as well. For instance, when beef promotion leads to an increase in demand and a rise in the price of beef, there will be induced changes in the demands for substitutes such as pork and chicken, and, as a result, changes in their prices.

The cross-commodity demand and price effects of promotion are potentially important for two reasons. First, they modify the net effect of advertising on demand for the good being advertised, and producer groups would want to incorporate such effects in determining

their own investments in product promotion. Second, they have policy implications since they mean that one group's benefits from promotion come partly at the expense of other groups of producers. For instance, we suggest that beef advertising reduces the profits earned by pork and poultry producers. As well as the obvious equity implications, there are implications for economic efficiency if the advertising expenditure that maximizes profits for beef producers as a group involves losses to other meat producers.

In a recent study, we focused on this beggar-thy-neighbor element of advertising, which is implicit when a substantial part of the benefits to the producers authorizing a promotion program come at the expense of producers of competing commodities. We analyzed the own- and cross-commodity impacts of generic commodity promotion programs in terms of their effects on profits of producers of the advertised commodity, on the optimal promotion budget, and on profits of producers of substitute commodities.

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**Table 1. Cooperative and Non-Cooperative Advertising of U.S. Beef and Pork**

Variable of Interest	Non-Cooperative Outcome	Beef and Pork Producers Joint Optimum	Beef, Pork, and Poultry Producers Joint Optimum
<b>Optimal Advertising Expenditure \$ million/year</b>			
Beef Producers	41.77	31.43	17.59
Pork Producers	21.47	0.00	0.00
Total Beef and Pork	63.24	31.43	17.59
<b>Benefits from Advertising \$ million/year</b>			
Beef Producers	248	647	639
Pork Producers	38	-304	-299
Poultry Producers	-296	-48	-42
Beef and Pork Producers	287	343	339
All Producers	-9	294	297

### Our Models and Analysis

Assuming competitive industries and collective action by producer groups to undertake advertising funded by check-offs, we solved for optimal advertising strategies under “non-cooperative” and “cooperative” scenarios. In the non-cooperative scenario, each producer group chooses its advertising strategy to maximize its own profits, regardless of the impact on other producers. The resulting solution is defined as the set of non-cooperatively chosen advertising expenditures in which each producer group takes into account the effects of all advertising on the demand for their own product. In the cooperative scenarios, producers of a commodity being promoted take the effects on other producers’ profits into account. Specifically, advertising strategies are chosen to maximize the joint profits of the producers of the advertised commodity and other affected commodities. This cooperative strategy is not being proposed as a realistic option so much as to indicate the nature of the consequences of a policy that enables the non-cooperative behavior to take place.

The comparison between the cooperative and non-cooperative outcomes indicates the extent of the beggar-thy-neighbor effects of advertising. As expected, our theoretical results show that each producer group is likely to advertise to a greater extent than other producers would prefer, and the total producer profit will be less than if the groups were amalgamated into one, or were organized otherwise to facilitate cooperative behavior.

### U.S. Meat Advertising: Results and Discussion

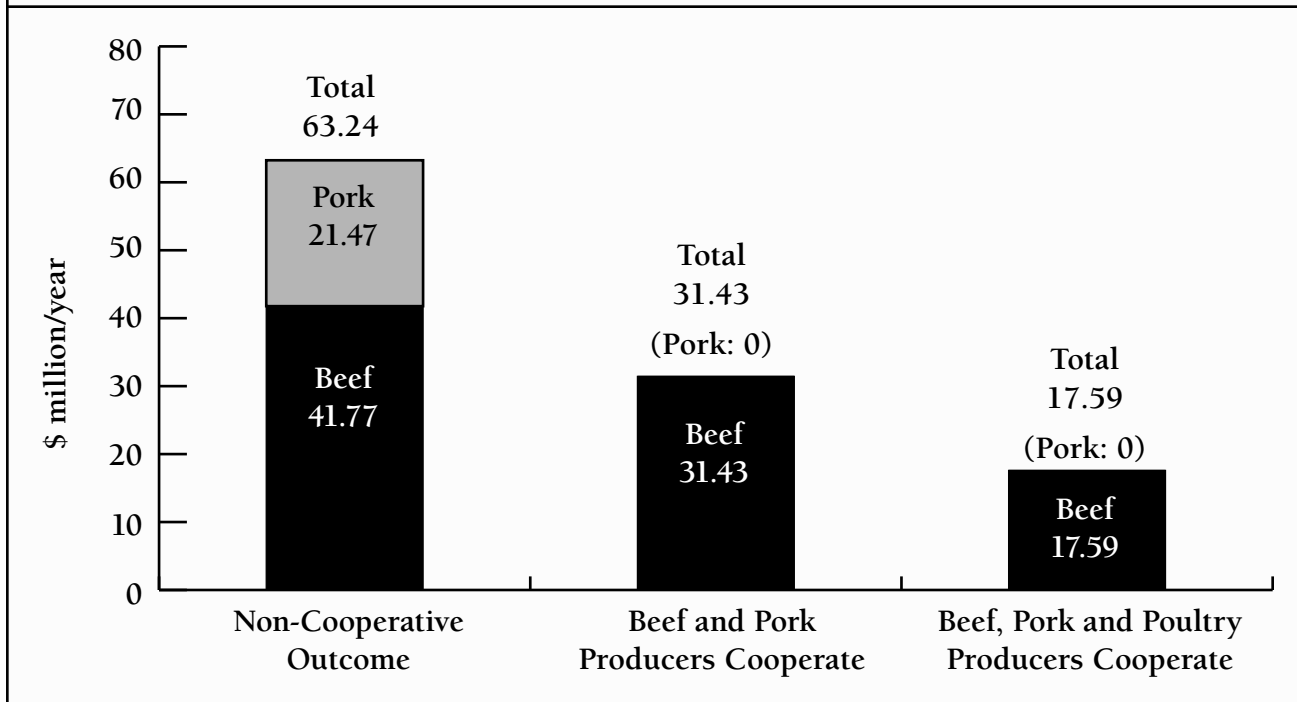
A simulation model of the U.S. meat market—including U.S. beef, pork, poultry (combining chicken and turkey) and a fourth composite good representing “all other goods”—was developed to illustrate the quantitative importance of these beggar-thy-neighbor elements in the case of generic advertising of beef by the Beef Industry Council (BIC), and pork by the National Pork Producers Council (NPPC). Based on data from 1998, we solved for a non-cooperative solution, in which each group chooses its advertising expenditure, regardless of the effects on other meat producers, to maximize the producer profit of its respective group. Two alternative cooperative solutions were found by solving for the advertising expenditures on beef and pork that would jointly maximize the sum of profits for either (a) beef and pork producers combined, or (b) beef, pork and poultry producers combined.

Table 1 shows the producer-profit maximizing or, for short, optimal advertising expenditures, and the corresponding benefits from advertising for each of the producer groups, under the three alternative behavioral assumptions. In addition, we show the sums across the two groups of advertising expenditures and the changes in total profits relative to a scenario without any generic advertising. The simulated advertising expenditures in Table 1 (also shown in Figures 1 and 2) under non-cooperative behavior are similar to the observed values in 1998.

The results in Table 1 show the quantitative importance of the beggar-thy-neighbor effects. Beef

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Figure 1. Optimal Advertising Expenditures



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producers would spend much more on advertising (\$42 million, 0.08 percent of revenue) under non-cooperative competition than the amount that would maximize joint profits with pork producers (\$31 million, 0.06 percent of revenue) or, even more so, joint profits with pork and poultry producers (\$18 million, 0.03 percent of revenue). For pork producers the relationship is in the same direction but more pronounced: they would spend a significant sum on advertising under non-cooperative competition (\$21 million, 0.06 percent of revenue), but would not advertise at all in either of the cooperative scenarios. Considering the combined expenditure of beef and pork producers, under non-cooperative competition collectively they would spend \$63 million (0.07 percent of revenue). In the cooperative case they would spend \$31 million (0.04 percent of revenue) to maximize their combined profits ignoring poultry producers, or \$18 million (0.02 percent of revenue) if they maximized joint profits including poultry producer profits.

Table 1 also includes information (and Figure 2 provides a visual depiction) on the annual changes in producer profits relative to a no-advertising base for each assumption regarding producer cooperation. Under each scenario, gains to beef and pork

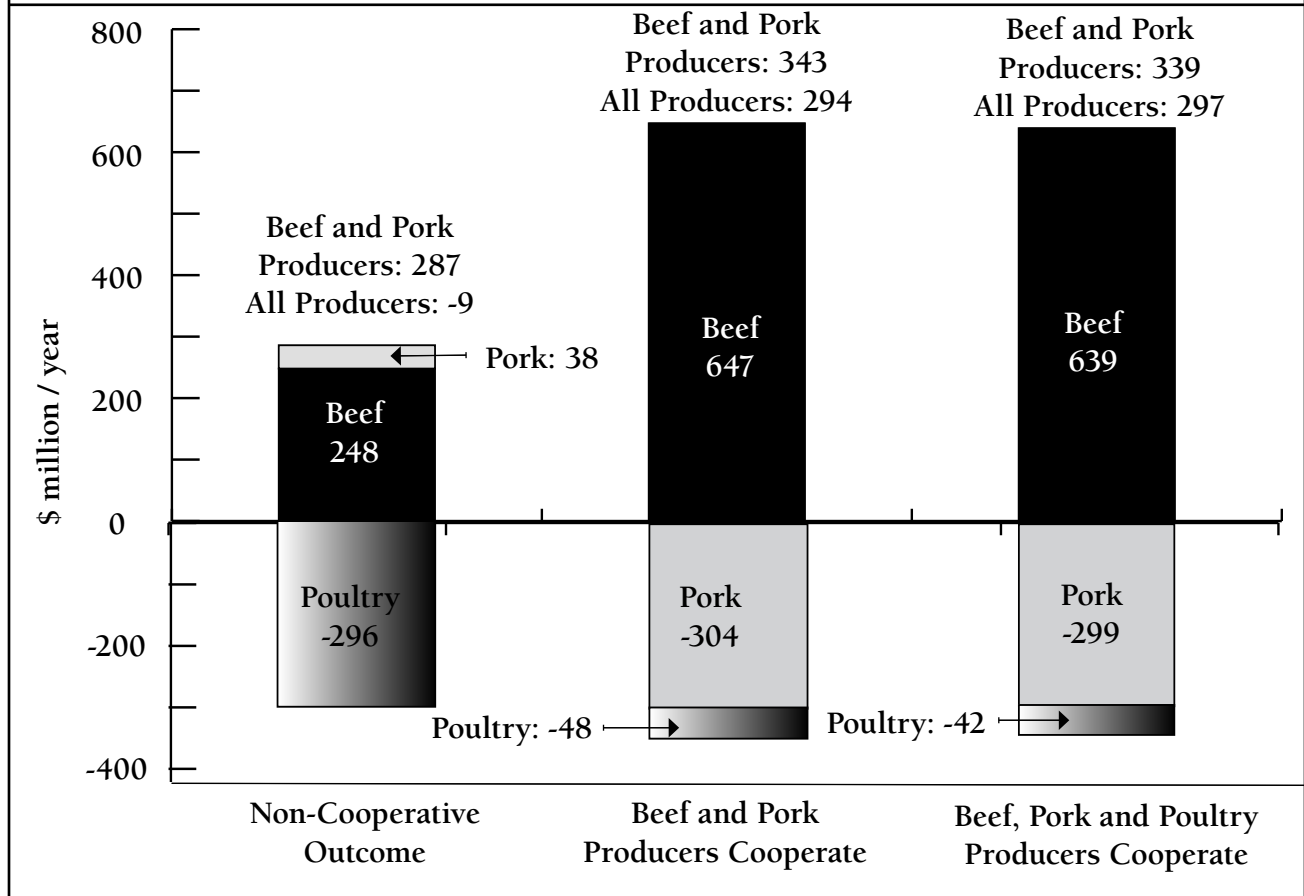
producers come partly at the expense of poultry producers. Under the non-cooperative scenario, the losses to poultry producers exceed the gains to beef and pork producers, causing a net loss to meat producers from advertising of \$9 million per year. When beef and pork producers cooperate, their net annual benefit rises to \$343 million compared to \$287 million under the non-cooperative outcome. However, pork producers lose money under this arrangement and would have to be compensated for these losses if they were to voluntarily cooperate with beef producers. Adding poultry producers to the cooperative solution raises total benefits only slightly, \$297 million versus \$294 million, relative to the outcome involving cooperation only between beef and pork producers.

Comparing the cooperative and non-cooperative scenarios, the difference in total profits (across all producers) from generic advertising is a measure of the producer loss from beggar-thy-neighbor behavior: a loss of \$9 million per year compared with a potential gain of \$297 million per year.

### Conclusion

Marketing-order type arrangements for collective action are economically justified when, absent

Figure 2. Benefits from Advertising



government intervention, there would be an underinvestment in certain goods from a social perspective. It seems likely that there have been net benefits to society as a whole from the provision of applied research, grades and standards, and market information through collective action programs. It is less clear that, absent government intervention, the private sector would underinvest from society's viewpoint in generic commodity advertising and promotion. Nevertheless, the policy prescription has been to create institutional arrangements for collective action in commodity promotion, funded by check-offs, mandated by producer referendum.

Even if there would have been an underinvestment otherwise, our analysis indicates that the cure (collective action under mandated programs) may be worse than the disease (individual underinvestment from the collective viewpoint). Once a marketing order is established, individual producer groups are likely to overinvest in promotion from the viewpoint of a larger group, including producers of

related commodities. In our empirical example, the beggar-thy-neighbor effects were large. Our results imply that more care should be taken in authorizing and evaluating generic promotion programs. When only a subset of affected producers are eligible to vote on authorizing a program, net benefits to that subset are only part of the story. In determining whether to approve particular programs, specific consideration ought to be given to the extent of the beggar-thy-neighbor aspect, if the relevant criterion is net benefits to all producers.

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