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The Impact of Political Contributions by Food Manufacturing Firms on U.S. Farm Policy

Fidele Ndayisenga and Jean Kinsey

This study generates an econometric model of the allocation of political contributions by food firms. It combines information about food firms' total expenditures for political influence with the behavioral assumption of profit maximization to test the hypothesis that food manufacturing firms do not lobby against farm policies. The results support the hypothesis. The inferences are conditional on the effects observed in the sample. The conclusions from this analysis may not be widely generalizable, but they do inform hypotheses about the intentions of food firms that participate in the political market.

Key Words: agribusiness, agricultural commodity programs, farm policy, food manufacturers, lobbying, political contributions

Outside of the farm sector, little attention has been given to the way stakeholders in the food and agricultural system allocate their political contributions. Makinson reports that in the 1990 federal election campaign, for example, food processing and sales firms contributed \$3 million, while farm input and services suppliers contributed \$2.7 million, brokers and commodity dealers \$1.3 million, and crop production and basic processing \$4.1 million. Individual food processing firms such as ConAgra, Inc. contributed \$208,699, General Mills \$100,000, Flowers Industry \$135,550, and Nabisco Brands, Inc. \$84,400. Trade organizations such as the Food Marketing Institute contributed \$376,562, the American Meat Institute \$133,471, and the National Wholesale Grocers Association \$376,562.

In all these cases, it is unclear whether these campaign contributions by food firms are directed toward government intervention in agricultural commodities markets, or policies and regulations related to their output/sales markets, or both. Differentiating the impacts of food firms' expenditures for political influence is the focus of this study. In particular, we address the question of how much influence over farm commodity policies food manufacturing and processing firms seek to

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have. With farm products estimated to account for as much as 70% of material utilized by food manufacturing firms (Adelaja), one might expect them to lobby against policies that raise commodity prices. On the other hand, they may value a steady supply of commodity inputs fostered by stable (albeit higher) prices, especially if these prices can be passed down the line to consumers. There is some anecdotal evidence that the same large food manufacturers lobby *against* sugar and peanut programs, but *for* tobacco programs even though they all raise input prices (Ono). It is worth noting that both sugar and peanut programs raise input prices via quotas where the cost is borne more directly by consumers, while major commodity programs (wheat, corn, milk) tend to support prices with taxpayer dollars.¹ On balance, it is not obvious which way food manufacturers' influence on farm policy leans, or if it is significant.

Political contributions are used for three levels of lobbying by food manufacturing firms. The first level is through general organizations such as the Grocery Manufacturers of America, the American Food Marketing Institute, or the American Frozen Food Institute. These general organizations lobby on issues that most affect their members. The issues are complex, too expensive for individual firms to deal with, and have public goods characteristics. The general organizations' objective is, therefore, to solve for member companies those problems for which group action is more effective than actions by companies acting individually or through other associations (Guither, p. 73).

The second level of lobbying is by agribusiness commodity organizations such as the American Feed Manufacturers Association, the Sweetener Users Association, or the Milk Industry Foundation. At this stage, policy concerns become more product and commodity specific. The size of the membership in these agribusiness organizations depends on the number of firms that are involved in the processing of the commodity and the share of this commodity in the total input cost of the firm.

The third level of lobbying, and the focus of this analysis, is at the firm level with emphasis on firm-specific issues. The Archer-Daniels Midland Company, for example, lobbied intensively for ethanol subsidies and provided active support for sugar quotas. The first tends to increase the supply of corn, a major input to ethanol, and makes it possible to sell ethanol at a competitive price. The latter increases the demand for corn sweeteners, making them more competitive economically (Browne, pp. 120–125).

This study tests whether food firms make political contributions primarily to influence their input markets. The model used for this test is adopted from studies of farm input allocations (Just et al.). The use of this model is motivated by the fact that while food firms may lobby in both their input and output markets, they do not typically record political contributions for each market separately. The test focuses

¹ Major commodity programs involving target prices and deficiency payments were greatly diminished after the 1995 farm legislation. This more market-oriented approach was designed to decrease taxpayer liability and increase individual farm responsibility for types and quantities of crops. As a result, greater volatility in commodity prices is expected.

on the significance of contributions in the input market and provides evidence about lobbying for or against agricultural policies by food firms. If food firms' political contributions in their input markets are not significant, this will provide indirect evidence that either food firms rely on commodity-specific trade organizations to lobby for them, or they do not place much emphasis on lobbying in their input markets. While this analysis states the results at the industry level, it is more likely that the influence of manufacturers on farm policy depends on the degree of their dependency on raw material. There is evidence to suggest that the impact of farm product prices on food processing varies by three-digit Standard Industrial Classification (SIC) category due to differences in reliance on farm products (Adelaja).

Conceptual Framework

Interest of Food Firms in Agricultural Policies

The manufacturing sector has been generally excluded from interest group analysis of agricultural policy for two related reasons. First, consistent with Engel's law, the share of food in total consumption declines with growth in per capita incomes, diminishing the effect of high food prices on the cost of living, and thus on the wage bill of the manufacturing sector. The share of U.S. household expenditures for food has fallen from about 33% to about 11% in the last five decades. The decreased impact of food expenditures on the wage bill acts against manufacturers' involvement in agricultural policy issues. However, even if the impact of food costs was substantial, the public goods nature of low food costs, and associated free-rider issues, suggest that lobbying would be more likely to take place at the manufacturers' association level rather than at the firm level. Second, the capital intensity of most businesses and industries increases with development, thus rendering producers' surplus less sensitive to changes in wages than may result from changes in farm-level commodity prices (Baliscan and Roumasset). The problem with this view is that it treats the food manufacturing and the rest of the manufacturing sector symmetrically when the use of farm products, as inputs, is concentrated in food processing and agribusiness firms.

The strength of the argument that farm inputs might be important enough to food manufacturers to induce them to lobby for lower prices rests on three factors. First, the share of other inputs in the total cost is relatively small. For example, in 1977, labor accounted for 13.4%, power and fuel accounted for 1.5%, packaging and containers accounted for 9.1%; and agricultural related inputs (livestock, crops, marine products, semifinished foodstuffs, and imports of tropical commodities) accounted for 48.1% (Connor). While these numbers vary across firms, agricultural commodities remain the most important cost item, and likely one of the most variable.

Second, among all the inputs, government intervention—and therefore scope for political influence—is more pervasive and concentrated in the agricultural

commodities. Thus there is a high likelihood that if food firms lobby at all in their input markets, it would be for favorable (lower) prices and larger, steady supplies of agricultural commodities. This would be even more so in the soybean oil and meat-packing processes where agricultural products and semi-processed foodstuffs constitute 76% of the total input cost (Connor). Therefore, discovering significant lobbying by food firms in their input markets would provide strong indirect evidence about lobbying forces in agricultural policies.

Finally, there is casual evidence to suggest that commodity policies of the last few decades probably benefitted the food processing sector. Knutson, Penn, and Boehm, for example, note that (a) the sugar policy in combination with ethanol subsidies has built the corn sweetener industry, (b) domestic processors benefit from target prices because they are more likely to be able to sell finished products at prices that are competitive with imports, and (c) commodity stocks provide long-run supply and price stability, one of the desired outcomes of policy. In addition, food processors benefit from publicly sponsored agricultural research through higher quality and generally lower priced farm products. Of course, not every food manufacturer or processing firm benefits from every commodity program. For example, the Sweetener Users Association, which represents soft drink companies, bakers, ice cream manufacturers, and confectioners, has been lobbying unsuccessfully for the elimination of the sugar program which increases sugar prices by restricting imports and regulating domestic supplies. But the sugar program is an exception rather than the rule.

Even though some food processors appear to benefit from existing farm policies, these policies have largely been initiated by farm commodity groups or farmers' organizations. Furthermore, the impacts of these commodity programs on food manufacturing firms are not uniform. Thus, it is not clear whether individual food processing and manufacturing firms actively lobby to have the policies maintained or changed. This question is different from that of whether the food manufacturing sector, as a whole, lobbied in the input markets through general and commodity-specific trade organizations.

Lobbying by Food Firms in Their Output Market

Food firms, like other businesses, lobby in agricultural commodities markets against government regulations that adversely affect their production processes and output markets. Businesses regularly complain about the regulatory burden, compliance costs, and unfair competition practices from trading partners. For example, based on focus groups from various segments of the food sector, Adelaja et al. report that food manufacturers considered regulations to be the major issue constraining their activities.

A recent survey of food processors with \$5 million or more in annual sales listed the following major concerns with government regulations: (a) regulations governing operations, (b) regulations governing safety and labeling which make the

process of product development more expensive, and (c) regulations governing construction. In addition, unemployment insurance and property taxes were deemed too costly by the same food processors. Analysis of the survey concluded that the initial processors of raw agricultural commodities are the most affected by government regulations. A χ^2 test showed these regulations significantly affected food processor operations (Torok, Schroeder, and Menkhaus). The study also reported that, because larger sized food firms had a comparative advantage in complying with government regulations, they were crowding out smaller firms. It was estimated that in 1979, approximately 30% of clerical time and \$3 billion were spent on complying with government regulations. Since these regulations originate from political markets, and the costs involved (in terms of time and money) are argued to be substantial, food manufacturing firms have an interest in lobbying for or against them. Most of these regulations, however, are unrelated to agricultural policies affecting their raw inputs.

Food firms also lobby to protect their products from competing imports through tariff and nontariff measures. Lopez and Pagoulatos observed that food processing industries in the United States are characterized by relatively low import penetration and export propensities. They also have more restrictive nominal tariff and nontariff barriers (NTBs) than other manufacturing industries, which limits imports from foreign competitors. To secure these policies, firms spend resources to compete in the political market to influence trade barriers in their favor.

Lopez and Pagoulatos estimated that transfers to food processing firms, due to tariffs, amounted to \$8.4 billion in 1972. Of these, \$1.7 billion were for meat products, \$1.23 billion for dairy products, \$1.05 billion for preserved fruits and vegetables, \$475.7 million for grain mill products, \$118.7 million for bakery products, \$421.8 million for sugar confectionery, \$1.8 billion for fats and oils, and \$1.17 billion for tobacco manufacturers. These numbers would have been even higher if nontariff measures had been taken into consideration. The results indicate that food firms successfully lobby in their output market. Generating government revenue could not have been a primary motive for these policies since the government only collected \$499.2 million in tax revenue from these tariffs.

Political contributions by food firms may be directed toward government intervention in agricultural commodity markets relevant for their input supplies and costs, or policies and regulations in their output market, or both. Differentiating the impacts of their political contributions is the focus of this study.

Theoretical Framework

Food firms may lobby to benefit both their input and output markets, but they do not typically record political contributions for each market separately. One method to determine the amount allocated to various markets may be to design a survey asking food firms to report political contributions allocated to each activity. However,

survey cost and information confidentiality make this option unattractive. Alternatively, publicly reported, aggregate political contributions can be used to estimate expenditures in each market.

Formal methodologies for estimating variable input allocations have been developed only recently. We adapt a profit-maximization approach to input allocation developed by Just et al. They addressed the question of how to allocate, *ex post*, observed total input expenditures among different inputs, assuming that the firm/farm operates within a competitive profit-maximization environment.

The lobbying component of the model has its roots and justification in the rent-seeking literature, particularly in the work of Krueger; Becker; Cairns; Welliz and Wilson; Bhagwati (1980, 1982); Bhagwati and Srinivasan; Zusman; Peltzman; Magee, Brock, and Young; and Coggins, Graham-Tomasi, and Roe, among others. This literature starts from the proposition that since policies affect the welfare of organizations and individuals, it is rational for them to allocate resources to influence policy choices in their favor. Further, this literature maintains that the lobbies' objective is to maximize the economic surplus from lobbying activities adjusted for the resources expended for political influence.

Following Coggins, Graham-Tomasi, and Roe, and Welliz and Wilson, lobbying is introduced into a profit-maximizing model via a pricing function which determines the prices that economic agents receive for their output, or pay for their inputs, as a function of lobbying expenditures (political contributions). The output (input) pricing function is assumed increasing (decreasing) and concave (convex) in lobbying expenditures; that is, there are decreasing returns to political contributions. In the absence of lobbying, the pricing function yields the market price. The pricing function is similar to Becker's influence function. However, the pricing function has the advantage of being defined in variables that are directly observable. This pricing function is also known as the lobbying or tariff formation function in the trade literature where it has been used to incorporate political markets into trade models (Welliz and Wilson).

Suppose a firm is engaged in lobbying in two activities (q, y) corresponding to the output and the input markets, respectively. The firm's objective is to influence the prices (r, w) of the two activities. Let n_{oq} and n_{oy} denote the lobbying expenditures in activities q and y , respectively. The total observed lobbying expenditure to be allocated between the two activities is n_o . The goal is to estimate n_{oq} and n_{oy} from the knowledge of n_o and the behavioral assumption of profit maximization.

Assume that, to maximize profit, the firm chooses the level of output q and lobbying expenditures n_{oq} and n_{oy} , and thus solves the following problem:

$$\begin{aligned} \text{Max}_{q, n_{oy}, n_{oq}} \quad & \Pi = r(n_{oq})q - C(w, q) \equiv r(n_{oq})q - C(n_{oy}, q) \\ \text{with} \quad & w = g(n_{oy}) \\ \text{s.t.} \quad & n_{oq} + n_{oy} \leq n_o, \end{aligned}$$

where $r(\cdot)$ and $g(\cdot)$ are the output and input pricing functions, respectively. These lobbying functions endogenize the input and output prices. $C(\cdot)$ is the minimum cost of producing output q . The problem includes a lobbying constraint. The constraint may originate from the restrictions imposed by the Federal Election Commission on the maximum amount that economic agents can contribute to the political process. In addition, if the firm was to spend its entire resources on political contributions, it would be unable to collect lobbying benefits because access to the latter is tied to ownership of productive assets. In this case, the lobbying constraint is internal to the firm. Assuming an interior solution, the first-order conditions defining the change in output prices (r) and input costs (c) with respect to lobbying activities (n_{oq} and n_{oy}) are given by:

$$(1) \quad \frac{\delta r}{\delta n_{oq}} q = \lambda$$

and

$$(2) \quad -\frac{\delta C}{\delta n_{oy}} = \lambda.$$

When combined, conditions (1) and (2) show that profit maximization requires marginal returns to be equalized in the two markets; that is, the firm must exhaust arbitrage opportunities. The objective is to use n_o and the first-order conditions of profit maximization with respect to n_{oq} and n_{oy} to generate an estimable equation. This is done in equations (3)–(11).

The elasticity with respect to the lobbying in the output and input markets is:

$$(3) \quad e_{oq} = \frac{\delta r}{\delta n_{oq}} \frac{n_{oq}}{r}; \quad e_{oy} = \frac{\delta C}{\delta n_{oy}} \frac{n_{oy}}{C}.$$

Rearranging equation (3) implies that the marginal change in input costs and output prices is equal to the portion of revenue or costs spent to lobby to increase revenue or decrease costs multiplied by the elasticity of that activity:

$$(4) \quad \frac{\delta r}{\delta n_{oq}} = \frac{e_{oq} r}{n_{oq}}; \quad \frac{\delta C}{\delta n_{oy}} = \frac{e_{oy} C}{n_{oy}}.$$

Using these elasticities, the first-order conditions can be rewritten as:

$$(5) \quad \frac{e_{oq}rq}{n_{oq}} = \lambda \quad \Rightarrow \quad e_{oq}rq = n_{oq}\lambda \quad \Rightarrow \quad n_{oq} = \frac{e_{oq}}{\lambda} R_{oq}$$

and

$$(6) \quad \frac{e_{oy}C}{n_{oy}} = -\lambda \quad \Rightarrow \quad n_{oy} = -\frac{e_{oy}}{\lambda} C,$$

where R_{oq} is the revenue of the food firm, and C is the cost of producing output q . Assume that the elasticities e_{oq} and e_{oy} vary between the two markets, among firms, and over time, and can be decomposed as follows:

$$(7) \quad \begin{aligned} e_{oq} &= a_q + b_o + d_t; \\ e_{oy} &= a_y + b_o + d_t, \end{aligned}$$

where a_q is the output market component, a_y is the input market component, and b_o and d_t are the firm-specific and time components, respectively, which for convenience are assumed to be the same for the output (revenues) and input (cost) components of the firm. While this assumption saves degrees of freedom, it implies that $a_q > a_y$. This restriction either may be imposed on the empirical model or may be tested to check for its consistency with the data. We adopted the latter approach.

Inserting equations (7) into (5) and (6) yields two equations which can be combined and estimated so that lobbying expenditures can be allocated among activities:

$$(8) \quad n_{oq} = \left(\frac{a_q}{\lambda} + \frac{b_o}{\lambda} + \frac{d_t}{\lambda} \right) R_{oq};$$

$$(9) \quad n_{oy} = -\left(\frac{a_y}{\lambda} + \frac{b_o}{\lambda} + \frac{d_t}{\lambda} \right) C.$$

Adding (8) and (9) gives:

$$(10) \quad n_o = a^q R_{oq} - a^y C + b^o (R_{oq} - C) + d^t (R_{oq} - C),$$

where

$$a^q = \frac{a_q}{\lambda}, \quad a^y = \frac{a_y}{\lambda}, \quad b^o = \frac{b_o}{\lambda}, \quad d^t = \frac{d_t}{\lambda}.$$

After the specification of the error structure, equation (10) can be estimated and the parameter estimates, if significant, can be inserted into (8) and (9) to find the allocations of the lobbying inputs between the input and output markets. Equation (13) (seen in the “Estimation and Results” section), which is the estimated version of equation (10), is a model of the determinants of lobbying efforts. The parameter estimates from equation (13) permit the estimation of lobbying expenditures to the input and output markets through equations (11) and (12).

This approach is similar to that used in modeling input allocation in multi-crop systems (Just et al.). Note that (10) makes no assumption about the market structure. The revenues and costs may have been generated by a competitive firm, monopolistically competitive firm, or any other market structure. It is important to note that n_{oy} and n_{oq} are not observable. Suppose the estimated parameters are denoted as A^q , A^v , B^o , and D' . Then, the profit-maximizing allocations of the total lobbying expenditure between the input and output markets can be computed using equations (8) and (9) as follows:

$$(11) \quad n_{oq} = (A^q + B^o + D')R_{oq};$$

$$(12) \quad n_{oy} = -(A^v + B^o + D')C.$$

Not surprisingly, allocations of lobbying resources to each market are proportional to the returns generated by the two markets. In addition, the allocations implicitly depend on the relative returns since the estimating equation is derived from the first-order conditions of profit maximization. An implicit assumption behind this model is that lobbying expenditures can be fully allocated. However, it is more likely that part of the total lobbying budget is not allocatable and benefits both the input and output markets. Another implicit assumption is that the allocation of the lobbying resources takes the lobbying by other agents in the economy as given.

Data Sources and Limitations

The data needed to estimate equation (10) are (a) costs, (b) revenues for the firms in the sample, and (c) the lobbying expenditures by individual food manufacturing firms. The data used in this study are presented in table 1.

Data on costs and revenues for food firms were collected from various issues of *Moody's Industrial Manual* and Standard and Poor's *Industry Surveys* between 1983 and 1987. Costs include the cost of material, the direct labor cost, and depreciation to account for the cost of capital. An important limitation of these data sources is that the information they provide is limited to publicly traded (owned) food firms. Neither Moody nor Standard and Poor provide any kind of financial information for firms that are not publicly owned. Thus, the sample of food firms used does not include privately owned food firms. A concern with using this type of firm-level data is that they may reflect accounting conventions more than the measurement

Table 1. Food Firms' Average Lobbying Expenditures, Revenues, and Costs (1983-87)

Food Company Names		Lobbying Expenditures (\$)	Revenue (\$000s)	Cost (\$000s)
1	American Home Products	33,695	3,256,771	1,810,709
2	Anheuser Busch	63,153	7,128,067	4,473,367
3	Archer-Daniels Midland	150,280	4,935,115	4,544,357
4	Borden	14,200	24,708,455	3,930,629
5	Brown-Forman	62,011	1,165,889	351,346
6	Castle & Cooke	11,450	1,546,155	1,294,787
7	Clorox	17,283	1,031,566	505,478
8	Coca-Cola	187,952	7,401,114	3,815,053
9	ConAgra	113,439	5,602,876	4,914,025
10	Dean Foods Company	7,383	1,100,968	887,383
11	Flowers Industries	113,750	648,575	343,407
12	General Mills	95,135	4,355,500	2,482,100
13	Occidental Petroleum	42,225	16,915,345	13,393,758
14	J. E. Seagram & Sons, Inc.	156,993	2,276,994	1,659,100
15	Kellogg	107,517	3,050,333	2,317,367
16	McKesson Corporation	27,083	5,133,043	4,329,049
17	Nestle Enterprise, Inc. Group	42,317	18,043,144	11,258,022
18	PepsiCo	147,597	8,572,067	16,939,133
19	Philip Morris	493,653	18,878,333	7,547,000
20	Quaker Oats	5,075	3,517,333	2,048,633
21	Nabisco Brands	202,900	11,651,000	6,868,333
22	Tasty Baking Company	4,833	222,360	151,699
23	Universal Foods	6,208	529,526	411,804
24	Wilson Food Corporation	5,228	5,728,433	1,600,922

Sources: Averages are computed from data collected from the Federal Election Commission Reports (lobbying expenditures), and from the *Moody's Industrial Manuals* and Standard and Poor's *Industry Surveys* (revenues and costs) over 1983, 1985, 1987.

of economic concepts. This study, however, uses revenue and cost data which are not generally subject to extensive accounting adjustments. The issue would be far more relevant if profit or net income data were used.

Data on federal political contributions, used as a proxy for lobbying contributions by food firms in this analysis, are published by the Federal Election Commission. The data are subject to some limitations. In particular, the data do not include (a) the direct personal contributions by food firms' officers even though they may benefit the firm, (b) the costs of maintaining lobbying offices at various levels of government, and (c) the value of time of lobbyists, as well as time and money spent contacting legislators directly. They include only direct contributions to political campaigns of candidates for federal offices. The data thus understate the contributions to lobbying efforts by the firms in this analysis. In addition, the selection of firms was contingent upon availability of data on their federal campaign contributions.

Estimation and Results

Because of the assumption that the elasticities of lobbying with respect to the output price and input costs for food firms has three additive components, equation (10, 13) is linear in parameters. The firm-specific and time-specific effects are represented by dummy variables that interact with profit for each firm and time period in the sample. The resulting empirical equation was estimated:

$$(13) \quad n_{oit} = A^q R_{it} + A^y C_{it} + \sum_i B_i^o (R_{it} - C_{it}) D_i \\ + \sum_t D^t (R_{it} - C_{it}) D_t + u_{it},$$

where $D_i = 1$ for the i th firm and zero otherwise, and $D_t = 1$ for the t th time period (1983–85) and zero otherwise. The total lobbying expenditure of firm i is n_{oit} in period t , R_{it} is the revenue for firm i in period t , C_{it} is the cost of the goods sold for firm i in period t , and u_{it} is a stochastic error term of unknown heteroskedasticity. Equation (13) was estimated with SHAZAM econometric software using White's heteroskedasticity-consistent covariance matrix estimator to correct for heteroskedasticity. The sample contains 74 observations.

The hypothesis that food firms' lobbying activity in their input markets is not significantly different from zero can be formulated as follows:

$$\text{Null Hypothesis:} \quad H_0: A^y = 0;$$

$$\text{Alternate Hypothesis:} \quad H_a: A^y \neq 0.$$

If the null hypothesis is not rejected, it can be concluded that food firms do not significantly lobby in their input market.

Interpretation of Results

The results (presented in table 2) indicate that the coefficient on the variable *COST*, which represents lobbying expenditures in the input markets, is not statistically different from zero. This is interpreted to mean that food firms do not spend a significant amount of their resources to lobby in their input markets and, by implication, do not exercise significant political influence in agricultural commodity markets. The significance of the coefficient on the variable *REVENUE*, which captures lobbying expenditure in the output market, is statistically significant. The result suggests that the direct lobbying through food firms' political contributions is primarily directed to their output market.

The variables labeled *DP1* through *DP23* in table 2 represent firms 1–23, respectively, identified by name in table 1. The coefficients on *DP1–DP23* (table 2) indicate whether the gross profit (as measured by $R_{it} - C_{it}$) for an individual firm is significantly correlated with its total lobbying expenditures relative to the reference firm. The reference firm is the last firm listed in table 1 (Wilson Food Corporation). The firms are entered into the estimating equation in the order they appear in table 1.

The gross profits of only five firms are not significantly related to lobbying expenditures relative to Wilson Food Corporation (firms 1, 2, 6, 10, and 23). Four firms' profits have a significantly negative relationship between lobbying expenditures and profits (firms 13, 16, 17, and 20). For the remainder of the firms, increased profits are significantly correlated with greater lobbying expenditures. The last two coefficients in table 2 indicate that lobbying expenditures were less in 1983 and 1985 relative to the reference year, 1984.

Failure to reject the hypothesis that food firms do not lobby in the input market (an important component of which is the supply of agricultural commodities) is consistent with the view that food firms have monopsony power in their input markets that allows them to negotiate lower prices despite government regulations, or they can pass through any cost increases to consumers, or both. Whatever the case may be, the ultimate implication is that the food processing sector had no serious incentive to act as a countervailing power to the farm lobby in the forming or reforming of agricultural policy in the early part of the 1980s.

This interpretation should be qualified in two respects. First, we estimated a fixed-effects model. The inferences are therefore conditional on the effects that are in the sample. Second, and as previously noted, the selection of firms was contingent upon the availability of data on their federal campaign contributions. As a consequence, conclusions from this analysis may not be widely generalizable across firms or over time. They are nonetheless useful for formulating hypotheses about the behavior and motivations of other food firms that participate in the political market.

Table 2. Food Firms' Lobbying Expenditure Allocation Equation Estimates

Variable Name	Estimated Coefficient	Standard Error	t-Ratio (45 D.F.)
<i>REVENUE</i>	0.107E-04	0.547E-05	1.96
<i>COST</i>	0.141E-05	0.760E-05	0.18
<i>DP1</i>	-0.472E-06	0.531E-05	-0.32E-03
<i>DP2</i>	-0.651E-06	0.567E-05	-0.11
<i>DP3</i>	0.226E-03	0.512E-04	4.41
<i>DP4</i>	0.216E-06	0.836E-07	2.59
<i>DP5</i>	0.671E-04	0.144E-04	4.64
<i>DP6</i>	-0.199E-04	0.181E-04	-1.09
<i>DP7</i>	0.161E-04	0.415E-05	3.88
<i>DP8</i>	0.355E-04	0.556E-05	6.39
<i>DP9</i>	0.761E-04	0.246E-04	3.08
<i>DP10</i>	-0.205E-04	0.163E-04	-1.25
<i>DP11</i>	0.333E-03	0.841E-04	3.96
<i>DP12</i>	0.322E-04	0.159E-04	2.02
<i>DP13</i>	-0.388E-04	0.126E-04	-3.08
<i>DP14</i>	0.157E-03	0.294E-04	5.32
<i>DP15</i>	0.100E-03	0.116E-04	8.65
<i>DP16</i>	-0.368E-04	0.180E-04	-2.04
<i>DP17</i>	-0.165E-04	0.660E-05	-2.50
<i>DP18</i>	0.119E-04	0.509E-05	2.33
<i>DP19</i>	0.303E-04	0.366E-05	8.27
<i>DP20</i>	-0.165E-04	0.590E-05	-2.79
<i>DP21</i>	0.204E-04	0.389E-05	5.25
<i>DP22</i>	0.374E-04	0.919E-05	4.07
<i>DP23</i>	0.370E-04	0.215E-04	1.72
<i>DT1</i>	-0.547E-05	0.513E-05	-1.06
<i>DT3</i>	-0.117E-04	0.534E-05	-2.20

Notes: ▶ Dependent variable = *TOTAL LOBBYING EXPENDITURE* by each food firm
▶ Adjusted $R^2 = 0.8769$
▶ Total number of observations = 74

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