Corporate Philanthropy as a Cooptive Relation*

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Abstract

Corporate philanthropy is analyzed as a cooptive relation, akin to advertising, directed at persons collectively as a consumer sector of the American economy. The strength of this cooptive relation is predicted from a network definition of the extent to which corporations in an economic sector have a market incentive to institutionalize their relations with people as consumers. As predicted, the proportion of corporate net income donated to charity covaries with the extent to which firms in a sector are dependent on consumption by people and able to do something about eliminating uncertainty in the demand for their product. In fact, the specified structural effect of the market on the rate of corporate giving is stronger than the income and tax incentive effects typically specified in a microeconomic model. Methodologically, the discussion illustrates a strategy by which network analysis is often used to inform analyses of individuals: social context constraints on an actor are captured in a network model of the context and then specified as parameters in a microeconomic decision model.

In the context of the often strained relation between people and corporations as classes of actors in American society, corporate philanthropy offers a dual satisfaction. Corporate philanthropy, that is to say, tax deductible gifts from corporations to charitable activities, provides the direct material benefit of improved public health, education, and welfare. It is a further satisfaction to know that corporate actors, as preeminently rational, profit-seeking bastions of power, have acted in the interests of persons rather than themselves. To be sure, corporate philanthropy is a cost effective allocation of corporate income. But it is also a social setting in which the interests of persons and corporate actors come together in an intimate way. Accordingly, the corporate decision to make charitable donations provides

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a convenient laboratory for studying the nature of the relation from corporate actors to persons. I propose to analyze corporate philanthropy as a cooptive relation, akin to advertising, directed at persons collectively as a consumer sector of the economy.[1]

A Microeconomic Model: Philanthropy as a Cost Efficient Expenditure

First and foremost, corporate philanthropy is to be understood as a rational decision made by a profit oriented bureaucracy, an efficient allocation of income at a known price. Both personal (e.g., Feldstein and Clotfelter; Feldstein and Taylor) and corporate (e.g., Nelson; Schwartz) philanthropy can be viewed as an outcome from a microeconomic decision process. The level of giving by actor (g_j) is determined in a constant elasticity equation by the unit cost, or price, of giving for the actor (c_j) and the level of income available for the actor to donate (i_j);

$$g_j = (c_j)^{\beta_c}(i_j)^{\beta_i}(e_j), \tag{1}$$

where β, β_c, and β_i are effects to be estimated, e_j is an error term, and the price of giving, c_j, is the complement of actor j's tax rate. For example, if a corporation has a tax rate of 45 percent, then a dollar donated to charity only costs the corporation 55¢; the remaining 45¢ would have been lost to taxes anyway and so lost to the firm. In the absence of data on individual firms in a representative sample, data aggregated by the Internal Revenue Service from corporate tax returns for economic sectors as a whole have been used to estimate price and income effects. This research has shown that dollars of donations by firms in sector j are positively associated with the dollars of net income they report (interpreted estimates of β_i ranging from .5 to 1.0) and negatively associated with the price of giving (interpreted estimates of β_c ranging from $-.9$ to -2.5), which is to say, positively associated with the tax rate in sector j (Bennett and Johnson; Levy and Shatto; Nelson; Schwartz).[2] In other (more economic) words, corporate philanthropy appears to be price elastic; β_c less than -1.0 means that a percentage decrease in the price of giving is associated with a larger percentage increase in giving. It yields more in additional gifts than is lost in potential additional tax revenue. These results could be used to recommend the manipulation of tax incentives as a strategy for increasing corporate philanthropy.[3] Such a judgment seems premature.

First, there is the question of evidence. Since 1936, the first year following the 1935 amendment allowing corporations to deduct charitable contributions from their taxable income, there has been an increase in corporate giving within the United States. Nelson reports the increase in

dollars of gifts as one of three principal effects in his 1936 to 1963 time series; the other two being price and income effects. There has also been an increase in the percentage of net income donated. However, the percentage donations have remained relatively stable at approximately 1 percent since the late 1950s with the bulk of donations going to health and welfare (about 40%) and education (also about 40%), with a smaller, but increasing, share going to cultural and civic activities; a share approaching 20 percent in the mid-1970s (e.g., see Klepper; Vasquez; Watson). This is well below the 5 percent maximum deduction allowed to corporations. In fact, the Commission on Private Philanthropy and Public Needs, a group of privately funded experts drawn from academia, research organizations, and the business community, thought it prudent in 1975 merely to recommend that corporations increase their percentage contributions to 2 percent by 1980 (Commission, Vol. I). Further, only 53 percent of 408 chairmen and presidents of large American firms surveyed in 1975 said that increased tax incentives would result in their firms increasing charitable donations by even one-half within two to five years.[4] Beyond the weakness of evidence supporting tax incentives, there is the question of corporate social context.

The corporate decision to make a donation is not reached by an isolated actor. It is reached within a social context defined by interorganizational relations with competitors, suppliers and consumers as well as relations with persons; persons in the communities where a firm owns establishments and persons collectively as an economic sector of consumers determining, in part, demand for the firm's product.

In one sense, corporate actors and persons can be viewed as two types of citizens living in the same society and accordingly benefiting from an improved society. For example, among other results from their survey of large American corporations, Harris and Klepper report some remarks made by the president of a major communications firm in justification of corporate philanthropy:

> A corporation exists in a community—local, regional, national, even worldwide. It must be concerned with the condition of that community, with the development of the best and broadest possible base of talents, and with the quality of life. The corporate citizen, like the individual citizen, benefits from a healthy community and should encourage efforts to make the community better.

Sentiments such as these are timely, but they are neither novel nor unique to corporate philanthropy. For example, similar sentiments were expressed by executives attending a 1955 conference on corporate charity policies (National Conference Board). More generally, there are so many expressions of the need for corporate citizenship by scholars and business practitioners that such sentiments have the omnipresence of a norm for corporate executives (see Moch and Seashore for a review of work on the corporate norms theme).

Most importantly, these sentiments are not analytically informative with respect to variation in corporate philanthropy. All corporations are corporate citizens, but corporations differ extensively in the extent to which they are involved in philanthropic activities. Therefore, one is left with the microeconomic concepts of price and income as the principal, theoretically defined, variables available to explain observed differences in corporate philanthropy. What is needed is a concept capturing differences in contextual forces on specific corporations, or classes of corporations; differences that covary with differences in corporate philanthropy.[5]

A Sociological Model: Philanthropy as a Cooptive Relation

At this point it is useful to consider the pattern of relations defining a corporation's network position in the economy. Market relations among corporate actors and persons in the economy can be represented by an input–output table where cell (j, i) of the table is the dollars of sales by establishments in sector j to those in sector i. The firm operating in sector j occupies a network position defined by purchases from other sectors (column j elements) and sales to other sectors (row j elements). I can speak of a corporation's position because tax return data on corporate philanthropy force a whole corporation into a single economic sector (as I will discuss below). This relational pattern of buying and selling provides an analytical handle on the social context in which the decision to make a donation is reached.

It provides an analytical handle by indicating the nature and intensity of market constraints on the sector in which the philanthropy decision is reached. More specifically, the relational pattern can be used to define the structural autonomy of sector establishments (their ability to act without constraint relative to establishments in other sectors) and the constraint each other sector poses for that autonomy. Establishments in sector j have high structural autonomy, $\mathbf{a}_j$, to the extent that there is low competition within the sector and high competition among sector suppliers and consumers. As discussed in detail elsewhere (Burt, a, d, f), the structural autonomy score $\mathbf{a}_j$ varies from zero to one as the profit margin expected in sector j given the market constraints on the sector. In 1967, low market constraint translated into high profits (Burt, f, chap. 2). To the extent that a corporation operates in a sector providing high structural autonomy, the firm is comparatively free from the market constraints of competitors, suppliers and consumers.

More to the point of this discussion, profits in sector j are constrained by establishments in consumer sector i to the extent that two market conditions simultaneously characterize buying and selling between the sectors: (a) a dominant proportion of all sales by sector j are made to

establishments in sector i, and (b) organizations within sector i are coordinated so as to form an oligopoly. The specific market constraint coefficient $\mathbf{a}_{ji}$ can be interpreted as the profit margin foregone in sector j by failing to coopt sector i as a source of market constraint (see Burt, f, Eqs. 2.10ff). In other words, the market constraint coefficient $\mathbf{a}_{ji}$ measures the market incentive firms in sector j have to develop cooptive relations to sector i. As might be expected from corporations as purposive actors, establishments in sectors i and j tended to be connected in 1967 by extensive and coordinated ties through corporate boards of directors to the extent that $\mathbf{a}_{ji}$ was strong (Burt, d, chap. 8; f, chap. 4; Burt et al.). Through these cooptive directorate ties, market constraints could have been circumvented (Burt, f, chap. 3).

People as consumers in the household sector of the economy pose no such constraint for corporate profits. The relational pattern of buying and selling characteristic of a firm's sector defines the extent to which demand for sector product is dependent on consumption by persons. Sectors do differ in the extent to which total demand for their product is a result of consumption by individuals in the household sector. For example, the ratio of dollars of final demand from individual households over total dollars of demand as reported in the 1967 input–output table (U.S. Department of Commerce, b) is .6816 for establishments manufacturing food products, but only .0004 for those manufacturing primary metals products. Ceteris paribus, food firms would have a higher market incentive to coopt the household sector than would primary metals firms. But this inference ignores the extent to which buyers in the household sector are organized so as to form an oligopolistic consumer. Regardless of the extent to which demand for a sector's product is dependent on consumption by persons, people are so independent as buyers that together in the household sector they do not constitute an oligopoly. The market constraint coefficient $\mathbf{a}_{ji}$ for household sector i is negligible for all sectors j.

This negligible market constraint posed by the household sector suggests that the sector would be ignored in the cooptive strategies of large corporations. There is evidence of cooptive relations occurring as a function of the amount of buying and selling between economic sectors in 1967; however, when sector oligopoly is held constant it is clear that cooptive relations were directed to oligopolistic sectors with which extensive buying and selling was transacted. Cooptive relations were not directed to competitive sectors—regardless of the amount of buying and selling transacted with the sector (see Burt, e, for detailed discussion of this point).

Nevertheless, there is variation in the market incentive firms in different economic sectors have to coopt the household sector as a secondary source of market constraint. Consider the firm operating in a sector providing high structural autonomy but at the same time subjecting it to a reliance on consumption by people in order to maintain demand for its

product. It is in the firm's self-interest to actively court the affections of people as consumers since that affection translates into stimulated demand for the firm's product. Moreover, the structurally autonomous firm is in a position to realize this particular self-interest since it is relatively free from threats to its profits from corporate consumers, suppliers, and competitors. If a firm cannot manufacture some product with a comfortable profit margin, then the extent to which it would depend on public consumption if it could manufacture with a profit is of little importance.[6] In other words, people as consumers in the household sector constitute a market constraint of secondary importance. Unlike the constraints captured in the structural autonomy model, constraint from the household sector does not pose an immediate threat to profits. But in the absence of more immediate threats —that is, for the structurally autonomous firm—it is an eminently strategic action for the firm to move to eliminate uncertainty in its profits by coopting the source of even secondary constraint, that is, people in the household sector of the economy.

This means that the network position a firm occupies within the economy can be used to define a market incentive for the firm to coopt the household sector in the sense of institutionalizing its relations with people as consumers. For the firm operating in sector j, that market incentive, m_j, is defined simultaneously by the structural autonomy of sector j and the extent to which consumption by persons determines demand for sector product:

$$m_j = \mathbf{a}_j\,(PD_j/TD_j), \tag{2}$$

where $\mathbf{a}_j$ is the structural autonomy provided by sector j (e.g., Burt, f, Equation 2.5), PD_j is the dollars of final demand for that sector's product from the household sector, and TD_j is the dollars of total demand for that sector's product. The term PD_j corresponds to the dollars of sales from sector j to the household sector and TD_j corresponds to the total volume of sales by the sector.[7] The market incentive varies from zero to one. A firm will have a high market incentive to coopt the household sector to the extent that the sector in which the firm operates depends on consumption by people to maintain demand for its product and provides structural autonomy enabling the firm to do something about institutionalizing that demand so as to eliminate a source of uncertainty in its profits.

Corporate philanthropy can be viewed as serving a dual function for firms responding to a high market incentive to coopt the household sector. First, philanthropy legitimates the firm to the public as a protector of the public interest. This in turn can be expected to channel public buying toward commodities that the firm has had a hand in producing. Second, philanthropy can provide a further stimulus to demand by improving the ability of specific classes of individuals to purchase the firms' product.[8]

There is some evidence of these functions in the survey results Harris and Klepper present. Of the chairmen and presidents giving reasons for company public service activities, 49 percent cite "self-interest" consisting of public services necessary for long-term survival.

With these functions in mind, corporations can be expected to allocate funds to *ostentatiously* improve the well-being of persons to the extent that they have the above defined market incentive to coopt the household sector. Philanthropic activities would be pursued for the same reason that firms merge with establishments operating in sectors constraining a firm's profits and cultivate ties through boards of directors to firms operating in those sectors. In this sense of being an effort to eliminate uncertainty in profits, corporate philanthropy constitutes a cooptive relation from the corporate actor to people collectively as consumers in the household sector. More specifically, the level of philanthropy predicted by the microeconomic model in Equation (1) can be expected to increase in a systematic way with increasing values of m_j. Extending Equation (1) to include a market incentive effect, β_m, the following sociological model results:

$$g_j = \beta(c_j)^{\beta_c}(i_j)^{\beta_i}(m_j)^{\beta_m}(r_j), \tag{3}$$

where r_j is a residual term and the market incentive effect should be significantly greater than zero with price and income effects on philanthropy expenditures held constant.

I shall take this argument one step further. Confidence in the proposed understanding of philanthropy as a cooptive relation can be increased with evidence on its concomitants. By this I mean that the construct validity of the argument would be more strongly established if, in addition to showing that philanthropy is generated by a market incentive for cooptive relations to the household sector, I could also show that involvement in philanthropy covaried with involvement in a blatantly cooptive relation to people—a relation simultaneously generated by the market incentive for cooptive relations to the household sector. Such evidence would support an understanding of corporate philanthropy as a cooptive relation both in terms of its etiology and its concomitants. Readily available data make this extension of the argument feasible.

Corporate advertising is the blatantly cooptive relation I have in mind. Advertising expenditures are reported to the Internal Revenue Service along with philanthropy expenditures. Both advertising and donations are tax deductible and so encouraged by the same tax incentive. Both can increase to the extent that income is available. Most important for this discussion, both cultivate a favorable impression of the firm in the public eye. Although advertising is a more malleable and direct form of reaching people, it is typically received with suspicion. This is less true of donations.

Used together, advertising and philanthropy should be nicely able to realize the two market functions of philanthropy described above and so should be pursued simultaneously by firms exposed to a high market incentive to coopt the household sector. Philanthropy and advertising are not the same thing nor do they operate in the same manner. However, they serve very similar functions with respect to the market incentive to coopt the household sector. Holding price and income constant, the firms most involved in philanthropy should be the firms most involved in advertising as a complement to philanthropy and should be those firms operating in sectors giving them a high market incentive to coopt the household sector.

Analysis

I propose to assess this line of reasoning with expenditure data reported to the Internal Revenue Service by firms in American manufacturing industries. Dollars of expenditures are reported by economic sector, 20 of which correspond to the two-digit (standard industrial classification, SIC) manufacturing industries analyzed in previous applications of the structural autonomy model (e.g., Burt, a, d, chap. 8; f, Appendix; Burt et al.). This is an unfortunately small number of observations; however, reliable data on donations are not available for more narrowly defined industries.[9] Using the tax return data compiled in the *Statistics of Income, Corporation Income Tax Returns* for firms showing a profit during 1967 (Internal Revenue Service), advertising and philanthropy expenditures have been computed as proportions of industry profit. The proportion of net income allocated to advertising is computed as the ratio of dollars of reported advertising over net income plus dollars of reported advertising. In accordance with the computation of the 5 percent limit on tax deductible gifts, the proportion of profit allocated to philanthropy is computed as the dollars of reported contributions divided by net income plus dollars of contribution (Internal Revenue Service, 187).

INITIAL EVIDENCE OF A MARKET INCENTIVE EFFECT

As expected, advertising and philanthropy expenditures have a positive correlation with one another and both have a positive correlation with the market incentive for such expenditures. If the firms within an industry made extensive donations, they also allocated extensive funds to advertising. Log dollar expenditures on advertising are correlated .75 with log dollar expenditures on philanthropy. If those donations constituted a high proportion of their net income, a high proportion of net income was also allocated to advertising. Log proportionate expenditures have a .30 cor-

relation with one another. The market incentive index in Equation (2) has been computed for each industry as of 1967 using the structural autonomy scores computed from census and input–output data (listed in Burt, f, Appendix) and data on final demand in the aggregate input–output table (U.S. Department of Commerce, a, b). The natural logarithm of the market incentive m_j has strong, positive correlations with log proportionate expenditures; .75 for advertising, .39 for philanthropy. Table 1 reports mean expenditure data showing that these results were not idiosyncratic to 1967. The mean proportion of net income allocated to philanthropy in any one of the five years reported is correlated with the mean allocation to advertising; both means increasing toward the end of the 1960s ($r = .76$). Annual time series on the market incentive m_j are not available since it is based on input—output data, so I have only drawn a crude distinction between the five industries in which there was a low market incentive in 1967 to coopt people versus five industries in which there was a high incentive. The five lowest industries stand apart in the distribution of m_j for all 20 industries and the mean m_j for them is well below the mean for all industries (.005 versus .071 respectively). Firms in these industries (the lumber industry, the stone, clay and glass industry, the primary metals industry, the fabricated metals industry, and the mechanical machines industry) had little to gain by improving the well-being of people and their expenditures show it. On average, they allocated 0.89 percent of their net income to philanthropy and allocated 7.31 percent to advertising. Both allocations were well below the 1967 averages for all industries reported in Table 1. Six industries clearly stand apart as high market incentive industries in 1967 and the mean m_j for them is well above the mean for all industries (.166 versus .071 respectively). Firms in these industries (the food industry, the tobacco industry, the apparel industry, the furniture industry, the leather industry, and the diverse subsectors known as the miscellaneous industry) had a great deal to gain by gaining recognition as contributors to the well-being of people. Putting aside the tobacco industry for reasons that will be clear shortly, the remaining five high incentive industries made above average allocations in 1967 to philanthropy and advertising. On average, they allocated 1.56 percent of their net income to philanthropy and 21.22 percent to advertising. These differences between low and high market incentive industries in 1967 were characteristic of the late 1960s. From 1965 to 1969, the mean proportion of profits allocated to philanthropy by firms in the low incentive industries was consistently lower than that given by firms in the high incentive industries. The same is true for the mean proportion of profits allocated to advertising. Further, these two types of expenditures were consistently lower in the low incentive industries than they were for manufacturing as a whole. They were consistently higher in the high incentive industries than they were for manufacturing as a whole.

Table 1. CORPORATE PHILANTHROPY AND ADVERTISING FROM 1965 TO 1969

	1965	1966	1967	1968	1969
Mean Percentage of Profits Spent on Philanthropy by Firms in:					
Low incentive industries	.95	.98	.89	1.10	1.12
All manufacturing industries	1.09	1.03	1.08	1.26	1.36
High incentive industries	1.56	1.49	1.56	1.53	1.53
Mean Percentage of Profits Spent on Advertising by Firms in:					
Low incentive industries	7.01	6.69	7.31	7.09	7.51
All manufacturing industries	14.70	14.52	15.81	15.27	16.62
High incentive industries	22.18	20.92	21.22	20.89	22.28

NOTE: Ratios are based on data presented in the Statistics of Income series (Internal Revenue Service). Ratios for all of the manufacturing industries are based on the "total manufacturing" data in the series. Ratios for low market incentive industries are the means for five industries (lumber, stone-clay-glass, primary metals, fabricated metals, mechanical machinery). Ratios for high incentive industries are the means for five industries (food, apparel, furniture, leather, miscellaneous).

HOLDING PRICE AND INCOME CONSTANT

I have ignored industry differences in the cost of philanthropy or advertising and differences in the profit typically available to be allocated to such expenditures. Along with the market incentive, these differences could be responsible for industry differences in expenditures. The profit margin typical of industry j in 1967 has been computed as p_j, the proportion of

industry sales in excess of direct material costs for the industry.[10] This is the proportion of sales that is profit and so available to be allocated to non-direct cost activities such as advertising or philanthropy. The unit cost, or price, of advertising and philanthropy for firms in industry j, c_j, is the complement of the industry tax rate which is taken from the 1967 tax return data in the *Statistics of Income*.[11] Given a price (C), income available as profit (P), and a market incentive (M) for an industry, the industry expenditures (E) on advertising and philanthropy should be determined by the following equations (cf. Equation 1):

$$E = b(C)^{b_c}(P)^{b_i}(M)^{b_m}(R),$$

which can be estimated with ordinary least-squares after taking the natural logarithm of both sides of the equation:

$$ln\ E = ln\ b + b_c(ln\ C) + b_i(ln\ P) + b_m(ln\ M) + ln\ R. \qquad (4)$$

I shall use this regression equation to describe unconstrained price (b_c), income (b_i), and market incentive (b_m) effects on philanthropy and advertising expenditures in 1967; Tables 2 and 3 contain estimates of the effects.

Point estimates of the effects are presented in Table 2 with two different specifications of the residual term R in Equation (4). Let e be a random error with $ln\ e$ having the usual properties of an error term in least squares estimation. The residual term R is first treated in Table 2 as equivalent to e and secondly treated as a product of e and (D^{b_d}), the latter expressing a systematic tendency for the tobacco and transportation equipment industries to give less to charity than would have been expected from the market incentive price and income conditions in the two industries. The dummy variable D equals one for all industries except tobacco and transportation equipment, for which it equals the natural logarithm base e. Under this second specification of the residual in Equation (4), R equals $e(D^{b_d})$ and the natural logarithm of R, $ln\ R$, equals $ln\ e + b_d(ln\ D)$ which means that the log dummy variable is the usual zero-one dummy variable in the estimation equation and b_d is the adjustment in log expenditures required in order to predict spending by firms in the tobacco and transportation equipment industries. An examination of the residuals when R is assumed to equal the random error e suggested the adjustment for tobacco and transportation equipment expenditures. The distribution of the ($ln\ e$) residuals when R equals $e(D^{b_d})$ does not suggest a respecification of the equation and a linear functional form yields squared multiple correlations lower than those obtained with the multiplicative model.

In order to demonstrate the stability of the market incentive effect across different measures of philanthropy expenditures and profit, interval

Table 2. PRICE, INCOME, AND MARKET INCENTIVE EFFECTS IN 1967

	$\hat{b}$	Market Incentive $\hat{b}_m$	Price $\hat{b}_c$	Income $\hat{b}_i$	$\hat{b}_d$	Multiple Correlation
Proportion of profits spent on philanthropy	.04	.11	.86	.15	-.80	.79
		(3.4)	(0.7)	(0.6)	(4.0)	
	.07	.08	1.97	.19		.48
		(1.9)	(1.2)	(0.6)		
Proportion of profits spent on advertising	.38	.21	-.89	.64	-.04	.82
		(4.4)	(0.5)	(1.8)	(0.2)	
	.39	.21	-.83	.64		.82
		(4.6)	(0.5)	(1.9)		

NOTE: Ordinary least-squares regression estimates of the parameters in Equation (4) are presented with t-tests given in parentheses. Estimates are based on the 20 two-digit industries and $\hat{b}_d$ is the amount by which log expenditures in the tobacco and transportation equipment industries must be adjusted in order for them to match the expenditures expected as a result of price, income, and market incentive effects for industries generally.

estimates of price, income, and market incentive effects on philanthropy are presented in Table 3 for three expenditure measures and two income measures. As is clear from the interval estimates of the tobacco/transportation adjustment, b_d, in the table, these estimates have been obtained from Equation (4) when the residual term is specified as eD^{b_d}. The three expenditures measures are: (a) total dollars of contributions from an industry (e.g., Nelson); (b) per capita dollars of contributions (computed as the total dollars divided by the number of tax returns submitted with net income, e.g., Schwartz); and (c) the proportion of profit measure used in Table 2 (e.g., Johnson). Different income measures are appropriate for predicting the three expenditures measures. Using the 1967 tax return data: (a) a total income measure has been coded as the dollars of net income reported plus the dollars spent on contributions; (b) a per capita income measure has been computed as total income divided by the number of industry tax returns submitted with net income; and (c) a profit margin measure has been computed as the ratio of total net income (after taxes) divided by total receipts. Unfortunately, these tax return measures contain the same sampling /coding problems contained in the expenditure measures and so constitute stochastic rather than true predictors of the expenditures. In response to this problem, I have also measured industry income with the *Census of Manufactures* data for 1967. These are population data and do not force all of a firm's holdings into a single industry (see note 9). Census income measures correspond to the tax return income measures: (a) total income being

Table 3. INTERVAL ESTIMATES OF EFFECTS ON CORPORATE PHILANTHROPY IN 1967

	Market Incentive $\hat{b}_m$	Price $\hat{b}_c$	Income ($\hat{b}_i$)		$\hat{b}_d$	Multiple Correlation
			tax returns	census		
Proportion of profits spent on philanthropy	0.07 to 0.16	-0.94 to 2.28	-0.28 to 0.33		-1.09 to -0.53	.78
	0.07 to 0.16	-0.76 to 2.48		-0.18 to 0.48	-1.07 to -0.53	.79
Per capita dollars spent on philanthropy	0.03 to 0.12	-1.82 to 1.76	0.81 to 0.98		-0.93 to -0.26	.98
	0.02 to 0.17	1.02 to 7.90		0.85 to 1.20	-0.68 to 0.37	.94
Total dollars spent on philanthropy	0.02 to 0.11	-1.76 to 1.96	0.79 to 1.00		-1.09 to -0.53	.96
	0.01 to 0.15	-4.64 to 0.48		0.71 to 1.05	-0.87 to -0.06	.91

NOTE: These are 80%, two-tail confidence intervals defined as $b \pm 1.34(SE)$, where SE is the standard error of the estimate b (but see note 12 for further interpretation). The alternative income measures are computed from tax return data versus census data as explained in the text. The intervals for proportionate philanthropy are interval estimates of the parameters expressed as point estimates in Table 2. The parameters estimated are specified in Equation (4).

the dollars by which value added for an industry exceeded labor costs (correlated .90 with the tax return measure); (b) per capita income being the ratio of dollars of total income over the number of companies in an industry (correlated .94 with the tax return measure); and (c) profit margin being the corrected price–cost margins, p_j, used to estimate effects in Table 2 (correlated .77 with the tax return measure of industry profit margin). If nothing were known about the direction of the effects of Equation (4) and repeated samples were drawn to replicate the data used here, one could expect the parameter estimates for Equation (4) estimated in four out of five repeated samples to lie within the intervals given in Table 6.3.[12]

I draw three conclusions from the estimates in Tables 2 and 3 in regard to the connection between corporate philanthropy and the market incentive to coopt the household sector.

First, there is evidence of a strong market incentive effect. In all four equations reported in Table 2, the market incentive effect on philanthropy and advertising is significantly greater than zero. With the adjustment for tobacco and transportation equipment, the market incentive effect for both expenditures is significantly greater than zero at beyond the .001 level of confidence. Without the adjustment, the effect on philanthropic expenditures is lower but still significantly greater than zero beyond the .05 level of confidence. The standardized estimate of the effect for philanthropy and advertising is .56 and .69 respectively with the adjustment for tobacco/transportation, .42 and .68 respectively without the adjustment. The metric estimate of the market incentive effect on philanthropy is a small fraction. In four out of five repeated samples, one could expect estimates of the market incentive effect on philanthropy (b_m in Equation 4) to be a positive, but very small, fraction contained within intervals ranging from a minimum of .01 up to .17 as a maximum (see note 12). In terms of the absolute magnitude of this coefficient, very similar estimates are reported in Table 3 for each of the three types of expenditure measures: total dollars of philanthropy, per capita dollars, or proportion of profits. This means that the market incentive had its most dramatic effect in industries providing a low incentive to coopt the household sector. I will return to the metric of the market incentive effect in a moment. For now, it is clear that the firms increased their philanthropy and advertising expenditures to the extent that their network positions in the economy gave them a market incentive to coopt the household sector.

Second, the proportion of profits allocated to philanthropy and advertising is much more determined by the market incentive than it is by price or income. Two conclusions summarize price and income effects: (1) The level of expenditures on philanthropy and advertising is strongly associated with the level of net income as profits, however, the rate of expenditures is not. (2) The price of advertising and making donations—

in terms of the tax advantages of such expenditures—had no effect on expenditures.

Income is positively associated with philanthropy and advertising. The estimates of b_i in Table 2 are positive and those for advertising are significantly greater than zero at a .05 level of confidence. All income effects in the table, however, are less significantly different from zero than corresponding market incentive effects. Switching from the rate of giving to the amount given, there is evidence of a strong income effect. The association between dollars (per capita dollars) of profit and dollars (per capita dollars) of philanthropy and advertising in an industry is significantly greater than zero beyond the .001 level of confidence. As could be expected from past research, estimates of this income effect, b_i, are equal to or slightly less than 1.0 (see Table 3). This association in raw dollars does not mean that industries with a high volume of business had a high rate of giving. The proportion of net income allocated to philanthropy is not contingent on the proportion of sales that was net income as reported in Table 2. Not reported are regression equations in which dollars of net income and per capita dollars of net income also fail to predict the proportion of profit allocated to philanthropy.

Turning to the price effect columns in Tables 2 and 3, skepticism over tax incentives for corporate philanthropy certainly seems justified. Price had no unique effect on the level or rate of corporate philanthropy expenditures in 1967. Typically, the interval estimates of the price effect contain negative values; however, point estimates cannot be interpreted with confidence. In four out of five repeated samples, the price effect on philanthropy (b_c in Equation 4) could range from a minimum of -4.64 up to 7.90 as a maximum. Price is not a determinant of dollar expenditures because of the close association between income and price. The correlation between log scores of price and dollar expenditures for philanthropy and advertising are negative and quite strong; $-.40$ and $-.57$ respectively for total dollars of expenditures, $-.52$ and $-.56$ respectively for per capita dollars. However, industries with a high tax rate (and therefore low price) were industries with extensive net income as profits. This creates a strong negative correlation between dollars of income and price which (given the very strong association between dollars of income and dollars of expenditures) results in price having no direct effect on 1967 expenditures when income is held constant. Price does not have even a zero-order association with the proportion of net income allocated to philanthropy or advertising.

My third conclusion is that the market incentive effect was more likely to result in advertising than in philanthropy. To some extent, this is demonstrated by the means in Table 1; advertising being allocated a mean 15.81 percent of industry profits while philanthropy was only allocated 1.08 percent. Further, advertising expenditures are more accurately pre-

dicted than philanthropy expenditures by the market incentive index. Standardized estimates of b_m are larger and more significantly different from zero for advertising than they are for philanthropy. Further still, the metric estimates of b_m are higher for advertising than for philanthropy. This difference reflects the tendency for advertising expenditures to have increased more quickly than philanthropy expenditures with increasing market incentive to coopt the household sector. Finally, philanthropy expenditures require a special downward adjustment not required for advertising expenditures. The adjustment for spending by firms in the tobacco and transportation equipment industries, $\hat{b}_d$, is negative for both types of expenditures. However, it is significantly negative only for philanthropy expenditures. An analysis of intraindustry directorate ties vis-à-vis industry concentration showed that the tobacco and transportation equipment industries were clear outliers from an otherwise positive, monotonic association between the frequency of intraindustry ties and the level of industry concentration (Burt, c). Firms in these industries were argued to have no special need for directorate ties. They were capable of coordinating their actions without actually sharing members of their respective directorates. (This point is argued in the more general context of four-digit industries, in Burt, f, chap. 4). The point here is that firms in the tobacco and transportation equipment industries in 1967 could look forward to stable profits. They had no special need to coopt people as a consumer sector. Although these industries did not provide equal market incentive to institutionalize relations with people, firms in both industries had equally unexpected low involvement in philanthropic activities. Thus the strongly negative adjustment b_d for philanthropy expenditures. No such adjustment was necessary for advertising expenditures. In short, firms within these industries did not choose to contribute a portion of their profits to philanthropy that would have been expected from their market incentive to do so—but they did allocate profits to advertising in proportion to that market incentive. This situation might be different at later points in time, given the increasing Federal regulation of these industries and the public displeasure with the efficiency of Detroit automobiles and the cancer connection with smoking, but the dominant feature of relations with people in 1967 was an asymmetric flow of information in the form of advertising to people from tobacco and transportation equipment firms.[13]

EVIDENCE OF A GENERAL MARKET INCENTIVE EFFECT

This third inference from the results in Table 2 raises a question. To what extent are the different price, income, and market incentive effects on advertising versus philanthropy a result of the smaller scale of philanthropy expenditures? They could be a result of nonnegligible differences in the processes generating these expenditures. Income is more important to ad-

vertising than it is to philanthropy. The market incentive has a stronger effect on advertising than it does on philanthropy. On the other hand, the observed differences could merely be a result of the broader range of advertising expenditures in the sense that the amount of advertising expected from an industry is a single parameter transformation increasing the amount of philanthropy expected from the industry.

This question can be addressed by constraining price, income, and market incentive effects to be identical for the two types of expenditures—while allowing for a broader range of advertising expenditures. Let $\mathbf{g}_j$ be a true proportion of profits to be expected to be allocated to philanthropy within industry j as a consequence of price, income, and market incentive effects (cf. Equation 3):

$$\mathbf{g}_j = \beta(m_j)^{\beta_m}(c_j)^{\beta_c}(p_j)^{\beta_i}, \tag{5}$$

where actual philanthropy expenditures equal this expected proportion weighted by a residual term for philanthropy, r_{jg};

$$\mathbf{g}_j = (\mathbf{g}_j)(r_{jg}) \tag{6a}$$

and actual advertising expenditures equal the expected philanthropy expenditure weighted to reflect the higher level of advertising expenditures (α), the resulting higher variation in advertising expenditures (γ), and a residual term for advertising, r_{jv};

$$\mathbf{v}j = \alpha(\mathbf{g}_j)^{\gamma}(r_{jv}), \tag{6b}$$

where v_j is the proportion of industry net income allocated to advertising. If the adjustment for tobacco and transportation equipment industries is to be made, the residual terms of Equations (6) are products of a random error (e) and underspending by firms in the tobacco and transportation equipment industries measured by an exponent to the dummy variable d_j

$$\mathbf{g}_j = (\mathbf{g}_j)(d_j)^{\gamma_g}(e_{jg}), \tag{7a}$$

$$\mathbf{v}_j = \alpha(\mathbf{g}_j)^{\gamma}(d_j)^{\gamma_v}(e_{jv}), \tag{7b}$$

These models can be treated as examples of the canonical correlation class of covariance structures. Equations (5), (6), and (7) are linear and additive when expressed in terms of natural logarithms. The path diagrams representing them (ignoring the level effects β and α are presented in Figure 1; Equation (6) represented by the upper diagram and Equations (7)

represented by the lower diagram. The important feature of these diagrams for this discussion is the single dimension of corporate giving determined by a price effect, an income effect, and a market incentive effect. This specification says that the two price effects would be observed for philanthropy and advertising separately, but the underlying effect would be a price effect for philanthropy, β_c, and an identical price effect for advertising but increased to express the broader range of advertising expenditures, $\beta_c\gamma$. Similarly, there is a single market incentive effect for philanthropy, β_m, and an identical market incentive effect for advertising but increased to express the broader range of advertising expenditures, $\beta_m\gamma$. The model specified in Equations (5) and (6), the model diagrammed at the top of Figure 1, is a canonical correlation model relating m_j, c_j, p_j with g_j, v_j and setting the variation of the canonical variate $\mathbf{g}_j$ equal to the variation in corporate giving, g_j, that is predicted by price, income, and market incentive effects.[14] The model specified in Equations (5) and (7), the model diagrammed at the bottom of Figure 1, is slightly more complicated since it contains an adjustment for the tobacco and transportation equipment industries; however, it too is no more than a variation on the canonical correlation model.[15]

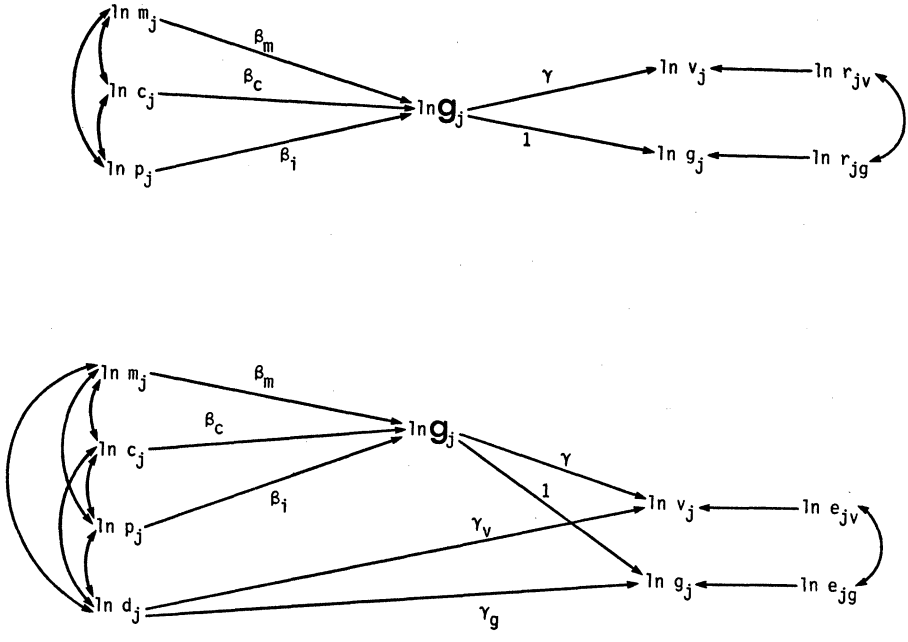

Figure 1. PATH DIAGRAMS OF THE EFFECTS AMONG LOG SCORES SPECIFIED IN EQUATIONS (5), (6) AND (7) WHERE THE TOP DIAGRAM CONTAINS THE PARAMETERS REPORTED AS UNADJUSTED ESTIMATES IN TABLE 3 AND THE BOTTOM DIAGRAM CONTAINS THOSE REPORTED AS ADJUSTED ESTIMATES.

This connection with the canonical correlation model means that estimates of the unknown parameters are easily available and there is a routine test statistic for the hypothesis that there is only a single price effect, income effect, and market incentive effect determining both advertising and philanthropy expenditures. Table 4 reports estimates of the unknown parameters in Figure 1. The table corresponds to Table 2 in which unconstrained estimates are presented. If the observed price, income and market incentive effects on philanthropy and advertising were in fact generated by a single underlying process—allowing for the broader range of advertising expenditures—then the estimates in Tables 2 and 4 would be identical.[16]

There is evidence of a single process of price, income, and market incentive effects generating the two types of expenditures. The estimates in Tables 2 and 4 are not identical, but the differences between them are statistically trivial. Assume, for a moment, that the residual terms r_{jg} and r_{jv} are random errors so that effects can be estimated directly from Equations (5) and (6); the model diagrammed at the top of Figure 1. The canonical variate $\mathbf{g}_j$ in this model is that combination of price, income, and market incentive which is maximally correlated with observed expenditures. That maximum correlation (the canonical correlation associated with $\mathbf{g}_j$) is .83 and is significantly greater than zero at the .002 level of confidence. The likelihood ratio chi-square for the null hypothesis is 20.82 with 6 degrees of freedom. This one canonical variate is sufficient to describe covariation with both types of expenditures, given the fact that the second canonical

Table 4. CONSTRAINED PRICE, INCOME, AND MARKET INCENTIVE EFFECTS

	Intercept	Market Incentive	Price	Income		Squared Multiple Correlation
Percentage of profits spent on philanthropy	$\hat{\beta}$	$\hat{\beta}_m$	$\hat{\beta}_c$	$\hat{\beta}_i$	$\hat{\gamma}_g$	
Equation (6.6a)	.02	.09	-.02	.24	-.66	.51
Equation (6.5a)	.02	.07	-.07	.20		.15
Percentage of profits spent on advertising	$\hat{\alpha}\hat{\beta}\hat{\gamma}$	$\hat{\gamma}\hat{\beta}_m$	$\hat{\gamma}\hat{\beta}_c$	$\hat{\gamma}\hat{\beta}_i$	$\hat{\gamma}_v$	
Equation (6.6b)	.51	.20	-.04	.51	.36	.64
Equation (6.5b)	.57	.21	-.22	.64		.66

NOTE: Effects are specified in Equations (5), (6), and (7) and diagrammed in Figure 1. Estimates unadjusted for low spending by tobacco and transportation equipment firms are specified in Equation (6), diagrammed at the top of Figure 1 and correspond to rows two and four in Table 2. Estimation is explained in note 14. Adjusted estimates are specified in Equation (7), diagrammed at the bottom of Figure 1 and correspond to rows one and three in Table 2. Estimation is explained in note 15.

correlation is not significantly different from zero (chi-square of 1.85 with 2 degrees of freedom, $p = .40$). Even without an adjustment for the tobacco and transportation equipment industries, in other words, philanthropy and advertising expenditures can be interpreted as outcomes of identical price, income and market incentive effects—allowing for the broader range of advertising expenditures. (The estimated adjustment for that broader range is well above one; $\hat{\gamma} = 3.28$.) It is no surprise, therefore, to find that identical price, income, and market incentive effects generate both types of expenditures adjusted for low spending by firms in the tobacco and transportation equipment industries. The canonical variate $\mathbf{g}_j$ generated by Equations (5) and (7) is that combination of price, income, and market incentive which is maximally correlated with expenditures adjusted for spending by tobacco and transportation equipment firms. This maximum correlation, a partial canonical correlation holding constant spending by tobacco and transportation equipment firms, is .85 and is significantly greater than zero at the .001 level of confidence (chi-square of 23.05 with 6 degrees of freedom). A second canonical variate would be needed in order to adequately describe observed covariation with expenditures if there were significant differences between price, or income, or market incentive effects on philanthropy versus advertising—differences beyond the adjustment γ for the broader range of advertising expenditures. However, the covariation unexplained by the one variate $\mathbf{g}_j$ in Equations (6) is trivial (chi-square of 1.41 with 2 degrees of freedom, $p = .49$).[17] In short, the estimated price effect ($\hat{\beta}_c$), income effect ($\hat{\beta}_i$), and market incentive effect ($\hat{\beta}_m$) reported in Table 4 underlie both corporate philanthropy and corporate advertising. The price effect is a small positive fraction, the income effect is a much larger positive fraction, and the market incentive effect is a small positive fraction.

THE FUNCTIONAL FORM OF THE MARKET INCENTIVE EFFECT

The small positive fraction estimated as a market incentive effect implies that the market incentive had its most dramatic effects on expenditures in low incentive industries. This point is easily demonstrated by tracing the changes in philanthropy and advertising expected across different levels of market incentive. Consider the hypothetical example of a diversified corporation shifting its principal manufacturing activities from one industry into another perceived to have more stable future profits. If this shift took the firm from an industry providing a low incentive to coopt people into one providing a high incentive, then a drastic marginal increase in the firm's philanthropic and advertising expenditures would have occurred—ceteris paribus. The expected changes are graphed in Figure 2.[18] Reading from the graph, and realizing that this is merely a heuristic device, suppose that the firm had moved from the primary metals industry (for which

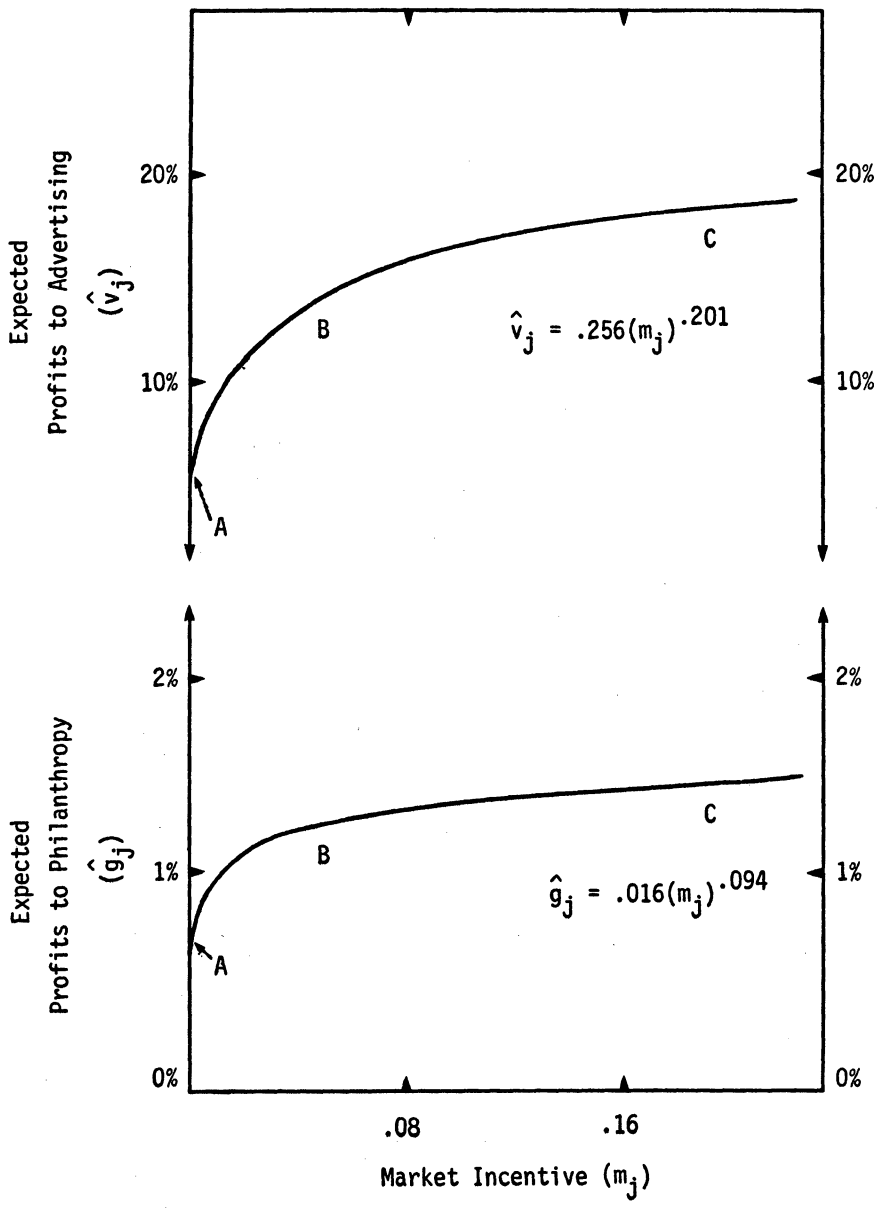

Figure 2. PHILANTHROPY AND ADVERTISING EXPENDITURES BY MARKET INCENTIVE TO INSTITUTIONALIZE COOPTIVE RELATIONS WITH PEOPLE AS CONSUMERS (NOTE THE DIFFERENT SCALES FOR PHILANTHROPY AND ADVERTISING).

m_j is .0001, a minimal incentive to the far left of the graph) into the chemicals industry (for which m_j is a slightly higher .0495 to the right of the primary metals industry). Following the curve of expected philanthropy, the firm would be expected to have increased its charitable donations from 0.67 percent of its profits up to 1.21 percent of its profits; almost twice what it was donating before. These two points are marked *A* and *B* on the philanthropy graph. Firms more accustomed to the market incentive would not have reacted so drastically. A firm that shifted its principal operations from the chemical industry into the food industry (for which m_j is still further to the right in Figure 2 at a value of .1874) would be expected to have increased its charitable donations from 1.21 percent of its profits up to 1.36 percent of its profits; a miserly 1.1 times what it was donating before. This point is marked *C* on the philanthropy graph. In short, it would seem that the most critical contact with people for generating corporate philanthropy occurred with initial contact. Firms in industries subject to severe market constraint and having no direct contact with people as consumers (low market incentive industries) engaged in minimal philanthropy. With very small increases in sales to people and freedom from market constraint, dramatic increases in philanthropy occurred. Moderate and high incentives to coopt people did not greatly affect philanthropy in the sense that the philanthropy curve in Figure 2 is relatively flat at the geometric mean market incentive ($\bar{m}^{\circ}$= .030) and continues so with increasing values of the market incentive to the right of the graph. The same pattern of expected changes was typical of advertising expenditures except that a higher proportion of profits was allocated to advertising in every industry and the advertising curve in Figure 2 does not flatten out as quickly with market incentives beyond a moderate level. Points *A*, *B*, and *C* on the advertising graph correspond to the *A*, *B*, and *C* points on the philanthropy graph. A firm moving from the primary metals industry to the chemicals industry (point *A* to point *B*) would be expected to have increased its advertising expenditures from 4.02 percent of its profits up to 13.99 percent of its profits. Movement from the chemicals industry to the food industry (point *B* to point *C*) would be expected to have resulted in an increase from 13.99 percent of the firm's profits up to 18.28 percent. The first shift between industries would have increased advertising to three and a half times the initial level, but the second shift would have resulted in a much smaller increase of one and a third times the initial level (4.02/13.99 versus 13.99/18.28).

Conclusions

In summary, the analysis of corporate philanthropy data has been fruitfully informed by including in the analysis an explicit consideration of a firm's

network position within the economy. I have argued that the relational pattern defining a firm's position also defines a market incentive for the firm to coopt the household sector—to institutionalize its relations with people as consumers so as to coopt a source of uncertainty in its profits. The market incentive is high to the extent that consumption by people is a major determinant of the demand for a firm's product and the economic sector within which it operates offers high structural autonomy, that is, offers comparative freedom from market constraints on the firm's profits. It is in the self-interest of such a firm to actively court the affections of people since that affection translates into stimulated demand for the firm's product. Corporate philanthropy can both legitimate the firm to the public as a protector of the public interest, which can be expected to channel public buying toward commodities in which the firm has had a hand in producing, and provide a further stimulus to demand by improving the ability of specific classes of consumers to purchase the firm's product. Moreover, the structurally autonomous firm is in a position to realize these self-interests since it is comparatively free of market constraints on its profits from corporate competitors, suppliers and consumers. In this sense of being an effort to eliminate uncertainty in profits, corporate philanthropy constitutes a cooptive relation from the corporate actor to people collectively as consumers. A firm can be expected to indulge in philanthropy for the same reasons that firms generally have cooptive relations with establishments in sectors constraining their profits. People do not constitute an immediate threat to profits because they are not organized as consumers. In the absence of more immediate threats from corporate actors, however, it is an eminently strategic action for a firm to move to eliminate uncertainty by coopting the source of even secondary constraint, that is, people. Further, I have argued that the understanding of philanthropy as a cooptive relation can be enriched by analyzing philanthropy as a concomitant of a blatantly cooptive relation: advertising. Advertising and philanthropy are complementary allocations to the same task of coopting the household sector and so both should be generated by the market incentive to coopt the household sector. Holding constant price and income, the firms most involved in advertising and philanthropy should be those operating in sectors giving them a high market incentive to coopt the household sector by institutionalizing their relations with people.

Not only is this the case for the two-digit manufacturing industries in 1967, the market incentive effect is stronger than either price or income effects in determining the proportion of net income allocated to corporate philanthropy. In fact, there is no evidence of a price effect. The tax incentive for philanthropy or advertising expenditures had no unique association with expenditures actually made after income and market incentive are held constant.

The market incentive effect observed in 1967 is a marginally decreas-

ing effect. The proportion of profits allocated to philanthropy and advertising is determined by a constant times the market incentive raised to a power, β_m, where the market incentive effect β_m is estimated to have been .1 for philanthropy and .2 for advertising. As illustrated in Figure 2, this means that the market incentive effect had its most dramatic effects across industries providing comparatively low market incentive. At moderate and high levels of market incentives, differences in contributions to philanthropy and changes in market incentive to coopt the household sector were small.

These results carry a number of policy implications (bearing in mind the limited data base available for analysis), one of which concerns the manipulation of tax incentives for philanthropy. The comparatively nonprogressive nature of corporate tax rates together with the near random association between differences in philanthropy and differences in tax rates implies that such a policy would not be effective. Corporate position in the economy is much more a determinant of corporate philanthropy than is its tax rate. The results of this analysis corroborate the recommendation by the Business Advisory Group of the Commission on Private Philanthropy and Public Needs against manipulation of tax incentives as a method for encouraging donations from large American corporations (see the quote in note 4).

A second policy implication concerns what might be termed the morality of corporate philanthropy. The observed market incentive effect does not reveal an insidious component to corporate philanthropy, a component that might be taken as contrary to the public good. Rather, the effect reveals a rational basis for ostensible altruism by corporations as self-interested profit-seeking bureaucracies. Any advance in understanding economic or sociological motives for corporate philanthropy seems to me to advance our ability to design government policy—policy for more effectively encouraging corporate philanthropy while at the same time safeguarding against tax deductible donations which further the well-being of corporate actors at the expense of people.

Notes

1. This concern with the decision to make charitable donations deserves emphasis since it excludes a concern with the manner in which donations actually reach the public. Like advertising agencies—brokers in the flow of corporate advertising expenditures to the public—there are organizations brokering the flow of philanthropic funds to the public. Funds come from corporate donors to philanthropic organizations of various kinds and from there are distributed to the public. The intervening philanthropic organizations range from divisions within profit-making corporations to more independent foundations and the cooptive networks of these nonprofit brokers is an interesting topic in its own right. For example, Galaskiewicz offers an interesting perspective on the conditions under which patronage, hierarchy, and information in the cooptive networks of nonprofit organizations would be helpful to an organization seeking donations. For the purposes here, I am ignoring the nonprofit organiza-

tions brokering the flow of philanthropy funds and focusing on the market incentives for corporate actors to contribute to the flow.

2. Schwartz and Nelson offer the most carefully worked out microeconomic analyses with Nelson (107–10) providing useful comments on why he and Schwartz obtain different estimates of price and income elasticities. Keim et al. discuss some difficulties in interpreting the parameter estimates presented by Levy and Shatto.

3. Harriss discusses modifications of the tax incentive for corporations. Reacting to a voluntaristic call for increased rates of corporate giving, members of the Donee Group within the Commission on Private Philanthropy and Public Needs recommended instead an increased tax rate (2% in addition to the current tax rate) that a firm could only avoid by making charitable contributions. To use the group's own words (Commission, 75, Vol. I): "This proposal would guarantee an increase in corporate giving." The Donee Group felt that: "Employing exhortation to increase corporate gifts to charity is a futile exercise. The Commission's own research and even corporate members of the Commission acknowledged that mere talk has not and will not increase corporate contributions."

4. Responses were solicited from heads of all 1,300 of the largest American firms listed in *Fortune*'s 1974 compilation (see Harris and Klepper). The low response rate (35%) means that the results cannot be generalized to the population of large firms; however, comments on the returned questionnaires are illustrative. Moreover, these data were sufficient for an eleven member Business Advisory Group, formed for the Commission on Private Philanthropy and Public Needs, to recommend (Commission, 1782, Vol. III): "That, except for equitable treatment, no additional tax incentives are needed—including the concept of more than 100 percent of contributions as a deductible expense, or providing a tax credit that would result in a lower 'after-tax cost' than the present 100 percent deductibility. . . . That there be neither a minimum tax floor before any contributions are deductible nor ceilings on corporate contributions. The first, according to The Conference Board survey, would have a major depressant effect upon contributions giving; the latter would have a minor effect upon major corporations."

5. For the individual committed to corporate attitudes as an explanation of corporate behavior, this problem is easily solved by claiming that different firms, or classes of firms, hold different attitudes as behavioral norms. There are two reasons why such a claim does not seem fruitful relative to the network approach to be presented in the text. First, it is difficult, if not impossible, to obtain *reliable* data *representative* of attitudes of corporate executives within a sector of the economy so as to measure differences across sectors. Seider provides an instructive attempt to obtain such data. In contrast, the census data on market structure in the American economy is quite good. Second, there is every reason to suspect that attitudes expressed by executives within a sector reflect the market conditions within which executive attitudes are formed. To the extent that an industry (as an executive's social context in the economy) provides a high market incentive for corporate philanthropy, executives employed within that industry would be expected to express attitudes emphasizing the importance of corporate philanthropy. In other words, some score x_j measuring the relative tendency for executives in an industry to express attitudes stressing the importance of corporate philanthropy should be correlated positively with the market incentive the industry provides for corporate philanthropy (m_j in Equation 2). To the extent that executive attitudes are merely a reflection of the market conditions in which they operate, a regression equation in which levels of corporate giving, g_j, are predicted from x_j and m_j should reveal a strong positive effect from the market incentive and a negligible effect for executive attitudes (assuming that x_j is more based on sample data than is the typically census based m_j). Unfortunately, data on x_j are not available at an acceptable level of reliability and representativeness to empirically test this intuition. In the interim, I focus on what I believe to be the more fundamental causal element: the structural market incentive m_j defined below in Equation (2).

6. As a manufacturing corporation president explained his lack of interest in corporate philanthropy for the Harris and Klepper survey: "We must keep primary the role of making a profit so as to continue operating in order to supply jobs. Without profit, there will be nothing."

7. I should stress here that the ratio *PD/TD* will typically vary from zero to one as the *extent* to which persons are responsible for the demand for a sector's product. It need not be the *proportion* of total demand represented by household consumption since extensive sales from inventories or from foreign firms could lower demand for a new domestic product. For the two-digit SIC manufacturing industries in 1967, however, this is a negligible consideration since there were few negative coefficients of final demand (see U.S. Department of Commerce, b, 43).

8. For example, Fischler draws on case studies by Emmet and Jueck, and Kile to describe the self-interested nature of early philanthropic activites by Sears, Roebuck and Company. Sears controlled a large share of the mail order market just before World War I. During 1912 and 1913, it made extensive donations to institutionalize the county agents and local farm bureaus within the American Farm Bureau Federation. The Federation's purpose, a purpose successfully realized, was to improve the well-being of American farmers in part by training them via county agents in better ways of farming. Conveniently for Sears, the bulk of the mail order business came from farmers. In a post-war presentation for the Federation, the president of Sears remarked on the stimulated demand occasioned by improved farmer income: "As the farmer prospers so we do prosper . . . and as his income falls, so does ours."

9. Data could be compiled for more narrowly defined manufacturing industries; however, their reliability and accuracy would be suspect. The 1120 tax return form includes a list of economic sectors distinguished by the Standard Enterprise Classification system. The 20 broadly defined manufacturing industries in this classification correspond to the 20 two-digit categories defined by the Standard Industrial Classification system used by the Department of Commerce. The person filling out a corporation's tax return is asked to indicate which industry group provided the "largest percentage of total receipts" for all the firm's activities during the year. Since large firms are typically diversified into many economic sectors, this self-assignment to a single sector is increasingly likely to be unreliable as economic sectors are increasingly narrowly defined. Another noteworthy limitation here is the fact that these data are not census compilations. The 1967 data are tabulated from returns for almost all firms owning assets over 10 million dollars; however, smaller firms are sampled and the sample tabulations are then used to project population totals (Internal Revenue Service, 145–6). Firms with assets over 1 million but less than 10 million were sampled at a rate of 37.21% for the 1967 data, but smaller firms being sampled at a rate of 2.49%. This means that data on industries with typically small firms tend to be less reliable than those on industries with typically large firms. Firms in the lumber industry, for example, are typically smaller than those in the petroleum industry. A .67 confidence interval around the dollars distributed to stockholders in 1967 for the firms showing a profit is the reported figure ±10.38% for the lumber industry while the same interval for the petroleum industry is given by the reported figure ±0.09% (Internal Revenue Service, 154). Johnson (490–4) and Nelson (107–10) provide informative discussion of issues in using these tax return data to analyze corporate giving.

10. These are price–cost margins corrected for industry differences in capital requirements. As discussed in detail elsewhere (Burt, a, f, chap. 2), p_j is an industry profit margin measure often used in market structure research on organizational performance.

11. More specifically, c_j is defined as one minus the ratio of industry tax due over industry taxable income; $c_j = 1 -$ (industry tax due)/(industry taxable income). In computing the price of philanthropy for persons, Feldstein and Taylor point out that price must be computed from tax rates which consider the added income a person would have had if no donations were made. Since personal tax rates are progressive, the added income foregone in donations could easily put the person into a higher tax bracket, which would lessen the price of making donations and so strengthen the price effect on making donations. Corporate tax rates, however, are far less progressive than those for persons. In 1967, corporate tax was computed as 22% of taxable income plus 26% of taxable income exceeding a surtax exemption, the exemption having a maximum of $25,000 (Internal Revenue Service, 182ff). This comparatively flat tax rate for the added income philanthropy would generate, and the fact that a whole industry is

being characterized by a single tax rate, suggest the simple ratio of tax due over taxable income as an adequate measure of industry tax rate.

12. In fact, these interval estimates are likely to have a higher than .80 probability of containing estimates in replicate samples. The intervals are computed (see note to Table 3) under the assumption of independent replicate samples; however, only expenditures by small firms are projections from sample data (see note 9). All firms with assets over 10 million dollars are tabulated in the expenditure measures. Since these large firms are responsible for a disproportionately large share of expenditures, replicate samples would be likely to yield expenditure estimates similar to those published by the Internal Revenue Service. Not only would replicate samples generate interdependent estimates because of all large firms appearing in each sample, all 20 two-digit industries have been used to estimate Equation (4). Because the standard errors used to compute interval estimates for Table 3 are based on observed variance and much of that variance would be stable across replicate samples, the intervals in Table 3 probably have a higher than .80 probability of containing estimates in replicate samples. I have presented them nevertheless as illustration of the stability of the market incentive effect. This robustness merits attention given the small number of industries and the policy relevance of the effects estimated.

13. The significance of the tobacco and transportation equipment spending adjustment suggests a negative relation between concentration within an industry and philanthropy. Johnson (495) presents a graph showing a negative correlation between the percentage of profits allocated to philanthropy and industry concentration. Bennett and Johnson (140–1) show that this negative association remains significant when various other industry characteristics are held constant. Since concentration ratios are a component in industry structural autonomy which in turn produces the market incentive for philanthropy in Equation (2), the negative association between concentration and philanthropy suggests that the negative effect of concentration has been obscured by aggregating it into structural autonomy. There is a negative correlation between the proportion of profits allocated to philanthropy within the two-digit industries considered here and the typical four-firm concentration ratio for four-digit subsectors of the industry ($r = -.60$, using logarithms of 1967 data). This warranted constructing a new measure of market incentive in which the aggregate concentration in two-digit industries was used in place of structural autonomy in Equation (2). Reestimating Equation (4) in log form with this alternative measure yields the same, but weaker, results discussed in the text. The proportion of profits given to philanthropy is predicted by the concentration measure of market incentive (mc_j) as:

$$\underset{}{ln\, g_j} = \underset{}{-2.98} + \underset{(3.1)}{.11(ln\, mc_j)} + \underset{(1.0)}{1.34(ln\, c_j)} + \underset{(0.7)}{.17(ln\, p_j)} - \underset{(4.0)}{.86(ln\, d_j)} + ln\, e_j,$$

where the t-tests in parentheses are not much different from those reported in Table 2. The results for predicting advertising are stronger, yielding a 4.2 t-test of the concentration based market incentive effect. In short, the market incentive effect discussed here refers to the interaction effect of firms having an advantage in coopting people and having the market freedom to be able to do so. These slightly weaker results for concentration alone are to be expected since concentration is only a part of the equation defining the market freedom of firms. Concentration alone does not consider constraint from suppliers and consumers. Structural autonomy does, so stronger market incentive effects should be obtained when structural autonomy is used to measure the market incentive in Equation (2) and they are. Of course, these are two-digit data and market effects are difficult to observe at this level of aggregation. Much more significant market effects are implied by data on four-digit SIC industries (Burt, f) so differences between market incentive effects based on structural autonomy versus concentration alone should be more significant at the four-digit level than they are here—if philanthropy data could be obtained at the more detailed level.

14. It is useful to make this analogy explicit even though the computations are readily avail-

able in the published literature (e.g., Hauser and Goldberger). It is useful to give details on this comparatively simple model because the same computations are necessary in the slightly more complicated model of interest here. There are four steps in estimating effects in the model at the top of Figure 1. (1) Routine canonical correlation results are obtained relating m_j, c_j, p_j with the two expenditure variables g_j and v_j. Let x_m, x_c and x_i be the canonical weights for m_j, c_j and p_j respectively on the largest canonical correlation. Let y_g and y_v be the corresponding canonical weights for g_j and v_j respectively. Let λ be that largest canonical correlation. As indicated in Figure 1, all scores should be expressed as log scores. I am not writing *ln* in front of each variable here merely in order to simplify the presentation. (2) The correlations between the canonical variate predicted by price, income, and market incentive and the two expenditure variables are obtained. Let R_y be the (2,1) vector containing these correlations and R_{yy} be the (2,2) correlation matrix among the two log expenditure measures. The above two canonical weights y_g and y_v form a (2,1) vector Y corresponding to R_y. With canonical weights based on correlations among the observed variables, the desired correlations are given as: $R_y = \lambda R_{yy} Y$. (3) The predicted variance in philanthropy is obtained. Given r_g as the correlation between the price-income-market-incentive canonical variate and observed philanthropy, the variance in philanthropy predicted by the three market variables is the product of the correlation r_g squared and the observed variance in philanthropy; $r_g^2 s_g^2$, where s_g is the observed standard deviation in philanthropy. (4) Standardized effects are transformed to metric estimates. With the canonical weights based on correlations among the observed variables, the canonical weights for price, income and market incentive are standardized estimates of price, income and market incentive effects. The standard deviation of $\mathbf{g}_j$ is the predicted standard deviation in observed philanthropy; $s_g = r_g s_g$. Metric estimates of the price, income and market incentive effects are therefore given as: $\hat{\beta}_m = x_m s_g / s_m$, $\hat{\beta}_c = x_c s_g / s_c$, and $\hat{\beta}_i = x_i s_g / s_i$, where s_m, s_c, and s_i are standard deviations of log scores for m_j, c_j, and p_j respectively. The adjustment for the broader range of advertising expenditures is similarly given as: $\hat{\gamma} = r_v s_v / s_g$. The path leading from $\mathbf{g}_j$ to observed donations, g_j, equals $r_g s_g / s_g$ which is equal to one since s_g has been set equal to $r_g s_g$. A fifth computational step would be needed in order to obtain the two intercept terms. The philanthropy intercept is given as: $ln\,\hat{\beta} = g - \hat{\beta}_m m - \hat{\beta}_c c - \hat{\beta}_i p$, where g, m, c, and p are means. The increased intercept for advertising is the product $\alpha\beta^{\gamma}$ where the component α is specified in Equation (6b) and given as: $ln\,\alpha = (v - \hat{\gamma}\hat{\beta}_m m - \hat{\gamma}\hat{\beta}_c - \hat{\gamma}\hat{\beta}_i p) - \hat{\gamma}(ln\,\hat{\beta})$, where v is the mean advertising expenditure. Means here are all geometric means since the variables have been measured as log scores.

15. The variation is that canonical weights are computed from partial correlations rather than zero-order correlations. A detailed discussion of the computations is available elsewhere (Hauser, esp. the Appendix). All five log variables in the diagram at the top of Figure 1 (i.e., m_j, c_j, p_j, v_j, and g_j) are regressed over the dummy variable d_j and the residuals from this regression are the scores input to a routine canonical correlation estimation relating the three residual market variables with the two residual expenditure variables. This provides canonical weights for the three market variables (x_m, x_c, x_i), canonical weights for the two expenditure variables (y_v, y_g), and a partial canonical correlation λ; a canonical correlation expressing the maximum correlation between the three market variables and expenditures adjusted for low spending by firms in the tobacco and transportation equipment industries. With these results in hand, computations can proceed as described in steps two through four in the preceding note. A fifth computational step is needed in order to obtain the two intercept terms. The philanthropy intercept can be computed as: $ln\,\hat{\beta} = g - \hat{\beta}_m m - \hat{\beta}_c c - \hat{\beta}_i p - \hat{\gamma}_g d$, where g, m, c, p, and d are mean log scores. I have included the intercept component for the dummy variable d_j even though it does not appear in Equation (5). So computed, $\hat{\beta}$ is the intercept term for the full equation determining observed giving in Equation (7a). The increased intercept for advertising is the product $\alpha\beta^{\gamma}$ where the component α is specified in (7b) and given as $ln\,\hat{\alpha} = v - \hat{\gamma}\hat{\beta}_m m - \hat{\gamma}\hat{\beta}_c c - \hat{\gamma}\hat{\beta}_i p - \hat{\gamma}_v d - \hat{\gamma}(ln\,\hat{\beta})$, v is the mean log advertising expenditures. A final note concerns the adjustment effects, γ_v and γ_g. This procedure for estimating constrained effects completely eliminates the effect of d_j from the associations between the market variables

and expenditure variables. The effects constrained here are only the direct effects of the three market variables. Direct and indirect (through the market variables) effects of the dummy variable d_j are aggregated into the direct effects of d_j in the constrained model. In other words, the constrained model is a conservative representation of price, income and market incentive effects. The direct effect of adjustment for philanthropy expenditures is the estimated value of b_d for g_j in Table 2 ($\hat{b}_{d(g)} = -.80$). The direct adjustment for philanthropy expenditures in the constrained model, γ_g, is a sum of this unconstrained direct effect and unconstrained indirect effects through the market variables. That sum is simply the regression of giving, g_j, over the dummy variable d_j, ignoring the three market variables; i.e., $\hat{\gamma}_g = \hat{b}_{d(g)} + (\hat{b}_m\hat{b}_{md} + \hat{b}_c\hat{b}_{cd} + \hat{b}_i\hat{b}_{pd}) = r_{gd}s_g/s_d$, where the parenthetical expression is the sum of indirect effects on giving from the dummy variable, the unconstrained market variable effects are given in row one of Table 2 ($\hat{b}_m$, $\hat{b}_c$, $\hat{b}_i$), the regression coefficients leading to these variables from the dummy are $\hat{b}_{md}$, $\hat{b}_{cd}$, and $\hat{b}_{pd}$ respectively, and r_{gd} is the zero-order correlation between the dummy variable d_j and the corporate philanthropy g_j. The adjustment for advertising expenditures in the constrained model is similarly computed as the zero-order direct effect of d_j on v_j; $\hat{\gamma}_v = r_{vd}s_v/s_d$, where r_{vd} is the correlation between v_j and d_j, s_v is the standard deviation of v_j and s_d is the standard deviation of d_j, all variables expressed as log scores. This summing of direct and indirect effects in the constrained model is apparent from a comparison of Tables 4 and 2. The adjustments $\hat{\gamma}_v$ and $\hat{\gamma}_g$ in Table 4 are more positive than their corresponding estimates under b_d in Table 2.

16. There are a great variety of methods by which the effects of the three market variables could be constrained to reflect a single underlying process generating the expenditure data. The method adopted here based on canonical correlation has the advantage of being well understood and easily available. For the reader interested in alternative specifications, however, the moments from which effects have been computed are listed below as a correlation matrix with standard deviations in the diagonal:

$ln\ m_j$	(1.8536)					
$ln\ c_j$	−.1825	(.0524)				
$ln\ p_j$	.1954	−.3067	(.2514)			
$ln\ d_j$	.2515	−.2645	.0785	(.3078)		
$ln\ g_j$	.3942	.1643	.1247	−.5521	(.3689)	
$ln\ v_j$	.7547	−.2899	.4438	.1934	.2990	(.5643)

17. The chi-square tests reported here are large sample approximations and so are hardly exact when applied to data on the 20 two-digit industries. For both models in Figure 1, however, the second canonical correlation is so negligible relative to the first and so negligible in terms of the small chi-square statistic it generates that the large sample test statistics are used here more as a routine report of significance than as an actual decision criterion. Small sample corrections to the chi-square statistics would not increase them sufficiently to reject the null hypothesis regarding the second canonical correlation. More descriptively, the first canonical variate describes almost all of the covariation available to be explained in each model; 87% of the covariation in the model at the top of Figure 1 and 90% of the covariation in the model at the bottom of the figure. The total covariation available to be explained is indexed by the sum of the two canonical correlations squared and these percentages are the ratio of the first canonical correlation squared over the relevant total. If the price, income and market incentive effects for philanthropy versus advertising were identical, these percentages would be 100%. They are very close to that ideal.

18. I have taken the ceteris paribus conditions to mean that the hypothetical firm is operating in industry j, and industry with an average tax rate and an average profit margin. The proportion of profits expected to be spent on philanthropy, $\hat{g}_j$, is then given by Equation (7a) as:

$$\hat{g}_j = [\hat{\beta}(c)^{\hat{\beta}_c}(p)^{\hat{\beta}_i}](m_j)^{\hat{\beta}_m} = .016(m_j)^{.094},$$

where c and p are the geometric mean values of c_j and p_j across all 20 industries. If the firm shifted its principal operations into the tobacco or transportation equipment industries, this equation would have to include the adjustment for spending in these industries (d^{γ_o} would be included in the bracketed term). The proportion of profits expected to be spent on advertising $\hat{v}_j$, is similarly defined by Equation (7b) as:

$$\hat{v}_j = [\hat{a}\hat{\beta}^{\hat{\gamma}}(c)^{\hat{\gamma}\hat{\beta}_c}(p)^{\hat{\gamma}\hat{\beta}_t}](m_j)^{\hat{\beta}_m} = .256(m_j)^{.201}$$

Observed values of m_j range from .0001 for the primary metals industry up to .2125 for the tobacco industry.

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