CAMPAIGN CONTRIBUTIONS AND VOTING ON FARM LEGISLATION

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There is growing evidence linking underlying economic conditions to agricultural policy outcomes (Gardner, Honma and Hayami) in ways consistent with economic theories of political behavior (Becker, Peltzman 1976). However, much less is known about how these underlying conditions affect expenditures of time and money by key interest groups (producers, agribusinesses, and others) lobbying policymakers. Nor is much known about the ways in which these groups use their lobbying to obtain desired policies or limit the impact of undesired ones.

Most influential farm groups have significant membership in only a small number of districts in the U.S. Congress, and yet receive sizable political favors. A study of vote trading on the 1985 farm bill (Abler) found it used heavily by tobacco, sugar, peanut, and dairy farmers, with other farm groups trading votes to a lesser extent. At the same time, many farm groups have political action committees (PACs) that give campaign contributions to help obtain majority support. The purpose of this article is to explore the determinants of campaign contributions by farm PACs and their role in voting on farm legislation in the U.S. House.

Obviously, a group that gives money to a legislator expects something in return, but there are two ways it can obtain a return. First, it can buy votes from a legislator already in office, one who would not support the group without the contribution. Second, it can use its contributions to help elect a legislator who, because of personal ideology or some other reason, is predisposed to support the group. If elected, this type of legislator supports the group regardless of the amount it contributed. The first linkage is commonly assumed to be the most important, but there is little hard

evidence one way or another. This article tests if either or both of these linkages is present.

This article also tests if the decision to make a contribution is qualitatively different from the decision, given that a contribution is made, about the amount given. The implicit assumption in previous work is that there is no difference, but this deserves to be tested.

Votes in the House on anti-sugar and anti-dairy amendments to the 1985 farm bill are studied. Of the farm groups, only sugar, dairy, cotton, and cattle producers give campaign contributions to enough representatives to do statistical work in which contributions is a dependent variable. Of these four groups, only sugar and dairy farmers faced amendments specifically directed at them. A group-specific amendment is necessary to get a clean test of linkages between contributions and voting. With a motion affecting several groups, one would face the problem of sorting out the impact of each group on a representative's vote.

The Model

To test the linkages between campaign contributions and voting, consider the following simultaneous equation vote-contributions model:

$$(1) \quad y_{1t}^{*} = \gamma_1 y_{2t}^{*} + \beta_1' x_{1t} + u_{1t},$$

$$(2) \quad y_{2t}^{*} = \gamma_2 y_{1t}^{*} + \beta_2' x_{2t} + \sigma u_{2t},$$

y_{1t}^{*} is a latent variable indicating the propensity of the t^{th} representative to vote for a group-specific motion, while y_{2t}^{*} is a latent variable indicating

the propensity of the group to contribute to the representative. The observed counterpart of y^*_{1t} is

$$(3) \quad y_{1t} = \begin{cases} 1, & y^*_{1t} > 0 \\ 0, & y^*_{1t} \leq 0. \end{cases}$$

$y_{1t} = 1$ for a yes vote; $y_{1t} = 0$ for a no vote.

Three versions of the model are estimated, depending on how contributions are observed. In the first version, a simultaneous probit-probit model, they are observed as a dichotomous variable:

$$(4.1) \quad y_{2t} = \begin{cases} 1, & y^*_{2t} > 0 \\ 0, & y^*_{2t} \leq 0. \end{cases} \qquad \text{(Probit-Probit Model).}$$

In the second version, a probit-tobit model, they are observed as a censored variable:

$$(4.2) \quad y_{2t} = \begin{cases} y^*_{2t}, & y^*_{2t} > 0 \\ 0, & y^*_{2t} \leq 0. \end{cases} \qquad \text{(Probit-Tobit Model).}$$

In the third version, a probit-continuous model, the sample is restricted to observations with positive contributions:

$$(4.3) \quad y_{2t} = y^*_{2t} > 0 \qquad \text{(Probit-Continuous Model).}$$

If there are no qualitative differences between the decision to make a contribution and the decision over how much to give, the results for the three models should be similar. If there are important differences, results should

be different, especially between the probit-probit and probit-continuous models.

x_{1t} is a vector of variables indicating constituent interests in the motion and the representative's personal ideology. x_{2t} is a vector of variables measuring the legislative power of the representative if elected and the impact of campaign contributions on his or her probability of election. These variables capture the expected returns to a group from a contribution. γ_1, γ_2, and σ are coefficients; β_1 and β_2 are vectors of coefficients. u_{1t} and u_{2t} are random errors and have a standardized bivariate normal distribution with correlation coefficient ρ. For the probit-probit model, the coefficients of equation (2) can be estimated only up to a scale factor, and thus we set $\sigma = 1$.

Both the motions here are anti-group motions. If the first linkage between campaign contributions and voting, buying votes from someone already in office, is true, then $\gamma_1 < 0$. If the second linkage, helping to elect someone predisposed to support the group, is true, then $\gamma_2 < 0$. In this case, money is more likely to go to one who opposes the anti-group motion.

The model is estimated via full-information maximum likelihood. Reduced-form equations and the likelihood function for each model are given in appendix A. Two-stage methods analogous to two-stage least squares are often used for such models. However, they ignore the correlated error terms in the reduced-form and structural equations (appendix A shows that the reduced-form errors are correlated even if $\rho = 0$). If the structural equation errors are correlated, ignoring this would lead to biased estimates of γ_1 and γ_2.

Data and Variables

Votes on two amendments to the 1985 farm bill are studied. The first, an anti-sugar motion, would have lowered the loan rate of 18¢/lb. for raw cane sugar in 1985 to 15¢/lb. in 1988 (with the same percentage reduction for beet sugar). It was defeated 147-268 (35%). The second, an anti-dairy motion, would have reduced the milk price support 50¢/cwt. per year if government purchases exceeded 5 billion pounds. It would also have eliminated the bill's increases in payment differentials in 33 milk marketing order districts. It was defeated 167-247 (40%). Data sources and definitions for all variables are in appendix B.

Contributions to representatives of the 99th Congress (1985-86), in 1987 $, made during 1983-86 by PACs affiliated by sugar and dairy farmers are used. Contributions both before and after the votes are used to help avoid prejudging the direction of causality between money and voting. A breakdown of the representatives by voting and contributions is in table 1. Voting and money are clearly associated; very few who did not receive money voted against the anti-sugar or anti-dairy motion. The behavior of those who voted for these motions in spite of receiving money can be partly understood by looking at table 2, which shows the average amount received among those who got money. Those who voted for the motions received much less on average than those who voted against them.

Exogenous variables in the vote equation include the representative's party, his or her "conservatism" (an index from 0 to 1), and the log of one plus group size. Group size is the number of farms in the sugar or dairy standard industrial classification (SIC). District-level data on farm organization membership and the number PAC contributors are not publicly

available. Also included are the log of one plus other farms and the log of the number of poor families. For sugar, other farms are those in the cash grain (wheat, corn, soybeans, etc.), cotton, tobacco, peanut, and dairy SICs. For dairy, other farms are those in the cash grain, cotton, tobacco, peanut, and sugar SICs. These variables are included to control for vote trading (Abler). Other exogenous variables are the log of median family income in the representative's district, the fraction of adults with at least a high-school education, and the representative's region.

Exogenous variables in the contribution equation include party, conservatism, the log of seniority, a dummy for incumbency, and the representative's fraction of the popular vote in the 1984 election. Seniority is the reciprocal of the representative's rank within his or her party, and is a measure of political power. Incumbency and the share of the popular vote are measures of the marginal impact of money on the probability of election. The vote share is exogenous for simplicity only. In a general equilibrium model, in which contributions from all PACs were included, election outcomes would have to be endogenous (Kau, Keenan, and Rubin).

For the probit-tobit and probit-linear models, contributions are measured as the log of one plus PAC money. Log transformations here and on the group size variables mitigate against outliers.

Results

Full-information maximum likelihood estimates of the simultaneous equation systems are in tables 3 and 4. The results for sugar and dairy tell the same story with respect to the effect of voting on contributions. The likelihood of voting for an anti-group motion has a negative and statistically

significant effect on group contributions. For each group, money apparently helps elect people who like its programs.

Results differ regarding the effect of contributions on voting. For sugar, in the probit-probit and probit-tobit models, those who get more money are actually more likely to vote for the anti-sugar motion. This counterintuitive result makes sense if sugar PACs are giving money to people who oppose sugar programs, trying to buy their votes, and if this opposition is not fully captured by exogenous variables in the vote equation. In the probit-continuous model, a more intuitively acceptable result emerges: among those who receive money, more money reduces the likelihood of voting for the motion. The tentative conclusion is that sugar PACs are able to buy votes from those already in office.

For dairy, the effect of contributions on voting for the anti-dairy motion is positive but statistically insignificant in all three models. Dairy PACs apparently are only able to use money to help elect people predisposed to support their programs.

These results on the direction of causality between money and voting are consistent with Chappell. Looking at several issues, including dairy price supports in 1975, he found little effect of contributions on voting after accounting for correlated errors in the vote and contribution equations. But his model did not permit voting to influence contributions. The results are also consistent with Peltzman (1984), who found that ideological and party affiliation differences among Senators were largely explained by characteristics of campaign contributors and constituents as a whole. Contrast the results with single-equation models, which typically show that money has a large effect on voting (e.g., Welch).

The results show that Republicans supported the sugar and dairy programs significantly less than Democrats, which is not surprising. The interesting result is that party has no significant effect on contributions. Given the firm Democratic control of the House, one might argue that electing a Democrat would bring greater access to influence and votes. However, the smaller number of Republicans means that each one has a greater proportionate influence within the party. Conservatives were more likely to receive sugar PAC money, which may be due to their large political influence during the first half of the 1980s.

Seniority generally has a negative effect on contributions, with the effect statistically significant for sugar in the probit-probit and probit-tobit models. Those with more seniority have more power, but this may give them a greater ability to ignore PACs. The probit-probit results for dairy indicate that incumbents are less likely to get money than nonincumbents. Those running for office without the benefits of incumbency typically face a hard battle, and so PAC money may make a bigger difference in the probability of election. However, given that incumbents receive money, the probit-continuous results suggest they get at least as much as nonincumbents. All three models for dairy show that contributions increase as the share of the popular vote falls, which makes sense since money can have a bigger impact in close races.

The number of dairy farms has a negative effect on voting for the anti-dairy motion, as expected. The number of sugar farms has a statistically insignificant effect on voting for the sugar motion. Evidence of vote trading is found between sugar and other farms, but not dairy and other farms. The number of poor families, income, and education are generally not statisically

significant. The signs and magnitudes of the regional dummies are largely consistent with regional sugar and dairy production patterns.

On the whole, results for probit-probit and probit-continuous models are dissimilar enough to suggest that there are qualitative differences between the decision to make a contribution and the decision over how much to give. Perhaps PACs attach a value to giving money, such as being on a representative's list of contributors, independent of the amount given.

Conclusions

The objective of this article has been to explore the determinants of campaign contributions by farm PACs and their role in voting on farm legislation in the U.S. House. Voting on anti-sugar and anti-dairy amendments to the 1985 farm bill and campaign contributions in 1983-86 by PACs affiliated with sugar and dairy farmers were studied. The results show that dairy farmers are unable to use campaign contributions to buy votes from representatives who might otherwise vote against them. They are only able to help elect people who are predisposed to support their programs. Both linkages between money and voting are present for sugar. The results also suggest qualitative differences between the decision to make a contribution and the decision over how much to give.

In addition to clarifying the intermediate stages between underlying economic conditions and agricultural policy outcomes, the results say something else about the determinants of U.S. farm policy. If a farm group could help elect someone predisposed to support only its members, its campaign contributions would not benefit other farmers. This would also be true if a group simply bought votes from someone already in office. In fact, to the

extent that its contributions help get votes that would otherwise be obtained through vote trading with other farm groups, they harm other farmers. However, it is plausible that someone predisposed to support one farm group may support others. In this case, policy outcomes for one commodity may depend on contributions by another commodity's PACs, even when the two are unrelated in supply or demand.

Table 1. Voting and Campaign Contributions

Vote	Campaign Contributions	Sugar	Dairy
No	Yes	253 (61%)	226 (55%)
No	No	13 (3%)	20 (5%)
Yes	No	87 (21%)	73 (18%)
Yes	Yes	60 (15%)	93 (23%)

NOTE: This table excludes all who abstained and two representatives serving by 1985 appointment rather than election in 1984.

Table 2. Average Contribution per Recipient (1987 $)

Vote	Sugar	Dairy
No	$2,749	$11,704
Yes	742	3,256
All	2,364	9,241

NOTE: See note to table 1.

Table 3. Sugar: Simultaneous Equation Results

	Probit-Probit		Probit-Tobit		Probit-Continuous	
Variable	Vote	Contributions	Vote	Contributions	Vote	Contributions
Vote*		-1.83*		-5.40*		-0.65*
		(2.4)		(2.0)		(4.6)
Contribution*	0.31*		0.22*		-0.95*	
	(2.1)		(3.7)		(1.9)	
Party	0.76*	-0.46	0.42*	0.11	0.39	0.18
(Dem=0, Rep=1)	(2.9)	(1.1)	(2.0)	(0.2)	(1.1)	(0.7)
Conservatism	-1.21*	1.84*	-0.62	2.12*	0.30	0.28
(Between 0 and 1)	(2.4)	(3.2)	(1.6)	(2.4)	(0.6)	(0.8)
log(Seniority)		-0.38*		-0.75*		0.01
		(2.4)		(2.8)		(0.5)
Incumbent		-0.37		0.01		0.24
(No=0, Yes=1)		(0.7)		(0.0)		(1.0)
Popular Vote		0.31		-0.19		-0.50
Share		(0.3)		(0.1)		(1.0)
log(1 + Sugar	-0.09		-0.05		-0.09	
Farms)	(0.7)		(0.5)		(1.0)	
log(1 + Other	-0.10*		-0.08*		-0.04	
Farms)	(3.2)		(3.2)		(1.0)	
log(Poor	-0.39		-0.26		-0.22	
Families)	(1.0)		(0.8)		(0.8)	

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Table 3. Continued

	Probit-Probit		Probit-Tobit		Probit-Continuous	
Variable	Vote	Contributions	Vote	Contributions	Vote	Contributions
log(Median	0.98		1.09		0.00	
Family Income)	(1.1)		(1.4)		(0.0)	
Education	0.39		-0.10		0.19	
(Fraction with HS)	(0.2)		(0.1)		(0.3)	
Regional Dummies:						
Mid-Atlantic	-0.43		-0.58*		-0.16	
	(1.2)		(2.3)		(0.6)	
EN Central	-1.32*		-1.70*		-0.32	
	(3.5)		(5.4)		(0.8)	
WN Central	-2.64*		-2.58*		-0.74	
	(4.8)		(5.9)		(1.0)	
S Atlantic	-1.53*		-1.97*		-0.32	
	(3.6)		(5.2)		(0.8)	
ES Central	-0.78		-1.53*		-0.38	
	(1.6)		(3.5)		(0.9)	
WS Central	-1.66*		-1.98*		-0.42	
	(3.3)		(4.7)		(0.9)	
Mountain	-1.72*		-2.18*		-0.51	
	(3.5)		(4.8)		(0.9)	

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Table 3. Continued

	Probit-Probit		Probit-Tobit		Probit-Continuous	
Variable	Vote	Contributions	Vote	Contributions	Vote	Contributions
Pacific	-2.49*		-2.63*		-0.44	
	(5.4)		(6.4)		(0.9)	
Intercept	-4.75	-1.44	-7.21	0.03	7.94	6.47*
	(0.4)	(1.4)	(0.8)	(0.0)	(1.6)	(20.5)
σ				2.50*		0.72*
				(14.0)		(7.2)
ρ	-0.47*		-0.49*		0.91*	
	(2.0)		(2.6)		(5.1)	
McFadden's R^2	0.40		0.19		0.20	
Sample Size	413		413		313	

NOTE: Absolute values of asymptotic t-ratios are in parentheses. An * denotes significance at the 10% level. Vote* and Contribution* are latent dependent variables. Also see note to table 1.

Table 4. Dairy: Simultaneous Equation Results

	Probit-Probit		Probit-Tobit		Probit-Continuous	
Variable	Vote	Contributions	Vote	Contributions	Vote	Contributions
Vote*		-1.11*		-4.40*		-1.84*
		(4.1)		(2.6)		(2.6)
Contribution*	0.23		0.11		0.35	
	(1.0)		(1.4)		(1.2)	
Party	0.96*	-0.20	0.86*	-0.03	0.77*	0.77
(Dem=0, Rep=1)	(3.7)	(0.6)	(3.6)	(0.0)	(2.6)	(1.6)
Conservatism	0.27	0.74	0.37	2.01	0.27	0.13
(Between 0 and 1)	(0.6)	(1.6)	(0.9)	(1.6)	(0.5)	(0.2)
log(Seniority)		-0.05		-0.16		-0.16
		(0.5)		(0.6)		(1.6)
Incumbent		-0.77*		-1.31		0.49
(No=0, Yes=1)		(1.8)		(1.3)		(1.6)
Popular Vote		-1.08*		-3.79*		-1.77*
Share		(1.7)		(2.3)		(2.5)
log(1 + Dairy	-0.17*		-0.17*		-0.14*	
Farms)	(2.7)		(3.2)		(2.8)	
log(1 + Other	0.00		0.00		-0.02	
Farms)	(0.1)		(0.1)		(0.4)	
log(Poor	0.16		0.26		0.47	
Families)	(0.4)		(0.7)		(1.3)	

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Table 4. Continued

Variable	Probit-Probit		Probit-Tobit		Probit-Continuous	
	Vote	Contributions	Vote	Contributions	Vote	Contributions
log(Median	0.68		1.09		1.74*	
Family Income)	(0.7)		(1.3)		(2.1)	
Education	2.03		1.68		-0.11	
(Fraction with HS)	(1.4)		(1.2)		(0.1)	
Regional Dummies:						
Mid-Atlantic	-0.90*		-0.97*		-0.39	
	(2.7)		(3.4)		(1.3)	
EN Central	-1.45*		-1.55*		-0.84*	
	(3.7)		(4.5)		(2.4)	
WN Central	-2.32*		-2.11*		-1.27*	
	(4.3)		(4.4)		(3.0)	
S Atlantic	-1.14*		-1.24*		-0.48	
	(2.8)		(3.5)		(1.4)	
ES Central	-1.24*		-1.42*		-1.02*	
	(2.3)		(3.0)		(2.4)	
WS Central	-1.26*		-1.38*		-1.23*	
	(2.6)		(3.4)		(2.8)	
Mountain	-1.66*		-1.67*		-0.78*	
	(3.6)		(4.3)		(1.9)	
Pacific	-1.11*		-1.13*		-0.36	
	(2.8)		(3.4)		(1.1)	

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Table 4. Continued

	Probit-Probit		Probit-Tobit		Probit-Continuous	
Variable	Vote	Contributions	Vote	Contributions	Vote	Contributions
Intercept	-8.68	1.61*	-13.85	7.32*	-23.99*	7.41*
	(0.7)	(2.2)	(1.2)	(3.7)	(2.0)	(9.9)
σ				3.76*		1.17*
				(12.1)		(6.0)
ρ		0.19		-0.01		0.41
		(0.7)		(0.0)		(1.4)
McFadden's R^2		0.25		0.12		0.12
Sample Size		412		412		319

NOTE: Absolute values of asymptotic t-ratios are in parentheses. An * denotes significance at the 10% level. Vote* and Contribution* are latent dependent variables. Also see note to table 1.

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Appendix A: Estimation of the Model

In order to write the reduced-form equations, define

$$(5)\quad \delta_1 = \sqrt{1 + 2\gamma_1\sigma\rho + \gamma_1^2\sigma^2}\ ,$$

$$(6)\quad \delta_2 = \sqrt{\sigma^2 + 2\gamma_2\sigma\rho + \gamma_2^2}\ ,$$

$$(7)\quad \pi_{it} = -(\beta_i' x_{it} + \gamma_i\beta_j' x_{jt})/\delta_i \qquad (i, j = 1, 2;\ i \neq j),$$

$$(8)\quad e_{1t} = (u_{1t} + \gamma_1\sigma u_{2t})/\delta_1,$$

$$(9)\quad e_{2t} = (\gamma_2 u_{1t} + \sigma u_{2t})/\delta_2.$$

The reduced-form equations for each model can then be written as

$$(10)\quad y_{it}^{*} = \delta_i(-\pi_{it} + e_{it})/(1 - \gamma_1\gamma_2) \qquad (i = 1, 2).$$

The reduced forms are defined only if the sums under the square root sign in equations (5) and (6) are positive. Each model's consistency requirement is $\gamma_1\gamma_2 < 1$ (Schmidt). e_{1t} and e_{2t} have a standardized bivariate normal distribution with correlation coefficient

$$(11)\quad \theta = [\gamma_1\sigma^2 + \gamma_2 + (1 + \gamma_1\gamma_2)\sigma\rho]/(\delta_1\delta_2).$$

Note that, even when $\rho = 0$, $\theta \neq 0$ so long as $\gamma_1\sigma^2 + \gamma_2 \neq 0$.

For the probit-probit model, split the sample into four sets: S_A ($y_{1t} = y_{2t} = 1$); S_B ($y_{1t} = 1$, $y_{2t} = 0$); S_C ($y_{1t} = 0$, $y_{2t} = 1$); and S_D ($y_{1t} = y_{2t} = 0$). The corresponding components of the likelihood function are

$$(12)\quad a_t = 1 - \Phi(\pi_{1t}) - \Phi(\pi_{2t}) + F(\pi_{1t}, \pi_{2t}, \theta),$$

$$(13)\quad b_t = \Phi(\pi_{2t}) - F(\pi_{1t}, \pi_{2t}, \theta),$$

$$(14)\quad c_t = \Phi(\pi_{1t}) - F(\pi_{1t}, \pi_{2t}, \theta),$$

$$(15)\quad d_t = F(\pi_{1t}, \pi_{2t}, \theta),$$

$\Phi(\cdot)$ is the cumulative distribution function for the standardized normal distribution, while $F(\cdot)$ is the cumulative distribution function for the standardized bivariate normal distribution.

For the probit-tobit model, also split the sample into four sets: S_A ($y_{1t} = 1$, $y_{2t} > 0$); S_B ($y_{1t} = 1$, $y_{2t} = 0$); S_C ($y_{1t} = 0$, $y_{2t} > 0$); and S_D ($y_{1t} = y_{2t} = 0$). The corresponding components of the likelihood function are

$$(16)\quad a_t = (1 - \gamma_1\gamma_2)\phi(\epsilon_{2t})\Phi([\theta\epsilon_{2t} - \pi_{1t}]/\sqrt{1 - \theta^2})/\delta_2,$$

$$(17)\quad b_t = \Phi(\pi_{2t}) - F(\pi_{1t}, \pi_{2t}, \theta),$$

$$(18)\quad c_t = (1 - \gamma_1\gamma_2)\phi(\epsilon_{2t})\Phi([\pi_{1t} - \theta\epsilon_{2t}]/\sqrt{1 - \theta^2})/\delta_2,$$

(19) $d_t = F(\pi_{1t}, \pi_{2t}, \theta)$.

$\phi(\cdot)$ is the standardized normal density function. ϵ_{2t} is the value of e_{2t} when $y_{2t} > 0$:

(20) $\epsilon_{2t} = \pi_{2t} + (1 - \gamma_1\gamma_2)y_{2t}/\delta_2$.

For the probit-continuous model, split the sample into two sets: S_A ($y_{1t} = 1$); and S_B ($y_{1t} = 0$). The corresponding components of the likelihood function are

(21) $a_t = (1 - \gamma_1\gamma_2)\phi(\epsilon_{2t})\Phi([\theta\epsilon_{2t} - \pi_{1t}]/\sqrt{1 - \theta^2})/\delta_2$,

(22) $b_t = (1 - \gamma_1\gamma_2)\phi(\epsilon_{2t})\Phi([\pi_{1t} - \theta\epsilon_{2t}]/\sqrt{1 - \theta^2})/\delta_2$,

where ϵ_{2t} is once again defined in (20).

Appendix B: Data and Variables

Vote. Each of the following actions is counted: a roll call vote; a specific (but not general) paired vote; a publicly announced position; and a response to a Congressional Quarterly poll. Abstentions are omitted from the sample. Also omitted are two representatives serving by 1985 appointment rather than election in 1984. The CQ House vote numbers are 289 (sugar) and 290 (dairy). Source: Congressional Quarterly Almanac, 1985.

Contributions. Contributions to and expenditures on behalf of a representative of the 99th Congress made during 1983-86, in 1987 $. For sugar, 9 PACs are covered: American Sugar Beet Growers Association; American Sugarcane League; California Beet Growers Association; Florida Sugarcane League; Great Lakes Sugar Beet Growers Association; Hawaiian Sugar Planters Association; Southern Minnesota Beet Sugar Cooperative; Texas Sugar Beet Growers Association; and U.S. Beet Sugar Association. For dairy, 17 PACs are covered: Associated Milk Producers, Inc.; Dairymen's Ltd. Agricultural Association; Dairymen, Inc.; Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Pennsylvania, Tennessee, and Virginia chapters of Dairymen, Inc.; League of California Milk Producers; Michigan Milk Producers Association; Mid-American Dairymen, Inc.; North Pacific Dairymen's Association; United Dairymen of Arizona; and Western Dairymen's Association. Source: Federal Election Commission, "Committee Index of Candidates Supported/Opposed," 1983-84 and 1985-86.

Party. Democrat = 0, Republican = 1. Source: Congressional Quarterly Almanac, 1985.

Conservatism. Defined as YES/(YES + NO). YES (NO) is the number of conservative coalition roll calls on which the representative cast a roll call vote in agreement (disagreement) with the position of the conservative coalition in the 99th Congress. The conservative coalition is a voting alliance of Republicans and Southern Democrats against Northern Democrats. A conservative coalition roll call is any roll call on which the majority of voting Republicans and the majority of voting Southern Democrats cast a roll call vote opposite to that cast by the majority of voting Northern Democrats. Source: Congressional Quarterly Almanac, 1985 and 1986.

Seniority. The reciprocal of the representative's rank within his or her party. Source: Congressional Quarterly Almanac, 1985.

Incumbent. Equals 0 if the representative began service in November 1984 or later; equals 1 otherwise. Source: Congressional Quarterly Almanac, 1985.

Vote Share. Representative's fraction of the popular vote in the 1984 general election. Set equal to 1 for uncontested elections. Source: Congressional Quarterly Almanac, 1984.

Farm Groups. The number of farms in an appropriate standard industrial classification (SIC), 1982. The following SICs are used: sugar (0133); dairy (024); cash grains (011); cotton (0131); tobacco (0132); and peanuts (part of 0139). Congressional district data on farm numbers were constructed from county data in the 1982 Census of Agriculture. For sugar and peanuts, where county data are unavailable, the following approximation is used: $SIC_{ij} = (TOTAL_{ij}/TOTAL_i)SIC_i$, where i = state and j = county. TOTAL is the total number of farms producing the commodity, while SIC is the number in the commodity's SIC.

The county data were aggregated to congressional district data using maps of congressional districts and tables listing the congressional districts(s) in each county in the U.S. from the Congressional District Atlas, 99th Congress. For a county with more than one district in it, the totals for that county were apportioned among districts in accordance with a rough guess of the percentage of the county's rural area in each district.

Poor. The number of families in poverty, 1979. Sources: 1980 Census of Population and Housing: Congressional Districts of the 98th Congress; and 1980 Census of Population and Housing: Congressional Districts of the 99th Congress.

Income. Median family income, 1979. Sources: same as for poor families.

Education. Fraction of persons aged 25 and over who have completed high school, 1980. Sources: same as for poor families.

Regional Dummies. The Census Bureau regions are used. The control region is New England.