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Agricultural Policy as a Social Engineering Tool

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Abstract:

This study uses logistic regression to estimate survey data on social engineering policies in the agricultural sector. The study finds that farm operators are unlikely to support a policy allowing countries to restrict trade to pursue domestic economic and social policy goals if the policies affect international trade. In particular the findings suggest that farm operators with annual gross sales including government payments between $500,000 and $999,999 are 80 percent less likely to indicate such a preference. Farm operators with advanced degrees, some college education and a high school diploma are also unlikely to indicate such a preference. In contrast farm operators who receive no income from farming or ranching and farm operators who receive a percentage of their family income from farming or ranching indicate that countries should be allowed to restrict trade to pursue domestic economic and social policy goals even if the policies affect international trade.

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Introduction

Policymakers routinely engage in social engineering efforts to accomplish public policy goals. These goals are often pursued with little input from the constituents on whose behalf they are proposed or with research examining whether support for such a policy even exists. Given the global importance of agricultural trade, the issue of whether agricultural policy should be used, as a social engineering tool is surely nontrivial. Yet there exists a paucity of research examining whether countries should restrict trade to pursue domestic, economic, and social policy goals even if the policies affect international trade.

Trade restrictions may take several forms. These forms include variations of tariffs and quotas that are used to protect domestic industries from import competition. Domestic industries may also be temporarily protected from foreign competition by safeguard measures. These measures –either tariffs or quotas – may be used to restrict imports of a particular commodity as long as imports of that commodity have increased and the higher import level has caused or threaten to cause some harm to the domestic industry.

The World Trade Organization Framework Agreement that negotiators accepted in July 2004, and augmented at the December 2005 Ministerial meetings in Hong Kong provides guidelines on the commitments that address issues related to direct and indirect export subsidies, domestic support and market access among others. Subsidies –direct production or export- may also be used to restrict trade. Direct production subsidies

reduce direct production costs and spur domestic production at the expense of imports. Export subsidies facilitate an expansionary trade policy by allowing exporters to sell goods in a foreign market cheaper than it costs on the domestic market. Countries, which pursue this trade policy path, are often accused of dumping. In that regard countries whose domestic industries are harmed often make generous use of antidumping and countervailing measures in an attempt to protect their domestic industries. Antidumping duties offset what is deemed to be unfair pricing by foreign exporters, while countervailing duties "level the playing field" between a foreign government-subsidized exporter and a domestic producer (Bowen and Crowley, 2003). The use of such measures often has a chilling effect on trade with preliminary duties applied in most cases.

Export expansion need not result in the imposition of new or more stringent tariffs or quotas. In some cases an importing country may enter into trading accommodations such as orderly marketing agreements with exporting countries or "voluntary" export restrictions that require export countries to voluntarily restrict their level of exports within a certain time period. These accommodations distort worldwide trade flows and may adversely affect the welfare of other exporting countries. Other measures such as embargoes deprive exporters in the embargoing country the opportunity to sell products in the embargoed country and clearly hinder trade flows.

In the case of agriculture, while the measures discussed above may, in some cases, enhance farm income in the countries pursuing such policies in the short run, they often lead to suboptimal solutions for the domestic and wider global economy in the long run. These solutions hold economic implications for the protected industries and the

efficient allocation of resources in the countries where the measures are implemented. Thus whether farm operators place greater importance on the short-term economic benefits that result from social engineering policies over the wider resource allocation issues that result from their implementation is an empirical question.

To examine that question the paper uses survey data in a New Jersey case study. The paper hypothesizes that given the importance of agricultural trade to farm balance sheets, farm operators are unlikely to support agricultural policy as a social engineering tool where farm sales might be adversely impacted. To test that hypothesis the paper proceeds as follows. The next section examines briefly examines the literature on policy intervention. This section is followed by the data source and a description of the data. This section is followed by the methodology used in the study. The variable specification and working hypotheses section provide the rationale for the variables chosen in the study. This section is followed by empirical results. The paper concludes with a discussion and policy implications.

Review of the Literature

Most economists agree that free trade and open markets create jobs and raise the standard of living (see Quinn, 1997; Edwards, 1998; Pagano, 1993). This notion is grounded in the belief that market allocations of resources are efficient and that such allocations foster significant welfare improvements. Despite this notion, policymakers often intervene in the market and erect trade barriers as a mechanism for redistributing income. This intervention is often justified as a means of supporting low family farm income although few farm operators receive program benefits or in some cases richer farm operators receive most of the program benefits. Thompson (2005) argues that two-thirds of U.S.

farm operators receive no farm program benefits because they do not grow "program crops". Shucksmith, Thomson and Roberts (2005) show that the richer core regions of Europe receive most of the agricultural support within the common agricultural policy.

The persistence of trade policy interventions suggests that policymakers may be responding to the constituents whom they serve with little regard for sound economic policy. Diamond and Mirrlees (1971) show that such intervention is a largely inefficient means of achieving income redistribution. Dixit (1985) also shows that the use of trade policy to redistribute income is suboptimal. Ederington and Minier (2005) suggest that trade barriers exist because they benefit politically influential groups who are able to lobby successfully for them.

The agricultural community and the farm organizations that represent them in developed countries is one such influential group. That community is often the largest recipient of government outlays in developed countries. Farm operators in the U.S., Europe and other wealthy nations receive about $300 billion in annual farm subsidies. These subsidies are proving a major stumbling block in on-going agricultural negotiations such as the WTO ministerial meetings in Hong Kong in December 2005. Developing countries argue that such subsidies are depressing world prices for the commodities in which they have a comparative advantage. For example, U.S. cotton subsidies total approximately $3 billion annually. The cotton subsidy has helped the U.S. become the world's second largest producer of cotton, after China, and its largest exporter. Approximately 70% of the four million tons of cotton grown in the U.S. each year is sold abroad. The U.S. would produce about 30 percent less cotton, and cotton exports would shrink by around 41 percent in volume in the absence of these subsidies

(www.clas.berkeley.edu). Thompson (2005) notes that agricultural interest groups have effectively managed to direct their campaign contributions to influence legislation of interest to them despite the shrinking size of the U.S. agricultural sector and its work force relative to the U.S. economy and population. This observation has empirical support in recent work. Tavernier (2005) finds that farm operators who belong to the American Farm Bureau do not want food products made with biotechnology labeled even if there is a scientifically determined difference in the product. This position has made it increasingly difficult to pass meaningful legislation regarding the labeling of GM foods in the U.S.

Clearly the motivation and reasons for the social engineering efforts in agriculture are diverse. These reasons are political, economic and cultural and often consider the strategic role that food and fiber play in all societies. For example, while significant changes have been made to the common agricultural policy (CAP) of the European Union (EU), the CAP remains an important mechanism through which member governments defend national agricultural policies within a highly protectionist institutional structure. This structure encourages a social policy that strives for the achievement of "social parity for those who work in agriculture." To achieve that parity, policy instruments such as variable import levies, export subsidies in the form of export refunds, and other interventionist policies are often used. These policies greatly distort international trade. In the case of EU sugar, for example, 5 million tons are dumped on the world market every year, supporting the international price while the European price remains at a guaranteed high.

www.europa.eu.int/comm/agriculture/public/capleaflet/cap_en.htm

National policies are generally made to reflect the interests of the citizens of the countries where they are instituted. In Japan, prewar agricultural policies were aimed at freeing tenant farm operators from poverty and the harsh landlord system. These farm operators were considered economically and socially vulnerable and therefore the government agricultural polices were meant to address both economic and social problems. Houck (1986) argues that bitter memories of food shortages during and after World Wars I and II give several European countries and Japan an incentive to subsidize their farm sectors and thereby keep them much larger that they should otherwise be. In Canada, the Canadian Wheat Board (CWB) was developed between the 1920s and 1940s when wheat was an essential part of Canada's national policy. Although wheat revenue has declined from 78% to less than 40% between 1950 and 2002, the CWB continues to play an important role in Canada's agricultural policy. The U.S. has challenged the CWB with unfair trade practices approximately 14 times for different reasons and through different avenues (Furtan, 2005).

Bitter memories over the Bay of Pigs invasion have forced the U.S. to maintain a four-decade old embargo against Cuba. Senator Larry Craig (R-Idaho) finds it "perplexing" to have a cold war policy that hinders U.S. farm exports when farm operators and food processors are facing economic difficulties (quoted in the Star Ledger, 2005). U.S. farm operators lose $1.24 billion each year due to the embargo and lifting the sanctions would generate an additional $1.6 billion in U.S. GDP, $2.8 billion in sales and 31,260 jobs (Maness, 2003). Yet at the same time that such restrictions are in place, the U.S., provides $141 million to 70 U.S. Trade Organizations for the promotion of U.S. agricultural products overseas (www.fas.usda.gov).

Data and Data Description

The data used in this study come from the 2001 National Agricultural Food and Public Policy Preference Survey conducted in conjunction with land grant universities, Farm Foundation and the U.S. National Agricultural Statistics Service. The National Agricultural Statistics Service selected the sample, printed and mailed the questionnaires, and conducted follow up survey-related activities. A random sample of 631 farm operators stratified by value of farm sales was chosen for this survey. One hundred and forty-four of the surveys were returned giving a response rate of 23%. The data collection effort consisted of first and second mailings of questionnaires. Data were collected on farm income and risk management policy; conservation and environmental policy; trade and food policy; structural issues and socio-economic data for individual farm operators. The sample used for this study consists of farm operators, who in 2001 (i) grew crops or cut forages; (ii) stored grains or soybeans; (iii) grew vegetables, nuts, nursery crops, or other specialty crops; and (iv) had or intended to have dairy, hogs, cattle, sheep, poultry, or other livestock on their farm operation.

Table 1 presents a brief definition of the variables used in the study. Descriptive statistics for those variables are presented in Table 2. The dependent variable (Restrict) which motivates this research asks the question: Should countries be allowed to restrict trade to pursue domestic, economic and social policy goals even if the policies affect international trade? A total of 123 farm operators answered that question. Of that total, 64 farm operators or 52% indicated that countries should be allowed to restrict trade to

pursue domestic economic and social policy goals even if the policies affect international trade.

Descriptive statistics for the independent variables: educational attainment, sales, age, tenure, and farm income are also presented in Table 2. According to Table 2, 142 farm operators answered the question regarding the last year of school completed by the principal operator of the farm or ranch. Of that total, 3 (2%) completed grade school, 6 (4%) had some high school education, 32 (23%) had a high school diploma, 32 (23%) had some college education, 39 (27%) had a bachelor's degree and 30 (21%) had an advanced degree. In the sales category, a majority (47%) of farm operators had average annual sales from their farm operations, including government program benefits, of less than $10,000. Eighty-five percent of the farm operators were older than 45 years old and most (74%) own the land that they farm or ranch. A majority of farm operators (45%) typically earned 1-25% of their family income from farming.

Methodology

The methodology used in this study has been presented elsewhere but is repeated here to facilitate the discussion (see Tavernier, 2005). The model assumes that farm operators maximize an intertemporal profit function. Clearly given the current discussions surrounding the Doha Round trade negotiations, a willingness to restrict trade to pursue domestic, economic and social policy goals would invite retaliation and may make farm operators worse off in the long-run as international trade contracts. Following that rationale, the model assumes that once a farm operator makes the choice to restrict or not to restrict trade s/he maximizes a profit function subject to uncertainty about that

decision. The random component comes from maximization errors, and other unobserved characteristics of choices or measurement errors in the exogenous variables.

Let the profit function of farm operator *i*, making the *j-th* choice be,

$$\pi_{ij} = U_{ij} + \varepsilon_{ij} \tag{1}$$

where U_{ij} = (lnX $_{i1}$, lnX $_{i2}$, ….., lnX $_{ik}$) with lnX $_{im}$ representing the set of *m* observable characteristics of the *i-th* farm operator, and ε_{ij} is a random variable. If the *i*-th farm operator maximizes profit s/he will choose decision *j* rather than *k* according to the expression,

$$\pi_{ij} > \pi_{ik}, \forall k, k \neq j. \tag{2}$$

Note that the profit function has a random component. Then the probability that choice j is made by the *i-th* farm operator can be defined as,

$$P_{ij} = \Pr ob(\pi_{ij} > \pi_{ik}), \forall k, k \neq j. \tag{3}$$

It can be shown that if the error term ε_{ij} has standard Type 1 extreme distributions with density

$$f(\varepsilon) = \exp\{-\varepsilon - \exp\{-\varepsilon\}\} \tag{4}$$

then (see Maddala, 1983, pp60-61)

$$P_{ij} = \frac{\exp\{U_{ij}\}}{\sum \exp\{U_{ik}\}}, \tag{5}$$

which is the basic equation defining the multinomial logit model. In the case where *j* = *2*, the *i-th* farm operator will choose the first alternative if $\pi_{i1} - \pi_{i2} > 0$. If the random π_{ij} have independent extreme value distributions, their difference can be shown to have a

logistic distribution, and we can obtain the standard logistic regression model. That model is chosen for this study because of its mathematical simplicity and because its asymptotic characteristic constrains the predicted probabilities to a range between zero and one (Maddala, 1983).

Using equation (5) and assuming that π_{ij} is a linear combination of the explanatory variables, we can estimate the coefficient of each variable using maximum likelihood estimation (MLE) because the data set contains individual rather than aggregate observations (see Gujarati, 1992). The parameter estimates from the MLE are consistent and asymptotically efficient (Pindyck and Rubinfeld, 1991).

Equation (5) can also be written as

$$\Pr ob(Y = j) = \frac{e^{\beta'_j x}}{\sum_k e^{\beta'_k} x} \qquad (6)$$

where Y represents a discrete choice among j alternatives, and the set of parameters β reflect the impact of changes in X on the probability. The marginal effects which are the partial derivatives of probabilities with respect to the vector of characteristics and computed at the means are given by,

$$\frac{\partial P_j}{\partial X_i} = P_j(\beta - \sum_{i=1}^{m} P_i \beta_i)\text{, j = 1,2,….,m.} \qquad (7)$$

The model assumes that the probability of observing a particular outcome is dependent on a vector of explanatory variables, X.

Variable Specification and Working Hypotheses

The dichotomous dependent variable (*Restrict*) in this study indicates the preference a farm operator expresses for whether countries should be allowed to restrict trade to

pursue domestic, economic and social policy goals even if the policies affect international trade. The independent variables are chosen because of their hypothesize relationship with that variable. Specifically, the findings of, and inferences from past studies and existing theoretical literature provide the basis for the selection of the independent variables in this study that structure the working hypotheses. However, in most cases, the lack of studies that utilize behavioral data and examine their relationship to trade restrictions, make predictions about the directions of the coefficients difficult. The variables are discussed below.

In the case of education, this study hypothesizes that education increases the farmer operator's ability to get, process and use information (Asrat et al., 2004). Thus a higher level of educational attainment helps farm operators understand the implications and consequences of a policy that restricts trade to pursue domestic economic and social policy goals particularly when that policy affects international trade. Such restriction would serve to curb international trade volume and subject the countries restricting trade to possible retaliation. Therefore the coefficient of the education variable is hypothesized to have a negative sign.

The age of farm operators may be viewed as a composite that represents farming experience and planning horizon. While beginning and probably younger farm operators may view trade restriction as providing "protection" from international competition, older farm operators, "with the benefit of time," may have a better understanding of the importance of agricultural trade to their agricultural balance sheets. Thus the influence of age on "trade restriction" is an empirical question.

Farm size is often used in profitability studies (Whittaker, Lin and Vasavada, 1995). If sales are used as a proxy for farm size, one could surmise that while revenues from large farms would be more sensitive to external shocks brought on by macroeconomic conditions, smaller farms would also be affected by such shocks. For example, to the extent that trade restrictions result in retaliation, more agricultural products would remain on the domestic market and depress the price of the affected commodity. In that case, all farm operators, irrespective of farm size would be affected by the fall in price of the affected commodity. Thus the coefficient of the farm size variable is hypothesized to have a negative sign.

Although average annual gross sales provide a measure of farm size, it does not necessarily follow that such sales provide most of the income of farm households. Tavernier, Temel and Li (1997) show that off-farm income plays a major part in the income of farm households. Thus a farm operator with sales of $10,000 - $$49,999 per year and off-farm income of over $150,000 per year generates at most 25% of income from farming. Moreover, the farm operation where 51-75% of family income is earned from farming may fall in any of the farm sales categories. Thus the sign of the coefficient of the income (*inc*) variable is unclear.

Empirical Results

The estimated coefficients with t-ratios from the logit models that provide the best model fit are presented in Table 3. One of the variables from each category is dropped to avoid multicollinearity. In addition to those results, Table 3 also presents the marginal effects and goodness of fit measures such as the Chi-square test statistic, the Mc Fadden R^2 test statistic, and the percent of successful predictions. These measures are discussed in

Tavernier and Turvey (2006). The Chi-square test statistic tests the null hypothesis that the coefficients of all the independent variables equal zero. The null hypothesis is rejected at the significant level of 0.02 and indicates that the model has significant explanatory power. The Mc Fadden R^2 value, 0.20, also indicates an extremely good fit for the estimated model (see Bell et al., 1994). This statistic is generally low in binary dependent variable models estimated with cross-section data (Pindyck and Rubinfield, 1991). The percent of correct predictions is also reasonably high. This measure predicts whether or not an event will occur given a set of explanatory variables (Judge, et al., 1982). The model correctly predicts 71% of the responses.

The estimated coefficients from variables that measure the age of farm operators and the percent of family income earned from farming or ranching are positive, while coefficients from variables measuring annual gross sales, including government program benefits, and education are negative. The results support the hypothesis, that in general, farm operators whose sales are likely to be adversely affected by the use of social engineering as a policy tool are unlikely to express a preference for such a policy. Specifically the results suggest that except for farm operators with sales under $10,000 and farm operators with sales between $250,000 and $499,999, farm operators across the sales category are unlikely to favor a policy allowing countries to restrict trade to pursue domestic economic and social policy goals if the policies affect international trade. For example farm operators with annual gross sales including government payments between $500,000 and $999,999 are 80 percent less likely to indicate that countries should be allowed to restrict trade to pursue domestic economic and social policy goals if the policies affect international trade.

In addition to sales, the results suggest that there also exists a negative relationship between the education variable and farm operators who indicate that countries should be allowed to restrict trade to pursue domestic economic and social policy goals if the policies affect international trade. Farm operators with some college education are 58% less likely to indicate that countries should be allowed to restrict trade to pursue domestic economic and social policy goals if the policies affect international trade. Farm operators with a bachelor's degree and those with a high school diploma are 36% and 33% less likely to indicate such a preference, respectively.

The estimated coefficient from the variable that measures the age of principal operators between the ages of 35 and 44 is positive and suggests the farm operators within that age category are 42% more likely to indicate that countries should be allowed to restrict trade to pursue domestic economic and social policy goals even if the policies affect international trade. While not directly comparable to the current finding, young farmers and ranchers ages 18-35 in a recent American Farm Bureau Federation survey indicate that the best way to increase overall agricultural profitability is to boost US agricultural exports (The New Jersey Farmer, 2003). Clearly restricting trade runs counter to that view.

The positive coefficients of the variable that measures the percent of family income earned from farming or ranching suggest that farm operators in that income category are also more likely to indicate that countries should be allowed to restrict trade to pursue domestic economic and social policy goals even if the policies affect international trade. For example, farm operators who earn between 51% and 75% of their income from farming or ranching are 72% more likely to indicate such a preference.

Discussion and Policy Implications

The World Trade Organization Framework Agreement that negotiators accepted in July 2004, and augmented at the December 2005 Ministerial meetings in Hong Kong provides guidelines on the commitments that might be contained in a Doha Development Agenda agreement. These commitments address issues related to direct and indirect export subsidies, domestic support and market access among others. In light of these current issues, the present study is both timely and relevant, and provides new insights into the debate on whether countries should be allowed to restrict trade to pursue domestic, economic, and social policy goals if those policies affect international trade.

The results strongly suggest that farm operators view market access or the absence or diminution of conditions that restrict trade as an important factor in international trade. In particular, farm operators across sales categories indicate that trade should not be restricted for socio-economic policy goals. Given the importance of agricultural trade this finding is not surprising since restricting trade would adversely affect trade volume and farm profits as domestic prices decreased.

Given the complexities of international trade one may argue that increased educational attainment may provide farm operators with a greater understanding of the policy implications of trade restrictions. These implications include, for example, the possibility of trade retaliation and the contraction of international trade. The results suggest that farm operators across education categories are unlikely to favor a policy to restrict trade to pursue domestic, economic, and social policy goals if those policies affect international trade.

In contrast to the education and sales results the percent of income a family earned from farming or ranching and a the age of farm operators, increase the likelihood that farm operators would indicate that trade should be restricted to pursue domestic, economic, and social policy goals even if those policies affect international trade. One can only conjecture on the rationale for such finding. Clearly one can defend the finding that a farm operator who receives no income from farming or ranching may be indifferent or favor restricting trade because of the lack of direct economic consequences on his or her farm operation. However, the motivation for a farm operator who receives 51%-75% of his or income from farming is less clear. This finding suggests a protectionist sentiment and the belief that farm operators who receive any percentage of their income from farming or ranching and farm operators between the age of 35 and 44 years old would be better off under a closed policy regime. The "young farmers'" perception may be reflecting the "infant industry" argument and the need for protection from import competition while their operation "grows up."

The results of this study go to a larger issue in trade policy intervention and the actions of policymakers. In particular, policymakers often intervene in markets and justify their actions on the constituents that they serve. While certain segments of an economy may argue for protection, in the case of agriculture, the results seem to suggest that farm operators would prefer free trade to market intervention. This conclusion also suggests, that all thins being equal, policymakers may have less to fear from the constituents than they believe.

References

Asrat, P., K. Belay and D. Hamito (2004) "Determinants of farmers' willingness to pay for soil conservation practices in Southern eastern Ethiopia *Land Degradation and Development* 15:423-438

Bell, C.D., Roberts, R.K., English, B.C. and Park, W.M. (!994). A logit analysis of participation in Tennessee's forest stewardship program. Journal of Agricultural and Applied Economics 26:463-472.

Bown, C.P and M. A. Crowley (2003) http://people.brandeis.edu/~cbown/papers/bown_crowley_kluwer.pdf accessed 1/5/2006

Diamond, P. and J. Mirrlees (1971) "Optimal Taxation and Public Production," *American Economic Review*, 61:8-27.

Dixit, A. (1985) Tax Policies in Open Economies. In Auerbach, A.J. and A.J. Feldstein, M. (Eds.), Handbook of Public Economics. North Holland.

Edwards, S. "Openness, Productivity and Growth: What do we Really Know," *Economic Journal* 108 (1998):383-98.

Furtan, W.H. (2005) "Transformative Change in Agriculture: The Canadian Wheat Board," *International Law and Trade Policy*, 6:95-107.

Gujarati, D. 1992. *Essentials of Econometrics*. McGraw Hill, New York, 1992.

Houck, J.P. (1986) *Elements of Agricultural Trade Policies*, Waveland Press Inc.

Judge, G., Canterhill, R., Griffiths, W.E., Lutkepohl, H. and Lee, T.C. (1982). Introduction to the Theory and Practice of Econometrics, John Wiley and Sons, Inc.

Maddala, G.S. (1983). *Limited-Dependent and Qualitative Variables in Economics,* New York: Cambridge University Press.

Maness, A. (2003) "Should we Trade with Cuba?" National Center for Policy Analysis, Brief Analysis # 427. Available at: http://www.ncpa.org/pub/ba/ba427/ba427.pdf

Miner, J. and J. Ederington. "Why Tariffs, not Subsidies? A Search for Stylized Facts," http://papers.ssrn.com/sol3/papers.cfm?abstract_id=271149

Mirrlees, J. A. "An Exploration in the Theory of Optimum Income Taxation," *Review of Economic Studies* 38 (1971):175-208.

Pagano, M. "Financial Markets and Growth," *European Economic Review* 37 (1993):613-22.

Pindyck, R. and Rubinfeld, D. (1991). *Econometric Modes and Economic Forecasts,* New York: McGraw Hill Inc..

Quinn, D. "The Correlates of Change in International Financial Regulation," *American Political Science Review* 91 (1997):531-51.

Shucksmith, M., K. Thomson and D. Roberts (2005). EU's Common Agricultural Policy Favours Richest Regions; www.abdn.ac.uk/mediareleases/release.php?id=90, accessed 10/17/2005

Tavernier, E.M. (2005). *The Role of Farm Organizations in Shaping Producer Perceptions on the Labeling of GM Foods: An Analysis of Survey data,* Mimeo, Department of Agriculture, Food and Resource Economics, Rutgers University, September.

Tavernier, E.M and C.G. Turvey (2006) "Determinants of a Social Clause in International Trade Negotiations," *Agricultural Economics* 34:51-57.

Tavernier, E. M., T. T. Temel and F. Li. "The Role of Farm Ownership in Off-Farm Work Participation," *Agricultural Resource Economics Review, 26(1997):67-81.*

The New Jersey Farmer (2003) "Exports Key, Young Farmers Say in Survey," April 1 p.2.

The Star Ledger (2005) "Should we Re-examine our Cuba Policy?" October 11, p.23.

Thompson, R. L. (2005) The US Farm Bill and the Doha Negotiations: On Parallel Tracks or a Collision Course? An International Policy Council Brief, September. Available at: www.agritrade.org.

Whittaker, G., B. Lin and U. Vasavada. (1995). Restricting pesticide use: The impact on profitability by farm size, *Journal of Agricultural and Applied Economics,* 27:352-62.

(www.clas.berkeley.edu).

www.fas.usda.gov

www.europa.eu.int/comm/agriculture/public/capleaflet/cap_en.htm

Table 1: Definition of Variables

Variable	Definition
Restrict	dummy variable, takes the value 1, if respondent indicates that countries should be allowed to restrict trade to pursue domestic economic and social policy goals even if the policies affect international trade, 0 otherwise
Educational Attainment	dummy variable, takes the value 1 in the relevant interval, to indicate the last year of school completed by the respondent, 0 otherwise
Sales	dummy variable, takes the value 1 in the relevant interval, to indicate the approximate average annual gross sales from the farm in recent years, including government loan program benefits, 0 otherwise
Age	dummy variable, takes the value 1 in the relevant interval, to indicate the age of the respondent, 0 otherwise
Farm income	dummy variable, takes the value 1 in the relevant interval, to indicate the percent of family income typically earned from farming or ranching, 0 otherwise

Table 2: Descriptive Statistics for the Dependent and Independent Variables

Variable	Number	Percent*
Dependent Variable		
Restrict	123	100
Yes	64	52
No	59	48
Independent Variables		
Educational Attainment	142	100
Grade School	3	2
Some High School	6	4
High School Dip.	32	23
Some College	32	23
Bachelor's Degree	39	27
Advanced Degree	30	21
Sales	139	100
Under $10,000	66	47
10k-$49,999	32	23
50k-$99,999	11	8
100k-$249,999	12	9
250k-$499,999	7	5
500k-$999,999	4	3
$1,000,000 and over	7	5
Age	140	100
35-44years	20	14
45-54years	42	30
55-64years	37	26
65 years and over	41	29
Farm income	138	100
None	21	15
1-25%	62	45
25-50%	22	16
51-75%	3	2
76-100%	30	22

"*" may not add to 100 because of rounding.

Table 3. Logistic Regression Results of Determinants of Social Engineering

Variable	Estimated Coefficient	t-ratio	Marginal Effect
Intercept	2.1474	(1.582)	
Age3544	1.6843	(1.879)*	0.42
Age4554	0.5144	(0.80)	
Age5564	0.2554	(0.408)	
Salesunder10	-2.2777	(1.55)	
Sales1049	-2.7828	(1.833)*	-0.69
Sales5099	-3.4854	(2.228)**	-0.87
Sales100249	-2.4849	(1.664)*	-0.62
Sales250499	-1.2805	(0.866)	
Sales500999	-3.2176	(1.582)*	-0.80
Incnone	3.1976	(3.043)***	0.79
Inc125	0.8645	-1.012	
Inc2650	1.4929	(1.705)*	0.37
Inc5175	2.8685	(1.830)*	0.72
Grade	-1.0511	(0.580)	
HS	-1.2811	(0.934)	
HSDip	-1.3156	(1.750)*	-0.33
College	-2.342	(3.007)***	-0.58
BA	-1.4542	(2.175)**	-0.36
Sample size	116		
Mc Fadden R^2	.20		
Chi-squared$_{df}$	31.91_{18}		
Significance level	.02		
Correct prediction (%)	71		