The American Agricultural Movement

Economic Prairie Fire
or
Smoldering Ember?

by Claudia Dodge

THE AMERICAN AGRICULTURAL MOVEMENT

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I. INTRODUCTION

A. Background

During the winter of 1977-78 a new farm movement appeared on the scene which came to be known as the American Agricultural Movement or "AAM". The birthplace of the movement was Baca County, Colorado, a county which borders New Mexico, Oklahoma, and Kansas and is approximately 40 miles from the Texas border. While the very early organizing was in the West and South, by December of 1977 the movement claimed 34 strike offices in 17 states.[1] Members called for a national strike by farmers in an effort to raise agricultural product prices. Leaders of the movement prepared a platform in which they demanded 100% of parity for all agricultural products.

The concept of withholding farm products from the market as a means of achieving gains for farmers has a history dating back to the turn of the century. Although the various farm groups which have attempted to influence prices have been unsuccessful in a direct fashion, they have indirectly influenced legislation which acted in their favor. In the case of AAM, even the initial thrust was for altering government legislation rather than a disruption of markets. The movement used publicity gimmicks to attract attention to the farmers' situation. Tractorcades and the release of

goats on the steps of the Capital were some of the more successful stunts. But the physical presence of hundreds of farmers packing the Congressional hearing rooms and office chambers for months on end was the most forceful pressure that was applied to Congress and the administration.

The demands of the AAM were on the surface very simple: 100% of parity. The idea of parity is to formulate prices that give farmers the equivalent purchasing power realized during the base period, 1910-1914. Parity, if applied, would mean raising farm commodity prices by an average of just over 50%.[2]

However, the movement was developing a program which was much more comprehensive than simply demanding full parity prices. The AAM leaders were proposing a well-conceived, internally consistent program of allocating market quotas which would have the effect of holding prices at parity. The idea of regulating the flow of commodities to the market to keep prices at a desired level is not new. Past and present U.S. farm programs use supply controls. Acreage allocations and diversions, quotas, marketing orders and agreements, and import restrictions have all been used to reduce supply in order to maintain higher prices.

What precipitated the organizing that was going on? What gave rise to the AAM? Why were farmers who are generally considered to oppose controls as a group willing to endorse a proposal that required massive intervention in agricultural production?

One answer is that farm commodity prices were low and many areas had experienced poor crops. These low prices followed a period of unusual prosperity for most farmers. From 1974 to 1976, although livestock producers were in serious trouble, grain farmers were receiving record high prices mainly because of substantially increased foreign demand. The Federal government had lifted controls on production in 1974 and farmers responded to the implicit assumption there would be a prolonged period of substantial demand coupled with high prices. However, the balloon of high prices did break. The index of prices received by farmers (1967 = 100) for grains fell from 257 in 1974 to 176 in October of 1977.[3] Many farmers having made large credit commitments during the periods of high price found that slackened demand and expanded output lowered incomes to the point of threatened backruptcy.

During the winter of 1977-78 the movement was successful in creating a national awareness of the farm problem. In addition, the AAM had some legislative success. Congress provided the Secretary of Agriculture with the opportunity to adjust target prices. The Secretary used this authority to raise wheat prices by 40¢ per bushel.[4] Credit legislation provided a refinancing package for farmers with serious credit problems. However, the striking farmers did not succeed in getting a law passed which mandated 100% parity. The movement did not die after these limited successes. The farmers came

back to Washington with their tractorcades the next winter.

The conventional wisdom was that the movement would be short lived and that the supporters were a small group of farmers with special problems. Agricultural economists generally agreed that the AAM supporters would be farmers in financial difficulties. Dr. Cochrane felt that the supporters would be young farmers who had recently purchased high price land and machinery because of the mid 1970's feeling of agricultural prosperity. Dr. Hasbargen believed the supporters would be cash crop farmers hit by drought in one or more recent years.[5] Dr. Breimyer felt the leadership of the AAM consisted of large solidly established farmers who were about to leverage themselves into still more expansion but found themselves stymied.[6] These explanations led to the formulation of this research.

B. Problem Definition

This study was conducted during the movement's second winter assault on Washington, D.C. The purpose is threefold: (1) to determine how representative the movement is; (2) if there are socio-economic factors which profile AAM supporters; and (3) if the ideology of the movement is consistently held by supporters. More specifically the study is testing for a relationship between support for the AAM and each of the socio-economic characteristics of farm size, farm management experience, farm debt, assets, major income source, gross farm income, number of crop loss years, and status as a full time, part time or retired farmer. As indicated earlier a negative relationship with experience and a positive relationship with farm size, debt, assets, gross farm income, number of crop loss years, and cash crop farming would be expected.

The scope of the study is limited to Minnesota. This is not the state where the movement originated but it is the home of the strongest Congressional supporter of the AAM, Representative Richard Nolan. Minnesota, as one of the 17 initially organized states, held a tractorcade in 20 degree below zero weather in December 1977 with Congressman Nolan on the lead tractor. Although Minnesota is not the center of the movement, it is representative of the states which need to be supportive for the movement't continued existence.

II. SAMPLE SELECTION AND METHODOLOGY

A. Sample

To determine the attitudinal and socio-economic characteristics of American Agricultural Movement supporters a sufficient number of AAM members needed to be sampled. The expectation was that farmer agitation caused by droughts in the western central counties of Minnesota would lead to more active AAM organizing in those areas. To insure this region was adequately sampled the population was stratified into two geographic groupings: the first grom zip code areas covering the western counties of Minnesota; the second from the rest of the State excluding the metropolitan zip codes of Minneapolis-St. Paul and Duluth. The population from which the sample was drawn consists of the subscribers to the Farmer Magazine. A random sample of 1000 was drawn from each geographic group. The use of stratified random sampling insured that AAM would be represented, but a weighted factor was used in order to avoid giving the west-central counties a disproportionate influence in the sample. The first region was weighted by a factor of .449; the second region by a factor of 1.0 which corresponds to their respective proportions of subscribers in the State outside of the Twin Cities and Duluth.

The subscribers to this magazine provided a current,

statewide mailing list of Minnesota farmers. There are 98,537 farms in Minnesota and 117,835 subscribers. Even though there are more subscribers than farms, obviously every farm is not a subscriber. Some subscribers are retired farmers living in rural towns, some are businesses that want to keep appraised of agricultural developments, and some are farm organizations. But overall the magazine's research department estimates that about 90% of Minnesota's farmers subscribe. One of the main reasons for using the magazine subscribers was that it would be a more neutral list than one might get from a government agency. It was important that farmers did not think that this was another government report in disguise.

B. Mailing Procedures

The sample was comprised of a mailing list of 2000 names. The first mailing was sent out in January 1979 and produced 526 returns. The second mailing occured one month later and produced 186 returns. The total response was 712 which is a 36% response rate. This is a much higher response rate than was anticipated and provides confidence that the sample is sufficiently large for statistical analysis. Some questionnaires could not be used in that they were not farmers or that too much information was missing. 642 questionnaires were usable.

C. Bias

To determine if any significant segments of the Minnesota farm population are excluded from the study some characteristics of the respondents are compared with United States Census data from 1974. Three basic socio-economic variables are used for comparison: farm size, gross farm income, and source of farm income by commodity.

	Sample	Population
Under 50 acres	10%	10%
50 - 249	43%	53%
250 - 499	24%	26%
500 - 999	12%	10%
1000 or more	5%	2%
No response	6%	--

TABLE #1: FARM SIZE DISTRIBUTION IN SAMPLE AND POPULATION [7]

The sample could indicate a continuation of the documented trand between 1969 and 1974 when farms in the 50 to 499 range decreased while the number of farms in all categories over 500 acres increased. Therefore, ther overall distribution of the sample corresponds to the population in this variable.

The next comparison is gross farm income:

	Sample	Population
Under $2,500 income	10%	14%
$2,500 - $19,999	28%	38%
$20,000 - $39,999	13%	22%
$40,000 - $99,999	27%	20%
$100,000 - $200,000	8%	6%
Over $200,000	5%	
No response	9%	--

TABLE #2: GROSS FARM INCOME DISTRIBUTION IN SAMPLE AND POPULATION [8]

The comparison with 1974 census data shows that the first three categories in the sample are underrepresented while the higher income categories are slightly overrepresented in the sample. This skewness is partly the result of inflation. The sample represents 1979 income figures.

The final basis of comparison between the sample and the population is in commodities produced:

(see table next page).

	Sample	Population
Hogs	32%	28%
Cattle and Dairy	64%	63%
Poultry	11%	12%
Corn	68%	69%
Wheat	31%	31%
Soybeans	42%	42%
Barley	14%	8%
Oats	51%	57%
Sugar Beets	2%	3%
Other vegetables	7%	4%
Fruits	.5%	.3%
Other and no reply	13%	--

TABLE #3: COMMODITIES PRODUCED, DISTRIBUTION ON SAMPLE AND POPULATION [9]

The sample corresponds to the actual distribution of commodities produced by Minnesota farmers. Variance could be due either to small sample size for certain producer groups or to changing patterns of production from 1974 to 1979.

Some variance for the three selected variables may be due to the fact that the sample excludes selected metropolitan zip codes which are included in the Minnesota census data. However, this excluded group is so small that is should not be a source of large variance.

The farm experience variable could not be used for comparison because there is no comparable data from the census.

To determine if there is a significant difference between the first and second group of respondents (respondents from the first mailing and respondents from the second follow-up mailing), the distribution of farm group affiliation is compared. This characteristic is chosen to check if the first group of respondents were more inclined to belong to a protest-oriented organization. There is no significant difference between the two mailings when affiliation characteristics are compared.

Although there is no significant difference in affiliation between the early and later respondents it could be argued that the respondents in general would be biased toward individuals who are motivated by strongly held opinions. Since the questionnaire and introductory letters did not indicate a tie to AAM, the bias should only be toward farmers who are responsive in their opinions on farm policy.

Another possible bias that could result from using a magazine mailing list with a mailback questionnaire is that respondents tend to be slightly better educated. Since a question was't asked on education level there is no direct evidence of such a bias in this data.

A final source of bias could come from a change in the economic environment between the first winter of 1977-79 and the second winter of 1978-79 when the questionnaire was mailed. Indeed in the second winter farmers were in a better price position with respect to the parity ratio. During the first winter the parity ratio was 66; the second winter 73 (1910-14 = 100).[10] This higher ratio still did not compare favorably to the parity ratios of 1973-74 when the ratio was over 90 for eleven straight months. However, at the beginning of 1979 the parity ratio was back in the range which existed from 1967 to 1972.[11] The more favorable economic situation in the second year could result in the survey underestimating the initial AAM affiliation strength. This bias does not jeopardize the results; it mitigates the impact of bad prices during one year and can indicate the possible resilience of AAM even when prices are improving slightly. The support found for the AAM in this study cannot be explained by one year's sudden drop in price.[12]

D. Questionnaire Design and Pretest

Various policy statements were formulated that would distinguish AAM supporters from non-supporters on issues paramount to the movement. Socio-economic questions were also developed to determine the background of the respondents. This information was used to test the existence of an AAM supporter profile. These attitudinal statements and background questions constituted the questionnaire for the mail survey.

Each attitudinal question is structured as a continuum with an "X" to be placed along a line running from "strongly agree" to "strongly disagree". The continuum is given a numerical code for scoring purposes.

In scoring the results a judgement was made as to what number the "X" is closest to. Then each attitudinal question has a numeric response. The continuum is designed as follows:

Strongly Disagree		Disagree		Neutral or Not Sure		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

The socio-economic and affiliation questions followed the policy statements in the questionnaire. The respondent was simply asked to check the category which best described his or her situation. The socio-economic characteristics

measured are farm size, level of debt, level of assets, years of farming experience, gross farm income, types of crops raised, major source of farm income, and employment status as a full time, part time or retired farmer. The respondent was then asked to check the appropriate boxes for membership in or support of major agricultural organizations. The list includes the National Farm Organization, Grange, Farmers Union, Farm Bureau, AAM, marketing cooperatives and commodity associations.

A copy of the questionnaire can be found in the appendix.

Here is a review of the statements on farm policy that were posed to respondents in the questionnaire. As explained above respondents were asked to indicate the degree to which they agreed or disagreed with the statements. After each statement a brief account is given of the AAM's position.

Statement #1: "Consumers should pay more for food than they are now paying." (Agree or disagree?) The AAM agrees. They believe that Americans can and should pay a higher percentage of their total disposable income on food than they are now paying.

> The American people today pay only 16.8% of their disposable income for food. The people of other nations purchase food in a relatively raw state, yet these nations spend a minimum of 28% of their income for food. By achieving parity pricing, it will increase the percentage by 3.1% to a total of only 19.9%. This is by far the cheapest and best food in the world.

> By eliminating speculation, boom and bust from the market, and excessive profits from some middlemen, we can achieve parity and raise the price to consumers very little. The 3.1% shift of total disposable income is only a small shift in priority, but means the difference between existence and non-existence of the family farm.[13]

Statement #2: "The total amount of agricultural products going to market must be reduced if farmers are going to receive higher prices for their products." The AAM realizes that the only way that farmers are going to achieve 100% parity is to cut back on production. They are proposing to establish a Board of Producers who will regulate the amount of commodities that go to market. The Board would be composed of farmers and would not be a government agency. The AAM is against any form of government price support or regulatory involvement. They prefer producers regulating supply themselves. The Board of Producers would issue marketing certificates authorizing a certain amount of a commodity to be marketed. "In no case shall the volume of agricultural commodities sold or traded annually exceed the amount authorized by each producer's annual marketing certificates."[14]

Statement #3: "Farmers and farm organizations, not government, should be responsible for developing programs to restrict market supply." Agricultural programs or strategies would be devised by the Board of Producers discussed above. The idea is that the producers of agricultural commodities must regulate their supply and thus increase prices. This

regulation can only come from the producers themselves acting in collaboration. The AAM does not see this is the proper role of government. As AAM states in their recommendations:

> The government shall remove itself from buying and selling any and all agriculture products except for its own governmental needs and national strategic reserves.[15]

Statement #4: "If the majority of the producers of a commodity vote to restrict the market supply, then all producers of that commodity should be legally bound by market restriction." The AAM agrees. In their legislative recommendations, Proposal #6, Section 2 best explains their position:

> Producers shall be provided marketing certificates by the National Agricultural Board for every agriculture product, based upon anticipated production and consumption needs for each product, to assure every producer the opportunity to market a fair share of the market needs.[16]

What happens if a farmer grows more than the marketing certificates allow to be marketed? The producer holds the commodity which can only be sold with a certificate:

> All excess production over and above the domestic requirements and export needs, not qualifying for marketing certificates, shall remain the property and responsibility of the producer. Marketing certificates must be accompanied by every transaction involving agriculture production.[17]

Statement #5: "Farmers should not have mandatory restrictions placed on quantities they market or produce." The AAM disagrees as explained in statements number 2,3, and 4 above. This question is a reverse of the AAM position, and is used to test for the consistency of respondent's answers.

Statement #6: "It should be illegal for anyone to buy, sell, or trade any agricultural commodity for less than the prices established by a Board of Producers." The AAM agrees. The AAM would specifically mandate by law that, "It will be illegal for anyone to buy, sell, or trade any agriculture product at less than 100% parity."[18] Parity prices would be guaranteed through the control of the supply determined by a Board of Producers.

Statement #7: "The existing program of target and loan prices, set asides, and grain reserves is <u>basically</u> acceptable to me." Knowing that every farmer has some complaint about the operation of current agricultural programs, agreement with the basic elements of the system is emphasized versus AAM's fundamental opposition to the entire system. An AAM respondent would, therefore, disagree with the statement.

Statement #8: "Parity is preferable to cost of production in determining price or income supports." The AAM agrees. Following the defeat of legislation in Congress that,

> ...would have provided target prices equal to 100 percent of parity through a 'flexible parity' plan...a group of AAM members who favored cost-of-production as a basis for farm programs made a strong push for the AAM to adopt a cost-of-production goal for legislation. This measure came to a delegate vote in a meeting in Oklahoma City in April (1978), but was turned down by a substantial margin making it clear that the AAM would not endorse a cost-of-production concept."[19]

Statement #9: "The United States should set its own export prices and not trade at prices below that level." Agreeing with this position is consistent with the AAM proposal that,

> The United States shall establish its parity level as the export price level in all trade transactions with other countries, and will not bring its prices down below that level.[20]

The AAM feels that the United States is a major supplier of agricultural products internationally and that we should demand parity level prices on commodities sold overseas.

Statement #10: "The United States should specialize in agricultural commodities which it can produce at low cost and import the agricultural products which can be produced more cheaply overseas." The AAM disagrees. They believe that imports that compete with American commodities, which means that they could be produced more cheaply overseas, should be severely restricted from entering the United States:

> Agriculture products, which compete with domestically produced products, shall not be permitted to enter the United States or its possessions for less than 110% of the American established market prices for said products.[21]

Statement #11: "Imported agricultural products which compete with American produced products should be priced higher than domestically produced products." This statement is the opposite of #10 above, worded differently. The AAM would agree with statement #11.

Statement #12: "Programs which support farm prices provide more benefits to the larger farms." This question does not directly measure agreement with an AAM proposal but is used to test farmers' position on this important perception of the recipients of American agricultural programs. A common criticism of current agricultural programs is that they benefit large farmers more than small. It is interesting to see how farmers feel about this question, especially when controlling for size of farm.

Statement #13: "Higher farm product prices result in higher land prices." The AAM does not have an official position on this statement, but the question was asked to see if farmers acknowledge a correspondence between higher product prices and land prices.

Given the hypotheses that were stated in the first section it was necessary to obtain three kinds of information from the questionnaire: (1) socio-economic characteristics; (2) membership in or support of AAM; and (3) an attitudinal

index that could be used to measure correspondence with AAM policy positions. Support for AAM will be defined using the information in #2 and #3 above: organizational affiliation and attitudinal affinity. Both measures will be used because of the possibility that a person might not have checked the box indicating support for the AAM but they agree in essence with AAM policy positions. The opposite possibility holds as well.

An attitudinal index was devised to quantify the degree of policy agreement with the AAM. Nine of the attitudinal questions (numbers 1,2,3,4,6,8,9, and 11) were selected as the key indicators of AAM's position. Three levels of agreement with the AAM were established: strong, moderate, and weak. To be coded as a "strong" AAM, the respondent must be consistent with the AAM position on six of the nine questions listed above; inconsistent on two questions or less; and have no opinion on one or none.

To be coded as a "moderate" AAM respondent must be consistent with the AAM position on four of the nine questions, inconsistent with two or less, and have no opinion on one or none.

Three questions (numbers 1,3, and 9) were used to identify "weak" supporters. A respondent is coded "weak" if they are consistent with AAM on two of the three, are inconsistent on none of the three, and have no opinion on one or none. These three identify the three basic policy areas of AAM: increasing the proportion of disposable family

income spent on food, forming a Board of Producers to set marketing certificates, and preventing export sales at prices below an established parity level. Being inconsistent with AAM on any of these would disqualify a respondent from being coded as an AAM supporter.

In this study the relationship between each of the socio-economic variables and AAM support is investigated with contingency table (crosstabulation) analysis. These crosstabulations are statistically analyzed with the chi squared statistic. This statistic determines whether a systematic relationship exists between two variables. Small values of chi square indicate statistical independence, a large value implies a systematic relationship exists. The chi square only indicates whether the variables are independent or related. It does not tell how strongly they are related.

A test of statistical significance gives the probability that the observed relationship could have happened by chance. This study accepted as statistically significant relationships which have a probability of occuring by chance 10% of the time or less.

The questionnaire was pretested on farmers who attended a University of Minnesota extension program in Stearns County. Thirty four farmers filled out the pretest questionnaire. One question was eliminated, a few corrections in wording were made, and the order of questions was changed. Otherwise the final version was basically the same as the pretest.

III. GENERAL ATTITUDES TOWARD AGRICULTURAL POLICY AMONG MINNESOTA FARMERS: A DESCRIPTION OF THE SURVEY RESULTS

The results of the attitudinal questions are found in Table #4. The AAM's position on each question, if they have a position, is indicated by an asterisk.

The results of the attitudinal questions indicate that a plurality of farmers disagree with the positions of the AAM that consumers should spend a larger portion of their disposable income on food and that the total amount of products going to market should be reduced (questions #1 and #2), although a significant minority support the AAM position. Farmers are split on AAM proposals that a majority of producers of a commodity can vote to restrict market supply and that all producers of that commodity would then be legally bound to those restrictions.

Farmers, however, strongly support the position of the AAM on questions of import restrictions and export prices being set at parity levels. Both the AAM and farmers generally believe that the U.S. should set its own export prices and not trade below that level, that we should not import agricultural products that can be produced cheaper overseas, and that products that do compete whould be priced higher than American products.

A strong dissatisfaction with government and existing agricultural programs is also evident in these results; and on these questions the AAM and farmers generally are in agreement.

	Agree	Disagree	Not Sure
1. Consumers should pay more for food.	36%*	43%	21%
2. Reduce amount of products going to market.	40%*	50%	10%
3. Farm organizations, not government, should develop market restriction programs.	68%*	16%	16%
4. Majority of producers can restrict market supply.	42%*	43%	15%
5. No restrictions on quantities produced.	68%*	22%	10%
6. Illegal to trade at less than Board of Producers price.	43%*	43%	14%
7. Existing program basically acceptable.	27%	57%*	16%
8. Parity better than cost of production in setting price supports.	46%*	33%	21%
9. U.S. set export prices, not trade below that level.	71%*	17%	12%
10. U.S. should specialize, import cheaper agricultural products.	18%	67%*	15%
11. Higher prices for competing imports.	73%*	16%	11%
12. Programs benefit large farms.	69%	17%	14%
13. Higher product prices mean higher land prices.	72%	21%	7%

TABLE #4: SUMMARY OF ATTITUDINAL RESULTS

* AAM position.

Interestingly, however, disagreement with the acceptability of existing programs increases as farm income increases. For this crosstabulation the chi square is significant at the .002 level.

	Agree	Disagree	Not Sure	Weighted Cases*
Under $2,500	32%	32%	36%	46
$2,500 - $19,999	31%	54%	15%	128
$20,000 - $39,999	24%	55%	15%	61
$40,000 - $99,999	24%	66%	10%	122
$100,000 - $200,000	19%	72%	9%	39
Over $200,000	21%	79%	0	23

TABLE #5: EXISTING FARM PROGRAMS ACCEPTABLE, AGREE OR DISAGREE BY GROSS FARM INCOME

* Frequency weighted due to stratified sample.

The very experienced (over 35 years) and the very inexperienced (5 years or less) have the same level of disagreement with existing programs, whereas farmers in the middle levels of experience have more dissatisfaction with existing programs. Also, full time farmers disagree with existing programs more strongly than either the part time or retired farmers. Therefore, higher income full time farmers with between six and thirty-five years of experience are the most dissatisfied with existing programs.

Most farmers in the sample also support the concept that farm organizations, not government, should be responsible for developing programs to restrict market supply as indicated in the response to question #3.

Parity appears preferable to the cost of production in setting price supports, but the preference is not strong. The attitude positions on this statement do not have a significant relationship with income source or gross income, but there is a relationship with farm experience. The more experienced farmers were stronger than the less experienced farmers in agreeing that parity was preferable to cost of production. (Chi square significant at the .000 level).

	Agree	Disagree	Not Sure	Weighted Cases
5 years or less experience	42%	36%	22%	43
6 - 15 years	41%	36%	23%	102
16 - 35 years	50%	34%	16%	186
Over 35 years	50%	28%	22%	103

TABLE #6: PARITY BETTER THAN COST OF PRODUCTION, AGREE OR DISAGREE, BY EXPERIENCE FARMING IN YEARS

In reviewing the source of support for the AAM it appears that AAM's support comes from a general dissatisfaction with government programs and from the American

farmers' orientation toward protectionism for agricultural products. There is only moderate support for producer-enforced market restrictions which is a key to AAM's overall approach to restructuring the American agricultural system.

Statement #12 is an especially interesting study in the perceptions of who benefits from the programs which support farm prices. There is a negative relationship with both income and farm size with the proposition that the benefits of existing programs go to large farms.

	Agree	Disagree	Not Sure	Weighted Cases
Under 50 acres	82%	12%	6%	44
50 - 249	73%	12%	15%	195
250 - 499	70%	14%	16%	111
500 - 999	56%	31%	13%	57
1000 or more	33%	56%	11%	24

TABLE #7: EXISTING FARM PROGRAMS BENEFIT LARGE FARMS, BY FARM SIZE IN ACRES

The negative relationship is the most significant with respect to farm size. The smaller the farm the more respondent agrees that benefits of existing farm price support programs are going to the large farmers, and the larger the farm size the more the respondent disagrees that he is the recipient of the benefits. (The crosstab has a chi square which is significant at the .004 level.)

Finally, the results were analyzed for the statement which says that higher farm product prices result in higher land prices. Agreement or disagreement with this position does not have a significant relationship with either farm size or gross farm income.

IV. DETERMINANTS OF SUPPORT FOR THE AMERICAN AGRICULTURAL MOVEMENT

The similarities and differences in beliefs between Minnesota farmers and official AAM positions have been described. The study next addresses the issue of whether there are significant differences in socio-economic characteristics between AAM supporters and non-supporters.

A number of observers of American agriculture have suggested that AAM members do have certain common background characteristics. This study has hypothesized that AAM supporters are likely to be less experienced, larger farmers who, because of dramatically increasing grain prices a few years ago, borrowed to purchase more land. Since then prices have not remained high and the assumption is that many of these farmers are now financially overextended. They are most likely cash crop farmers. These hypotheses will be tested in this section.

As described in Section II on Methodology this study uses two measures of AAM afficiation: (1) respondents were asked if they supported or belonged to a number of agricultural organizations, one of which was the AAM; and (2) an index of AAM support based on attitudes toward a set of agricultural policies on which AAM has strong positions.

When using two separate measures of support for the AAM it is always possible that we are measuring the exact

same phenomenon and that the two measures are in effect identical. The two measures used here are crosstabulated to see the degree of fit between them. Actually, all possible responses to the question, "which farm organizations do you support or belong to?" were compared with the AAM attitudinal index: Table #8 on the next page.

The index of AAM attitudinal support corresponds fairly well with what you would expect when controlling for group affiliation. 53% of those who belong to or support the AAM are given a strong rating on the index. However, 22% of AAM affiliates show no support for the policies of AAM on the index. It is possible that respondents who say they support the AAM do not really understand all the policy positions involved and that in fact they do not agree with the AAM on all policy matters. This is somewhat unlikely, however, given the sophistication most farmers possess on agricultural issues. It is also possible that farmers affiliate with the AAM because they view it simply as a protest movement. If they affiliate with the AAM they may not agree with all the key issues but they would be able to register their dissatisfaction with existing agricultural programs. As discussed in the last section, 57% of Minnesota farmers are dissatisfied with existing programs. Finally, it is possible that the index is either too demanding in deciding who is an AAM supporter, or affiliate identifiers do not have a consistent ideology. The advantage of using the index is that it may give us

AAM ATTITUDINAL INDEX	FARM ORGANIZATIONS						
	NFO	GRANGE	FARM UNION	FARM BUREAU	AAM	MARKET COOPS	COMMODITY ASSOCIATIONS
No Support	20%	27%	32%	42%	22%	41%	43%
Weak AAM	4%	0	4%	11%	2%	7%	5%
Moderate AAM	27%	33%	27%	25%	23%	24%	25%
Strong AAM	49%	40%	36%	22%	53%	28%	25%

TABLE #8: AAM ATTITUDINAL INDEX BY GROUP AFFILIATION

some insights into what types of farmers are susceptible to AAM recruitment but have not yet become affiliated in their own mind.

Returning to Table #8, the National Farmers Organization (NFO) most closely resembles the AAM. This finding is consistent with the NFO's support of full parity prices and their efforts to organize producers for the purpose of regulating market supply of agricultural commodities. The organization with the lowest collective index of AAM attitudes is the Farm Bureau, again an expected result. Therefore, the index is useful in distinguishing potential allies and likely supporters in other farm organizations. It would appear, for example, that the AAM might most directly benefit the Fational Farmers Organization if the NFO is able to inherit some of the positive results of AAM's organizing efforts.

In the following part of this section the socio-economic variables will each be compared with AAM affiliation. The first variable analyzed is farm size. As farm size increases the farmer is more likely to affiliate with the AAM. The chi square statistic is significant at the .01 level. It is especially interesting to note the sudden increase in affiliation for farm size over 1000 acres (see Table #9).

AFFILIATED WITH AAM	FARM SIZE IN ACRES				
	Under 50	50-249	250-499	500-999	Over 1000
Yes	8%	9%	12%	15%	35%
No	92%	91%	88%	85%	65%

TABLE #9: AAM AFFILIATION BY FARM SIZE IN ACRES

A relationship between farm debt and AAM affiliation was hypothesized. The data show a positive relation with a raw chi square significant at the .01 level.

AFFILIATED WITH AAM	FARM DEBT			
	Under $50,000	$50,000-$99,999	$100,000-$299,999	$300,000 or more
Yes	9%	17%	20%	22%
No	91%	83%	80%	78%

TABLE #10: AAM AFFILIATION BY FARM DEBT

No significant relationship was found between assets and affiliation. However, if AAM supporters are farmers who are financially squeezed the debt to asset ratio would be a more important variable than the absolute levels of either debt or assets. This study found that among those farmers whose debt level is greater or equal to their asset level,

17% affiliate with the AAM, while only 13% of the farmers whose asset level was greater than their debt affiliate with the AAM. The "t distribution" was used to test the difference of means. The t statistic indicated that the observed difference could not be regarded as established by the usual tests of significance (t = .975 with 407 degrees of freedom and probability of about .17 for a one tailed test). Therefore the absolute level of debt seems to be an indicator of AAM support while debt to asset ratio and asset level are not indicators. Perhaps higher debt levels represent a feeling of vulnerability irrespective of sufficient assets which push farmers to affiliate with the AAM.

As discussed earlier some observers of the AAM thought that the recent drought in certain parts of Minnesota would cause distress and frustration among farmers, thus increasing the likelihood of their being affiliated with the AAM. There is a positive relationship between the number of years in which a respondent experienced a crop loss and their affiliation with the AAM (raw chi square significant at the .07 level.)

AFFILIATED WITH AAM	CROP LOSS IN YEARS			
	0 Years	1 Year	2 Years	3 Years
Yes	8%	14%	16%	22%
No	92%	86%	84%	78%

TABLE #11: AAM AFFILIATION BY CROP LOSS YEARS

There is an interesting relationship between a farmer's gross income and AAM affiliation. A positive relationship was hypothesized. Table #13 shows the relevant data. (See next page). This crosstab has a chi square significant only at the .19 level. Note, however, the jump in the level of affiliation for those farmers who earn over $200,000. That category of gross income constitutes only 5% of the total sample so a small shift in absolute numbers of farmers in that category from affiliation to non-affiliation will change the percentage significantly. However, the result is still important, that within the highest income category 30% of those farmers either support or belong to the AAM.

When the main sources of farm income are crosstabulated with affiliation the relationship was not found significant. But among those who affiliate with AAM 60% indicate cash crop as the main source of farm income as compared to 40% of the non-supporters. The t distribution was used to test the significance of difference of means. The t statistic was significant at the .0025 level for a one tailed test ($t = 2.80$ with 456 degrees of freedom).

Crop loss, farm size, and debt are characteristics which show a significant relationship with AAA affiliation. In addition AAM supporters are more likely than non-supporters to have cash crops as the major source of income. Gross income, experience, employment status, assets, and debt/asset

AFFILIATED WITH AAM	GROSS FARM INCOME					
	Under $2,500	$2,500-$19,999	$20,000-$39,999	$40,000-$99,999	$100,000-$200,000	Over $200,000
Yes	5%	10%	14%	13%	12%	30%
No	95%	90%	86%	87%	88%	70%

TABLE #12: AAM AFFILIATION BY GROSS FARM INCOME

ratio are characteristics which are not significantly related to AAM affiliation.

The remainder of this section will examine the relationship between the same variables used above and the index of AAM attitudes which was described earlier. For purposes of this analysis weak, moderate, and strong AAM empathizers were initially aggregated into one category. This is valid since even the "weak" category differentiates empathizers from non-emphathizers on three key issues: higher consumer prices for agricultural products; producer marketing boards, and 100% parity.

No significant relationship was found between levels of AAM empathy and any of the following: employment status, farm size, gross income, debt, income source, experience, and number of years of crop loss.

There is a relationship between assets and empathy for AAM positions. (The chi square is significant at the .07 level). The strongest empathy comes from farmers with assets between $100,000 and $300,000. 65% of the respondents in this category empathize with AAM. Also, 61% of the respondents with assets over $500,000 empathize with the AAM positions. The only asset category which does not capture at least a majority of empathizers are the respondents with less the $50,000 in assets. (See Table #14, next page, for AAM support and farm assets.)

FARM ASSETS

	Under $50,000	$50,000-$99,000	$100,000-$299,999	$300,000-$500,000	Over $500,000
AAM Empathizers (weak to strong)	43%	52%	65%	52%	61%
Non-Empathizers	57%	48%	35%	48%	39%

TABLE #13: AAM EMPATHIZERS BY FARM ASSETS

The crosstabulations were also run with only the respondents coded "strong" categorized as empathizers. The results were the same with only assets showing a significant relationship with AAM empathy (chi square significant at the .05 level). Note the jump in AAM empathy for those with assets over $100,000. 74% of respondents have assets over $100,000.

FARM ASSETS

	Under $50,000	$50,000-$99,000	$100,000-$299,999	$300,000-$500,000	Over $500,000
AAM Empathizers (only strong)	19%	17%	33%	33%	31%
Non-Empathizers	81%	83%	67%	67%	70%

TABLE #14: AAM EMPATHIZERS (STRONG ONLY)

BY FARM ASSETS

AAM support is very strong when it is measured by an index of attitudes toward policy. The strong code alone includes 28% of the respondents, and the aggregated group of weak to strong codes includes 57%. This contrasts with only 13% AAM affiliates. Obviously there is a strong base of empathy for the AAM policy positions. Notably, the AAM empathy is related only to the assets variable. This relationship is not exclusive since empathy is not monotonically increasing with asset levels.

The data has shown that AAM affiliates cannot be characterized as wealthy (as measured by either gross income or assets) nor can they be characterized as inexperienced farmers with an unfavorable debt to asset ratio. The affiliates do correspond to the notions that they are cash crop farmers who have suffered crop loss. The cash flow problem resulting from crop loss can explain why debt but not the debt/asset ratio was found related to affiliation. Farmers do not want to sell assets to repay debt. Their major asset, land, is not viewed as liquid. Farmers cannot easily reacquire the back 80 acres in more favorable times. Therefore the cash flow shortage becomes more acute with higher levels of debt.

Since cash crop farming typically requires larger sized farmes, it is not too surprising that AAM affiliation was related to farm size.

This AAM affiliate profile can only be suggested at

this point in the data anaylsis. The procedures employed in this study do not reveal the comparative strengths of the significant relationships . Probably the most significant finding of this study is the widespread support for AAM policy positions. The ideas and support of AAM policies can grow regardless of what happens to the organized manifestations of the movement.

V. CONCLUSION

With this study it is possible to conclude that AAM policies will have continued and broad based support regardless what happens to the organized manifestations of the movement. The support cuts across all sizes and shapes of Minnesota farmers.

If the data were to be used to suggest a strategy for future AAM organizing they would recommend emphasizing support of restrictive trade policies and softening the position that consumers must spend a greater proportion of disposable income on food. The results also show that farmers as a group are neutral on supply restrictions imposed by a producer board, though this is a key part of the AAM proposals. The future of the movement is not dependent upon establishing a base, but in the strategic selection of issues to emphasize.

The movement can find allies in other organizations. This is not to suggest that alliances or coalitions look likely. In fact given the history of other protest movements, maintaining individual identity often becomes more important than expanding and diluting participation. But the ideas of the movement and support of its policies can grow, especially considering an organization such as the National Farmers Organization which has exactly the same proportion of moderate and strong AAM supporters as measured by the policy index as does the AAM itself.

Further work on this study would include experimenting with different coding rules for the empathy index. One possibility would be to select all those who say they support or belong to the AAM and perform a factor analysis on their responses to the thirteen policy questions to see if any response configuration emerges around affiliates as opposed to non-affiliates. It might be found that AAM does not have ideological consistency among its members no matter how refined the empathy index becomes.

Longitudinal studies could add a dynamic element to the analysis: which groups are adapting or rejecting policies that are AAM-oriented; is membership growing or receeding in various groups; which groups are becoming more unhappy with current programs. These questions cannot be answered with one survey. Either drawing a new sample or taking these respondents and re-sampling them would provide the dynamic analysis to see where AAM is going. The survey should also be expanded into other states.

Using the analysis of this survey it has not been possible to rank the impact of the socio-economic variables on AAM support. However, there is another method of analysis which can prove useful in determining the relative significance of variables contributing to AAM affiliation. Since information is available on the socio-economic attributes of each individual and the choices they make, a qualitative choice model can be used.[22]

For this methodology the existence of a utility function underlying farmers behavior is assumed. The function's parameters can be estimated through the farmers' revealed behavior. The following functional form is assumed:

$$U(x^j, s) = V(x^j, s) + E(x^j, s)$$

X is a characteristic vector of alternative j, and s is a vector of socio-economic attributes of the farmer.

$V(\cdot)$ is the systematic component reflecting population taste and $E(\cdot)$ is the stocastic effect reflecting individual idiosyncrasies. $E(\cdot)$ is stocastic since the individuals are drawn at random and there exist unobserved attributes.

Let B_n be the set of alternatives available to farmer n. He or she will choose alternative i in the available set if:

$$U(x_n^i, s_n) > U(x_n^j, s_n) \quad \forall\, j \in B, \text{ and } j \neq i.$$

Since U is stocastic this will occur with some probability that can be denoted by:

$$P_n^i = \Pr\left[U(x_n^i, s_n) > U(x_n^j, s_n) \;\forall\, j \in B,\; j \neq i\right]$$

$$= \Pr\left[V(x_n^i, s_n) + E(x_n^i, s_n) > V(x_n^j, s_n) + E(x_n^j, s_n) \;\forall\, j \in B,\; j \neq i\right]$$

$$= \Pr\left[E(x_n^j, s_n) - E(x_n^i, s_n) < V(x_n^i, s_n) - V(x_n^j, s_n) \;\forall\, j \in B,\; j \neq i\right]$$

For a binary choice model -- to affiliate or not -- the model becomes:

$$P^1 = Pr\left[E(x^2,s) - E(x^1,s) < V(x^1,s) - V(x^2,s)\right]$$

where alternative 1 is to affiliate and alternative 2 is not to affiliate.

If G is the cumulative distribution function of $E(x^2,s) - E(x^1,s)$ then:

$$P^1 = G\left[V(x^1,s) - V(x^2,s)\right] .$$

A probit model is used when G is assumed to be the normal distribution, the logit model is used when G is the logistic distribution, and the linear probability model is used when G is the uniform distribution.

To facilitate computation it is assumed that V is linear in the unknown parameters and has the general form:

$$V(x^1,s) = Z^1(x,s)B_1 + Z^2(x,s)B_2 + \ldots + Z^k(x,s)B_k$$

where the Z^k are known functions.

In the binary case, if G is uniform, the result is a linear probability model of the form:

$$P^1 = (Z(x^1,s) - Z(x^2,s))' B$$

B is a k·1 vector of parameters, and Z is a k·1 vector of known functions.

For this study P^1 would be the probability of choosing to affiliate with AAM, and the model would look like:

$$P^1 = B_1(\text{farm size}) + B_2(\text{experience}) + B_3(\text{assets}) + B_4(\text{debts}) + B_5(\text{gross income}) + B_6(\text{number of crop loss years}).$$

To include farm products in the model each product would be represented as a dummy variable since it is either produced or not.

B_1 measures the effect of a change in the farm size level on the probability of AAM affiliation, everything else held constant. Each beta coefficient can be interpreted in a like fashion. These coefficients will allow for a determination of the relative importance of the socio-economic variables on the probability of affiliating with AAM.

For future work the best use of the survey data would be to use a qualitiative choice model on support of specific farm policies included in the questionnaire. This would determine which of any socio-economic variables contribute to the probability that farmers support various farm policies such as marketing quotas, free trade, export cartels, etc. If the attributes which contribute significantly to the support of a policy are characteristic of the future trend in U.S. agriculture then farmer pressure for future policy can be predicted.

In closing I would note that the domestic structure of American agriculture is moving in a direction that, if continued, could make the AAM proposals more widely accepted. Agriculture is being concentrated into fewer farms. As fewer farms produce and market more of the total product, the AAM scheme for allocating marketing certificates will

become more attractive and practical to farmers. In time we will know if the AAM is a harbinger or an historical curiosity.

NOTES

1. Leo Mayer, "Commentary: The Farm Strike," Policy Research Notes, North Central Regional Public Policy Research Committee, July 1978, p. 8.

2. Committee on Agriculture, U.S. House of Representatives, "Evaluations of Proposals Guaranteeing Full Parity for Farmers in the Marketplace," Washington, D.C.: U.S. Government Printing Office, 1978, p. 7.

3. James Simpson and J. Robert Strain, "On the 1977-78 Farmers Strike and the Paradox of Parity," Food and Resource Economics Report, University of Florida, 1978, p. 2.

4. Mayer, p. 15.

5. Paul R. Hasbargen, "Farm Income, Parity Prices and the Farm Strike," Unpublished paper, University of Minnesota, St. Paul, Minnesota, April 1978.

6. Harold F. Breimyer, "The American Agricultural Movement -- Its Proposals, and Selected Responses," Economic Marketing Information for Missouri Agriculture. Vol. XXI, No. 6. Columbia, Missouri: University of Missouri, Department of Agricultural Economics, June 1978, p. 4.

7. 1974 Census of Agriculture, Minnesota State and County Data, Vol. 1, Part 23, U. S. Department of Commerce, Bureau of the Census, April 1977, p. XIV.

8. Ibid.

9. Ibid, Table 9, pp. I-9, 10.

10. U.S.D.A. Crop Reporting Board, Agricultural Prices, February 1979, p. 8.

11. U.S.D.A. Crop Reporting Board, Agricultural Prices Annual Summary, 1978, p. 25.

12. The parity ratio dropped in the winter of 1979-80 to the low levels which existed during AAM's first winter. However, there was no overt AAM activity during what would have been the third winter of discontent.

13. Committee on Agriculture, 1978, op. cit, p. 90

14. Ibid, p. 39

15. Ibid, p. 93.

16. Ibid, p. 95.

17. Ibid, p. 96.

18. Ibid, p. 93.

19. Mayer, op. cit, p. 13

20. Committee of Agriculture, op. cit, p. 97.

21. Ibid, p. 97

22. For a detailed survey of qualitative choice models refer to Daniel McFadden, "Quantil Choice Models, a Survey," Annals of Economic and Social Measurement, 1976, pp. 363 - 371.

Farm Policy Questionnaire

HERE ARE SOME SAMPLE QUESTIONS

On the line after each of the following statements please write an "X" showing how you feel. For example: "Farmers are the best people on earth." Let's assume you strongly agree. You would place the "X" as follows:

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree
				X

Here is another sample statement: "Farming is an easy job." Let's assume your feelings are between disagree and strongly disagree. You would place the "X" as follows:

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree
X				

If you are neutral or not sure about your answer, place the "X" as follows:

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree
		X		

How do you feel about these statements?

1. Consumers should pay more for food than they are now paying.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

2. The total amount of agricultural products going to market must be reduced if farmers are going to receive higher prices for their product.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

3. Farmers and farm organizations, not government, should be responsible for developing programs to restrict market supply.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

4. If the majority of the producers of a commodity vote to restrict the market supply, then all producers of that commodity should be legally bound by market restrictions.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

5. Farmers should not have mandatory restrictions placed on quantities they market or produce.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

6. It should be illegal for anyone to buy, sell, or trade any agricultural commodity for less than the prices established by a board of producers.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

7. The existing program of target and loan prices, set asides, and grain reserves is basically acceptable to me.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

8. Parity is preferable to cost of production in determining price or income supports.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

9. The United States should set its own export prices and not trade at prices below that level.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

10. The United States should specialize in agricultural commodities which it can produce at low cost and import the agricultural products which can be produced cheaper overseas.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

11. Imported agricultural products which compete with American produced products should be priced higher than domestically produced products.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

12. Programs which support farm prices provide more benefits to the larger farms.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

13. Higher farm product prices result in higher land prices.

Strongly Disagree	Disagree	Neutral or Not Sure	Agree	Strongly Agree

Please check your answer to each of the following questions. This information is completely confidential.

1. Are you a ...
   ____Full time farmer
   ____Part time farmer
   ____Retired farmer
   ____Not a farmer (please return questionnaire to me anyhow)

2. In which county is your farm?_____

3. How many years have you been a chief manager of a farm?
   ____5 years or less
   ____6 to 15 years
   ____16 to 35 years
   ____More than 35 years
   ____Not a chief manager

4. What is the total number of acres of cropland you farmed in 1978?
   ____Under 50 acres
   ____50 to 249 acres
   ____250 to 499 acres
   ____500 to 999 acres
   ____1,000 acres or more

5. Please check the items you produced in 1978.

____Hogs	____Corn	____Potatoes
____Beef Cattle	____Wheat	____Sugar Beets
____Poultry	____Soybeans	____Other vegetables
____Dairy	____Barley	____Fruit crops
	____Oats	____Other: please specify
		_____

6. Please circle your single most important source of farm income:

Cash crop Livestock Dairy Poultry Other

7. Please circle the years which you have had a crop loss of 1/3 or more:

1974 1975 1976 1977 1978 None of these

8. What is your total farm debt? (both real estate and non-real estate)
____Under $50,000
____$50,000 to $99,999
____$100,000 to $299,000
____$300,000 to $500,000
____Over $500,000

9. What are your total farm assets? (both real estate and non-real estate)
____Under $50,000
____$50,000 to $99,999
____$100,000 to $299,999
____$300,000 to $500,000
____Over $500,000

10. In 1978 what was your gross farm income?
____Under $2,500
____$2,500 to $19,999
____$20,000 to $39,999
____$40,000 to $99,999
____$100,000 to $200,000
____More than $200,000

11. How much off-farm income did you and your spouse receive in 1978?
____Under $1,000
____$1,000 to $5,999
____$6,000 to $10,000
____More than $10,000

12. Please check whether you belong to and/or support the following organizations:

	Belong	Support
National Farmers Organization.	____	____
Grange.	____	____
Farmers Union.	____	____
Farm Bureau.	____	____
American Agricultural Movement.	____	____
Any marketing cooperative.	____	____
Any commodity association.	____	____

____None of the above