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Determinants of Use of Government Export Promotion Programs by Agribusiness Firms

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Abstract: The Foreign Agricultural Service of the U.S. Department of Agriculture (USDA) has been criticized because it appears to favor allocation of Market Promotion Program (MPP) funds to large firms. Because of competition for markets, the USDA has been admonished to devote more attention to export promotion, especially to small firms at the state level. This paper determines that North Carolina providers of export promotion services must place greater emphasis on disseminating information and providing technical assistance to change attitudes toward exporting and export promotion. Also, while high export sales, per se, are not a good indicator for the use of export promotion programs, positive opinions about export promotion and a firm's growth are good predictors for use of export promotion programs.

Key Words and Phrases: Export promotion, export dependence, high-value products, market promotion program, prediction success, usefulness score.

Current trade data seem to suggest that U.S. agriculture's export dependence¹ is rising. The overall economy's export dependence is currently about 11%, whereas agriculture's export dependence is about 25%. The U. S. Department of Agriculture (USDA) expects the latter to grow to 31% by 2000. Agricultural exports generated a trade surplus of \$24.6 billion in fiscal 1995—the second largest surplus ever. U.S. agricultural exports have more than doubled since the 1985 Farm Act, reaching \$54.2 billion in fiscal 1995 and \$59.8 billion in fiscal 1996 (U.S. Department of Agriculture, 1996). Moreover, USDA estimates that agricultural exports in total provided more than 1 million jobs for U.S. workers in 1990; jobs in processing, packaging, transportation and other services. Today, about one-fifth of farmers' cash receipts originates from exports (Greene, 1994).

The 1990 Farm Bill authorized funding for the Market Promotion Program (MPP) at \$200 million annually. Priority for MPP funds was given to organizations and firms that could demonstrate they had been unfairly harmed by another country's unfair trade practices. The 1993 Omnibus Budget Reconciliation Act reauthorized the MPP through 1997 and reduced MPP funding to \$110 million annually. For the first time, however, it required that priority be given to small firms, especially exporters of high-valued products. The 1996 Federal Agricultural Improvement and Reform (FAIR)

Act changed the name of the MPP to the Market Access Program (MAP), reduced funding to \$90 million annually for fiscal 1996-2002 and authorized increased focus on small firms (U.S. Department of Agriculture, 1996). Indeed, in part because of concerns over the U.S. budget deficit and the USDA's large share (about 61%) of overall federal government allocation of export promotion dollars (U.S. Congress), the USDA's procedures for allocating funds to firms and organizations have been subjected to immense scrutiny and criticism.

The General Accounting Office (GAO) has criticized the USDA's Foreign Agricultural Service (FAS) of USDA for appearing to favor allocation of MPP funds to large firms. The FAS has countered that larger firms with considerable export experience often used MPP funds more efficiently and effectively than smaller and new-to-export firms (General Accounting Office, 1993a).

In light of the above criticism of promotion programs and the admonition to intensify export promotion for smaller agribusiness firms at the state level, it has become important to ascertain the attitudes of those firms that could potentially use those services at the state level. The key objectives of this paper are: (1) to identify which publicly provided export promotion programs at the state level are patronized and considered useful by agribusiness firms; and (2) to identify what characteristics determine participation in export promotion programs by North Carolina agribusiness firms. To resolve these issues, firm level data for analysis are collected primarily on North Carolina high-value products (HVP).

Past studies have concentrated on the allocation of promotional funds among market development activities, commodities and export markets (Halliburton and Henneberry; Henneberry, Ackerman and Eshleman; Overman; Solomon and Kinnucan). Byford and Henneberry have also studied export decisions by food processing firms. Two other studies have studied firm level data in considering federal export assistance programs: Patterson, Abbott and Stiegert; and Adams, Davis, Jensen and Jakus. The last study in particular considers the cost and other impacts of the 1993 legislation on the allocation of MPP-branded funds to agribusiness firms. Brenes, Henderson and Sheldon have studied the effectiveness of alternative export promotion strategies. Therefore, quantitative measures of the benefits relative to costs of exporting are not the focus of this study.

The rest of the paper is organized as follows: The background of the problem and MPP activities are explained further. The State of North Carolina's role in agricultural export promotion is delineated. Data and methodology are discussed and the study results and conclusions are provided.

Problem Overview

Traditionally, U.S. agricultural exports have concentrated heavily on bulk commodities; mainly wheat, rice, soybeans and other grains. However, recent growth

in exports have come from HVPs, which are consumer-ready or near-ready products. For example, in 1993, the rise in U.S. agricultural exports to nearly \$43 billion was fueled by the rapid increase in HVP exports in excess of \$24 billion, offsetting the decline in exports of bulk commodities (U.S. Department of Agriculture, 1994). Whereas bulk commodity trade is often conducted by large national and multinational firms, HVP exporting firms are more likely to include small and medium-size firms.

Trade in HVPs is expected to provide major opportunities to the United States, but global market competition for consumer food dollars is fierce. For example, while greater nutritional concerns, rising incomes in other countries, and improvements in refrigeration technology for transportation media afford greater opportunities to increase U.S. exports of HVPs, supply sources for these products are not limited to the United States alone. U.S. exporters of HVPs face strong competition from the European Union (EU) and other middle income developing countries. HVP exports have grown in the Southeast Asian and Latin American regions. Together, the Phillipines, Indonesia, Thailand and Malaysia—the largest markets in Southeast Asia—increased imports of U.S. agricultural products at an annual rate of 17% from 1990 to 1996, and this growth accounted for 10% of the expansion of U.S. agricultural exports over this period (Vocke). Despite their substantial agricultural sector, the two regions remain strong producers and exporters of tropical HVP products, while importing commodities grown in temperate climates. Nevertheless, the contagion effects from recent financial crisis and devaluation of currencies in Southeast Asia could raise import prices for U.S. HVPs and curtail import growth, at least in the short run.

The EU has used strategic marketing practices, including export subsidies and aggressive export promotion, to counter attitudinal barriers to exporting so as to dominate the HVP market. However, a GAO report (U.S. General Accounting Office, 1991) concluded that USDA agencies rarely employ strategic marketing practices to help U.S. agribusiness better compete in both export and domestic markets. Federal export promotion activities have been criticized for the generic nature of the information provided, and for reacting to competitors' actions instead of encouraging proactive marketing techniques. Information has been found to be outdated by the time it reaches recipients. Additionally, funds to assist in product development overseas invariably go to firms that arguably do not need financial assistance (Brenes). Given the growth potential of food processing and marketing of HVPs, a more aggressive U.S. export promotion position and a refocusing and expansion of existing trade programs to counter negative attitudes toward exporting are expected to increase HVP export market shares. The GAO, therefore, admonishes the USDA to devote greater attention to promoting HVPs instead of continuing its previous emphasis on bulk commodities. Moreover, since bulk commodity exporters benefit from funds allocated through the Export Enhancement Program (EEP) to counter unfair trade practices from other countries, FAS has been advised to concentrate on smaller firms

that export HVPs (U.S. General Accounting Office, 1993b). But the marketing and export promotion strategy for HVPs is expected to vary depending on the characteristics of the firm.

Additionally, because of the location of smaller HVP exporting agribusiness firms and the peculiar promotional needs of such firms, it has been argued that export promotion services should be provided at the state level (Waugh) where local institutions and officials are more in touch with the needs, strengths and weaknesses of local firms (Posner). Also, states can disseminate information and advice about the exporting process and opportunities in overseas markets and export support through state agencies and universities. These efforts can yield greater local jobs creation since it is believed that most jobs creation comes from the establishment of small businesses (Posner; Pattison; Reich).

In a study of small to medium-size firms, Ramaswami and Yang found that, despite widespread awareness of export-related government agencies, a small proportion of such firms has actually used the services of these agencies. Furthermore, given the diversity of firms and the markets for their products, export promotion is deemed to be better implemented at the state level than at the federal level (U.S. General Accounting Office, 1990). Additionally, the recent General Agreement on Tariffs and Trade (GATT) agreements on subsidies and countervailing measures have placed restraints on future U.S. subsidy expenditures. U.S. expenditures on export subsidies have been slated to be pared down to a maximum of \$600 million per year by the year 2001.

Market Promotion Programs²

Whether at national or local levels, export promotion programs assist in developing, maintaining and expanding commercial overseas markets for U.S. firms, especially producers of HVPs. Export promotion programs are intended to help counter firms' attitudes about the risk of doing business abroad. The two primary market-based means of promoting exports are through price discount and nonprice assistance to eligible firms. Export promotion via price discount provides a subsidy through a cooperating regional trade association (e.g., the Southern United States Trade Association [SUSTA]). The cooperator collects a firm's application. If successful, the firm is allocated MPP funds. This allows an eligible exporting firm to decrease its price below the lowest price at which it is willing to sell based on its cost structure and the structure of the market. Usually nonprice export assistance helps firms gain access to international markets without deliberately altering the price of goods to the final consumer. But successful trade in HVP depends on the marketing practices and strategies of individual firms. Therefore, product differentiation and

other nonprice promotion activities are potentially viewed as more effective in contributing to a firm's market development and competitiveness.

Nonprice export promotion activities generally comprise: (1) export service programs (e.g., seminars, export counseling, how-to-export handbooks and export financing); and (2) market development programs (e.g., dissemination of sales leads to local firms, participation in foreign trade shows, preparation of market analysis and export newsletters). The high intensity of nonprice activities associated with HVP marketing also implies that export assistance programs tend to be information intensive with a high cost of procurement by individual firms. Furthermore, some of the information necessary for successful export marketing is of public good nature and, thus, is nonrival in consumption. Federal, state and associated agencies and institutions are beginning to form partnerships to change firms' attitudes toward exporting or expanding current international activities.

North Carolina's Role in Export Promotion

State governments and their associated institutions usually seek to exploit a niche in export promotion by countering some of the weaknesses of federal export promotion efforts previously described. According to Posner, states may be effective in promoting exports because they are able to gain greater access to the management of exporting firms. State government expenditures on export promotion can potentially stimulate the economy. One billion dollars worth of exports creates, on average, 22,800 jobs (Davis).

Three state-level export promotion goals have been identified by Posner. They are: (1) increasing awareness of business opportunities, (2) creating a "pro-export" atmosphere, and (3) facilitating export activities. Other goals listed in the literature include reducing risk, stimulating interest among firms, serving as an external resource, consolidating export promotion programs, serving as an export advocate and creating "export incentives" (Seringhaus and Botschen; Barrett and Wilkinson; Brezzo and Perkal). State-level efforts directed at export promotion may involve (1) disseminating information and providing technical assistance about the exporting process and opportunities in overseas markets and (2) export support through state agencies and universities. These agencies and institutions may also provide assistance in gaining access to federal programs, trade shows and trade missions; developing trade contacts and leads; and providing logistical support.

North Carolina is a leading exporter of food, fiber and forest products, with trading partners on every continent. Agriculture plays a major role in the state's positive trade balance; an estimated \$500 million in fiscal year 1993-1994. In North Carolina, the International Trade Office (ITO) of the North Carolina Department of Agriculture coordinates with the U.S. Department of Commerce and the World Trade Center to

assist in organizing visits to North Carolina farms and processing facilities; in providing the most stringent export inspections, certifications, and documentation; in organizing product promotions in international markets; and in organizing trade shows and missions abroad for exporting firms (North Carolina Department of Agriculture). The ITO also coordinates North Carolina firm applications with SUSTA. North Carolina maintains trade offices in Toronto, Canada; Dueseldorf, Germany; Hong Kong; Tokyo, Japan; and Mexico. The North Carolina Agribusiness Council provides advocacy for export services. However, community colleges and the Small Business and Technology Development and International Trade Centers located at state universities are becoming more involved in changing export attitudes by providing technical assistance for small business exporters.

Data and Conceptual Framework

With the assistance of the Applied Social and Economic Survey Research Center at North Carolina A&T State University, a list of 400 North Carolina agribusiness and processors of HVPs was compiled from the 1992-1993 *Directory of North Carolina Manufacturing Firms* during Spring, 1995. The list conformed to the Standard Industrial Codes (SIC) at the two-digit level for food and kindred products (SIC 20); and included the three-digit sectors of SIC 201 (meat and related products), SIC 202 (dairy products, excluding ice cream and fluid milk), SIC 203 (canned, frozen and preserved fruits and vegetables), SIC 204 (grain mill products), SIC 205 (bakery products), SIC 206 (sugar and confectionery products), SIC 207 (fats and oils), SIC 208 (beverages) and SIC 209 (miscellaneous food preparations and kindred products) and their associated four-digit codes.

Bonaccorsi argues that small firms may grow in the domestic market and avoid undertaking a risky activity such as exporting. The noted exceptions are high-technology firms; small, highly specialized firms that operate in market niches with a global demand; or small firms selling expensive capital equipment items. Therefore, to account for potential nonresponse bias, agricultural processors such as SIC 287 (agricultural chemicals), and SIC 352 (farm and garden machinery and equipment) were included in the study. Although important to the state economy and having traditionally received the bulk of MPP funds, textiles were not included in this study because most textile firms have regional offices elsewhere. To identify impacts of state promotion activities on firms, thirty multinational firms with headquarters outside of the State of North Carolina were taken out of the survey sample. Whenever those firms were accidentally included, respondents wrote back to indicate they had no authority to respond since their headquarters were located outside the state.

Dillman's design method was used in developing the survey instrument. The survey questionnaire captured characteristics associated with the firm such as firm

strategy, export contacts, export influences, export hindrances, government export promotion/assistance use, export attitudes, involvement in international activities, and major trade policy impacts. Initially, 400 questionnaires were mailed on April 28, 1995. Three weeks later, reminder post cards were sent to all nonrespondents, of which 110 firms indicated their willingness to complete questionnaires. Additional questionnaires were mailed to this last group during the third week of June, 1995. At the suggested cut-off date of August 31, 1995, a combined total of 95 completed responses to the questionnaire were received after two follow-ups by mail and telephone (a 24% response rate). Of that number, 84 (21%) were usable. This is similar to a 24.5% rate recorded nationwide by Koh and Robicheaux, more than the 17.6% rate recorded by Byford and Henneberry, but lower than the 35% rate recorded by Overman in Ohio. Of the respondents, 34 (40%) were exporters and 50 (60%) were non-exporters. This study focuses on the exporters and their participation in existing export promotion activities.

To satisfy the first objective of the study, the types of export promotion programs provided by government sources (federal and state) are grouped into three broad categories: market information (or export service program), marketing assistance (for market development), and subsidies. Market information consists of published information and seminars. Marketing assistance comprises facilities for participating in trade show exhibits, technical counseling, trade leads, trade missions, government trade offices abroad, and meetings with foreign buyers. Subsidies include state assistance in obtaining federal funds, loans and grants, tax benefits, and regional and foreign cooperator programs.

Empirical Model

Firm characteristics are expected to influence the types of market promotion desired. They include the firm's size (measured by total sales, number of employees, export sales and change in export sales over time), and years of export experience. Information on firm characteristics is expected to help in designing promotion activities. For example, it is asserted that large firms are more likely to export than small firms (Casvugil, Bilkey and Tesar; Casvugil and Nevin; Withey; Yaprak; Casvugil and Naor). In particular, Yaprak found the sources of motivation to initiate exports were different among small and medium-size firms versus large firms. Furthermore, exporters and non-exporters differ about the contribution of exports to a firm's profits (Tesar and Tarleton).

Attitudinal factors that may influence an exporter's decision to use export promotion programs include managerial perception of the firm's export prospects, potential contribution of exporting to the firm's goals, and the firm's perception about export promotion. Attitudinal factors are measured in terms of the firm's management

opinion on the listed statements. Let us define a vector, x_i , made up of the listed factors that potentially influence the probability of using export promotion such that:

$$\begin{aligned}\text{Prob}(Y = 1) &= F(\beta_i x_i) \\ \text{Prob}(Y = 0) &= 1 - F(\beta_i x_i)\end{aligned}\quad (1)$$

The set of parameters β_i reflect the impact of changes in x_i on the probability of using export promotion. The probability model is expressed as a regression of the form:

$$\begin{aligned}E[y] &= 0[1 - F(\beta_i x_i)] + 1[F(\beta_i x_i)] \\ &= F(\beta_i x_i)\end{aligned}\quad (2)$$

We can either use a normal distribution, which gives rise to the Probit model, or a standard normal distribution, which gives a logistic distribution of the form,

$$\text{Prob}(Y = 1) = \frac{e^{\beta_i x_i}}{1 + e^{\beta_i x_i}}\quad (3)$$

The inverse function of the logistic model is particularly easy to obtain (let $\text{Prob} = P$) as:

$$\ln[P/(1 - P)] = \beta_i x_i\quad (4)$$

This function is called the logit of P .

Capps and Kramer, and Pindyck and Rubinfeld, provide good discussions of the methodology underlying the logit model. Greene also discusses the issue of which type of distribution to use. In principle, the logistic distribution resembles the standard normal distribution except in the tails. Therefore, for intermediate values of $\beta_i x_i$, the two distributions tend to give similar probabilities. However, the logistic distribution tends to give higher probabilities to $y = 0$ when $\beta_i x_i$ is extremely small, and vice versa, than the normal distribution.

The logit model is specified using maximum likelihood procedures. Press and Wilson describe the results from logit analyses as being meaningful and appropriate whether the explanatory variables are multivariate normally distributed, independent and dichotomous (zero-one), or multivariate normal and dichotomous. Thus, the robustness of the logit model, coupled with its desirable properties, makes it appropriate for this analysis. All affirmative responses indicating the use of at least one export promotion service provided by government agencies at the federal, state or local levels were classified as using export promotion program. The choice of using export promotion activities provided by public agencies is considered

dichotomous. A firm chooses either to use or not use programs provided by government agencies. About twenty firms indicated that they have used export promotion services, but fourteen firms had never used them.

The logit model of the use of government export promotion programs is as follows:

$$\begin{aligned} \log [P/(1-P)] = & \beta_0 + \beta_1 \text{EXPER} + \beta_2 \text{ENCEMP} \\ & + \beta_3 \text{EXSALE} + \beta_4 \text{OPPROS} + \beta_5 \text{OPGROW} \\ & + \beta_6 \text{OPXPR}. \end{aligned} \quad (5)$$

P is the probability of using export promotion program (coded as 1; 0 otherwise); EXPER is exporting experience in years; ENCEMP is the number of employees; EXSALE is export sale value in dollars; OPPROS is the opinion about a firm's export prospects in the next five years; OPGROW is expectations of the contribution of exports to firm's growth; OPXPR is the opinion about export promotion programs. All opinions are ranked in a Likert scale of 1 (unfavorable) to 5 (very favorable).

In part because of potential synergies from greater domestic sales and resources at the disposal of larger firms, their exporting experience and knowledge about existing public resources for export promotion, it is expected that larger businesses, especially those that employ large numbers of workers, will seek to use publicly provided export promotion services more than smaller firms. However, it is expected that as the firm's export sales grow, it will be less apt to use publicly provided export promotion services at the margin.

Export promotion services range from services suitable for the beginning exporter to services appropriate to support the exporting efforts of the experienced exporter. Although it is the new exporters who would normally require greater public assistance in penetrating export markets, in part because of lack of knowledge about existing services and lack of experience about market requirements, firms with the least exporting experience (although they may have the greatest needs) are less likely than more experienced exporters to use publicly provided export assistance.

In general, the decision to export arises from a firm's desire to expand its sales and grow. In part because the size of the domestic market may pose constraints on market expansion, a firm may attempt to find other international markets. But breaking into foreign markets is usually associated with formidable barriers relating to information needs as well as financial expenditure. It is expected that export promotion programs would enable exporters to increase their export market share by enhancing market access.

A firm's decision to use export promotion services may depend on the firm's subjective evaluation or perception of the usefulness of the service. Whereas an array of export promotion services may be available to exporters, these services have been criticized as not being targeted to the needs of specific exporters based on experience levels. Some exporters may simply not use the services because of the inherent

opinion that available export promotion services are either inadequate or irrelevant to their needs, while others may consider them useful.

A firm's opinion about export prospects will also likely influence the decision to use export promotion services. For example, a firm that perceives generally favorable international business prospects due to increasing export sales and rising profitability, is less likely to seek more resources, including publicly provided resources, to expand exports. On the other hand, gloomy export prospects are more likely to induce a firm to seek more public assistance to gain greater niche export markets.

The following hypotheses are tested:

- H1: The larger the size of firm (given by number of employees), the greater the probability of using export promotion program.
- H2: A more experienced firm is more likely to use export promotion program.
- H3: The higher a firm's export sale, the less probability of using export promotion program.
- H4: The greater a firm's export prospects, the less likely it will use export promotion program.
- H5: The greater the expectations of export contribution to firm's growth, the greater the probability of using export promotion program.
- H6: A more positive opinion about export promotion will lead to its greater use.

Results

Nonrespondent bias may prevent extrapolation of results to the entire population. Based on survey responses received, it seems that firms actively involved in exporting and other international activities responded quickest to the survey. However, at the end of the survey period, more non-exporters (50) than exporters (34) had responded to the survey. Extrapolating from the sample trend, a census including all forms compiled from the 1992-1993 *Directory of North Carolina Manufacturing Firms* would likely have less exporters. Among the exporters, twenty-six (about 75%) were food processors, four (about 13%) were exporters of agricultural machinery and one (3%) exported agricultural chemicals. The majority of processors were meat/poultry and snack food processors. The key destination of exports by the firms are Canada, Japan and Mexico. These are consistent with data obtained from the North Carolina Department of Agriculture.

Firm Characteristics. Three measures of firm size were used in the survey. They are total sales, export sales and number of employees. In particular, total sales and number of employees indicate the existence of size differences between exporters and non-exporters. Using the number of full-time employees as a measure of firm size,

we find that among the 84 firms, exporters tend to be larger firms while non-exporters range from small to medium-size firms. Of the 34 exporters, 45% had more than 500 employees compared to only 4% of non-exporters. The majority of non-exporting firms employed less than 100 workers, but mainly ranging between 20 and 99 workers. Large firms whose total sales exceeded \$10 million, constituted 70% of exporters (24) and 30% of non-exporters. However, the distribution of non-exporters by total sales is more diversified than that of exporters, with 38% of respondents in the former category falling below a sale volume of \$500,000. Export sales for exporters constituted a large part of total sales. Fourteen (40%) exporting firms reported export sales of more than \$5 million, and a mean of \$4.4 million (Table 2). Therefore, potentially another source of self selection bias (testing it is beyond the scope of this study) is that larger exporters with greater resources and more interested in export-related issues, were perhaps more likely to respond to the survey. Overall, however, a full census of North Carolina agribusiness firms reveal that most firms are generally smaller in terms of total sales and number of employees.

Use and Usefulness Score of Export Promotion Programs. Exporters were asked about what types of export promotion services provided by government agencies were used in 1993. Of the 34 exporters, 20 (60%) used some form of export promotion services provided by public agencies in 1993. While non-use of public export promotion services may be due to a number of reasons, including lack of awareness and non-eligibility, the percentage of non-users might also imply a greater need for export promotion providing agencies to intensify their coverage. Table 1 provides a distribution of the use of the various types of services provided by government agencies. Among users of promotion programs, activities classified as market assistance were cited more than subsidies. Information services, especially country specific information, were also cited more frequently than subsidies. Respondents to the survey identified trade contacts and/or leads, government overseas offices, and trade shows among the most frequently used export assistance activities. Overall, activities grouped under subsidies such as loans, grants and tax benefits seem to be the least used among exporters (less than 7% or two firms indicated using subsidies in 1993). Also, the more popular activities undertaken by government agencies, such as trade missions, were utilized by only 6% or two of the respondents.

The firms were also asked about specific types of export promotion and assistance that they would find useful from a State of North Carolina agency. For exporters, the findings of the survey seem to suggest that in addition to the services currently employed (Table 1), meetings in North Carolina with foreign buyers, tax benefits and assistance in gaining access to federal programs and funds were also potentially useful. Overseas activities, including travel on trade missions and provision of overseas trade office facilities, were found to be less useful.

Table 1.

Assessment of the Use and Usefulness of Export Promotion Programs

	Expert Promotion Service % Frequency of Citation	
	Used by Exporters	Potentially Useful
Published General Information ^a	9.1	12.1
Published Financial Information ^a	12.1	21.2
Published Country/Market Information ^a	27.3	33.3
Trade Seminars: General ^b	9.1	9.1
Trade Seminars: Specific ^b	3.0	12.1
Trade Shows/Catalog Fairs ^c	24.2	24.2
One-to-one Counseling ^d	6.1	18.2
Trade Contacts/Leads ^a	33.3	48.5
Trade Missions ^c	6.1	21.2
Government Overseas Offices ^a	27.3	12.1
Meetings in NC With Foreign Buyers ^c	6.1	33.3
State Asst. Accessing Federal Programs	6.1	27.3
Loans, Loan Guarantees, Grants ^c	3.0	12.1
Tax Benefits ^c	6.1	27.3
Overseas Cooperator Programs ^c	6.1	12.1

^aProviders include North Carolina Department of Agriculture, Department of Commerce, The World Trade Center, and other Trade Centers.

^bProviders are Community Colleges and University Trade Centers.

^cMainly North Carolina Department of Agriculture, International Trade Office (for FAS and regional cooperator SUSTA).

^dProviders are Small Business and Technology Development Centers and University Trade Centers.

Empirical Results. The summary descriptive statistics (mean and standard deviation) of the variables in the empirical estimation are presented in Table 2. Mean values of the qualitative variables refer to the proportion of 34 exporters taking on particular qualitative attributes in 1993. For example, approximately 59% (20) of the exporters surveyed had used export promotion services, whereas on a scale of 1 to 5 (5 being highly favorable opinion), more firms held favorable opinions about exports' contribution to firm growth and future prospects.

The empirical results of the logit model are presented in Table 3. Likelihood ratio tests indicate that the amount of variation explained by the model is significantly

Table 2.

Descriptive Statistics for Variables Used in Logit Analysis of the Determinants of the Use of Export Promotion Programs

Variable	Mean	Standard Deviation
EXPROM	0.59	.50
ENCEMP ^a	4.00	1.98
EXSALE ^b	4.40	1.61
OPXPR	2.28	1.35
OPGROW	4.03	.97
OPPROS	4.24	.94

^aIn hundreds of employees.

^bIn millions of U.S. dollars.

different from zero. Two separate goodness-of-fit measures are presented. First, the independent variables provided a goodness of fit of the model at 14.55 with a chi-squared value for the model of 18.26 (at 5 degrees of freedom and p value of < 0.05). Second, the prediction success (or correct classification) of exporters as either using or not using export promotion services based on the explanatory variable information is presented. Overall, 83% of the responses were correctly predicted; 85% for users and 82% for non-users, respectively, of export promotion. Therefore, the model performed equally well in predicting behavior of users and non-users.

Influence of the explanatory variables on the probability of using export promotion services is shown in Table 3. The variable defining experience and an additional variable defining the percentage of a firm's sales to export markets were dropped out during the iterative procedure. Results indicate that of the five factors analyzed, the probability of North Carolina agribusiness exporters using export promotion services in 1993 was significantly associated (at the 5% level) with two of these factors: (1) opinion on firm growth (OPGROW) and (2) opinion about export promotion programs (OPXPR). Additionally, the probability of exporters using export promotion services was significantly associated (at the 10% level) with a firm's export prospects in the next five years (OPPROS). A firm's opinion about future growth from exports positively and significantly influenced the decision to use publicly provided export promotion services. Therefore, we fail to reject the hypothesis (5) that "the greater the expectations of export contribution to a firm's growth, the greater will be the probability of using export promotion program." Also, the perception about export promotion conformed to the expected hypothesis and was significant. Therefore, we fail to reject the hypothesis (6) that "a more positive opinion about

Table 3.

Logit estimate of the Determinants of the Use of Export Promotion Programs^a

Variable	β -coefficient	Wald ^b	Significance
Constant	-4.93	1.63	0.20
ENCEMP	0.82	2.34	0.13
EXSALE	-1.06	2.03	0.15
OPXPR	1.71	3.83	0.05**
OPGROW	4.45	3.66	0.05**
OPPROS	-3.51	2.99	0.08*

^aNotes: Six iterations used; convergence tolerance of 0.0001; log likelihood of 14.84; goodness of fit of 14.55; Model Chi-Square of 18.26. The single and double asterisks indicate significance level at 5% and 10%, respectively.

^b WaldStatistic is the square of the ratio of the β -coefficient to its standard error.

export promotion will lead to its greater use.” Just as hypothesized, a firm’s perception about future international market prospects negatively and significantly explained their not using publicly supported export promotion services. Therefore, we also fail to reject the hypothesis (4) that “the greater a firm’s export prospects, the less likely it will use export promotion program.”

Thus, it seems that a firm’s attitude toward growth, export prospects and export promotion significantly explains use of export promotion facilities. These results are consistent with Casvugil and Nevin, and Tesar and Tarleton, who determined that managerial aspirations and firm growth explain demand for information on export markets. Overman also does not reject export attitudes as significantly explaining interest in exporting.

The estimated coefficients for the size variables (ENCEMP and EXSALE) conformed to expected signs, but they were not significant predictors of the use of export promotion programs. The firm size variables were the appropriate signs, yet, unlike Bonaccorsi; Casvugil and Naor; and Casvugil and Nevin, they were not found to be significant. Therefore, no clear conclusions from this study can be drawn about the impact of a firm’s size on the use of export promotion.

Conclusion

Criticisms have been expressed that agribusiness firms, especially small firms, do not have adequate access to federal and state export promotion programs. The 1996 FAIR Act has reduced funding for the MAP, which is designed to develop, maintain

and expand markets for agricultural products. However, little is known about the use by and usefulness of export promotion programs to agribusiness firms, especially small exporters at the state level.

This paper concludes that export assistance at the state level, especially information dissemination and marketing (technical) assistance could be very useful. Additionally, about 60% of the surveyed firms used export promotion programs. Most firms have used market information such as market leads, government overseas offices, and trade shows more often than subsidies and trade missions. More firms also found trade contacts/leads, published country and market information, meetings in the state with prospective buyers, trade shows, and state assistance in gaining access to federal programs and funds to be potentially more useful services. The study also indicates that while high export sales per se are not a definite indicator for the use of export promotion programs, positive opinions about export promotion and a firm's growth from exports are good positive indicators for use of export promotion programs. Therefore, the challenge for federal and state facilitators of market access programs is to redesign strategies that focus more on alleviating attitudinal barriers to the entry of firms, especially small firms, to international markets. Agency and institutional providers of export promotion facilities in the state must work hard to positively change firms' attitudes toward exporting and offer export incentives to obtain the desired impacts from extending MAP facilities to the firms, especially given current limited resources.

Notes

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1. Agricultural export dependence is equivalent to agricultural exports divided by the difference between cash receipts and government payments. Overall export dependence is the total exports divided by the GDP.

2. Here, market promotion programs are defined to include market assistance programs.

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