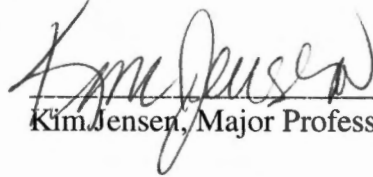
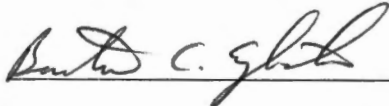
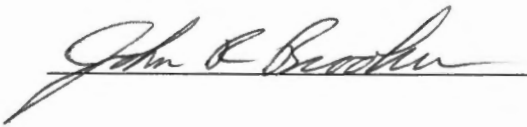


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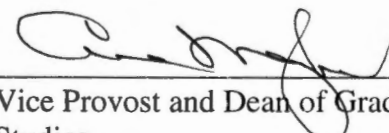
I am submitting herewith a thesis written by Byron L. Williams entitled "Explaining Export Assistance Needs of a Firm From Firm Characteristics." I have examined the final paper copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.


Kim Jensen, Major Professor

We have read this thesis
And recommend its acceptance:

Accepted for the Council:


Vice Provost and Dean of Graduate
Studies

EXPLAINING EXPORT ASSISTANCE NEEDS OF A FIRM FROM FIRM CHARACTERISTICS

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Byron L. Williams
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Thesis

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DEDICATION

This thesis is dedicated to my parents, William Lafayette Williams and Janice Hurst Williams.

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ABSTRACT

At the end of the twentieth century, more and more export opportunities have been made available to firms in the United States. Experienced exporting firms, as well as firms that had never exported before, now have a new global marketplace in which they can sell their products. However, many of these firms may require government assistance in exporting their goods. The United States government has several agencies that provide a wide array of export assistance to U.S. firms. Yet the question of whether the firms who need government aid are actually receiving the assistance that they perceive as necessary remains unanswered. Therefore, this study examines the probability of a firm's need for export assistance based on the firm's characteristics. Data for this study were collected from a survey of firms that participated in the 1993-94 Market Promotion Program. Questions were asked concerning firm's perception of export assistance and the firm's characteristics.

The results of this study showed that firm size and exporting experience are the two most common characteristics that affect the probability that the firm has a certain level of need for export assistance. The results suggested that smaller, less experienced exporting firms have an increased probability of needing certain assistance. The results also indicate that larger, more experienced exporting firms have an increased probability of not needing assistance concerning certain areas of government assistance.

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CHAPTER I INTRODUCTION

Over the past several years, there has been a trend of globalization within the business environment. In the 1990's, events such as the fall of communism in Europe and the creation of NAFTA have opened many more markets to American firms. As more markets become open, the potential for export business grows among all firms in the United States. Many of these opportunities are in agriculture.

Within the agricultural sector, the biggest growth in exports has been in high-value products. The United States General Accounting Office's definition of high-valued agricultural products includes a large number of products, most of which have had some value added to its original form, through added processing, handling, transportation, packaging or marketing (GAO, 1993).

However, due to the nature of world agricultural markets, agribusiness firms have encountered some barriers that they must overcome to begin or expand exporting. Some barriers faced by current agricultural exporters may also differ from those barriers faced by firms that do not currently export. These different barriers may prevent current exporters from exporting more than they currently do. These barriers may also deter potential exporters of agricultural products from attempting trade in foreign marketplaces. Also, due to the small size and the limited resources of some agribusiness firms, exporting could be too costly to attempt.

In order to counteract these barriers and potential costs, a great deal of assistance may be required to effectively take advantage of export markets. Therefore, to assist

agribusiness firms in exporting, the United States government has set up assistance programs to help U.S. agribusiness firms compete in world market.

Federal export assistance of agricultural products started with the decline of U.S. agricultural exports in the early 1980's. Due to a 25 percent drop in exports from 1981 to 1985, the U.S. government created the Target Export Assistance Act (TEA) in 1985. TEA was eventually replaced with the Market Promotion Program (GAO, 1993). The Market Promotion Program has since been replaced by the Market Access Program (MAP).

As of 1993, eighty percent of the Market Promotion Program (MPP) funds were used to promote high-value agricultural products. About 60 percent of the promotional activities under MPP supported generic promotions while the other 40 percent were used to fund branded product promotions (GAO, 1993). Since then, the Market Access Program had increased its funding of branded products to 56 percent (FAS, 1997). Along with the creation of MAP, the U.S. government has developed several other programs to assist agribusiness firms with their export needs, such as the Foreign Market Development Program and the Trade Assistance and Promotion Office (FAS, 1997).

However, this government funding has come under some criticism regarding the allocation and the effectiveness of its assistance programs. Questions have been raised about who should receive the majority of the government aid. For example, many believe smaller firms may be in more need of this government support money than larger firms.

The organization of federal programs has also come under some scrutiny. According to one report from the United States General Accounting Office, the

government's approach to export promotion lacks coherence due to the absence of an overall strategy to guide in the distribution of government funds by its agencies.

Due to the new opportunities arising in today's world markets, the knowledge and the use of these programs by different types of agribusiness firms is becoming of great importance. Information concerning agribusiness firms' awareness, and usage, of the available government aid would be valuable in improving the current structure of government assistance programs. Information on the effectiveness of these programs by smaller-sized firms compared to the use of the government aid by larger firms may also have some influence on future allocation procedures used by government agencies.

The purpose of this study is to examine assistance needed by agribusiness firms in exporting agricultural products in foreign markets. This study will attempt to examine what types of agribusiness firms perceive which types of exporting assistance as needed or not needed. Differences in assistance needs between firm's characteristics will also be examined. These characteristics include years of exporting, size of the firm, and firm location.

CHAPTER II

LITERATURE REVIEW

The review of literature concerning agricultural exports will be separated into three parts. The first part will review studies that surveyed firms that export goods into foreign markets. These studies examined current exporters and the barriers they faced in exporting their goods and services. These studies also looked at the differences in export problems faced by different size firms.

The second part of the literature review will look at studies that surveyed both exporters and non-exporters. These studies examined the differences between current exporters and non-exporters in both awareness, and usage, of support programs. These studies also examine the differences in attitudes towards exporting between exporters and non-exporters.

Finally, the third section of the literature review will look at the history of the United States government's support programs. The studies in this section also examined the effectiveness of the current programs used to assist in the exporting of U.S. goods into foreign markets.

Studies of current exporters

This section of the literature review will cover four studies that examined current problems facing exporting firms. These studies examined firm characteristics and attitudes towards exporting, as well as perceived barriers by current exporters. These studies also looked at firm size as a factor that influences how much a firm exports and how much export assistance it receives.

The first study reviewed was conducted by Kathawala, Judd, Monipallil, and Weinrich (1989). This study examined the exporting practices and problems of small firms in Illinois. The purpose of the study was to discover why smaller firms failed to reach their export potential. This study examined the demographic characteristics, practices, and problems of small firms in Illinois with respect to their export practices.

In previous research, it was found that the smaller firms represented in the study had only recently attempted to penetrate foreign markets. It was also discovered that the small firms only export a small share of their total output. At the time of the study, only ten percent of the U.S. export business was attributed to small firms. Previous research also showed smaller firms tended to rely on foreign clients to find potential foreign markets for their goods.

In their study, Kathawala, Judd, Monipallil and Weinrich conducted a survey of 160 small businesses in Illinois. They defined small firms as having less than 500 employees and not being a division of a larger company.

The results of the survey showed that eighty percent of the firms that responded were manufacturing companies. Of the companies that responded, nearly 65 percent had less than 100 employees and had \$10 million or less in annual sales. Only 134 of the 160 disclosed information about exports as a percentage of sales. Of those 134 firms, one hundred and five companies had exports accounting for 20 percent or less of their gross sales.

Most of the firms had been actively exporting for many years. Over half the firms surveyed had been exporting for more than ten years while less than five percent had been exporting for two years or less.

The survey results also showed that 45 percent of the firms stated that they would need assistance in analyzing foreign markets. Forty-two percent of the firms said they needed assistance in understanding foreign tariffs and currency fluctuations, as well as other aspects of marketing and shipping export products.

Respondents also suggested that the biggest improvement needed in order to increase exports would be the reduction of unemployment insurance costs, workers' compensation costs, and other general labor costs.

Results from this study also showed that 81 percent of the firms surveyed believed they had a product with a high enough quality level to be competitive with products in other countries, but they are at a disadvantage in the degree of control they have over prices and services.

The results of this study led Kathawala, Judd, Monipallil and Weinrich to make four recommendations: 1. Create a central agency to coordinate export assistance programs within the state government, 2. Offer courses in international trade, taxes, banking, and marketing at state colleges, 3. Have state legislature reexamine the cost and benefits associated with mandated unemployment insurance, workers' compensation insurance, and product liability, and 4. Have Export Trading Companies work harder to increase their awareness among smaller firms.

The second study reviewed was conducted by Barringer, Wortman Jr., and Macy (1994). In their study, they examined the process of identifying and reducing export inhibitions in small agribusiness firms. In their study, they categorized three sources of export inhibitions. These were managerial perceptions and attitudes toward export desirability, export risk, and export complexity. They also identified three organizational

processes designed to reduce export inhibitions. These were export planning, export-specific information search, and firm planning horizon. A survey was then conducted to measure the effects of the three organizational processes on the three common sources of export inhibitions.

In this study, 119 small Midwest agribusiness exporters were surveyed. The sample contained a wide variety of firms in the agribusiness sector. Areas of business conducted by these firms included equipment manufacturers, chemical producers, and seed corn companies. In this study, small firms were defined as having 250 employees or less.

Data collected from these 119 firms were scaled in order to appraise the three sources of export inhibitions and the three organizational processes. The sources of inhibitions were measured on a scale designed to assess how strongly the firms felt about each issue. A high rating for export desirability indicated a favorable impression of exporting by the firm, while a high rating for export risk and export complexity indicated a negative perception.

The survey also asked questions to categorize the firms within the three organizational processes. Firms were categorized as either: 1) planners or non-planners, 2) high information search firms or low information search firms, and 3) firms with long planning horizons or short planning horizons.

The data was then combined and analyzed. Statistical tests of significance were then run to see if each individual organizational process had a significant effect in lowering export inhibitions.

The results of these tests showed that the process of export planning was statistically significant in increasing the firm's perception of export desirability and in reducing the firm's perception of export risk and complexity. These tests also found that high export-specific information search firms have a significantly higher perception of export desirability and a significantly lower perception of export risk compared to the perceptions held by low export-specific information search firms. The study also found there to be a lower perceived export risk among firms with a long planning horizon compared to firms with a short planning horizon.

The third study reviewed was conducted by Howard and Borgia (1991). This study compared exporting problems faced by small U.S.-based firms with exporting problems faced by larger exporting firms. The intent of this study was to identify and describe the elements of exporting that restrict further export development by U.S. companies. This study focused on three general areas where differences occur between small and large firms. These three areas were: 1) the perceived difficulty of various export activities, 2) the perceived helpfulness of various agencies/organizations to export operations, and 3) the perceived helpfulness of various actions the federal government had taken or could have taken towards export support.

Howard and Borgia's study dealt with only successful exporters, but was not limited to one industry or geographic region. A total of 293 manufacturers, all of whom were previous winners of the Department of Commerce's "E" Award for excellence in exporting, were used for this study.

This study defined small size exporting firms as firms with sales of \$5 million or less. Firms with \$5 million or more in export sales were classified as large firms.

The first part of this study set out to measure firms' perceived difficulty in overcoming various problems related to exporting. Each survey asked respondents to evaluate a total of 23 export related activities in terms of how difficult each activity would be to implement and/or achieve. Of the 23 listed, three activities showed a significant difference in difficulty rating between large firms and small firms. These three areas were perceived difficulty in developing sales leads, pricing decisions, and packaging adaptation. Small firms found it significantly more difficult to develop export sales leads than did large firms. However, large firms found pricing decisions and pricing adaptations more difficult than did small firms.

The second subject examined in this study was the respondent's perception of the helpfulness of various agencies and organizations designed to assist in export operations. Of the 23 items tested, three agencies/organizations were founded to have a significant difference in perceived helpfulness.

The first organization, Overseas Private Investment Corporations (OPIC), was viewed as less helpful by small firms than by large firms. However, neither small nor large firms viewed OPIC as being particularly helpful compared to other organizations.

The second organization that was found to have significant differences in perceived helpfulness was the Foreign Credit Insurance Association (FCIA). The study indicated that larger firms tended to find the FCIA helpful, where smaller firms view FCIA as not helpful.

The last organization that was found to have a significant difference in perceived helpfulness was that of accounting firms in assisting corporations in their export

activities. However, accounting firms were not found to be relatively helpful by either large or small exporters.

In the final part of this study, each respondent had to score how helpful various actions taken by the federal government had been, or could potentially be, to export operations. The five government actions that were found to be significantly different were: 1) using “fair trade” laws to open foreign markets, 2) reducing foreign non-tariff barriers, 3) improving patent and copyright protection, 4) speeding up the patent process, and 5) using a VAT tax system in the United States. In each one of these activities, large firms viewed these actions as more helpful in assisting exporting than did small firms.

The last study reviewed in this section was performed by De Noble, Castaldi, and Moliver (1989). The purpose of their study was to investigate the intermediary needs of small firms currently exporting, as well as small firms with a potential of exporting. The study also examined the perceived level of performance of export trading companies (ETC's) by each firm that currently used them.

This study had three objectives. The first was to investigate the intermediary needs of present and potential small New Jersey exporters to determine which services provided by the ETC's were perceived as being the most important. The second objective was to examine the perceived performance level of ETC's by small exporting firms that had previously used ETCs' services. The last objective was to compare the findings from this study against an earlier study conducted by De Noble and Belch on small exporting firms located in southern California.

A survey of 124 New Jersey-based exporters from the 1987 *Thomas' American Export Register* was used in this study. According to the authors, New Jersey firms were

selected for this study due to their proximity to the European markets and their exporting opportunities. This geographic area also represented a primary target market for firms that provided export intermediary services.

In the first part of the survey, the respondents were asked to rate the importance of various types of services that could be provided by an intermediary. In the second section, respondents who had used ETC's were asked to rate the performance of the ETCs' implementation of the same set of services.

After collecting and analyzing the data, the study showed that the most important services desired from an ETC by small exporting firms were: 1) the ability to discover or open new foreign markets, 2) the establishment of personal contacts with potential foreign buyers, and 3) knowledge of the competitive condition in foreign markets. The least valued services provided by ETC's were: 1) consolidation of orders from overseas customers, 2) consolidation of overseas shipments with products of other exporters to lower freight costs, and 3) advice about arranging for export packaging. The authors concluded that this showed that current and potential ETC users wanted export intermediaries to be more proficient in transaction-creating export activities than in physical-fulfillment export activities.

The second part of the survey, which evaluated the performance of the ETCs' service, showed that small exporting firms perceived ETC's to be more proficient in performing physical-fulfillment activities than transaction-creating activities. The top five rated ETC services were all physical-fulfillment services. The four lowest rated services in this study were all transaction-creating activities.

The last part of the study compared the findings against the previous study of small exporting firms in southern California. Five significant differences were found between the ratings of ETC's by New Jersey firms and the ratings by southern California firms. In each of the five services, New Jersey firms rated ETC's performance higher than the southern California firms, four of which were transaction-creating services.

The results of this study led De Noble, Castaldi, and Moliver to conclude that the services provided by exporting intermediaries that small exporting firms valued highest differed with the services ETC's perform the best. Moreover, they also concluded that ETC's were not performing the activities most desired by small exporting firms at an acceptable level. Therefore, in their opinion, ETC's needed to adapt to the needs of current and potential exporters in order to attract more clients.

In sum, these four studies showed that there exist some common barriers faced by exporters. In general, the most common assistance needs were found to be in marketing. These needs included such things as analyzing foreign markets, creating sales leads, and helping with pricing decisions. These studies also showed that firm size and the level of information that a firm has about exporting affects perceived barriers to exporting.

Studies of exporters and non-exporters

This section of the literature review will examine four different studies done with survey samples that included both exporters and non-exporters. These studies will allow comparisons between current exporters and non-exporters in perceived barriers to exporting. They also show differences in awareness, and use, of support programs, as well as differences in attitudes toward exporting.

The first study was performed by Ifju and Bush (1994). They conducted a survey on export assistance awareness, usage, and perceived benefits among eastern hardwood lumber companies. Data gathered from 354 respondents examined the firm's attitude towards 21 various services provided by export assistance programs. The results of the study allowed Ifju and Bush to separate the 21 services into five different categories: 1) marketing information, 2) importer information, 3) financial and legal, 4) promotion, and 5) physical exporting.

The marketing information group, which included services such as general export counseling, seminars on the basics of exporting, toll-free numbers for export information, and contacts with experienced exporters, enjoyed the greatest awareness among the firms sampled. However, the perceived benefits of these services were found to be low. The greatest potential for gain in the group was within awareness of the toll-free number for export information. Almost 90 percent of the companies surveyed were not aware of the service, but the perceived benefit of the service was found to be above average.

Another group found to have a high potential growth rate in usage was the importer information group of services. This group included mailing lists of foreign buyers, credit and other general information on foreign buyers, and lists of foreign agents and distributors. The firms surveyed had rated this group as high in terms of perceived benefits, but low in usage. Ifju and Bush attributed this low usage to the low awareness of the services.

The legal and financial group was found to have the lowest awareness rating of the five service groups. Benefits from these services varied, but some were found to be high. The services that were perceived as having a high benefit included guaranteed

payments by foreign buyers, transfer of funds by foreign buyers, and credit information on foreign buyers. However, uses of these services were also found to be low. This low usage was also attributed to low awareness by the firms.

Awareness of the promotional services group, which included services such as arrangement of international trade shows and overseas trips to meet potential buyers, was found to be high, but usage of the services was found to be low. This was attributed to the low perceived benefits of the services. The awareness of the physical exporting service group, which included purchasing, handling, and transporting export goods overseas, was also medium to low with low levels of perceived benefits.

Another study that surveyed both exporters and non-exporters was conducted by Ali and Swiercz (1991). This study examined the relationships of exporting among different firm sizes, as measured by sales volume, export experience, and export attitudes. In this study, four different hypotheses were tested concerning exporting and firm size. The first two hypotheses examined the direct effects of firm size. The last two dealt with export experience.

The first hypothesis looked at the relationship between size and attitudes toward exporting. The second hypothesis examined the influence of size on managerial perceptions of the attributes seen as necessary for exporting.

To further explain a firm's interest in exporting, the last two hypotheses investigated the influence of export experience. Hypothesis 3 was stated as "Managers in firms having more international business experience will display more positive attitudes toward export activity." Hypothesis 4 was stated as "International business experience

will exert an influence on managerial views regarding the skills and abilities perceived necessary for exporting success.”

The four hypotheses were tested, using data from 195 firms in Kansas, Missouri, and Nebraska. Multivariate analyses of variances (MANOVA) were used to test the hypotheses.

The findings of the test showed that firm size, as measured by sales volume, did not significantly influence a firm’s attitude concerning international business. Managers in small, medium, and large firms were all found to hold statistically similar attitudes toward exporting. Therefore the first hypothesis was rejected. Tests also showed that small firms have a different perception of cross-cultural skills needed for export success than the perceptions held by medium and large firms. Therefore, Hypothesis 2 was not rejected.

The test results indicated that international experience does influence the firm’s attitude toward exporting. Hypothesis 3 was also not rejected. Further analysis showed that firms involved in international activities for three or more years perceived exporting as a more desirable task than did firms with less than three years experience in exporting.

This test also found that experience affects only one of the dimensions tested. Firms with three to six years of experience were found to have a lower perceived need for cross-cultural skills in exporting. Firms with less than three years exporting experience, as well as firms with more than six years exporting experience, scored cross-cultural skills higher than firms with three to six years experience. Therefore hypothesis 4 could only be partially supported.

The conclusions drawn by Ali and Swiercz suggested that managers of small firms were more aware of the cultural divide separating them from foreign markets. Therefore, they concluded that this might explain small firms' concerns about cross-cultural skills needed for success in exporting.

With respect to the effects of experience on the firm's attitude toward exporting, this study concluded that there was a direct relation in years of exporting and in the perception of exporting as a desirable task. However, due to the non-linear relationship found between the two, Ali and Swiercz concluded that this could be a basis for some future investigation.

The last conclusion Ali and Swiercz made concerned the reason firms with three to six years experience viewed cross-cultural skills as being more important than viewed by all other firms. Ali and Swiercz believed this was the consequence of a learning curve. They concluded that firms with less experience might not yet understand the importance of cross-cultural skills. They also believed that firms with more than six years experience may have been developing those skills for so long, cross-cultural skills no longer seem important.

The third study examined in this section was conducted by Sharkey, Lim, and Kim (1989). In this study, they examined the relationship between export development and the decision maker's perceptions of export barriers. To test for this relationship, fifteen questions were designed concerning export barriers. These items included: lack of U.S. government assistance to overcoming barriers, lack of tax incentives for U.S. exporters, the high value of the dollar, aggressive enforcement of the U.S. Corrupt Practices Act, risks involved in selling abroad, American emphasis on developing the

U.S. market, lack of capital for expansion, lack of productive capacity to dedicate to foreign markets, language and cultural differences, difference in product usage, lack of foreign channels of distribution, uncertainty of shipping costs, complexity of shipping to overseas buyers, competition, and complexity of trade documentation.

They created a three-stage model for this study in order to classify the participants. The three stages were: Stage One: non-exporters, Stage Two: marginal exporters, and Stage Three: active exporters.

Non-exporters were defined in this model as those who have never exported and therefore, had very little knowledge about the process of exporting and had no experience with obstacles to exporting. Marginal exporters were classified as firm who were exploring exporting and may have filled some unsolicited orders. Active exporters were firms who had mastered the technicalities of exporting, had learned that exporting is an important mechanism for achieving organizational goals, and had learned to deal with the perceived barriers to exporting.

In this study, the two hypotheses were formed:

H1: Marginal exporters perceive more export barriers than do non-exporters.

H2: Marginal exporters perceive more export barriers than do active exporters.

This study used data collected from 438 manufacturing firms with 500 employees or less. The data received was then analyzed to test the two hypotheses.

Responses to the export barrier items were factor analyzed using a principal factor analysis. The previously listed fifteen items were loaded onto five factors. These factors

were labeled “government policy,” “perceived procedural and technical complexity,” “contextual differences,” “perceived strategic limitations,” and “local competition.”

The study was conducted using a univariate analysis of variance (ANOVA) of each of the five barrier factors, across the three stages of export development. This analysis showed that only two factors, “perceived procedural and technical complexity” and “perceived strategic limitations,” were significantly related to the level of export development.

Further analysis found the differences in “perceived procedural and technical complexity” and “perceived strategic limitations” between non-exporters, marginal exporters, and active exporters.

For both classes of barriers, marginal exporters did not significantly differ from non-exporters in their perceptions of barriers. Therefore, Hypothesis 1 was rejected. However, it was found that non-exporters and marginal exporters perceived significantly more barriers than did active exporters. This finding partially supported Hypothesis 2.

From these findings, Sharkey, Lim, and Kim concluded that this study implied that government export promotion programs should concentrate on reducing internal and controllable barriers. They also suggested that government program administrators should be aware of perceived strategic limitations, and, when possible, should find ways to help firms overcome the limitations.

The last study in the section was conducted by Moini (1997). In this study, Moini surveyed exporters and non-exporters to identify which export barriers firms perceive to be the most important to overcome and which are the most difficult to overcome. A mail

survey of 296 manufacturing firms from Wisconsin was conducted to gather data for this study.

The survey asked each firm to rate 20 barriers from not important to very important. These 20 barriers were grouped into five categories: marketing, procedures, international business know-how and practice, financial, and technical/adaptation.

The barriers that the surveyed firms viewed to be the most important to overcome included locating distributors overseas, adapting products for foreign markets, providing parts and repair service overseas, advertising in foreign markets, and knowing export procedures.

Three of the barriers that were viewed as being important were also viewed as being difficult to overcome. These were adapting products to foreign markets, advertising in foreign markets, and knowing export procedures.

History and effectiveness of federal assistance programs

The last section of literature reviewed will examine two government accounting reports. These studies addressed how effective the government is in distributing funds.

The first report reviewed in this section was from the United States General Accounting Office (GAO) titled "Effectiveness of Market Promotion Program Remains Unclear." According to this report, the history of federal assistance in exporting agricultural products started in the early 1980's with the decline of U.S. agricultural exports. From 1981 to 1985 exports of agricultural products dropped from \$44 billion to \$31 billion. In order to counteract this trend, the United States government created the Target Export Assistance Act (TEA) in 1985. In 1990, TEA was replaced with the Market Promotion Program (MPP). The Market Promotion Program, like TEA, was

created to promote export activities for agricultural products. However, MPP gave priority to commodities affected by unfair foreign trade policies.

According to the General Accounting Office, the goals of MPP were to encourage the development, maintenance, and expansion of foreign markets for U.S. agricultural products. From the fiscal year 1986 to 1993, the USDA had used over \$1.25 billion for MPP.

From 1986 to 1988, funding for MPP was at a minimum level of \$110 million. It originally rose to a proposed minimum of \$325 million for 1989 and 1990. However, the budget funding for MPP dropped to a \$200 million minimum from 1989 through 1992, due to perceived management problems. The minimum level of funding was also planning to be reduced to \$147.4 million for the fiscal year 1993, at the time of the report.

The last report reviewed from the GAO was “Federal Programs Lack Organizational and Funding Cohesiveness.” The purpose of this report was to assess the rationale for export promotion programs and the resources used in these programs. It also examined the attempts to consolidate and streamline these programs.

This report claimed export promotion programs could be very influential in certain situations. Some of the examples of when promotion programs are influential that were mentioned included:

- when firms have a lack of export information because markets fail to give the right information to producers,
- when firms need technical assistance in creating export sales,
- when firms need representational assistance in new foreign markets, and
- when firms have financial needs in closing export sales.

However, funding for export promotion agencies were not being funded based on a government wide strategy. Therefore, in an attempt to coordinate export promotion, the Trade Promotion Coordination Committee was created in 1990 (GAO, 1992).

According to this report, there had been some success in coordinating government programs, but there were some issues to be addressed. One issue was that there were eight different agencies that offered a various range of export promotions on the Trade Promotion Coordinating Committee. These agencies included: the Department of Agriculture, the Department of Commerce, the Department of Energy, the Agency for International Development, the Export-Import Bank of the United States (Ex-Im Bank), the Overseas Private Investment Corporation, the Small Business Administration (SBA), and the U.S. Trade and Development Programs. Each of these agencies was funded by a different set of priorities.

Another problem presented in this report was that a significant portion of export funding was given to large, experienced firms, as opposed to smaller firms that were more likely to need financial assistance. An example of this was the Market Promotion Program. In 1991, MPP received \$200 million in government funds. Of this financial aid, Sunkist Growers received \$10 million, the California Raisin Advisor Board received \$8.5 million, the Wine Institute got \$14.5 million, and the National Honey Board received \$300 thousand.

This GAO report concluded that the “government’s present approach to export promotion lacks coherence because no overall strategy exists to guide agency efforts. Without an overall strategy, the U.S. government does not have reasonable assurances in today’s highly competitive economic environment that its export promotion resources are

being more effectively used to emphasize sectors, regions, and programs with the highest potential return.” It also suggested that the government should work toward developing a government wide plan for carrying out promotional programs and that the government should make sure that budget request for these programs are consistent with relative export assistance needs.

CHAPTER III

METHODOLOGY AND DATA ANALYSIS

It is suggested that the level of assistance need will be a function of firm characteristics, the firm's export market, export marketing strategies, and promotional methods. To evaluate this, a survey was designed to ask firms currently in the Market Promotion Program (MPP) questions about export promotion assistance.

The data collected from this survey were used to form logistic models. These models hypothesize that the firm's export destination, export marketing strategies, promotion methods, and firm characteristics influence the strength of the export assistance needs of the firm. The models were used to explain that the probability of a given level of export assistance need is a function of the firm's export experience, the firm size, whether the firm is a processor/manufacturer, whether the firm is a sole location, the type of business by SIC codes, and the regional location of the firm.

Survey methods

Data used in this study were collected through a mail survey conducted by researchers in the Department of Agricultural Economics at the University of Tennessee. The survey used Dillman's method for mail surveys (Dillman). This method entailed mailing a follow up postcard to nonrespondents approximately one week after the initial mailing. A second mailing was also sent to non-respondents about two weeks after the initial mailing. Along with the second mailing, nonrespondents were given a telephone call as an additional reminder.

This study surveyed 764 firms participating in the Market Promotion Program in the

1993-94 program year. Each firm was asked various questions regarding export promotion, barriers, and assistance needs. The survey also asked questions regarding firm characteristics, export experience, and export marketing strategies. Of the 764 of surveys sent out, 180 legible surveys were returned with the pertinent questions for this study answered. Therefore, these 180 surveys were deemed usable for this study (a response rate of 23.6%).

Data regarding firms' export assistance needs, export destination, export market strategies, export promotion methods, and firm characteristics were obtained from the survey responses. Firm characteristics consisted of the firm's export experience, the firm's size, whether the firm is a processor/manufacturer, whether the firm is a sole location, the type of business by SIC codes, and the regional location of the firm. Firm size was measured by both number of employees and by a dollar sales variable. Each variable is listed and defined in Table I. The initial means and standard deviations of each variable for the full sample can be found in Table II. All tables are found in the appendix.

In addition, firms were asked to rate their strength of need for thirteen different types of export assistance. These thirteen needs are common export assistance needs, most of which were addressed in the studies reviewed. These thirteen needs include: help with finding export trade leads, assistance in locating lenders, assistance in locating distribution or transportation services, help by export market research services, language/cultural training or assistance, assistance with exhibitions at foreign trade fair, assistance with export documentation, assistance with export promotion/advertising, consulting to adapt products/packages to meet import requirements or market needs, help from courses,

seminars, or publications on “how to” export, export subsidies, subsidized travel to foreign markets, and credit information on potential buyers. Each assistance need is listed and defined in Table I of the appendix.

A three point likert scale was used to rate the level of assistance needs by the firm. The scale was set up where 1=strong need, 2=moderate need, and 3=no need.

Logit model development

The export assistance need level of the j th firm, $ASSIS_{ij}$, could be strong ($I=1$), moderate ($I=2$), or no need ($I=3$). The j th firm is hypothesized to have an unobservable set of needs concerning export assistance. These set of preferences are defined in the model as Z_j . Within the model, Z_j are hypothesized to be a function of firm characteristics, the firm's export market, export marketing strategies, and promotional methods, X , such that:

$$Z_j = g(Pr(ASSIS_i \leq i | X)) = \alpha_i + \beta'X_j$$

Where

$$\begin{aligned} j &= 1, \dots, N \\ N &= \text{number of firms} \\ k &= 3 \\ 1 &\leq I \leq k \\ i &= \text{type of assistance} \end{aligned}$$

There are certain cutoff points in preferences where the observed level of assistance needs changes. These points are defined as Z_j^* and Z_j^{**} for the j th firm. Therefore, the observed assistance need level for the j th firm will be:

$$ASSIS_{ij} = \begin{array}{ll} 1 & \text{if } Z_{ij} \geq Z_{ij}^{**} \\ 2 & \text{if } Z_{ij}^* \leq Z_{ij} \leq Z_{ij}^{**} \\ 3 & \text{if } Z_{ij} \leq Z_{ij}^* \end{array}$$

The probability of observing the i th assistance need level is then:

$$Pr(ASSIS_{ij} = k | X_j) = \begin{array}{ll} \Phi(\alpha_1 + \beta'X_j), & i = 1 \\ \Phi(\alpha_2 + \beta'X_j) - \Phi(\alpha_1 + \beta'X_j), & i = 2 \\ 1 - \Phi(\alpha_2 + \beta'X_j), & i = 3 \end{array}$$

Where

$$\Phi = \frac{e^{(\beta'X_j)}}{1 + e^{(\beta'X_j)}}$$

is the cumulative logistic distribution.

The significance of the parameter estimates (β) was measured by Wald chi-squared statistic. This statistic is calculated as:

$$W = \left(\frac{\hat{\beta}}{S_{\hat{\beta}}} \right)^2 \text{ with 1 degree of freedom.}$$

Within the category of assistance needs, there existed the thirteen different types of possible needs of a firm. A logit model was then created in order to explain the probability of a firm needing a particular type of assistance. In order to reduce the number of assistance needs considered in the study, a principle factor analysis was conducted on the thirteen types

of needs surveyed. Principle factor analysis is a statistical method used to draw relations between variables (assistance needs), allowing them to be grouped together within a study model known as factors.

Data analysis

After running the principle factor analysis, eigenvalues were used to determine the significant groups with related assistance needs. Eigenvalues are a statistic used to assure that the factors that are kept will account for the variance of at least one of the variables used in the analysis. Four factors had eigenvalues of 1.0 or greater and therefore considered significant. Complete listings of eigenvalues are found in Table III.

After determining the four factors of significance, the thirteen assistance needs were rotated to distribute the variables among the factors. Each variable was then examined to determine which needs could be loaded onto each factor. Assistance needs with values of .60 or greater in each factor were loaded onto that factor. The results from this procedure are listed in Table IV.

There were three assistance needs that were loaded onto the first factor. Assistance needs loaded on the first factor were "Language/cultural training assistance," "Assistance with export documentation," and "Courses, seminars, or publications on 'how to' export." The assistance needs "Export trade leads" and "Assistance locating distribution (agents/distributors) or transportation services" were loaded onto a second common factor. The third common factor included the assistance needs "Export subsidies," "Subsidized travel to foreign markets," and "Credit information on potential buyers."

Within the fourth factor, there was only one need with a value greater than .60.

Therefore, the assistance needs “Assistance locating lenders for export business,” “Export market research services (information about markets such as pricing, competitors, market conditions, etc.),” “Assistance with exhibitions at foreign trade fairs,” “Export promotion/advertising assistance,” and “Consulting to adapt products/packaging to meet import requirements or market needs” were used individually. The results of the factor analysis allowed eight of the assistance needs to be loaded onto three factors, with five individual assistance needs, yielding a total of eight assistance needs.

The first factor contained assistance needs dealing with a firm’s needs about learning the culture of the export market, learning about documentation needed to export, and general information on how to export. Because each of these needs dealt with learning about exporting and about the exporting environment, this factor was named ‘EDUC’ in the study model.

Within the second factor, assistance needs finding trade leads and the assistance need of finding export agents and/or distributors are joined together. Both of these needs concern finding needed information on exporting. Therefore, this factor was named ‘LOCATE.’

The third factor included needs concerning export and travel subsidies, as well as credit information on potential buyers. Because of the link of financial information among all three of these needs, the third factor was renamed ‘FINANC’ in this study.

The likelihood function for each of the models can be represented as:

$$L = \prod_{ASSIS_i=1} [\Phi(\alpha_1 + \beta' X_j)] \prod_{ASSIS_i=2} [\Phi(\alpha_2 + \beta' X_j) - \Phi(\alpha_1 + \beta' X_j)] \prod_{ASSIS_i=3} [1 - \Phi(\alpha_2 + \beta' X_j)]$$

Where $ASSIS_j$ is the assistance type j and the variable $ASSIS$ can take on the values 1,2, or 3.

The form of the eight unrestricted models was:

$$Pr(ASSIS_i = k) = f(AJAP5, AUK5, ACAN5, AMEX5, PRICE, BRAND, CONTROL, ADVERT, PRODUCT, SERV, DIVPROD, DIVCOUNT, PADVERT, PMAIL, PPOS, PDEMO, PSAMP, PSEM, PSHOWS, YREXP, SYREXP, INTMKT, EMP, PROCESS, SOLE, SAL2, SAL3, SAL4, SAL5, D201, D202, D203, D204, D205, D206, D207, D208, D209, WEST, SE, MW)$$

These values are defined in Table I.

After setting up the eight unrestricted logit models, each model was evaluated statistically for significant variables. Estimated parameters in each model with Wald chi-squared values with a significance of .10 or less were considered significant in explaining the probability of a firm level of assistance need. Any estimated parameter with a Wald chi-squared value with a significance greater than .10 was considered insignificant.

In the restricted models, estimated parameters with a significance of .10 or greater were restricted to zero. LLR tests were then conducted, comparing the restricted and the unrestricted models. This LLR is calculated as:

$$-2 * [LLR(\text{rest}) - LLR(\text{unrest})]$$

This statistic is a chi-square with k degrees of freedom, where k is the number of

restrictions. The results from each of these LLR tests failed to reject the joint hypothesis that the parameters on the variables in question were significantly different from zero. The results from the test of each of the eight models are displayed in Table V.

CHAPTER IV RESULTS

After completing the factor analysis and the LLR test, the original thirteen models were reduced to eight restricted models. These models can be found in Table VI. The results of these eight restricted logit models, including parameter estimates and standard deviations, can be found in Table VII. The parameter estimates (β) were deemed to be significant if the Wald chi-squared statistic was less than or equal to .05.

EDUC

The first model was used to explain the factor EDUC. The dependent variables that were found to be significant through the LLR test include YREXP, PEXPORT, SAL2, D208, and INTERCP1.

As seen in Table VII, both parameter estimates for YREXP, D208 and PEXPORT were negative, while parameter estimate for SAL2 was positive. Therefore, the greater export experience the firm has had prior to 1994 (YREXP), if a firm deals in beverages (D208), or if a greater percent of the firm's overall sales are due to exports (PEXPORT), the probability for the firm to view EDUC as a strong need decreases, and increases the probability that EDUC is not needed. This also shows that if firms have yearly sales between \$250,000 to \$999,999, it increases the probability that the firm has a strong level of assistance need in the EDUC factor, and decreases the probability that EDUC is not needed.

Also significant in this model was the INTERCP1. The INTERCP1 variable shows that the effects of the x's are significantly different between strong versus moderate and no need. Therefore, moderate and no need could have been grouped together.

LOCATE

After running the second restricted logit model, significant variables with Wald chi-squared values being less than .05 were found in AUK5, PMAIL, SOLE, D208, and INTERCP1. Each of these variables were used to explain the level of assistance need in the factor of LOCATE. With the exception of AUK5 and INTERCP1, each of these variables had a positive parameter estimate. This means that if firms uses direct mail in export promotion (PMAIL), if the firm's facility is its sole location (SOLE), or if the firm deals in beverages (D208), it increases the probability that LOCATE is a strong need, and decreases the probability that LOCATE is not needed. However, if one of the firm's top five export markets is the United Kingdom (AUK5), it decreases the probability that LOCATE is a strong need, and increases the probability that LOCATE is not needed.

INTERCP1 was also found to be significant. This shows that moderate and no assistance need could have been grouped together due to the significant threshold between strong versus moderate and no need.

FINANC

Within the third restricted model, significant variables with Wald chi-squared values less than .05 were PSHOWS, SAL2, AUK5, D201, and D203. Both PSHOWS and SAL2 had positive parameter estimates, while AUK5, D201 and D203 had negative parameter estimates. These results show that if a firm uses trade shows in export promotion

(PSHOWS) or has annual sales between \$250,000 and \$999,999 (SAL2), it increases the probability that the firm views FINANCE as a strong need, and decreases the probability that FINANCE as not needed. However, if one of the firms top five export markets is the United Kingdom (AUK5) or if a firm falls in the SIC category of meat products (D201) or fruits and vegetables (D203), it decreases the probability that FINANCE is a strong need and increases the probability that FINANCE is not needed.

Also significant in this model was the INTERCP2. The INTERCP2 variable shows that the effects of the x's are significantly different between strong and moderate versus no need. Therefore, strong and moderate need could have been grouped together.

LENDER

The fourth restricted logit model was used to explain the level of assistance need in locating lenders. This model, like the third restricted model, also had a significant INTERCP2. This shows that strong and moderate assistance could have been grouped together due to the significant threshold between strong and moderate versus no need. The variables PROCESS, YREXP and SYREXP also had Wald chi-squared values less than or equal to .05 and were considered significant in determining the level of assistance need that a firm has in locating lenders (LENDERS). PROCESS had a negative parameter estimate, which means if a firm is a processor or manufacturer, it decreases the probability that the assistance need LENDER is a strong need and increases the probability that LENDER is not needed.

YREXP and SYREXP have different signs in their respective parameter estimates. YREXP had a negative parameter estimate, while SYREXP had a positive parameter

estimate. This means that the more export experience the firm has had prior to 1994 (YREXP), the probability of LENDERS being viewed as a strong need decreases, and the probability of LENDERS being viewed as not needed increases. Moreover, because SYREXP had a positive parameter estimate, the probability firms with greater export experience prior to 1994 viewing LENDERS as being as a strong need would decrease at an increasing rate.

MKTRES

The fifth restricted logit model was used to explain the level of assistance a firm needs in export market research services. This model, like the two previous models, had a significant INTERCP2, meaning there exists a significant threshold between strong and moderate need versus no need. It also had six other significant parameter estimates at a Wald chi-squared value of less than .05. These significant estimates were within the variables ACAN5, PSAMP, SAL4, and D209. As seen in Table VII, the parameter estimates for ACAN5, SAL4, and D209 were negative. This means that if one of the firm's top five export markets is Canada (ACAN5), the firm's annual sales are \$5,000,000 to \$49,999,999 (SAL4), or if the firm falls in the SIC category of other prepared foods (D209), it decreases the probability that the firm will view MKTRES as a strong need, and increases the probability that MKTRES is not needed. However, the positive and significant parameter estimate of PSAMP show that if a firm uses sample shipments in export promotion (PSAMP), it increases the probability that MKTRES is a strong need and decreases the probability that MKTRES is not needed.

EXHIBIT

The sixth restricted logit model explains the level of assistance firms need in exhibitions at foreign trade fairs (EXHIBIT). In this model, INTERCP2, DIVCOUNT, INTMKT, and PEXPORT had significant parameter estimates with chi-squared values less than .05. Each parameter estimate had a negative value, except for INTERCP2 and PEXPORT. This shows that if a firm diversifies into different countries (DIVCOUNT) or has a specialized export marketing department (INTMKT), the probability that EXHIBIT is viewed a strong need decreases, while the probability that EXHIBIT is not needed increases.

However, if a greater percent of the firm's total sales is due to exports (PEXPORT), then the probability that EXHIBIT is viewed a strong need increases, and the probability that EXHIBIT is not needed decreases. This model also had a significant INTERCP2, meaning there exists a significant threshold between strong and moderate need versus no need.

PROMO

The seventh restricted logit model was used to explain the level of need the firm considers in export promotion/advertising assistance (PROMO). As shown in Table VII, eight parameter estimates along with INTERCP2 were found to be significant in explaining level of assistance considered by the firm. PRICE, YREXP, INTMKT, SAL3, SAL5, and D208 had negative parameter estimates while PADVERT and D201 had positive parameter estimates. Each of these parameter estimates was considered to be significant by having a Wald chi-squared value of less than .05. These parameter estimates show that if a firm uses competitive pricing strategies in export (PRICE) or if a firm has greater export experience prior to 1994 (YREXP), it will decrease the probability that PROMO is a strong need and

will increase the probability that PROMO is not needed. This is also true if a firm has a specialized export marketing department (INTMKT), if it has annual sales between \$1,000,000 to \$4,999,999 (SAL3), if it has yearly sales of \$50,000,000 or greater (SAL5), or if the firm falls in the SIC category of beverages (D208). In each of these cases, the probability that the firm will have a strong need export promotion/advertising assistance decreases, the probability that the firm will not need assistance in promotion/advertising increases.

On the other hand, if the firm uses advertising in export promotion (PADVERT) or if the firm falls in the SIC category of meat products (D201), it will increase the probability that the firm will view PROMO as a strong need and will decrease the probability that PROMO is not needed.

ADAPT

The last restricted logit model was used to explain the level of assistance that a firm needs in consulting to adapt products/packaging to meet import requirements or market needs (ADAPT). Both INTERCP1 and INTERCP2 within this model were significant at a Wald chi-squared level of .05 or less. With both intercepts being significant within the model, this shows that there exists a significant threshold between strong levels of assistance needs versus the moderate and no levels of assistance needs, as well as a significant threshold between strong and moderate assistance needs versus the level of no assistance need. Also significant with Wald chi-squared value of .05 or less were the variables PSAMP and YREXP. As seen in Table VII, PSAMP had a positive parameter estimate meaning if the firm uses sample shipments in export promotion, it will increase the probability that ADAPT

is a strong need and decrease the chance that ADAPT is not needed. However, YREXP has a negative parameter estimate. This shows that if the firm has greater export experience prior to 1994, it will decrease the chance that ADAPT is a strong need and increase the probability that ADAPT is not needed.

CHAPTER V CONCLUSIONS

These results can be used to profile firms in order to determine what assistance needs they might need in exporting. This profile would be based on firm characteristics, export market, export marketing strategy, and promotional methods.

The results of this study are similar to the results found within the studies of the literature review. In this study, assistance needs were separated into eight different categories. The results found in each category can be compared to the results in the studies reviewed.

The first category of assistance needs was that of educational needs. This study found that if a firm has greater export experience (YREXP) or if a greater percent of a firm's overall sales came from exporting (PEXPORT), it would decrease the likelihood firms would view assistance in export education (EDUC) as a strong need. These results are similar to the ones found by Sharkey, Lim, and Kim. They found that experienced exporters perceive less barriers pertaining to certain aspects of exporting than do marginal and non-exporters.

It was also discovered that if a firm has relatively small annual sales (SAL2), it increased the probability that assistance in export education is a strong need. This is an analogous result to the one found by Kathawala, Judd, Monipallil, and Weinrich. Their study of small manufacturing firms led them to conclude, among others, that government should offer educational courses to small firms in international trade.

The second category of assistance needs was locating potential buyers and distributors (LOCATE). One characteristic this study found to increase the probability a

firm will view LOCATE as a strong need was SOLE (the firm is a sole location, and not a division of a large company). Howard and Borgia also found smaller firms to have difficulty in locating sales leads.

This study showed that firms with relatively small annual sales (SAL2) would have an increased probability of viewing FINANC as a strong need. This result is similar to the study by Kathawala, Judd, Monipalli, and Weinrich, as well as the study by De Noble, Castaldi, and Moliver.

In the study by Kathawala, Judd, Monipalli, and Weinrich, it was concluded that small firms needed help with some costs associated with exporting. De Noble, Castaldi, and Moliver found that smaller firms needed help in contacting potential buyers in foreign markets. Both, export subsidies and assistance in locating potential buyers, are two of the three needs that make up the factor of FINANC.

In determining what firm characteristics affect the probability that the firm views locating lenders (LENDER) as an assistance need, this study showed a “learning curve” among firms studied. As firms had more experience exporting, the probability of viewing LENDER as a strong need decreased at an increasing rate. This is comparable to the study by Ali and Swiercz, where they found another form of learning curve pertaining to export experience.

In this study, it was found that if firms had annual sales between 5 and 50 million dollars, it would increase the probability that the firm would view export market research (MKTRES) as not needed. In the study conducted by Howard and Borgia, they found large firms (firms with more than 5 million dollars in annual sales) needed less helps in developing sales leads.

Parallels between the results found in this study concerning assistance needs in exhibitions at foreign trade fairs (EXHIBIT) can be drawn with the conclusions from the study conducted by Barringer, Wortman Jr., and Macy. Both studies found that firms with a form of a specialized export-marketing department had a decrease in the probability to need a form of export assistance.

This study found many different firm characteristics increased the probability that a firm would view assistance in export promotion/advertisement (PROMO) as not needed. This is similar to the study by Ifju and Bush. They found that assistance in export promotion had a low perceived benefit among many different types of firms.

The last assistance need studied was that of consulting firms on adapting products/packaging to meet import requirements or market needs (ADAPT). This study found that firms with greater export experience were more likely to view ADAPT as not needed. This is like Moini's study that showed product adaptation as being a perceived important and difficult barrier to overcome.

In general, this study showed that perceived importance of export assistance services is influenced by firm size and experience. All eight models revealed that the firm characteristics concerning firm size (measured in annual sales or whether or not the firm is a sole location) and export experience (the amount export experience prior to 1994 or as a percentage of firm sales comes from exporting) affect the firms perceived importance of that assistance need.

The results of this study supports the argument made by the United States General Accounting Office in the report "Federal Programs Lack Organization and Funding Cohesiveness." This report states the majority of the agricultural export assistance goes

to larger, experienced firms instead of the potentially more needy small, inexperienced firms.

For example, the firm size characteristic SAL2 had a significant parameter estimate in two models, EDUC and FINANC. Both estimates were positive. This suggests that firms with yearly sales \$250,000 and \$999,999 are more likely to need export assistance in these two models. Moreover, within the model PROMO, firms with higher yearly sales (\$1,000,000 to \$4,999,999 and \$50,000,000 and greater) were deemed significant in explaining the probability in needing assistance. Firms of this larger size were both found to increase the probability that assistance is not needed and decrease the probability that assistance is a strong need in PROMO.

Within the first three models (EDUC, LOCATE, and FINANC), firms with small annual sales or firms that are sole locations were more likely to view these assistance needs as important. Within the models MRTRES and PROMO, if a firm was larger, as measured by yearly sales, it increased the probability that the firm viewed these assistance needs as not needed.

Within five of the eight models (EDUC, LENDER, EXHIBIT, PROMO, and ADAPT) the probability that a firm would view each of these assistance needs as a strong need decreased if that firm had greater export experience.

All eight models revealed that relatively small firms and firms lacking experience in exporting have a greater probability that they will view some assistance needs as important. Moreover, relatively larger firms and firms with greater exporting experience have a decreased probability in viewing a specific assistance as a strong need.

By using the information in this study, the United States government could develop a system that would identify and target firms based on firm size and experience. It could then provide assistance to the firms that need aid in certain areas of exporting much more effectively.

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APPENDIX

Table I. Variable Names and Definitions

Variable Names	Definitions
<u>Export Assistance Needs</u>	
LEADS	1 if firm considers export trade leads as a strong assistance need, 2 if a moderate need, 3 if no need
LENDER	1 if firm considers assistance in locating lenders as a strong assistance need, 2 if a moderate need, 3 if no need
DISTRIB	1 if firm considers assistance locating distribution or transportation services as a strong assistance need, 2 if a moderate need, 3 if no need
MKTRES	1 if firm considers export market research services as a strong assistance need, 2 if a moderate need, 3 if no need
LANG	1 if firm considers language/cultural training or assistance as a strong assistance need, 2 if a moderate need, 3 if no need
EXHIBIT	1 if firm considers assistance with exhibitions at foreign trade fairs as a strong assistance need, 2 if a moderate need, 3 if no need
DOCUMENT	1 if firm considers assistance with export documentation as a strong assistance need, 2 if a moderate need, 3 if no need
PROMO	1 if firm considers export promotion/advertising assistance as a strong assistance need, 2 if a moderate need, 3 if no need
ADAPT	1 if firm considers consulting to adapt products/packaging to meet import requirements or market needs as a strong assistance need, 2 if a moderate need, 3 if no need
HOWTO	1 if firm considers courses, seminars, or publications on "how to" export as a strong assistance need, 2 if a moderate need, 3 if no need
SUBSIDY	1 if firm considers export subsidies as a strong assistance need, 2 if a moderate need, 3 if no need
SUBTRAV	1 if firm considers subsidized travel to foreign markets as a strong assistance need, 2 if a moderate need, 3 if no need
CREDINFO	1 if firm considers credit information on potential buyers as a strong assistance need, 2 if a moderate need, 3 if no need

Table I. Continued

Variable Names	Definitions
<u>Export Destination</u>	
AJAP5	1 if Japan is one of the firms top five export markets, 0 if otherwise
AUK5	1 if the United Kingdom is one of the firms top five export markets, 0 if otherwise
ACAN5	1 if Canada is one of the firms top five export markets, 0 if otherwise
AMEX5	1 if Mexico is one of the firms top five export markets, 0 if otherwise
<u>Export Marketing Strategies</u>	
PRICE	1 if the firm always uses competitive pricing strategies in export markets, 2 if often, 3 if sometimes, 4 if rarely, 5 if never
BRAND	1 if the firm always uses strong brand identification in export market strategies, 2 if often, 3 if sometimes, 4 if rarely, 5 if never
CONTROL	1 if the firm always has direct control over distribution in export markets, 2 if often, 3 if sometimes, 4 if rarely, 5 if never
ADVERT	1 if the firm always specially tailors advertisement or promotion for export markets, 2 if often, 3 if sometimes, 4 if rarely, 5 if never
PRODUCT	1 if the firm always specially tailors products for export markets, 2 if often, 3 if sometimes, 4 if rarely, 5 if never
SERV	1 if the firm always specializes customer service for export markets, 2 if often, 3 if sometimes, 4 if rarely, 5 if never
DIVPROD	1 if the firm always diversifies exports by exporting multiple products, 2 if often, 3 if sometimes, 4 if rarely, 5 if never
DIVCOUNT	1 if firm diversifies exports by exporting into multiple countries, 0 if otherwise

Table I. Continued

Variable Names	Definitions
<u>Promotion Methods</u>	
PADVERT	1 if firm uses advertising in export promotion, 0 if otherwise
PMAIL	1 if firm uses direct mail in export promotion, 0 if otherwise
PPOS	1 if firm uses point of sale promotion as part of export promotion, 0 if otherwise
PDEMO	1 if firm uses product demonstrations in export promotion, 0 if otherwise
PSAMP	1 if firm uses sample shipments in export promotion, 0 if otherwise
PSEM	1 if firm uses seminars in export promotion, 0 if otherwise
PSHOWS	1 if firm uses trade shows in export promotion, 0 if otherwise
<u>Firm Characteristics</u>	
YREXP	years of export experience prior to 1994 (measured in decades)
SYREXP	YREXP squared
INTMKT	1 if firm has a specialized export marketing department, 0 if otherwise
PEXPORT	percent of firm's total sales in 1994 from made from exports
EMP	number of full time employees (measure in 100's)
SEMP	EMP squared
PROCESS	1 if the firm is a processor/manufacturer, 0 if otherwise
SOLE	1 if the firm's facility is the firm's sole location, 0 if otherwise
SAL2	1 if sales are \$250,00 to \$999,999, 0 if otherwise
SAL3	1 if sales are \$1,000,000 to \$4,999,999, 0 if otherwise
SAL4	1 if sales are \$5,000,000 to \$49,999,999, 0 if otherwise

Table I. Continued

Variables	Definitions
SAL5	1 if sales are \$50,000,000 or greater, 0 if otherwise
D201 - D209	1 if the firm falls in the SIC category, 0 if otherwise (D201 - meat products, D202 - dairy products, D203 - fruits and vegetables, D204 - cereals and grains, D205 - bakery goods, D206 - confectionary products, D207 - fats and oils, D208 - beverages, D209 - other prepared foods)
WEST	1 if the firm is located in the western region of the U.S., 0 if otherwise
SE	1 if the firm is located in the south eastern region of the U.S., 0 if otherwise
MW	1 if the firm is located in the Midwest region of the U.S., 0 if otherwise

Table II. Variable Means and Standard Deviations

Variable	Number of Observations	Mean	Standard Deviation
<u>Export Assistance Needs</u>			
LEADS	180	1.899	.673
LENDER	180	2.494	.746
DISTRIB	180	2.093	.708
MKTRES	180	1.798	.708
LANG	180	2.275	.695
EXHIBIT	180	2.118	.675
DOCUMENT	180	2.421	.678
PROMO	180	1.826	.787
ADAPT	180	2.124	.702
HOWTO	180	2.584	.588
SUBSIDY	180	1.758	.798
SUBTRAV	180	1.669	.793
CREDINFO	180	1.657	.752
<u>Export Destination</u>			
AJAP5	180	.483	
AUK5	180	.399	
ACAN5	180	.399	
AMEX5	180	.242	
<u>Export Marketing Strategies</u>			
PRICE	180	2.275	1.083
BRAND	180	1.927	1.089
CONTROL	180	3.090	1.268
ADVERT	180	2.551	1.160
SERV	180	2.466	1.281

Table II. Continued

Variable	Number of Observations	Mean	Standard Deviation
PRODUCT	180	2.500	1.170
DIVCOUNT	180	2.635	1.330
DIVPROD	180	2.006	1.107
<u>Promotion Methods</u>			
PADVERT	180	.708	
PMAIL	180	.287	
PPOS	180	.725	
PDEMO	180	.680	
PSAMP	180	.753	
PSEM	180	.292	
PSHOWS	180	.893	
<u>Firm Characteristics</u>			
YREXP	180	1.158	1.312
SYREXP	180	--	--
INTMKT	180	.669	
EMP	180	5.874	29.821
PROCESS	180	.826	
SOLE	180	.657	
SAL2	180	.090	
SAL3	180	.197	
SAL4	180	.331	
SAL5	180	.275	
D201	180	.073	
D202	180	.073	

Table II. Continued

Variable		Mean	Standard Deviation
D203	180	.096	
D204	180	.073	
D208	180	.242	
D209	180	.112	
WEST	180	.393	
SE	180	.242	
MW	180	.208	
PEXPORT	180	.313	
SEMP	180	--	--
D205	180	.039	
D206	180	.034	
D207	180	.011	

Table III. Eigenvalues of the Correlation Matrix

Factors	Eigenvalue	Difference	Proportion	Cumulative
1	3.645*	2.149	.280	.280
2	1.496*	.236	.115	.395
3	1.260*	.134	.097	.492
4	1.126*	.272	.087	.579
5	.854	.019	.066	.645
6	.835	.033	.064	.709
7	.802	.190	.062	.771
8	.612	.049	.047	.818
9	.563	.073	.043	.861
10	.490	.007	.038	.899
11	.483	.042	.037	.936
12	.441	.048	.034	.970
13	.393	--	.030	1.000

*Significant Eigenvalues > 1.00

Table IV. Rotated Factor Pattern

Assistance Needs	Factor 1	Factor 2	Factor 3	Factor 4
LEADS	.043	.713*	.180	.245
LENDER	-.006	.327	.197	.498
DISTRIB	.117	.831*	.097	.028
MKTRES	.430	.585	-.023	.082
LANG	.675*	.334	.142	-.168
EXHIBIT	.392	.138	-.041	.593
DOCUMENT	.672*	.099	.054	.230
PROMO	.145	.035	.120	.793
ADAPT	.531	-.091	.290	.335
HOWTO	.716*	.102	-.032	.177
SUBSIDY	-.012	.138	.743*	.203
SUBTRAV	-.023	.172	.784*	.144
CREDINFO	.378	-.028	.691*	-.132

*Significant variables within factors. (values > .600)

Table V. LLR test between Unrestricted and Restricted Models.

Variable	Difference in -2 Log L	Difference in degrees of freedom	Table Values $\alpha = .05$ (approximate)	Results
EDUC	34.090	34	48.566	Fail to Reject
LOCATE	35.764	34	48.566	Fail to Reject
FINANC	33.753	31	44.969	Fail to Reject
LENDER	33.002	33	47.367	Fail to Reject
MKTRES	38.096	32	46.168	Fail to Reject
EXHIBIT	29.886	36	50.964	Fail to Reject
PROMO	37.298	28	41.320	Fail to Reject
ADAPT	46.236	35	49.765	Fail to Reject

Table VI. Restricted Models

Model 1

$$\text{EDUC} = f(\text{YREXP}, \text{PEXPOR}, \text{SAL2}, \text{D208}, \text{DIVPROD}, \text{PSEM})$$

Model 2

$$\text{LOCATE} = f(\text{SOLE}, \text{D208}, \text{AUK5}, \text{BRAND}, \text{PMAIL}, \text{PDEMO})$$

Model 3

$$\text{FINANC} = f(\text{EMP}, \text{SEMP}, \text{SAL2}, \text{D201}, \text{D203}, \text{D209}, \text{AUK5}, \text{SERV}, \text{PSHOWS})$$

Model 4

$$\text{LENDER} = f(\text{YREXP}, \text{SYREXP}, \text{PROCESS}, \text{D201}, \text{AJAP5}, \text{ADVERT}, \text{DIVPROD})$$

Model 5

$$\text{MKTRES} = f(\text{SAL4}, \text{SAL5}, \text{D201}, \text{D208}, \text{D209}, \text{ACAN5}, \text{PROD}, \text{PSAMP})$$

Model 6

$$\text{EXHIBIT} = f(\text{PEXPOR}, \text{INTMKT}, \text{PRICE}, \text{DIVCOUNT})$$

Model 7

$$\text{PROMO} = f(\text{YREXP}, \text{INTMKT}, \text{SEMP}, \text{SAL3}, \text{SAL5}, \text{D201}, \text{D204}, \text{D208}, \text{PRICE}, \text{CONTROL}, \text{DIVPROD}, \text{PADVERT})$$

Model 8

$$\text{ADAPT} = f(\text{YREXP}, \text{SYREXP}, \text{INTMKT}, \text{ACAN5}, \text{PSAMP})$$

Table VII. Restricted Models: Parameter Estimates and Standard Deviations.

	EDUC	LOCATE	FINANC	LENDER	MKTRES	EXHIBIT	PROMO	ADAPT
α_1 (INTERCP1)	-2.607* (.597)	-3.842* (.605)	-1.226 (.594)	.076 (.558)	-.699 (.527)	.006 (.584)	1.464 (.877)	-1.387* (.439)
α_2 (INTERCP2)	.539 (.517)	-.513 (.509)	1.595* (.607)	1.443* (.571)	1.698* (.542)	2.643* (.622)	3.319* (.908)	.0939* (.433)
AJAP5	--	--	--	.352 (.336)	--	--	--	--
AUK5	--	-1.011* (.338)	-1.436* (.340)	--	--	--	--	--
ACAN5	--	--	--	--	-.732* (.312)	--	--	.106 (.299)
AMEX5	--	--	--	--	--	--	--	--
PRICE	--	--	--	--	--	-.280 (.144)	-.385* (.144)	--
BRAND	--	.220 (.147)	--	--	--	--	--	--
CONTROL	--	--	--	--	--	--	.202 (.123)	--
ADVERT	--	--	--	-.224 (.148)	--	--	--	--

Table VII. Continued

	EDUC	LOCATE	FINANC	LENDER	MKTRES	EXHIBIT	PROMO	ADAPT
SERV	--	--	.224 (.126)	--	--	--	--	--
PRODUCT	--	--	--	--	.267 (.137)	--	--	--
DIVCOUNT	--	--	--	--	--	-.256* (.118)	--	--
DIVPROD	.230 (.151)	--	--	.204 (.157)	--	--	-.238 (.154)	--
PADVERT	--	--	--	--	--	--	.746* (.336)	--
PMail	--	1.192* (.365)	--	--	--	--	--	--
PPOS	--	--	--	--	--	--	--	--
PDEMO	--	.520 (.339)	--	--	--	--	--	--
PSAMP	--	--	--	--	.821* (.367)	--	--	.737* (.344)
PSEM	.557 (.354)	--	--	--	--	--	--	--

Table VII. Continued

	EDUC	LOCATE	FINANC	LENDER	MKTRES	EXHIBIT	PROMO	ADAPT
PSHOWS	--	--	1.340* (.504)	--	--	--	--	--
YREXP	-.446* (.162)	--	--	-.743* (.304)	--	--	-.259* (.125)	-.508* (.245)
SYREXP	--	--	--	.112* (.048)	--	--	--	.066 (.039)
INTMKT	--	--	--	--	--	-.977* (.345)	-.778* (.375)	-.510 (.316)
EMP	--	--	-.033 (.021)	--	--	--	--	--
PROCESS	--	--	--	-1.850* (.404)	--	--	--	--
SOLE	--	.933* (.336)	--	--	--	--	--	--
SAL2	1.929* (.581)	--	1.725* (.655)	--	--	--	--	--
SAL3	--	--	--	--	--	--	-1.189* (.400)	--
SAL4	--	--	--	--	-1.220* (.356)	--	--	--

Table VII. Continued

	EDUC	LOCATE	FINANC	LENDER	MKTRES	EXHIBIT	PROMO	ADAPT
SAL5	--	--	--	--	-.670 (.383)	--	-1.204* (.378)	--
D201	--	--	-2.008* (.659)	-.696 (.746)	.113 (.587)	--	1.390* (.685)	--
D202	--	--	--	--	--	--	--	--
D203	--	--	-1.139* (.527)	--	--	--	--	--
D204	--	--	--	--	--	--	-.948 (.577)	--
D205	--	--	--	--	--	--	--	--
D206	--	--	--	--	--	--	--	--
D207	--	--	--	--	--	--	--	--
D208	-1.150* (.410)	.775* (.386)	--	--	-.753 (.397)	--	-.881* (.374)	--
D209	--	--	-.543 (.487)	--	-1.111* (.477)	--	--	--

Table VII. Continued

	EDUC	LOCATE	FINANC	LENDER	MKTRES	EXHIBIT	PROMO	ADAPT
WEST	--	--	--	--	--	--	--	--
SE	--	--	--	--	--	--	--	--
MW	--	--	--	--	--	--	--	--
PEXPORT	-1.869* (.537)	--	--	--	--	.950* (.447)	--	--
SEMP	--	--	.00007 (.00006)	--	--	--	-.001 (.0003)	--
Percent corrected classifications	74.4%	71.5%	73.2%	71.3%	67.9%	65.3%	70.8%	63.0%
LLR Test	41.787	34.187	45.688	37.876	29.382	18.420	43.194	13.908

* significant at $\alpha = .05$

VITA

Byron L. Williams was born in Knoxville, Tennessee, on January 7, 1973. He attended and graduated Farragut High School in Knoxville, Tennessee. He attended the University of Tennessee, Knoxville and graduated with a Bachelor of Science degree in Agriculture in December of 1995. In August of 1996, he enrolled at the University of Tennessee, Knoxville to work toward a Master of Science degree in Agricultural Economics. In May of 2002, he became a member of the Professional Golfers Association of America. At the time of this publication, he is pursuing a career as a teaching professional in the golf industry.

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