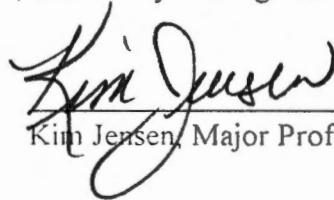


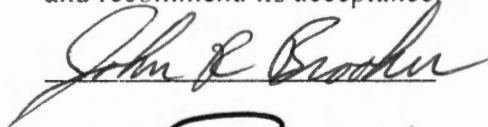
To the Graduate Council:

I am submitting herewith a thesis written by Scott E. Hollis entitled "Agribusiness Attitudes Toward Exporting and Assistance Needs." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements of the degree of Master of Science, with a major in Agricultural Economics.

A handwritten signature in black ink, appearing to read "Kim Jensen", written over a horizontal line.

Kim Jensen, Major Professor

We have read this thesis
and recommend its acceptance:

A handwritten signature in black ink, appearing to read "John R. Brader", written over a horizontal line.A handwritten signature in black ink, appearing to read "J. Royall", written over a horizontal line.

Accepted for the Council:

A handwritten signature in black ink, appearing to read "Lew Munkel", written over a horizontal line.

Associate Vice Chancellor
and Dean of The Graduate School

**AGRIBUSINESS ATTITUDES TOWARDS EXPORTING
AND ASSISTANCE NEEDS**

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

**Scott E. Hollis
August 1997**

AD-YET-MED.

Thesis

97

. H64

This thesis is dedicated to my parents

Mr. Edward D. Hollis

and

Mrs. Karen A. Hollis

**who have sacrificed to make my education possible,
and have always been there for me.**

**My brother Matthew A. Hollis and sister Autumn C. Hollis
for all their love and support through the years.**

ACKNOWLEDGEMENTS

The author is grateful first to Dr. Kim Jensen, chairman of his thesis committee, for her detailed involvement and assistance. Without her patience and guidance the completion of this thesis would not have been possible. The author's appreciation is also extended to Dr. John Brooker and Dr. Greg Pompelli (members of the thesis committee). The author would also like to extend special thanks to the secretaries for all their efforts and helping with all the behind the scenes work that made this thesis possible. Lastly, the author would like to thank all his colleagues for helping him through all the class work and taking well needed golf breaks. A very special thanks to Laura Adams, Tara Hobbs, and Vickie Witcher for their help with my many questions. Thanks to everyone who has made my time at the University of Tennessee a rewarding experience and one I will remember for the rest of my life.

ABSTRACT

After a drop off in the mid 1980's United States agricultural exports have improved but still are about 40 percent below their peak in 1980. This study examines the barriers that firms are faced with to look at who is and who is not exporting and why. Firm profiles are also examined to see the impacts this has on a firms probability of being an exporter, export intender, or a non-exporter. Secondly, this study looks at the assistance needs of firms and how the knowledge and/or use of these assistance services impacts the export status of the firm. The results from this study suggest that firm size does not influence export status, however value of sales appears to be influential. It was found that firms with more years of business experience, located in sole locations, and that did not process their own products were less likely to export. Firm profiles showed the importance of assistance services to the increased probability of firms being exporters and those firms who produced dairy products, were sole locations, located in the northeast, and in business for a long time having almost no chance of being an exporter. Overall the results would suggest the targeting of assistance to certain firm profiles. It would be most beneficial for the U.S. to concentrate on those firms that are most likely to be exporters in order to catch up with the figures of the early eighties and to take advantage of the vast exporting opportunities that are out there.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Objectives	2
II. LITERATURE REVIEW	5
Studies of Barriers to Exporting	5
Studies Exploring Assistance Needs	17
III. DATA AND METHODOLOGY	22
Export Status Model Specification	24
Analysis of Ratings of Assistance Needs	30
IV. RESULTS	33
Model of Export Status	33
Firm Characteristic Variables	34
SIC Codes and Region of the Country	35
FAS Export Assistance Programs	36
Public and Private Services Other Than USDA\FAS	37
Predicted Probabilities	37
Profile One	38
Profile Two	38
Profile Three	39
Profile Four	40
Analysis of Assistance Needs	41
V. CONCLUSION	42
REFERENCES	45
APPENDIX	49
VITA	63

LIST OF TABLES

TABLE	PAGE
Table 1. Types of Agribusinesses Included in Sample	50
Table 2. Response by SIC Code	51
Table 3. Variable Names and Definitions	52
Table 4. Simple Statistics for Explanatory Variables	56
Table 5. Export Status Model Results	58
Table 6. Company Profiles and Predicted Probabilities of Exporting	60
Table 7. Assistance Needs Ratings: Comparison Across Exporters and Export Intenders	62

CHAPTER I

INTRODUCTION

World food trade has increased by nearly one-third over the past two decades, with the majority of growth being in consumer food products, while bulk products trade has stagnated (Drabenstott and Barkema). This growth presents the U.S. agricultural sector with the opportunity for exporting more high-value products (HVP's). Recently there has been a move from exporting bulk commodities such as raw grains like wheat, corn , and soybeans to that of high-value products. These products include high-value unprocessed, semi-processed, and high processed products. Examples of unprocessed products are fresh fruits and vegetables, semi-processed products include flour, sugar, and meats and highly processed products would include products such as dairy products and alcoholic beverages. U.S. exports of high value products have grown by about 12.5 percent per year, which is twice the rate of growth in world trade in these types of products (Barkema and Drabenstott). By the 1990's, HVP's accounted for nearly 60 percent of U.S. agricultural exports (Greene, 1994). This shift from exporting bulk commodities to HVP's has helped create new jobs in the U.S. and in turn strengthened the overall economy.

With the trends in world food trade there are huge economic implications and opportunities for exporting HVP's. Mexico, Canada, and Japan are the leading importers

of U.S. agricultural products and there are various factors that point toward growth in these countries. Some of these factors include expected growth in world income and increased market access and availability with the implementation of the North American Free Trade Agreement (NAFTA) and recent revisions to the General Agreement on Tariffs and Trade (GATT). There have been noticeable positive changes on U.S. exports as a result of NAFTA and GATT, especially in Canada. Recent economic growth in Mexico and Canada has been the cause for an increased demand of U.S. products.

While opportunities exist for expanding exports in HVP's, the majority of U.S. firms still do not participate in export marketing. In particular, sellers of certain types of products and smaller firms may be less interested or able to export. A number of General Accounting Office Reports have been critical of how export assistance services are coordinated and targeted to firms. These criticisms have been aimed at services provided to small and new-to-export firms (GAO January 1992; GAO December 1992; GAO June 1993). Expansion of exports of high-value exports may depend on understanding what types of firms are more likely to export or intend to export than others. By understanding what types of firms may be more likely to export or intend to export, assistance services can be targeted to those types of firms.

Objectives

The purpose of this study was to ascertain what types of firm characteristics high-value agribusinesses are exporting, what types are not exporting but intend to export, and what types of firms do not export and have no plans to export. The study examines how firm size, business experience, level of centralized business control (sole location and

processing of own products), type of product, and location influence export status. The study also examines how knowledge and use of both privately and publicly provided export assistance influences export status. A model was developed including these variables to measure their influence on export status of high-value agribusiness firms. Export status includes: exporters, export intenders, and non-exporters/non-intenders. The results from the study can be beneficial to service providers to understand what types of firms are more interested in exporting and how knowledge and use of assistance services can influence export status. The study also examines assistance needs across exporters and export intenders. The mean ratings of potential assistance needs are compared across these two groups. This analysis provided information regarding which assistance needs were most important overall and which were most needed by exporters versus those firms that intend to export but were not currently exporting. The data used in the study are primary and were obtained through a 1996 survey of U.S. high-value agribusinesses, including exporters, export intenders, and non-exporters/nonintenders.

The literature review includes articles addressing two primary issues. The first set of articles address characteristics of firms that export and do not export and potential barriers to exporting. The next set of articles reviewed relate to assistance needs of firms and the knowledge these firms have of the potential assistance. A summary of how the agribusiness data were obtained will be presented in the data chapter. The estimated model is presented in the results chapter. A set of firm profiles and how the probabilities of export status change with the profiles is also presented in the results chapter.

The conclusions chapter examines some of the implications from the study for export assistance providers.

CHAPTER II

LITERATURE REVIEW

Studies of Barriers to Exporting

A number of studies have addressed export barriers and the various reasons why firms do not export. This chapter will review these studies and their findings. The first part of this chapter will review articles dealing with why firms choose to export or not to export and the second part of the chapter will be a review of articles pertaining to assistance needs of firms and how these firms obtain assistance.

A study done by Barringer, Wortman, and Macy (1994) examines this very problem. The article proposes and tests a conceptual model of the process of reducing export inhibitions in small agribusiness firms. The article focused on small agribusiness firms that were either exporting or that have the potential to export. To these firms export markets can appear to be complex and demanding. As a result of this, decision makers often become cautious about committing resources to exporting. This has clearly affected the participation of small U.S. firms in overseas markets. It is believed that less than 10 percent of U.S. firms with less than 100 employees currently export. While competing in global markets was mentioned as a pressing concern among small business decision

makers they may often be inhibited from pursuing export growth opportunities by a simple reluctance to deal with the unfamiliarity of foreign markets.

The model in the study advances three sources of export inhibitions. These are managerial perception/attitudes toward export desirability, export risk, and export complexity. Previous studies have shown a positive relationship between the perception of export desirability and export performance, and a negative relationship between the perception of export risk and export complexity with export performance. Export desirability refers to the degree to which a decision maker considers exporting to be a desirable source of sales growth. Export risk concerns the perceived riskiness of export sales. There are numerous factors that can lead to a firm deciding exporting is too risky like cultural differences, language differences, and complex government regulations. Export complexity refers to the perceived complexity of the export process. A common perception of exporting is that it is just too much trouble, therefore people never really find out for themselves what is actually involved. Three organizational processes with the potential to reduce export inhibitions were proposed: export planning, export-specific information search, and a firm planning horizon. Export planning is considered to be the development of a distinct export plan and the incorporation of that plan into the firm's operation. Export-specific information search referred to decision makers efforts to seek out and use information concerning export opportunities. The firm planning horizon describes how far into the future decision makers attempt to anticipate environmental trends.

The basic challenge faced by managers is to build and maintain organizations that have the potential to grow, diversify risk, and retain profitability. In order to achieve this, managers are increasingly confronted with change. For many small agribusinesses the decision to start exporting and expanding represents change. Most times change is resisted not on the basis of its merits but on the basis of managerial inhibitions.

Data for the Barringer et. al study were gathered from a sample of 281 Midwest agribusiness exporters. Sample firms were surveyed through the use of a mail questionnaire. There were a total of 151 usable responses with a response rate of 54%. Small agribusiness firms were classified as having less than 100 employees and this limited the survey to 119 firms. Respondents were asked to rate their perceptions about the sources of inhibitions and were also questioned about the organizational processes thought to reduce inhibitions. Based on the response firms gave, they were categorized as planners or non-planners and as high information search or low information search firms.

Descriptive statistics showed that respondents used a proportionally higher percentage of secondary information sources (e.g., international business magazines, trade journals, etc.) as opposed to primary ones (e.g., international trade shows, foreign trade missions, etc.). It is suggested by the authors that this may be due to the lack of sufficient resources on the part of small agribusinesses to utilize primary information sources. Analysis of variance was used to test the relationship between sources of inhibitions and organizational processes. Overall, this analysis revealed that the data supported the hypothesis that these three organizational processes are effective in reducing export inhibitions. A three factor main effects model was developed to assess the effect of the

organizational processes on export inhibitions. The results from this model indicated that firms who were export planners were high in export-specific information search, had a long planning horizon, and perceived exporting as relatively less risky.

In a study done by Naidu and Rao (1993) they attempted to identify differences in assistance needs among firms at different stages of the internationalization process. It was mentioned that a real weakness in previous studies with regard to export marketing behavior was the fact that all firms tended to be treated alike. The objective of their study was to identify some distinct and meaningful differences among firms in respect to international experience, resources, degree of reliance on export sales, and other various factors. Their theory was that differences among firms according to their degree of internationalization offer useful insights to aid policy makers in designing assistance efforts. The main hypothesis developed was that firms' perceived export assistance needs are different depending on the firms level of internationalization.

Data was collected from a mail questionnaire sent to 2,300 small to medium size manufacturing firms in the Midwestern United States. Seven hundred and seventy-seven usable responses were received representing a response rate of 33%. The survey covered a wide array of relevant information such as: attitudes toward exports, perceived barriers to export expansion, familiarity and utilization of export assistance programs, and importance of export assistance programs. Based on their responses firms were categorized as: Non-Exporters, Export Intenders, Sporadic Exporters, and Regular Exporters. Firms who did not export or intend to export were labeled "Non-Exporters". Those who were not exporting, but were interested in exploring the opportunity of

exporting were classified as “Export Intenders”. “Sporadic” and “Regular Exporters” were those firms who exported on sporadic and regular basis respectively. Statistical procedures focused on bivariate analysis. Analysis of variance and chi-square tests were conducted to determine if significant differences in perceived needs existed among the four groups.

The results suggested that the importance of perceived barriers to initiating or expanding exports differed significantly among the firms at different internationalization levels. Those firms who were Sporadic Exporters and Export Intenders perceived poor knowledge of foreign markets as the primary barrier to exporting while the Non-Exporters perceived unmet demands in the domestic market as the primary reason. The inability to adequately follow-up on trade leads was considered to be the primary barrier by Regular Exporters. Analysis also revealed that the importance firms assign various export assistance programs depends on the stage of internalization. Export marketing consulting services were perceived as the most important assistance programs by Export Intenders and Sporadic Exporters while Regular and Non-Exporters perceived computerized trade leads and state and private programs that promote state’s products as most important, respectively. Levels of awareness and utilization were found to vary amongst the four groups. Overall no clear cut patterns that were found but there were a few tendencies. Regular Exporters and Export Intenders seemed to take advantage of the local chambers of commerce more so than the other two groups. The results loan support to the hypothesis that perceived needs in export market development differ from firm to firm according to individual firms’ location on the internationalization path. It is suggested by

the authors these results reveal a need for export assistance programs designed with clear target audiences in mind.

Another article examining reasons for lack of exporting was “Export barriers and incentives in the eastern hardwood lumber industry”. This study conducted by Paul Ifju and Robert Bush (1993) examined the factors that influence export activity in the eastern hardwood lumber industry and the extent to which these factors vary with the level of involvement in exporting. The authors were looking for perceived export barriers and factors that stimulate export activity in small exporting and non-exporting hardwood lumber companies in the eastern United States. Data were collected from 354 small hardwood lumber companies from a mail survey. The overall response rate was 39 percent. Companies were grouped based on their desire to participate in export markets and the ratio of domestic to foreign sales. The non-exporting companies were divided into two groups based on their desire to participate in exporting. The two groups were called domestic oriented and potential exporters. This study focused on non-exporting companies for its reasons of barriers to exporting. The questionnaire listed eight possible reasons for not exporting among the potential exporters and the domestic oriented. These reasons include: the company is too small to export, domestic market keeps company busy enough, have seen others fail in exporting, lack of information about foreign markets, don’t believe in exporting, exporting is too complicated, don’t have the equipment needed to produce export products, and other.

The results indicated that a lack of information concerning international markets and/or prosperous domestic markets deterred potential exporters from entering into

international trade which are consistent and in general agreement of previous research. These results are also in compliance with a recent study of hardwood manufacturers in West Virginia that found that lack of information and expertise were the most important impediments to exporting. The authors noted that all exporters are not the same and various approaches may be required to be undertaken to make new firms feel comfortable entering the international market.

Ramaseshan and Soutar (1994) designed a study to identify perceived barriers to exports specific to the Australian horticulture industry and the relative impact of these barriers on export decisions. More specifically the study attempted to examine the differences, if any, in perceived export barriers by exporting and non-exporting firms. A mail questionnaire was sent to 1000 random firms in the horticulture industry. A total of 231 usable questionnaires were returned making for a response rate of 23 percent. The analysis suggested seven major export barrier factors/variables. Responses to the twenty export barrier items were analyzed using principal factor analysis with varimax rotation to produce five overall barrier factors and two barrier variables. These included market familiarity, market demand, transportation issues, financial issues, trade restrictions, domestic competition, and foreign competition.

The perceived seriousness of some of the barriers was significantly different for non-exporters and exporters. Non-exporters were most concerned with financial issues as the leading cause for barriers to export entry. Such things included exchange rates and the inability of firms to undertake such financial ventures. It was found by the authors that

transportation was the leading concern among exporters. The main concerns here were the costs of the transportation and the deterioration during the actual transporting time.

Cavusgil and Kirpalani (1993) analyzed 130 published instances of international product entries into the international product entry. Some time between 1991 and 1993, export income increased for United States firms which lead to a need to redefine firm size. In their analysis the authors redefined small, medium , and large firms in terms of volume. Small firms had less than 30 million, medium firms had less than 100 million, and large firms had more than 100 million in volume. As stated the data consisted of 130 cases of international market entry collected from previous research. The dependent variable was long-term success as a function of descriptive variables, strategic variables, and marketing mix variables. The six descriptive variables included: size, international involvement, type of product, technological orientation of the industry, domestic market experience, and price competition within the industry. Six strategic variables were hypothesized to influence international marketing success. These were:

- Level of management commitment;

- Type of export market entry (product new to the company versus new only to the foreign market);

- Entry product range (single product versus multiple products);

- Scope of entry (single versus multiple markets entered);

- Product positioning strategy; and

- Product adaptation (initial and subsequent).

The independent marketing mix variables other than product were channels, promotional budget, and pricing.

Analysis of the findings led to the formulation of several hypotheses. The most relevant was large and small firms are more likely to be successful in international product ventures than medium sized firms, regardless of the industry. The authors concluded that small and large firms acted similarly when compared to medium size firms and thereby proving their hypothesis. Two major outcomes and some implications have resulted from this research. With respect to the outcomes, one is the identification of independent determinants of export success and the other is the development of hypotheses for the future.

With this being an exploratory study it is rather difficult to draw out many definitive implications but some emerge which government policy makers and/or international business practitioners could find useful. Policy makers should continue to encourage the growth of technology which would lead to a flow of new products for exports. This flow is essential for firms to achieve substantial success in global markets. Another implication is that firms should use foreign channels of distribution that fit strategically with their situation, resources, and requirements. The last implication presented is that firms with large enough financial resources can rely more on non-price instruments for effectiveness in export markets.

Dichtl, Koeglmayr, and Mueller (1990) hypothesized that managers who do not look favorably upon exporting will be less likely to participate in export activities than foreign market oriented partners. The main subjects of interest in the study were

companies in the Federal Republic of Germany. The comparative companies were selected in Finland, Japan, South Africa, and South Korea. Through cluster analysis, five classes arose and were divided into three groups: exporters, occasional exporters, and non-exporters. The purpose was to determine success factors and export barriers for exporters. Occasional exporters and exporters were found to have the same view that pricing was the leading export barrier. The non-exporting group perceived development costs as their leading barrier to exporting. One interesting result was that all three groups ranked development costs in the top three reasons for barriers to exporting. The occasional and non-exporters perceived their personnel as the main barrier. Among the occasional exporters language was also considered to be a major barrier and this should be expected since the number of experienced personnel was limited.

Expanding on the study done by Howard and Borgia, Ali and Swiercz (1991) tested the hypothesis that participating in exporting is largely a function of size, experience and managerial interest. John Bohn, president of the United States Export-Import Bank was quoted as saying "The future competitiveness of the United States and our success at diminishing the trade deficit depend in large part on the international competitiveness of America's small-sized businesses. This study also uses annual sales volume to define small, medium, and large firms. Small firms dealt in volumes of less than \$5 million, medium firms dealt with volume between \$5 and \$50 million, and large firms dealt with volumes in excess of \$50 million. The subjects consisted of various firms selected randomly from the international trade directories of Kansas, Missouri, and Nebraska. Managers of each of the companies was issued a survey containing three sections; the first

being a basic profile of the company, the second was the dimension of export attitudes, and the third was perceived managerial and professional skills, personal and social skills, cross cultural skills, and spouse and family qualities. A multiple analysis of variance (MANOVA) statistical method was applied to the data and this suggested that size does not influence perceptions of the managerial and professional skills necessary for success. It was found that size however does influence the cross-cultural skills and family qualities perceived necessary for export success. Implications from this study are that managers in small firms hold different views than managers of medium and large firms. This supports the hypothesis that firm size does influence managerial views.

Buonafina (1990) investigated the effect of export marketing activities and the size of the firm's stage of internationalization. A random sample of firms having a place of business in the state of Florida was chosen. A sample of 250 firms was drawn from the list of businesses. One hundred eighteen useable surveys were returned representing a response rate of 47%. To minimize non-response bias follow up letters and questionnaires were mailed to firms not responding in the first three weeks.

Most of the firms that responded were small or medium sized firms based on number of employees and annual sales. The most significant finding in this study was that size is an important predictor variable in determining how the groups differed with respect to their level of internationalization. The results indicated that if a firm were larger, meaning it had a higher dependency on export sales, larger volume of total sales, and higher average size of the export order, there was a higher likelihood that the firm would be engaged in extensive marketing and more likely to implement more efficient marketing

techniques and product/market adaptation. Another significant finding was that the study supports the assertion that marketing activities are an important component of exporting.

A few implications should be noted from this study. The first important implication is that small and medium size firms need to expand their resource base in order to take full advantage of the export marketing opportunities foreign markets offer. The second implication this study offers is that there is a reason why export promotion activities are subject to criticism. The major criticism being that these programs have not been successful in luring small and medium sized firms into exporting. The reason may lie in the notion that small and medium sized firms are export capable when in fact they may not be if they lack the capability to expand their resource base to accommodate the need of expanding their export expertise to go beyond unsolicited exporting.

The above mentioned articles have all dealt with the reasons firms may decide not to export. Many firms do not export for a variety of reasons ranging from the fear of the unknown to companies just not believing in exporting. One thing to note is that most of the reasons firms are hesitant to get involved in exporting is because of the perceived fears of exporting and lack of knowledge about exporting. Many firms feel there is red tape and bureaucracy associated with exporting. Even companies who feel they are too small to export can be offered numerous advantages from exporting as was presented by Ifju and Bush (1993). Firms often say their profitability and growth objectives are adequately met with domestic markets. This concludes the review of articles dealing with why firms may choose not to export. Next will be a review of articles dealing with assistance needs of firms and the forms of assistance available to these firms.

Studies Exploring Assistance Needs

Ifju and Bush (1994) used data from 354 small eastern hardwood companies to determine awareness, use, and the perceived benefit of 21 services provided by export assistance and promotion programs. Awareness of the services among all the respondents ranged from a high of approximately 70 percent of respondents to a low of about 12 percent. Services that companies were most aware of were where seminars on exporting were sponsored, promoting U.S. products overseas, and providing information on doing business in a foreign country. The top five services listed by companies of the 21 were:

- 1) Toll-free number for export information;
- 2) Information on doing business in a foreign country;
- 3) Transfer funds from foreign buyers;
- 4) Credit information on foreign buyers; and
- 5) Guarantee payment by foreign buyers.

The authors went on to further test for significant differences between exporters and non-exporters. As one would expect the exporters were significantly more aware of nine of the 21 services than were the non-exporters and all 21 services exporters were more likely to use the services than were non-exporters. Exporters were most aware of seminars on the basics of exporting and arranging international trade shows where non-exporters were most aware of seminars and information on doing business in a foreign country. Exporters were most likely to use contacts with experienced exporters and seminars on exporting while non-exporters were most likely to use seminars and contacts with experienced exporters.

There have been a few studies done on successful exporting firms and the assistance programs they have used. These have been vital in determining how to best assist exporters and potential exporters and to determine what people in the field have experienced in terms of assistance programs. Howard and Herremans (1988) study "Sources of assistance for small business exporters: Advice from successful firms" focuses on small business exporters from a variety of industries that received the "E" award for excellence from the U.S. Department of Commerce. This award is received for excellence in exporting and in order to qualify a manufacturer must show evidence of a substantial increase in volume of exports over a four year period. They sampled only successful exporters because it was deduced that these firms are aware of what it takes to succeed and should be looked to for advice and information. When asked to rank the usefulness of 23 export related activities many receiving the highest rankings deal with the planning stages of exporting. When asked to rank the groups or activities most helpful to small firms, foreign distributors and trade fairs were the two listed the highest. Others ranked high were the U.S. Department of Commerce, U.S. banks, and state's departments of commerce.

De Noble, Castaldi, and Moliver (1989) surveyed, by a random selection, 1,478 New-Jersey based exporters and discovered that the most important services these small business exporters wanted from export trading companies were:

- 1) The ability to discover or open new foreign markets;
- 2) The establishment of personnel contacts with potential foreign buyers; and
- 3) Knowledge of the foreign markets' competitive conditions.

The results of this study suggest a lack of congruence between what small businesses desire from exporting intermediaries and the services exporting trading companies (ETCs) perform well. The results also suggest that small firms interested in starting or expanding exporting endeavors may not use export intermediaries because the services that ETCs perform proficiently are not the services most needed.

Kuthawala, Judd, Monipallil, and Weinrich (1989) designed a study to describe the demographic characteristics, practices, problems and assistance needs of small businesses in Illinois with respect to the level of exporting. Copies of a questionnaire consisting of 20 questions were sent by first class mail to 869 companies. Of the 869 questionnaires mailed, 160 usable responses were returned equating to a response rate of 19.5 percent. The questionnaire contained 20 questions regarding firm characteristics, export practices and problems. It was found that a large number of the firms studied engaged in a small number of export transactions per year. At the same time they discovered that the complexity of the procedures continues to be a problem by inhibiting further progress or growth in exporting. For 45 percent of the respondents assistance in analyzing specific foreign markets was a need. About the same number of respondents, 42 percent, needed help in understanding foreign tariffs and foreign currency fluctuations as well as in managing advertising, freight handling and other aspects of foreign trade. When asked to comment on what improvements could be made to the Illinois business environment to expand the export potential of their companies a list seven primary factors came up.

These factors included:

- 1) Reduction of employee unemployment insurance costs, worker's compensation costs in general;
- 2) Greater tax benefits;
- 3) Less government regulation/Minimize trade barriers;
- 4) Financing help;
- 5) Lower dollar valuation;
- 6) Assistance locating agents; and
- 7) Reduce product liability costs.

This study differs from previous studies in that in this study firms that are active in the export arena, foreign sales constitute a significant part of their total revenue. Also, Illinois exporters have been engaged in international trade for a long time. Both of these findings differ from those made by prior studies.

In a paper by Howard and Borgia (1991) they examine the effect that firm size has on the activities, perceived problems, and needs of American exporters. To do this they divided their subjects into small versus large firms. Their respondents were asked to rank the same 23 export related activities as were presented in the study by Howard and Herremans. The results of this study were quite similar to the one by Howard and Herremans, however, there was a significant difference between the responses from small versus large firms. Large firms found the Foreign Credit Insurance Association (FCIA) to be a very helpful activity and ranked them eighth while the small firms ranked them sixteenth. Another difference in the firms size was that small firms ranked their states'

Department of Commerce as seventh out of twenty-three, while large firms ranked them as fourteenth. The differences between the two studies suggest that firm size has a great deal to do with the sources of assistance. Based on the results of this study, the suggested strategy for eliminating or reducing the various difficulties and weaknesses associated with various export programs and services involves creating greater business awareness of the services and assistance available. The authors suggest this could be done by identifying those firms which might benefit most from export assistance and by focusing on the specific problem areas that were identified within the survey.

CHAPTER III

DATA AND METHODOLOGY

Data to conduct this study were obtained through a 1996 mail survey of 3,435 high-value agribusinesses. A listing of agribusinesses was prepared by American Business Lists®. Businesses were sampled by their Standard Industrial Classification codes (SIC) ranging from 201 to 209¹. Each respective code is described in Table 1 located in the appendix.² The sample included a variety of types of food and beverage processors across all geographical regions of the United States to avoid any geographical or product bias.

The survey was composed of five sections. Section one dealt with the export status of the firms and contained questions asking if the firm exported in 1995, prior to 1995, and if the firm was planning to export in 1996. Section two dealt with export strategies and plans of firms which had exported in 1995. Section three asked exporting firms and those intending to export to rate various potential barriers to exporting according to whether they were a major barrier, a minor barrier, or not a barrier. Next companies were asked to rate their firms export assistance needs and indicate if there was a strong need a moderate need or no need. Section four asked all companies including

¹The percents used for sampling by SIC code were based upon exporting agribusinesses participating in the 1993-1994 USDA Market Promotion Program. This will facilitate future cross comparisons between the two samples.

²All tables hereafter will be presented in the Appendix

exporters (E), export intenders (EI), and non-exporters (NE) to indicate their knowledge about and use of export services offered by United States Agriculture Department's Foreign Agriculture Service (FAS). Companies were also asked about their familiarity with the Market Promotion Program (MPP), and their participation. If they were not participating in it then they were asked why. Lastly, in this section firms were asked to indicate their familiarity with use of export assistance services offered by a listing of sources other than USDA/FAS. Section five was to be answered by all companies and consisted of questions dealing with specific firm characteristics, such as how many years the firm has been in business, how many employees the firm had in 1994 and 1995, what type of firm it is, such as a processor/manufacturer, an export agent or trading company, a wholesaler, or some other type of company. They were also asked about the facility and whether it is a sole location, branch location, subsidiary, cooperative or some other type. Firms total sales for the years 1994 and 1995 were also questioned, but were broken up into categories to allow for some confidentiality.

In July 1996, a mail survey was sent to the sample of high-value agribusiness firms. A modified approach to Dillman's method for mail surveys was used (Dillman), with a follow up mailing. During the second week of August a second copy of the survey was sent to those who had not yet responded.³

Of the 3,435 firms that surveys were sent to, 422 returned usable responses. There were a total of 194 surveys that were returned as non-deliverable. This gave an

³Additional survey contacts, reminder postcards, and follow up phone calls are recommended by Dillman, although project funds would not permit use of these methods. Formatting of the survey and cover letters were based on recommendations in Dillman.

overall usable response rate of 13.02 percent. The responses by SIC code are presented in Table 2. The percents of respondents by SIC code show that the responses fairly closely reflected the percents surveyed.

Export Status Model Specification

The model estimated in this study hypothesizes that firm characteristics and knowledge and use of assistance services influence export status of the firm. The model hypothesized in this study is that probability of export status is a function of firm size, experience, type of business by SIC code, regional location of the firm, whether the firm is a sole location, whether the firm is a processor of the products it sells, and its knowledge and use of export assistance services.

The export status of the j th firm, $EXSTAT_{ij}$, includes exporters ($i=1$), export intenders ($i=2$), and non-exporters/non-intenders ($i=3$). The j th firm is hypothesized to have an unobservable set of preferences regarding exporting as defined by Z_j . These unobservable preferences regarding exporting are hypothesized to be a function of explanatory variables, X , such that:

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

where

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

Cutoff points in preferences exist where the observed export status outcome changes. The cutoff points for the j th firm are defined as Z_j^* and Z_j^{**} . Given these cutoff points, the observed export status for the j th firm will be

$$EXSTAT_j = \begin{cases} 1 & \text{if } Z_j \geq Z_j^{**} \\ 2 & \text{if } Z_j^* \leq Z_j < Z_j^{**} \\ 3 & \text{if } Z_j < Z_j^* \end{cases}$$

The probability of observing the i th export status is then:

$$Pr(EXSTAT_j = i | X_j) = \begin{cases} \Phi(\alpha_1 + \beta'X_j), & i = 1 \\ \Phi(\alpha_2 + \beta'X_j) - \Phi(\alpha_1 + \beta'X_j), & i = 2 \\ 1 - \Phi(\alpha_2 + \beta'X_j), & i = 3. \end{cases}$$

where

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

the cumulative logistic

distribution. The likelihood function is:

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

Substituting in the explanatory variables for X, the hypothesized probit model is:

$$\Pr (\text{EXSTAT} = 1) = f(\text{SAL1}, \text{SAL2}, \text{SAL3}, \text{SAL4}, \text{SAL5}, \text{SAL6}, \text{YRBUS}, \text{YRBUS2}, \text{EMP}, \text{EMP2}, \text{SOLE}, \text{PROCESS}, \text{SIC201}, \text{SIC202}, \text{SIC203}, \text{SIC204}, \text{SIC205}, \text{SIC206}, \text{SIC207}, \text{SIC208}, \text{SIC209}, \text{NEAST}, \text{SEAST}, \text{MWEST}, \text{WEST}, \text{KOSI}, \text{KTL}, \text{KMPP}, \text{KTS}, \text{K PUB}, \text{KATT}, \text{KTECH}, \text{KOUSDA}, \text{KOSDA}, \text{KFEDOTA}, \text{KSTOTA}, \text{KFG}, \text{KNTDB}, \text{KEXIM}, \text{KCOC}, \text{KWTC}, \text{KFF}, \text{KETMC}, \text{KBANKS}, \text{KMRF}, \text{KPFEE}).$$

Complete variable names and definitions can be found in Table 3. The variables SAL1-SAL6 represent value of sales categories, the YRBUS variables are based on years in business, EMP measures firm size in terms of number of employees. The variable SOLE represents whether the firm is a sole location and PROCESS indicates whether the firm is a processor of the products it sells. The variables SIC201-SIC209 are dummy variables reflecting whether a firm falls within a given SIC category. The variables NEAST-WEST indicate whether the firm is located in a given region. The variables KOSI-KPFEE are variables reflecting whether the firm knows about or has used a given export assistance service. This study examines the relationship of the 43 variables included in the model to EXSTAT (export status of the firm). This requires the development of a model which captures the relationship between the included variables and the firms export status. Characteristics of the firm, SIC codes, region of the country, FAS export assistance programs, public services other than USDA/FAS, and private services other than USDA/FAS were all hypothesized to influence 'EXSTAT'.

Variables included under firm size as measured by value of sales were 'SAL1', 'SAL2', 'SAL3', 'SAL4', 'SAL5', and 'SAL6'. The dummy, SAL1 was omitted from the model. Compared with the lowest sales category, a firm being in higher sales categories was hypothesized to have a positive impact on the probability a firm being an exporter or export intender. A study by O'Rourke (1985) found that smaller firms, in terms of value of sales, were less likely to be involved in exporting.

Other firm characteristics hypothesized to have a relationship with 'EXSTAT' were 'YRBUS' and 'YRBUS2'. The number of years the firm has been in business is used as a measure of the influence of the firm's business experience on receptiveness to exporting. It is hypothesized that firms with more business experience would be more likely to be exporters or export intenders. The variable 'YRBUS2' was included to determine if a linear relationship existed between the two variables. This positive impact of years in business is hypothesized to increase at a decreasing rate. Firms with well established and stable markets, but with less progressive management may be less inclined to seek out new markets. Findings from a study by Ali and Swiercz (1991) suggested that managements' favor toward exporting increased past the first three years of international experience, declined from seven to ten years and then increased again beyond ten years.

Another measure of firm size was the number of full time employees, 'EMP'. It is hypothesized that larger firms, with more full-time employees, may be more likely to export more than smaller firms. Larger firms, with more employees, may be more able to dedicate specialized personnel to international marketing activities. The squared number

of employees is included to measure any non-linearities in its effect (increases or decreases at an increasing or decreasing rate). Past studies have found mixed results regarding firm size and export activity. A study by Dichtl, Koeglmayr and Mueller found that regardless of firm size and firms business experience, managers who do not look favorably upon exporting will be less likely to participate in exporting than colleagues that are foreign market oriented. However, Ifu and Bush (1993) and Ifu and Bush (1994) indicated that firm size was one of the top reasons for not exporting. Also, Cavusgil and Naor (1987) found that larger company size was more conducive to exporting.

Two other firm characteristics were included in the model 'SOLE' and 'PROCESS'. Firms that are sole locations are more likely to be under more direct management control. This could negatively impact the likelihood of being an exporter. Companies with numerous locations would be thought to have the production capacity and distribution system needed to meet the requirements necessary to export in terms of volume and logistics. Cavusgil and Naor's study suggested that national distribution networks were helpful in exporting. Processors also may be limited by plant capacity in exporting or may also be attempting to sell product to use excess capacity.

The variables 'SIC201' through 'SIC208' were included in the model because it was hypothesized that firms producing easily transportable and less perishable products would be more likely to export than firms who sell highly perishable products. The category SIC 209 was omitted. Products that are highly perishable (dairy products) and require refrigeration and a much higher transportation cost than those products that could be exported as is, would be expected to have a negative impact on exporting.

Variables 'NEAST', 'SEAST' and 'MWEST' were all included in the model because it was hypothesized that region of the country may have some effect on the exporting practices of the firm. The region 'WEST' was omitted. The signs cannot be hypothesized a priori since two of the three regions are on the coast or in proximity to Mexico. The Midwest region would be in proximity to Canada.

Other variables included in the model were FAS export assistance programs. These were export services offered by the USDA's Foreign Agriculture Service. Each of these variables was included in the model because it was hypothesized that there was a greater chance that firms would be exporters or export-intenders if they were aware of or had used these services provided by FAS. For each of these variables 'KOSI', 'KTL', 'KMPP', 'KTS', 'KPUB', 'KATT', and 'KTECH' firms were asked to state if they 1) had knowledge about or have used or 2) otherwise. It was thought that these variables would have a positive impact on probability of being an exporter or export intender.

Services other than USDA/FAS were broken into two groups - public and private. Variables included under public services included 'KOUSDA', 'KOSDA', 'KFEDOTA', 'KSTOTA', 'KFG', 'KNTDB', and 'KEXIM'. Like the FAS services firms were again asked to tell if they 1) have used or are knowledgeable about or 2) otherwise. As before it would be expected firms who know about or use these services would have a tendency to export or plan to export more than firms who had neither used these services nor heard of them. The private services other than USDA/FAS were 'KCOC', 'KWTC', 'KFF', 'KETMC', 'KBANKS', 'KMRF' and 'KPFEE'. These services were treated in the same manner as the public services. Again it was hypothesized that those firms that have

either used the services or heard about them were more likely to be exporters or intend to export than the firms who have never heard of the services available to them.

Analysis of Ratings of Assistance Needs

For the exporters and export intenders, a group of potential assistance needs were also examined. This group of respondents were asked to rate potential assistance according to need on a three point scale, strong need=1, moderate need=2, and no need=3. The potential assistance needs included:

- (1) Export trade leads;
- (2) Assistance locating lenders for export business;
- (3) Assistance locating distribution;
- (4) Export market research services;
- (5) Language/cultural assistance;
- (6) Assistance with exhibitions at foreign trade fairs;
- (7) Assistance with export documentation;
- (8) Export promotion/advertising assistance;
- (9) Consulting to adapt products/packaging to meet import requirements or market needs;
- (10) Export subsidies;
- (11) Subsidized travel to export markets; and
- (12) Credit information on potential buyers.

The mean ratings across exporters and export intenders are compared through a t-test. If the variances are equal, the calculated test statistic is:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s^2 (1/n_1 + 1/n_2)}}$$

where

$\bar{x}_1$ = mean of group 1

$\bar{x}_2$ = mean of group 2

$s^2 = [(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2]/(n_1 + n_2 - 2)$

s_1, s_2 = sample variances

n_1, n_2 = observation numbers.

The degrees of freedom used to conduct the test are $n_1 + n_2 - 2$.

If the calculated t is greater than the tabled t at $\alpha = .05$, then the null hypothesis that the two groups' means are equal is rejected. If the variances of the ratings between the two groups are not equal, then the calculated test statistic is:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s_1^2/n_1 + s_2^2/n_2}}$$

The degrees of freedom are calculated as:

$$df = \frac{(s_1^2/n_1 + s_2^2/n_2)^2}{(s_1^2/n_1)^2/(n_1 - 1) + (s_2^2/n_2)^2/(n_2 - 1)}$$

Equality of variances are tested with an F-test. The calculated F is:

$$F = \frac{\text{larger of the variances}}{\text{smaller of the variances}},$$

with $n-1$ (group with larger variance), $m-1$ (group with smaller variance) degrees of freedom.

CHAPTER IV

RESULTS

Model of Export Status

The means of the responses to the variables considered in the model for export status are presented in Table 4. Of the survey responses, 262 responded completely to all questions used in the analysis. About 37 percent of the firms were exporters, 13 percent were export intenders, and 50 percent were non-exporters/non-intenders. Of the firms included in the final model, the firms had on average, 34.9 years of business experience, 79.4 percent were sole locations, and 82.4 percent processed the products they sold. Of the firms, 6.5 percent sold dairy products. Just over 15.3 percent were located in the northeast. About 27.9 percent of the firms knew about or had used the USDA/FAS Market Promotion Program. About 38 percent knew of the firms knew about or had used the export assistance services of freight forwarders. Over 40 percent knew about or had used the export assistance services of market research firms while almost half had used the services of banks. About 22.9 percent of the firms fell in sales category 3 and 10.3 fell in sales category 4.

When the full model was estimated, coefficients on several variables in the model were insignificant. A joint hypothesis test was conducted to arrive at the final specification of the model, with the insignificant variables omitted. The results of the final

specification of the probit model are listed in Table 5. The final probit model was: $Pr(EXSTAT=1)=f(SAL3, SAL4, YRBUS, SOLE, PROCESS, SIC202, NEAST, KMPP, KFF, KBANKS, KMRF)$. To reach this final model, joint hypothesis tests were run along with log-likelihood tests. The original model hypothesized that 43 variables would have a significant impact on the dependent variable 'EXSTAT', but after running likelihood ratio tests the final model of 11 variables was deduced. The original model had a chi-square value of 165.157 with 43 degrees of freedom. The final model had a chi-square value of 135.497 with 11 degrees of freedom. The final model correctly predicted the probabilities of 83.3% of the observed responses and was in discordance with 16.3% of the responses while 0.4% of the predicted possibilities tied the observed responses. This suggests that the model did a fairly good job of correctly predicting the export status of the firms included in the model.

Firm Characteristic Variables

Of the 11 possible variables in this category it was found that five of these variables were significant. These variables included: 'YRBUS', 'SOLE', 'PROCESS', 'SAL3', and 'SAL4'. The sign on 'YRBUS' was negative implying that as the number of years in business increases the probability of being an exporter decreases. This may reflect that older firms are harder to persuade to enter the export markets and have greater reliance on more established domestic markets. Although the number of employees was not found to significantly affect 'EXSTAT', two of the sales category variables 'SAL3' and 'SAL4' had positive signs. Compared with firms in the smaller size categories and the largest size categories, these firms were more likely to be exporters and less likely to be

non-exporters. The value of sales for the respective variables was \$2,000,000 to \$9,999,999 for 'SAL3' and \$10,000,000 to \$49,999,999 for 'SAL4' implying that firms that had sales between these ranges had an increased probability of being an exporter compared with firms with sales of less than \$2,000,000 and over \$49,999,999. This disagrees with literature from Cavusgil and Kirpalani that large and small firms are more likely to be successful in international product ventures than medium sized firms, regardless of the industry. Also, Ali and Swiercz found that attitudes toward the favorableness of exporting did not vary with firm size as measured by value of sales.

Two other firm characteristic variables included in the final model were 'SOLE' and 'PROCESS'. The sign on 'SOLE' was negative implying that a firm with a sole location had less probability of being an exporter and a greater probability of being a non-exporter than a firm that had more than one site. This sign is what would be expected if one thinks that firms with multiple locations would most likely be dealing with higher volumes of product and distribution systems which would be favorable for exporting. The sign on 'PROCESS' was positive meaning that firms that were processors\manufacturers of the products they handled had an increased probability of being an exporter of that product and less of a chance of being a non-exporter.

SIC Codes and Region of the Country

When testing whether or not to include 'SIC201' through 'SIC208' or any codes individually it was found that only 'SIC202' was significant with respect to 'EXSTAT'. The negative sign on this variable was expected given the perishability and difficulty of transporting dairy products relative to many other food products. Certain dairy

products, such as milk and cheese, are also not competitively priced compared with world market prices. The United States also imports many cheeses and this would help explain the increased probability of being non-exporters of these particular products.

Testing to see if different regions of the country had any significant impacts on 'EXSTAT' was the next step taken in determining the final model. As was the case with the SIC codes only one region of the country was found to be significant and that region was 'NEAST'. The negative sign on this variable implies that agribusinesses in the northeast have an increased probability of being a non-exporter and decreased probability of being an exporter compared with firms in the other regions of the country. The other regions would likely have greater proximity to Mexico and to Canada. The West also has well established export linkages with Japan and the Pacific Rim.

FAS Export Assistance Programs

The next group of variables that were hypothesized to be included in the model to be tested were the FAS export assistance programs. After testing these seven variables 'KOSI', 'KTL', 'KMPP', 'KTS', 'KPUB', 'KATT', and 'KTECH' it was found that only 'KMPP' was significantly different from zero and therefore the only FAS export assistance program variable to be included in the final model. This was a real surprise since it was hypothesized that firms that had used these services or knew about them would be more likely to be exporters. The positive sign on this variable was expected since it would decrease the probability of being a non-exporter and increase the firms probability of being an exporter.

Public and Private Services other than USDA/FAS

The last group of variables to be tested were services other than USDA/FAS.

These were broken into two groups, public and private. The public services offered produced no variables that were significantly different from zero. This came as a surprise since it was hypothesized that these variables would increase the probability of firms being exporters. Again it is hard to say for sure why none of these services had any impact on 'EXSTAT'. With respect to privately offered export assistance services, three of the seven services significantly impacted export status. These variables were 'KFF', 'KBANKS', and 'KMRF'. The signs on 'KFF' (freight forwarders) and 'KBANKS' (banks) were positive implying knowledge and/or use of these services would increase the probability of that firm being an exporter and reducing the probability of them being a non-exporter. Actively seeking assistance or information from freight forwarders or banks positively influences exporting. The negative sign on 'KMRF' was not expected, since it would be expected that knowledge or use of a marketing research firm would make a firm's probability of being an exporter greater. Two possible explanations are that firms that conducted market research decided not to export as a result of the market information or that the firms that used external market research firms did not have their own in-house specialized international marketing personnel and thus were less likely to export.

Predicted Probabilities

To measure how likely certain firm types might be to export, various firm profiles were generated based on hypothetical firm characteristics. These firm characteristics were then used with the estimated coefficients to calculate predicted probabilities of being an

exporter, export intender, or a non-exporter/non-intender. The formulas for the probabilities in Chapter 3 were to make the calculations. The probability of falling in a given export status was calculated both without and with knowledge or use of the significant assistance services. The firm profiles and the predicted probabilities are shown in Table 6.

Profile One

In order to demonstrate the impacts of firm characteristics on export status, four extreme profiles are examined, both without and with knowledge or use of the assistance services giving a total of eight profiles. The first profile will be a company that has been in business for five years, is in a sole location, is located in the northeast, not in sales category three or four, produces dairy products and does not use assistance services. The results for this profile were quite convincing that a firm with this profile had almost no chance of being an exporter or an export intender because the predicted probability of being a non-exporter was 98.0%. A firm with that exact profile only now using the assistance services changed the outcome only a small amount. The chances of being an exporter were raised to 12.0%, an export intender to 13.1% while the chances of being a non-exporter fell to 74.9%. This still does not give much hope to a firm with this particular makeup of being an exporter.

Profile Two

The next profile that was looked at was a company that had been in business for five years, was a processor, fell into sales category three and did not use assistance services. This firm had a 58.3 percent chance of being an exporter. The predicted

probability of the firm being an export intender was also much greater than for profile 1, with a 19.2 percent chance of being an export intender and an 22.5 percent chance of being a non-exporter. To show the impact of sole location on the results it was added to the above model and it lowered the predicted probability for being an exporter from 58.3% to 26.5%. The predicted probability of being an export intender stayed relatively the same going from 19.2% to 25.5%, however the probability of being a non-exporter went from 22.5% to 53.0%. This illustration should help to clarify how the inclusion of just one variable can have such enormous effects on the results. Again the same exact company profile was used now adding the use of assistance services to the mix and not surprisingly the probability of being an exporter rocketed to 95.9% leaving little room for non-exporters or export intenders.

Profile Three

Profile three looked at a firm that had been in business 100 years, was a sole location in the northeast, produced dairy products, was not in sales category three or four, and did not use assistance services. The results for this profile are as expected revealing that the predicted probability of being an non-exporter was 99.2 percent while the probability of being an export intender or an exporter were minimal. Again after adding the use of assistance services to the makeup, little hope was seen for any chance of the firm becoming an exporter. The probability of the firm being an exporter raised to a mere 5.4% while the chances of becoming an export intender went from virtually nothing to 6.9%. The probability of being a non-exporter came down to 87.7 percent. This profile is

a good illustration of how dominant those variables with negative signs can be when included in the firms profile.

Profile Four

The last profile to be looked at was a firm in business for 100 years, a processor, and in sales category three and once again with and without the use of assistance services. Without the use of services a firms probability was almost 36.8%, while the probabilities of being an export intender and non-exporter were 22.1% and 41.1% respectively. When adding the use of assistance services to the mix the predicted probability of being an exporter soared to 90.7% leaving the probability of being an export intender at 5.3% or a non-exporter at 4.0%. Again to show the affects of 'SOLE' on the results it was added to the above model and the predicted probability of being an exporter fell to 71.5%. The probability of being an export intender was raised to 14.6% and the probability of being a non-exporter rose to 14.0 percent.

It is fairly easy to see that those variables which have negative signs on the coefficients substantially lower the probability of firms being exporters and raising the probability of them being non-exporters. These four models were systematically chosen to show the affects of changes in the x's could have on the predicted outcomes. Any number of combinations could be chosen to show similar results. The most important thing is to realize that the signs on the coefficients for the respective variables are what is important and not so much the numbers themselves. The size of the number will ultimately be related directly to the increase or decrease in the predicted probability as was illustrated with 'SOLE' and 'YRBUS'. Both of these variables had negative signs on them and

therefore decreasing the probability of them being an exporter, but because 'SOLE' had a more negative number it impacted the export status of the firm more than 'YRBUS'. The same is true with 'SIC202' and 'NEAST'. Both of these variables had a negative impact on the probability of the firm being an exporter but 'SIC202' had a much bigger effect than did 'NEAST' implying that, if your firm produced dairy products, that had a bigger negative impact on export status than if your firm was located in the northeast and did not produce dairy products.

Analysis of Assistance Needs

The mean values for ratings of assistance needs by exporters and export intenders are shown in Table 7. Overall, the strongest assistance needs were for export trade leads, export market research services, and credit information on potential buyers. The least needed assistance was for locating lenders for the export business and courses, seminars, or publications on how to export. Several differences in needs existed between exporters and export intenders. Export intenders viewed the following needs as stronger than exporters: credit information on potential buyers, assistance locating distribution, export promotion/advertising assistance, consulting to adapt products/packaging to meet import requirements or market needs, language/cultural training or assistance, assistance with exhibitions at foreign trade fairs, assistance with export documentation, courses, seminars, or publications on how to export, and assistance locating lenders for export business. Exporters and export intenders had similar needs for export trade leads, assistance locating distribution, subsidized travel, and export subsidies.

CHAPTER V

CONCLUSION

The results from this study suggest that firm size does influence export status. However, only value of sales appears to influence export status. The results from this study suggest that medium sized agribusiness firms had a greater chance of being an exporter than very small or large firms. Firms with more years of business experience and sole locations and that did not process their own products were less likely to export. For most product categories, export activity appeared to be similar. Only one of the SIC codes was found to be significant and that being 'SIC202'. Although this was the only code found to be significant, the negative coefficient suggests that firms that produced dairy products were less likely to be exporters than companies who did not produce them. The only variable found to be significant with respect to region of the country was 'NEAST' and the negative sign on it implies it also has a negative effect on the probability of the firm being an exporter.

The FAS export assistance program that appeared to be most influential on export status was the Market Promotion Program. Other non-USDA publicly provided assistance services did not influence export status. Private sector services that influenced export status were freight forwarders, banks, and market research firms. Two of these had the expected positive signs on their coefficients: however, the knowledge or use of

marketing research firms somehow lowered the probability of the firm being an exporter. The sign on this variable was the only real surprise in the analysis except that it was thought more of the assistance variables would have been included in the model.

Overall, with respect to the variables, a firm would have the greatest probability of being an exporter if it was a relatively young company, was a processor, had more than one location, was in sales category three or four, not located in the northeast, did not produce dairy products, and used all of the above mentioned assistance services with the exception of marketing research firms. These results would suggest that firms that are least likely to be exporters or interested in exporting are very large or very small, have many years of business experience, are located in the northeast, sell dairy products, and are sole locations.

The results from this study would suggest targeting assistance to certain firm profiles. The changes in projected probabilities for various firm profiles with and without knowledge or use of the assistance services indicate how influential certain assistance services can be. Policy makers should examine assistance services being offered and how these services may influence exporting by agribusiness. Most firms surveyed for this study did not even have knowledge of the services available to them. For the services offered by USDA\FAS, over 70 percent of the firms surveyed did not know about most of them. Similar numbers held for the services offered by others than USDA\FAS. Over half of the companies surveyed had no knowledge of the export assistance services available. The fact that both the services offered by USDA\FAS and the services offered by sources other than USDA\FAS were so unfamiliar to the respondents of this survey indicate a real need

by these service providers to get their programs recognized. Certain firms, however, will likely have little intention to export or interest in exporting. Assistance service providers should target those companies first that are likely to export, such as firms just starting out that have more than one location, are processors of the products they sell, and fall into the sales categories that were shown to have a positive impact on a firms exporting status. Export intenders or those interested in exporting are also an important clientele for assistance services. Firms with no interest or plans for exporting should likely be the lowest priority for export assistance. This study has identified the types of firms that will be more likely to fall into the exporting or export intender categories.

With respect to the assistance needs (Table 7), export intenders rated every need between strong and moderate indicating how important it is for these firms to get the help they need to become successful exporters. Those that were already exporters rated most of their needs between moderate and no need showing that these firms were successful and that their needs had already been met for the most part. It is crucial to get the export intenders assistance needs met to ensure that no firm slips through the crack because of their perceived difficulty there to exporting. It is the job of these service providers to tear down the walls that may be keeping export intenders from becoming exporters.

Future research should identify the types of assistance that are needed by exporters to expand exports and by export intenders to initiate exporting. As this study has found differences in export status across firm characteristics, it is likely also that assistance needs vary across the characteristics of agribusiness firms.

REFERENCES

REFERENCES

- Ackerman, Karen Z. (1994). Market development programs help expand U.S. high value agricultural exports. *Food Review*, 17(3) 18-22.
- Ali, Abbas, Paul M. Swiercz, "Firm Size and Export Behavior: Lessons from the Midwest", *Journal of Small Business Management*, October (1991).
- Barringer, B., M. Wortman and M. Granger, "A Challenge for Small U.S. Agribusinesses: A Reduction of Export Inhibitions Through Planning and Information Search", *Agribusiness*, Vol 10, No 6, (1994), p. 459-469.
- Cavusgil, T. and V. Kirpalani, "Introducing Products into Export Markets: Success Factors", *J. Of Business Research*. 27(1993): 1-15.
- De Noble, Alex F., Richard M. Castald, and Donald M. Moliver, "Export Intermediaries: Small Business Perceptions of Services and Performance", *Journal of Small Business Management*, (1989) p. 33-40.
- Dichtl, Erwin, Hans-Georg Koeglmayr and Stefan Mueller. (1990). International Orientation as a precondition for export success. *Journal of International Business Studies*, 28(1):23-40.
- Dillman, Don A., "Mail And Telephone Surveys: The Total Design Method", 1978.
- Drabenstott, Mark and A. Barkema, "New Directions for U.S. Agricultural Exports". <http://ianrwww.unl.edu/farmbill/exports.htm>. June 11, 1997: 1-8.
- Greene, Joel. (1994). High-value food products boost agricultural exports. *Food Review*, 17(3) 18-22.
- Greene, W.H. *Econometric Analysis*. Second Edition. p. 664-672.
- Henneberry, S., K. Ackerman, and Z., Eshleman. "U.S. Overseas Market Promotion: An Overview of Nonprice Programs and Expenditures", *Agribusiness*, Vol 8, No 1 (1992), p. 57-78.
- Howard, Donald G., Daniel Borgia, "Exporting and Firm Size: Do Small Exporters Have Special Needs?" , *Journal of Global Marketing*, Vol 4, No 1, (1991) p. 79-98.

- Howard, Donald G., Irene M. Herremans, "Sources of Assistance for Small Business Exporters: Advice From Successful Firms", *Journal of Small Business Management*, (July 1988), p. 48-54.
- Ifju, Paul & Robert Bush. (1993). Export Barriers and incentives in the eastern hardwood lumber industry. *Forestry Products Journal*, 43(3):45-48.
- Ifju, Paul & Robert Bush. (1994). Export assistance in the hardwood lumber industry: an examination of awareness, use, and perceived benefit. *Forestry Products Journal*, 44(6):27-32.
- Naidu, G.M., T. R. Rao, "Public Sector Promotion of Exports: A Needs-Based Approach", *Journal of Business Research*, 27, 85-101 (1993).
- Pindyck, R.S., D.L. Rubinfeld, *Econometric Models & Economic Forecasts*. 1991.
- Ramaseshan, B., & Geoffrey Soutar. (1994). Export Barriers in the Western Australian Horticulture Industry. *Journal of International Food and Agribusiness Marketing*, 6(4) 53-70.
- Rosson, C.P. III, M.D. Hamming, J.W. Jones, "Foreign Market Promotion Programs: An Analysis of Promotion Response for Apples, Poultry, and Tobacco", *Agribusiness*, Vol 2, No 1, 33-42 (1986).
- Solomon, H., H. W. Kinnucan, "Effects of Non-Price Export Promotion: Some Evidence for Cotton", *Australian Journal of Agricultural Economics*, Vol 37, No 1(April 1993) p. 1-15.
- Spatz, Karen J., "Export Market Development by Agricultural Commodity Promotion Programs", ACS Research Report, April 1989.
- Sriram, V. And H. Sapienza. "An Empirical Investigation of the Role of Marketing for Small Exporters", *Journal of Small Business Management*. October 1991, p. 33-42.
- United States Department of Agriculture, High-value exports set the pace in 1994. *Agricultural Outlook*. April 1994, p. 17-20.
- United States General Accounting Office. "Export Finance: The Role of the U.S. Export-Import Bank." *GAO Report*, GAO/GGD-93-39, December 1992.

United States General Accounting Office. "Export Promotion: Federal Programs Lack Organizational and Funding Cohesiveness." *GAO Report*, GAO/NSLAD-92-49, January 1992.

United States General Accounting Office. "International Trade: Effectiveness of Market Promotion Program Remains Unclear." *GAO Report*, GAO/NSLAD-93-103, June 1993. .

APPENDIX

Table 1. Types of Agribusinesses Included in Sample.

SIC Code	Type of Company	Percent of Companies in Sample
201	Meat Products	8.36
202	Dairy Products	8.03
203	Canned and frozen fruits and vegetables	19.94
204	Grain mill	8.53
205	Bakery Products	5.39
206	Sugar and Confectionery	3.03
207	Fats and Oils	1.43
208	Beverages (Alcoholic and Non Alcoholic)	28.47
209	Miscellaneous food preparations and kindred products	16.83
		Total = 3435 Companies

Table 2. Response by SIC Code

SIC Code	Percent of Respondents	Number of Respondents
201	6.9	29
202	7.1	30
203	26.1	110
204	14.2	60
205	3.3	14
206	2.8	12
207	1.2	5
208	22.0	93
209	16.4	69
		Total = 422

Table 3. Variable Names and Definitions

Variable Names	Description	Description
FIRM CHARACTERISTICS		
EXSTAT	Export status of firm	1 if 1995 exporter, 2 if intend to export in future, 3 if nonexporter
SAL1 (omitted)	Value of sales	if 1995 sales < \$1,000,000
SAL2	Value of sales	if \$1,000,000 to \$1,999,999
SAL3	Value of sales	if \$2,000,000 to \$9,999,999
SAL4	Value of sales	if \$10,000,000 to \$49,999,999
SAL5	Value of sales	if \$50,000,000 to \$99,999,999
SAL6	Value of sales	if > \$100,000,000
YRBUS	Number of years in business	number of years/10
YRBUS2	YRBUS squared	
EMP	Number of 1995 employees/100	number of employees/100
EMP2	EMP squared	
SOLE	Sole location	1 if sole location, 0 otherwise
PROCESS	Firm type	1 if processor, 0 otherwise
SIC CODES		
SIC201	Meat products	1 if produce product, 0 otherwise
SIC202	Dairy products	1 if produce product, 0 otherwise
SIC203	Fruits and vegetables	1 if produce product, 0 otherwise
SIC204	Cereals and grains	1 if produce product, 0 otherwise
SIC205	Bakery goods	1 if produce product, 0 otherwise
SIC206	Confectionary products	1 if produce product, 0 otherwise

Table 3. Continued

Variable Names	Description	Unit of Measure
SIC207	Fats and oils	1 if produce product, 0 otherwise
SIC208	Beverages	1 if produce product, 0 otherwise
SIC209 (omitted)	Food preparations and products	1 if produce product, 0 otherwise

REGION OF THE COUNTRY

NEAST	Northeast region	1 if located in the northeast region of the U.S., 0 otherwise
SEAST	Southeast region	1 if located in the southeast region of the U.S., 0 otherwise
MWEST	Midwest region	1 if located in the Midwest region of the U.S., 0 otherwise
WEST (omitted)	West region	1 if located in the western region of the U.S., 0 otherwise

FAS EXPORT ASSISTANCE PROGRAMS

KOSI	Knowledge or use of one-stop information service	1 if knowledge about or have used, 0 otherwise
KTL	Knowledge or use of trade leads, buyer alerts, buyer and supplier lists	1 if knowledge about or have used, 0 otherwise
KMPP	Knowledge or use of market promotion program	1 if knowledge about or have used, 0 otherwise
KTS	Knowledge or use of trade shows	1 if knowledge about or have used, 0 otherwise
KPUB	Knowledge or use of FAS publications for exporters	1 if knowledge about or have used, 0 otherwise

Table 3. Continued.

Variable Names	Description	Unit of Measure
KATT	Knowledge or use of overseas attaches	1 if knowledge about or have used, 0 otherwise
KTECH	Knowledge or use of technical assistance	1 if knowledge about or have used, 0 otherwise
PUBLIC SERVICES OTHER THAN USDA/FAS		
KOSDA	Knowledge or use of state departments of agriculture	1 if knowledge about or have used, 0 otherwise
KFEDOTA	Knowledge or use of federal agencies other than agriculture	1 if knowledge about or have used, 0 otherwise 1 if knowledge about or have used, 0 otherwise
KSTOTA	Knowledge or use of state agencies other than agriculture	1 if knowledge about or have used, 0 otherwise
KFG	Knowledge or use of foreign government agencies	1 if knowledge about or have used, 0 otherwise
KNTDB	Knowledge or use of national trade data banks	1 if knowledge about or have used, 0 otherwise
KEXIM	Knowledge or use of Export-Import banks	1 if knowledge about or have used, 0 otherwise
PRIVATE SERVICES OTHER THAN USDA/FAS		
KCOC	Knowledge or use of chambers of commerce	1 if knowledge about or have used, 0 otherwise
KWTC	Knowledge or use of world trade centers and associations	1 if knowledge about or have used, 0 otherwise

Table 3. Continued

Variable Names	Description	Unit of Measure
KFF	Knowledge or use of freight forwarders	1 if knowledge about or have used, 0 otherwise
KETMC	Knowledge or use of export trading/managing companies	1 if knowledge about or have used, 0 otherwise
KBANKS	Knowledge or use of banks	1 if knowledge about or have used, 0 otherwise
KMRF	Knowledge or use of marketing research firms	1 if knowledge about or have used, 0 otherwise
KPFEE	Knowledge or use of private firms with export experience	1 if knowledge about or have used, 0 otherwise

¹ The four regions of the U.S. included the West, Southeast, Mid-West, and Northeast. States included in the West region were Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming. The Southeast region included Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. Members of the Mid-West region were Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Michigan, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. Lastly, the Northeast region included Connecticut, Delaware, Maine, Massachusetts, Maryland, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia.

Table 4. Simple Statistics for Explanatory Variables

Variable	Mean	Standard Deviation
YRBUS	3.49	3.17
YRBUS2	22.24	36.67
EMP100	1.1264	4.9975
EMP1002	26.1485	246.2531
SOLE	.794	.405
PROCESS	.824	.381
SIC201	.065	.247
SIC202	.065	.247
SIC203	.279	.449
SIC204	.122	.328
SIC205	.050	.218
SIC206	.031	.172
SIC207	.008	.087
SIC208	.206	.405
NEAST	.153	.360
SEAST	.237	.426
MWEST	.233	.423
KOSI	.229	.421
KTL	.282	.451
KMPP	.279	.449
KTS	.427	.496
KPUB	.282	.451
KATT	.221	.416
KTECH	.286	.453

Table 4. Continued

Variable	Mean	Standard Deviation
KOUSDA	.332	.472
KOSDA	.584	.494
STOTA	.496	.501
FEDOTA	.473	.500
KCOC	.492	.501
KEXIM	.260	.439
KWTC	.347	.477
KFF	.382	.487
KETMC	.370	.484
KBANKS	.473	.500
KMRF	.408	.493
KPFEE	.489	.501
KFG	.313	.465
KNTDB	.210	.408
SAL2	.233	.423
SAL3	.229	.421
SAL4	.103	.305
SAL5	.023	.150
SAL6	.065	.247

Table 5. Export Status Model Results

Variable	Parameter Estimate ¹
Intercept 1	-1.4581 (.6069)
Intercept 2	-.5578 (.5989)
YRBUS	-.0919* (.0511)
SOLE	-1.3532*** (.4014)
PROCESS	1.1284*** (.4290)
SIC202	-1.1918* (.6552)
NEAST	-.7539* (.4245)
KMPP	1.1854*** (.3435)

Table 5. Continued

Variable	Parameter Estimate ¹
KFF	2.2520*** (.4486)
KBANKS	.8289* (.4743)
KMRF	-1.4543*** (.5178)
SAL3	.7090** (.3495)
SAL4	1.6864*** (.5107)

Likelihood Ratio Test Chi-square value = 135.497 with 11 degrees of freedom

¹Values in parentheses are standard errors, ***indicates significance level at a .01 level, ** indicates significance at a .05 level, * indicates significance at a .15 level.

Table 6. Company Profiles and Predicted Probabilities of Exporting

Firm Profile	Knowledge of Assistance Services Offered	Exporter	Export Intender	Non Exporter
Profile 1				
5 years in business, sole facility, in northeast, not in sales category 3 or 4, sic202	No	.8%	1.2%	98.0%
	Yes	12.0%	13.1%	74.9%
Profile 2				
5 years in business, processor, in sales category 3, not sole, not in sic202, not in northeast	No	58.3%	19.2%	22.5%
	Yes	95.9%	2.4%	1.7%
Profile 3				
100 years in business, sole facility, in northeast, sic202, not in sales category 3 or 4	No	.3%	.5%	99.2%
	Yes	5.4%	6.9%	87.7%

Table 6. Continued

Firm Profile	Knowledge of Assistance Services Offered	Exporter	Export Intender	Non Exporter
Profile 4				
100 years in business, processor, in sales category 3, not sole, not sic202, not in northeast	No	36.8%	22.1%	41.1%
	Yes	90.7%	5.3%	4.0%

Table 7. Assistance Needs Ratings: Comparison Across Exporters and Export Intenders.

Assistance Need	Mean Ratings of Assistance Needs (1=Strong, 2=Moderate, 3=No Need)			Calculated t-statistic
	Overall (N=122)	Exporters (N ₁ =89)	Export Intenders (N ₂ =33)	
Export trade leads	1.66	1.74	1.45	1.94
Export market research services	1.71	1.76	1.57	1.26
Credit information on potential buyers	1.92	2.09	1.45	5.41**
Assistance locating distribution	1.93	2.02	1.67	2.44*
Subsidized travel to foreign markets	1.93	1.99	1.76	1.41
Export promotion/advertising assistance	1.96	2.07	1.67	2.55*
Export subsidies	2.06	2.11	1.91	1.27
Consulting to adapt products/packaging to meet import requirements or market needs	2.10	2.25	1.70	3.90*
Language/cultural training or assistance	2.11	2.22	1.92	2.81*
Assistance with exhibitions at foreign trade fairs	2.11	2.21	1.82	2.51*
Assistance with export documentation	2.15	2.31	1.73	4.30*
Courses, seminars, or publications on how to export	2.29	2.46	1.82	4.49*
Assistance locating lenders for export business	2.38	2.52	1.97	3.66*

* Calculated F-statistic indicates variances are unequal.

* Significant at alpha=.05.

VITA

Scott E. Hollis was born in Greensburg, Pennsylvania, on January 22, 1972. He attended and graduated from Middletown High School, in Middletown, Maryland. He attended Shepherd College before transferring to the University of Tennessee in the fall of 1992. He graduated with a Bachelor of Science degree in Agricultural Economics in December, 1994. In August of 1995 he started working towards a Master of Science degree in Agricultural Economics.

3814 6852

03/26/98

JS

MAB

6
INFORMATION
CONSERVATION, INC.