Promoting Agribusiness Trade in Value-Added Products

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Abstract

A binary logistic regression is used to evaluate factors contributing to an agricultural or food processing firm's decision to export. The objective of the project is to identify economic concepts and factors that are most significant in firm's choice to export its value-added products. In this study of Kentucky agribusinesses and food processors, firm size is a strong determinant of whether or not a firm exports. Perceptions and beliefs about the global marketplace heavily influence the firm's exporting decision. The recommendation for policymakers seeking to increase exports among small to medium sized agribusinesses and food processors is to target the perceptions held by those firms regarding international marketing.

Introduction

The agriculture industry has become increasingly more globalized over time. While the United States has experienced a trade deficit for several years, U.S. agriculture has seen trade surplus. However in recent years, the agriculture trade surplus has begun to decline and today's economic recession has affected the global market as a whole. With the economic turndown, firms are struggling to find ways to increase profit margins. One of the main reasons a firm turns to international trade is to increase sales and profits by expanding the market for their products (Kentucky World Trade Center, 2009).

Farming and Agricultural Services, Fishing, and Forestry remain one of the commonwealth's largest industry groups contributing to gross state product, which totaled $122.28 Billion in 2003 (Commonwealth of Kentucky, 2008). The Tobacco Transition Payment Program, established in 2004 has changed the structure of the Kentucky agricultural industry, where tobacco once dominated as the number one cash crop for the state. Many transitioning tobacco farmers looked to fruit and vegetable or cattle production for new sources of income. The state is now the leader in cattle production east of the Mississippi River. Several small to medium sized businesses have been established as a result of tobacco transition assistance programs, many of which have a variety of value-added products for sale.

The goal of this project is to determine what factors contribute to whether or not those firms choose to export their value-added products. The results from an electronic survey are analyzed to determine how perceptions of export markets affect the decisions made by Kentucky agricultural firms regarding international markets.

Background

The Trade Promotion Coordinating Committee (TPCC) was formed by the Export Enhancement Act of 1992, ratified by the Clinton Administration to contribute to its economic policy. The

TPCC consists of nineteen government agencies and is chaired by the Secretary of Commerce. The committee's plan for export promotion and financing programs is referred to the "National Export Strategy," the first of which was identified in September 1993. The TPCC publishes the National Export Strategy annually, including a letter from the Secretary of Commerce, an overview of United States trade statistics, and descriptions of priorities for trade promotion, trade agreements, and more. The overall purpose of the strategy is to identify those companies that need assistance in export promotion, recognizing those needs, and directing companies towards agencies to meet those needs (Morillo, 1994).

A recurring theme in the National Export Strategy from year to year has been the expansion of export enhancement strategies for small and medium-sized enterprises (SMEs). Export promotion for small to medium sized firms continues to be a priority since large firms account for the majority of exports. If the goal of the United States is to enhance its export base, a higher contribution is needed from smaller to medium sized firms. Identifying the factors that determine a firm's decision to export thus, is important in order to target export promotion to smaller firms (2008 National Export Strategy, 2008).

Review of Literature

A study by the Department of Agricultural Economics at North Dakota State University analyzed the needs for export assistance of small and medium rural and agricultural firms in the northern plains, provided an overview of the services and assistance available for firms who wish to export, and identified potential improvements to export programs (Saxowsky, Krause and Gustafon, 1998).

The authors developed a survey for firms in the Northern Plains of the United States to gather information about the current exporters, potential exporters, and firms who have no intention of ever exporting. 1200 surveys were sent by mail; 268 responses were received. The selected participants were not separated by firm size, so that the results would not be biased or skewed. Therefore the responses were from small, medium and large firms.

The authors found that more experienced firms, who have been exporting longer, were more likely to use export planning services. When firms initially decided to export, they did not usually take advantage of these services. Most firms who export do so because they were approached by a foreign buyer. Firms (of any size) in the Northern Plains are not actively seeking export services and most of the firms who are not exporting have no interest in doing so. Firms found trade barriers and tariffs to be the most important hindrances to exporting, as well as finding information about foreign markets and export documentation (Saxowsky, Krause and Gustafon, 1998).

A Michigan State University study by James A. Sterns, 1997, empirically analyzes the driving forces behind the decision to export. Sterns hypothesized that perceived demand, competitive advantages in product transformation costs, and competitive advantages in transaction costs would be the key contributing factors to the export decision. This study investigates the decision as a dynamic model where firms make continuous choices about entering and exiting the international market. Choices are made in response to those perceived opportunities, where those transactions are subject to market forces, and generate a set of outcomes (or consequences). The outcomes are dynamic in that they affect the firm's opportunities for the next market period, firms learn from their choices, and the model continues for additional periods of time.

Sterns, 1997 finds the perceptions about international markets (specifically export market potential and ease of transacting in international markets) to differ among current exporters and non-exporters. This research showed that geographic breadth of U.S. markets for a firm, familiarity with exporting, and firm size were all positively correlated with the decision to export. Overall Sterns concluded that strategic issues, not logistic ones act as barriers to international markets and perceptions about demand and competitiveness are the driving forces behind decisions to export (Sterns, 1997).

Kentucky Marketing Promotion

Kentucky has a significant "buy local" marketing promotion program, called "Kentucky Proud." Farmers and producers register their products to be certified as locally produced or grown. Those products are marked with a "Kentucky Proud" label for sale at grocery stores, farmers markets, and roadside stands (Kentucky Department of Agriculture, 2009). The program continues to grow and seems to be successful; however the "go local" approach seems to have an adverse effect on export promotion efforts. During the data collection process for this project, several small business owners implied that they had no interest in expanding their markets, especially not internationally, as their focus is on the local market.

Resources are available for Kentucky agribusinesses seeking information regarding international marketing. The Kentucky Department of Agriculture has an import/export advisor who works to link producers with foreign buyers and provides firms with information about international marketing. Kentucky is a member of the Southern United States Trade Association (SUSTA), through which the commonwealth is able to market some value-added agricultural and food products. SUSTA also offers financial assistance programs for small businesses launching export endeavors. The above-mentioned resources are affiliated with the United States Department of Agriculture Foreign Agricultural Service, the national agency responsible for foreign market development in agriculture. Kentucky Agricultural and Commercial Trade

Offices are located in China and Mexico (Kentucky Department of Agriculture, 2009). Additionally, the Kentucky World Trade Center serves as a one-stop source of information for firms interested in exporting and foreign enterprises seeking opportunities for expansion in Kentucky (Kentucky World Trade Center, 2009).

Data

The data collection for this study consisted of responses to a 60 question survey addressing general details about the firm, interest in exporting, international experience, access to information, market conditions for the product being sold, and perceptions of international markets. Kentucky agribusinesses and food processors of all sizes were contacted first by telephone to request participation in the study, and once marketing representatives or firm owners had agreed to participate, the survey was sent by email. Thirty responses were received out of 77, a 39% response rate. Of those thirty responses, six firms currently export their products.

Five questions from the survey were selected for this phase of the study to be used as independent variables. Competitive advantage, information asymmetries, and perceptions about foreign markets were the key concepts to be tested in this study. The questions of interest included:

- Does your firm currently export products? (yes/no)
- Choose the range that best describes your firm's number of employees
- The lack of market information acts as a constraint in market selection and development (scale of 1 to 5 where 1 = strongly agree and 5 = strongly disagree)
- Our company views U.S. markets and international markets as separate and unique markets (scale of 1 to 5 where 1 = strongly agree and 5 = strongly disagree)
- Our firm has a competitive advantage in our ability to meet niche market demands (yes/no)

- Our company believes the profitability of international sales would be less profitable than domestic sales (scale of 1 to 5 where 1 = strongly agree and 5 = strongly disagree)

Descriptive Statistics

The descriptive statistics (mean, standard deviation, minimum and maximum points) were calculated for several variables drawn from the survey. Table 1 below separates those variables by question type, as several questions were based on a scale of one to five (1=strongly agree, 2=somewhat agree, 3=unsure, 4=somewhat disagree, 5=strongly disagree). Tables 2 and 3 convey the descriptive statistics for the independent and dependent variables, respectively. At this point in the research study, we have collected thirty observations. Due to the relatively small number of observations, only five variables were included in the model. In Table 2 the variables in bold are those used in the empirical modeling.

Empirical Modeling

A binary logistic regression was used to determine the likelihood that a firm exports its products. For this study, economic theories of competitive advantage, information gaps, and market perceptions were of most interest. Due to the small sample size, the degrees of freedom were limited and only a few variables could be included in the regression although the survey provides a plethora of information pertaining to those theories. The variables reflecting the theories of interest in this model include:

- *Employee*: number of employees in the firm
- *Lackinfo*: to what extent the firm believes that the lack of information affects market selection and development
- *Mktperception*: to what extent the firm believes U.S. and international markets are separate and unique from one another

- *Profitability*: to what extent the firm believes international sales are less profitable than domestic sales
- *Niche*: whether the firm has a competitive advantage in meeting niche market demands

Binary Logistic Regression Model

$$lnExport = \beta_0 + employee + \beta_1 custexport + \beta_2 lackinfo + \beta_3 mktperception + \beta_4 Idnew + \varepsilon$$

The independent variables were selected to determine their impact on the likelihood that the firm will export its product. The variable *employee* is used to show the impact on firm size. Alternatively, gross annual sales could have been included to indicate firm size, however in a model evaluating the impact of the employee variable and the sales variable on the decision to export, sales was insignificant and employee was statistically significant. Overall, the key factor of interest in this model is examining how firms perceive markets.

Results

Table 4 shows the results from the logit regression in the form of odds ratios, denoting the statistical significance of the variables. The Likelihood ratio index (LRI) is the measure of explanatory power for the logit regression. The LRI, also referred to as McFadden's pseudo-R^2 for this model is 0.51. None of the independent variables were statistically significant at the 1% level according to the p-value. It was expected that firm size would have the most impact on the decision to export in Kentucky. The *employee* variable is significant at the 5% level, with an odds ratio of 1.054; for each additional employee the firm is 54% more likely to export their products.

The firm's perception about profitability in international markets plays a significant role in the decision to export. The view on profitability was measured on a scale of 1 to 5, where 1=

strongly agree and 5= strongly disagree; thus a one unit increase on the scale indicated more disagreement with the statement that international sales were less profitable. If a firm ranked one unit higher on the scale, that firm was almost five times more likely to export its products. So, firms who do not perceive foreign marketing to be less profitable export more.

Market perception about domestic versus international markets was another significant variable in the model. Firms who perceive U.S. and international markets as separate and unique were less likely to export; those firms who disagreed (again, a one unit increase on the 1-5 scale) with such a philosophy were nearly seven times more likely to export their products. The theory of globalization is reflected in these numbers- a decision maker who does not see U.S. and international markets as separate and unique, but rather as one market, sees marketing from a globalized perspective.

Competitive advantage in niche markets and the lack of information were not statistically significant in this regression. As seen in the descriptive statistics, 73% of firms indicated having a competitive advantage in niche markets, which explains why the variable is not significant in the decision to export. Overall, firms were unsure (on average responding "3" on the 1-5 scale) about the impact of the lack of information on market selection and development. Despite statistical significance, there is a negative relationship between the decision to export and the perception that lack of information does not affect market development and selection. Firms who see lack of information as a constraint export less, as would be expected. Competitive advantage in niche markets also has a negative relationship with the decision to export. This can be explained by the promotion of "going local" tactics. Firms in niche markets often compete on a local level, at farmers' markets, for example.

Conclusions

Small to medium sized firms often look for opportunities to increase profit margins, but it is unclear what factors prevent smaller firms from looking to foreign markets for increased profits. Several large agribusiness and food processing firms currently export their products, however for the United States and many other countries to competitively tap into global markets, small to medium firms are a target for export promotion. "Buy local" campaigns could have a negative effect on government efforts to promote international marketing. On the other hand, increased competition at the local level will benefit a firm's competitiveness in foreign markets once the firm does chose to expand. By having an understanding of its competitive advantages on the local level, the firm will have an insight into its advantages on the global level.

Government programs such as the Kentucky Department of Agriculture's import/export advising, and the Kentucky World Trade Center, assist firms in the first stages of international marketing, in ways similar to an infant industry program. Financial assistance is available, as well as opportunities for linking foreign buyers with individual firms in Kentucky. These types of programs are available on a state and national level.

The goal of this project was to determine how market perceptions, competitive advantage, lack of information, and firm size impact a firm decision makers' choice to enter foreign markets. Using a binary logistic regression, the impact of variables derived from survey questions was measured against the firm's decision to export its products or not. Competitive advantage in terms of niche markets and the lack of information were not statistically significant. It was expected that firm size would have the most significant impact on the decision to export, however perceived profitability in foreign markets was actually more statistically significant according to p-values. Firm size, with respect to the number of employees, and perceptions of U.S and international markets as a whole were each significant. Larger firms are more likely to export their products, firms who look at markets from a global viewpoint and firms who believe international marketing to have equal or more opportunity for profitability are more likely to export.

Overall, it is concluded that firm size plays an important role in the decision to export, however to target small to medium-sized agribusiness and food processing firms, it is important to explore the perceptions those firms have regarding international marketing. If firms are better educated about the resources available for beginning exporters and if smaller firms look at global and domestic markets equally, they will be more likely to export their products.

This study serves to inform academic researchers, government officials, and agribusiness and food processing firms about international marketing from the local level (smaller firms). Identifying factors that contribute to the decision to export is one of the first steps to promoting international marketing for the targeted group. Education about the benefits of globalization and the assistance available is highly important in efforts to increase U.S. exports in agriculture and value-added food products.

Further Research

This research is continuing, with hopes of gaining a larger sample size, at least N=100. With a larger sample size, the degrees of freedom will be more flexible and the number of variables can be increased. Further testing on the impact of firm's competitive advantages, supply and demand, and more on firm's perceptions of foreign markets will be done. In this particular model, competitive advantage did not have a statistically significant impact, however testing other areas of competitive advantage across a larger response pool will likely change the results. Also of interest is more research on the impact of information gaps on foreign marketing. Similar studies can be done in other countries, or other regions of the United States, to test the validity of the model and whether factors contributing to the decision to export vary across regions and nations.

Table 1. Description of Independent Variables

Variable	Description	Question Type
Age	Years the firm has been in business	range of years
Employee	Number of employees	range of numbers
Sales	Gross annual sales	Range of $1,000
Marketingdiv	Special division dedicated to marketing	yes/no
Custexport	Does customer export your products	yes/no
Farmmarket	Are you only interested in producing for farmers market	yes/no
intlexp	Employees with international experience	yes/no
niche	Firm has a competitive advantage in niche market demands	yes/no
mgt	Management strategies for export activities is a barrier to foreign markets	yes/no
capital	Insufficient capital is a barrier to foreign markets	yes/no
costs	High costs of exporting is a barrier to foreign markets	yes/no
internationalfin	International financing is a barrier to foreign markets	yes/no
rates	Currency rates act as a barrier to foreign markets	yes/no
records	Paperwork/export records are barriers to foreign markets	yes/no
barriers	Trade barriers and tariffs are barriers to foreign markets	yes/no
Agritourism	Is your firm an agri-tourism attraction	multiple choice
Online	Is your product available for sale online	multiple choice
intlsalesprop	Firm receives sales proposals from international companies	many to none
solicit	Firm approaches foreign companies for sales and new markets	many to none
lackinfo	Lack of information impacts market selection and development	1 to 5
growth	Growth in production sales and volume is important objective	1 to 5
mktperception	Company views U.S. markets and international markets as separate & unique	1 to 5
idnew	Lack of information hinders ability to identify and establish new markets	1 to 5
consneeds	Finding information about consumer wants and needs is difficult	1 to 5
foreigncons	Foreign customers do not have enough product information	1 to 5
risk	International markets are riskier than domestic markets	1 to 5
profitability	Firm believes international sales would be less profitable than domestic	1 to 5
costconstraints	Costs of international marketing and sales is a constraint to entry	1 to 5

Table 2. Descriptive Statistics of Independent Variables

Variable	Mean	Std Dev	Min	Max
Age	12.9	9.4	2.5	25
Employee	**29**	**32**	**5**	**120**
Sales ($1,000)	6684.48	15,940.26	50	60,000
Marketingdiv	17%	0.38	0	1
Custexport	20%	0.41	0	1
Farmmarket	13%	0.35	0	1
Intlexp	23%	0.43	0	1
niche	**73%**	**0.45**	**0**	**1**
mgt	37%	0.49	0	1
capital	40%	0.5	0	1
costs	57%	0.5	0	1
internationalfin	30%	0.47	0	1
rates	43%	0.5	0	1
records	43%	0.5	0	1
barriers	47%	0.51	0	1
Agritourism	1%	0.31	0	1
Online	43%	0.5	0	1
intlsalesprop	4	1.26	1	5
solicit	4.46	0.99	1	5
lackinfo	**2.9**	**1.03**	**1**	**5**
growth	1.93	1.23	1	5
mktperception	**1.93**	**1.11**	**1**	**5**
idnew	3.14	1.2	1	5
consneeds	3.29	1.26	1	5
foreigncons	2.88	1.24	1	5
risk	1.84	1.01	1	5
profitability	**1.99**	**1.17**	**1**	**5**
costconstraints	2.24	1.21	1	5

Table 3. Descriptive Statistics of Dependent Variable: Export

Description	Question Type
Does firm currently export products	yes/no
Mean	Std Dev
0.2	0.41

Table 4. Logit Odds Ratio Estimates for Independent Variables

Variable	Point Estimate
niche	0.359
profitability	4.982**
mktperception	6.807*
Employee	1.054*
lackinfo	0.435

References

2008 National Export Strategy. U.S. Trade Promotion Coordination Committee 2008. Online. Available at http://www.trade.gov/media/publications/pdf/nes2008FINAL.pdf [Accessed May 2009].

Commonwealth of Kentucky. 2008. Online. Available at http://kentucky.gov [Accessed April 2009].

Kentucky Department of Agriculture. 2009. Online. Available at www.kyagr.com [Accessed April 2009].

Morillo, Juan P. "The Clinton Administration's New National Export Strategey." *Law and Policy in International Business* (Vol. 25). 1994

Saxowsky, David M., Joyce H. Krause, and Cole R. Gustafon. 1998. "Export Enhancement Strategies for Small and Medium Rural and Agricultural Firms." (Agricultural Economics Report No. 405). North Dakota: North Dakota State University Department of Agricultural Economics. p1-47.

Sterns, James A., "Decisions About Exporting: The Case of Michigan's Smaller Agribusiness and Food Industry Firms" (PhD Dissertation, Michigan State University, 1997), 1-307.

The Kentucky World Trade Center. 2009. Online. Available at http://www.kwtc.org [Accessed April 2009].

"Tobacco Transition Payment Program" USDA Farm Service Agency 2005. Online. Available at http://www.fsa.usda.gov/FSA/webapp?area=home&subject=toba&topic=landing [Accessed May 2009].