The Effect of Export Promotion Program Usage on Establishing Export Markets

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Introduction
- North Dakota’s GDP has risen between 2% and 3% from 1997 to present day (Local Census 2006).
- Since 1999, machinery exports have increased from $282.228 million to $1,183 million in 2008, a 319% increase (NDTO 2008).
- The machinery sector was 78% of total durable exports from North Dakota in 2007.
- North Dakota agricultural exports, such as crops and food products increased from $140 million in 2004 to $507 million in September 2008 (NDTO 2008).

Data
- Used phone survey to contact 28 observations.
- Contacted the President, chief financial officer, chief executive officer, or office manager.
- Dependent variable: Export Revenue / Total Revenue
- Table 1 Data Collected From Firm Surveys

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<th>Variable</th>
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<td>Prom</td>
<td>+</td>
<td>Finm</td>
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<tr>
<td>Shipr</td>
<td>-</td>
<td>Risk</td>
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<tr>
<td>In K</td>
<td>+</td>
<td>In Ag</td>
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<td>In L</td>
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<td>NDTO*Small</td>
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<td>Aware</td>
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<td>NDTO</td>
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Methodology
- Taken from Helpman et al. (2004), consumers in a foreign market have a CES utility function:
  \[ u(x_1, x_2) = x_{1}^{\gamma} - \frac{x_{2}^{\gamma}}{\delta}, \quad \gamma > 0, \delta > 0 \]
  The consumer can either gain utility from consuming good \( x_1 \) from market 1 or consuming the identical good from market 2.
- We apply a version of Anderson’s (2007) theoretical model of entry costs for entering a foreign market. Anderson’s (2007) theoretical model shows firm \( i \) located in market \( s \) maximizes profits by expanding to market \( s' \) according to the following equation:
  \[ \alpha_1 = \frac{\beta_1}{\beta_1}, \quad \alpha_2 = -\frac{\beta_2}{\beta_2}, \quad \alpha_3 = -\frac{\beta_3}{\beta_3}, \quad \alpha_4 = -\frac{\beta_4}{\beta_4} \]
  where denotes firm \( i \)’s price in market \( s \), denotes the quantity demanded in market \( s \), and denotes firm \( i \)’s marginal cost. The entry costs associated with firm \( i \) entering and exporting to market \( s' \). Because we assume that the firm has already entered in their domestic market, the assumption can be made that \( F_{s'0} = 0 \) and \( F_{s0} = 0 \).
- The producer’s objective, assuming a CES utility function, is to maximize expected utility through profit maximization shown as:
  \[ \max_{x} E(u(x)) = E(\prod_{i=1}^{n} u(x_i)) \]
- Expected utility is the sum of profits from domestic sales and profits from foreign sales. There must be an assumption that domestic market parameters are known with certainty.

A Tobit model accounts for the truncated dependent variable having only positive values. Created by Tobin (1958) to show relationships between non-negative dependent variables and independent variables it also can be used for smaller sample sizes with a non-negative dependent variable. The Tobit equation will then take the form:
  \[ \gamma = \beta_1 + \beta_2 \ln K + \beta_3 \ln L + \beta_4 \ln Ag + \beta_5 \ln Prom + \beta_6 \ln Aware + \beta_7 \ln NDTO + \epsilon \]

Results
- Tobit regression uses a Chi-squared statistic to show significance
  - The Chi-squared is a sum of the effect from all the observation for each variable.
  - The greater the chi-squared statistic, the more significant the variable is on the dependent variable.

Table 2 Expected Impacts on the Dependent Variable
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Conclusions
- The NDTO significantly affects small and medium firms in a positive manner.
- For every $1.00 spent on the NDTO, firms increase export revenue about $6.44 and $107.73 for small and medium firms, respectively.
- Large firms using the NDTO have smaller shares of revenue coming from exports.
- Wilkinson and Brouthers (2000) also found state-sponsored export promotion services to be significant.
- When a manager of small or medium firm decides to enter or expand in the foreign market they should use the North Dakota Trade Office because it positively effects the firms share of export revenue.

Shortcomings
- Effect from export promotion services and the NDTO is not fully quantified.
- Sample size is relatively small.
- May be a better way to collect the firm data besides a telephone survey.

Future Research
- Effects from each program the NDTO offers
- The impact of the NDTO and export promotion state-wide
- Including other sectors present in the state of North Dakota.

Literature cited

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References