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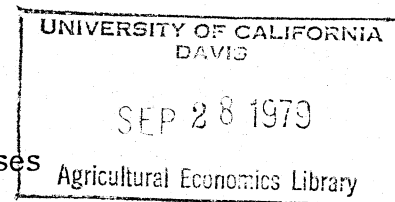
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Export Orientation of Nonmanufacturing Businesses  
in Nonmetropolitan Communities

Stephen M. Smith\*

According to export base theory, the export sector is the most important factor initiating economic growth and determining its rate and extent [North; Park; Perloff, et al; Tiebout (1956, 1962)]. Thompson casts this sector in the key role as the active instrument of local economic change. Endeavors of nonmetropolitan communities to stimulate their economies and generate employment are based upon a recognition of the export base concept and process. The primary focus of these efforts has been the attraction or expansion of manufacturing industry, which is viewed as the most effective vehicle to create jobs and establish the basis for long term growth. The implicit assumption behind most job creation strategies is that exports from manufacturing will continue in this role as the major engine of growth. However, as Smith and Pulver have pointed out, there are several reasons why this assumption should be reexamined in the case of nonmetropolitan communities, and why an alternative or complementary approach should include certain nonmanufacturing industries.

Nevertheless, a key question to be answered is can nonmanufacturing industries fulfill the necessary export role? Industrial developers and researchers alike have assumed that such industries, which are primarily in the service sector of the economy, cannot fulfill this role. However,

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export base theory does not exclude nonmanufacturing industries, and it has long been recognized that they serve a vital export function for major metropolitan areas. Still, no attention has been paid to the actual or potential export role of nonmanufacturing industries in non-metropolitan communities. The purpose of this paper is to examine the level of export activity of selected nonmanufacturing businesses in non-metropolitan communities and to analyze the factors related to this export activity.

The data come from a mail survey conducted in 1976 of 575 nonmanufacturing businesses located in the nonmetropolitan counties in Wisconsin.<sup>1</sup> The survey technique followed the general procedure used by Buse (1973). A useable return rate of 67 percent (385 responses) was obtained. The businesses included in the survey were types which are not necessarily dependent upon the local (community) population and income levels for their market. Those specifically excluded were retail trade, personal services, repair services, and recreation. While the last are admittedly export oriented, they were excluded because the employment and income benefits of recreation have been studied considerably.

The businesses were selected with a systematic stratified random sample technique. The strata were the type of business and the number of employees. The types of businesses are in Standard Industrial Classification (S.I.C.) categories. The employment size categories

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<sup>1</sup>To the author's knowledge, this is the most comprehensive survey of this sector of the nonmetropolitan economy. Other studies focus on specific business types, such as the financial sector, retail trade, or recreation and related. This study thus allows a broader look at non-manufacturing and permits comparisons among several types of businesses.

are 4-19, 20-99 and 100 or more. Only businesses with four or more employees were sampled because smaller firms were not included in the state unemployment compensation program, from which the sample was drawn. The sample represented 14.7 percent of the population.

#### Export Activity of Nonmanufacturing Businesses

The results of the survey indicate that the nonmanufacturing industries studied are playing a substantial export role in nonmetropolitan Wisconsin.<sup>2</sup> Table 1, column 1 shows that over 28 percent of all sales were exported. The range is from 11.2 percent for health services to 35.7 percent for legal and miscellaneous services. An analysis of variance indicates that the differences among business types in percent of sales exported are statistically significant at greater than the .05 level.

The businesses were further classified into export oriented ( $\geq 50$  percent of sales exported) and non-export oriented ( $< 50$  percent of sales exported) firms (columns 2 and 4 in Table 1). More than a quarter (26.6 percent) of the businesses studied can thus be classified as export oriented. The range is from 7.7 percent of the health service firms to almost 37 percent of the wholesale trade firms. For those businesses classified as export oriented, an average of 79.3 percent of sales were exports, while the non-export oriented businesses made an average of only

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<sup>2</sup>Export sales are defined as sales made beyond a 30-mile radius from the location of the business. This distance was chosen in order to ensure that the exports would be leaving the county of origin in most cases. Nevertheless, the distance is not relevant, since all that matters is that the sales are made outside the community, or local geographic area however defined [Tiebout (1962)].

Table 1: Export orientation of nonmanufacturing businesses, by type of business.

Type of business	Average percent of sales exported	Export oriented ( $\geq 50\%$ sales exported)		Nonexport oriented ( $< 50\%$ sales exported)	
		Percent of businesses	Average percent sales exported	Percent of businesses	Average percent sales exported
Construction	29.0	28.8	74.9	71.2	10.3
Trucking/warehousing/ transportation	21.7	22.9	78.6	77.1	4.9
F.I.R.E.	34.8	26.5	84.9	73.5	16.7
Wholesale trade	32.7	36.9	77.0	63.1	6.8
Business services	28.2	25.0	84.9	75.0	9.3
Health services	11.2	7.7	76.7	92.3	5.8
Legal & misc. services	35.7	26.9	77.0	73.1	21.5
Total	28.1	26.6	79.3	73.4	9.5
	significant at > .05 (F = 2.58 D.F.: 6,343)		not significant		significant at > .001 (F = 6.20 D.F.: 6,250)
	N = 350		N = 93		N = 257

9.5 percent of their sales outside the local area (columns 3 and 5, Table 1).

Because of these differences among businesses in level of export activity, an important question becomes, then, what characteristics distinguish export oriented from non-export oriented firms; or, are there characteristics which can be used to predict a higher or lower level of export orientation? The next section addresses this question using multiple linear regression to examine the relationships between a firm's level of exports and several characteristics of the firm and the community in which it is located.

#### Factors Related to Level of Exports of Nonmanufacturing Businesses

The relationship examined is of the following form:

$$X = F(Y_1, Y_2 \dots Y_n, Z_1, Z_2, \dots Z_m),$$

where X is the percentage of a firm's total sales which are exported, the Y's are characteristics of the community in which the firm is located, and the Z's are characteristics of the firm itself. This distinction is drawn because it is felt that certain aspects of the community may act to condition the export potential or orientation of a firm, and that specific characteristics of the firm also will be significantly related to its level of exports.

The multiple regression model used to empirically examine this hypothesized relationship is:

$$\begin{aligned} X = a + \beta_1 \text{MFGEMP75} + \beta_2 \text{SEREMP75} + \beta_3 \text{DISSMSA} + \beta_4 \text{DISSMSA2} + \beta_5 \text{LCLEXPND} \\ + \beta_6 \text{LOCOWN} + \beta_7 \text{TOTEXP} + \beta_8 \text{DF}_1 + \beta_9 \text{DF}_2 + \beta_{10} \text{DF}_3 + \beta_{11} \text{DSIC}_1 + \beta_{12} \text{DSIC}_2 \\ + \beta_{13} \text{DSIC}_3 + \beta_{14} \text{DSIC}_4 + \beta_{15} \text{DSIC}_5 + \beta_{16} \text{DSIC}_6 + e, \end{aligned}$$

where  $X$  = the percentage of a firm's total sales which are exported;

where the community characteristics are:

MFGEMP75 = total manufacturing employment in the county in 1975,

SEREMP75 = total service sector employment in the county in 1975,

DISSMSA = distance in miles of the town in which the firm is located  
from the nearest SMSA,

DISSMSA2 = distance from nearest SMSA squared;

and where characteristics of the firm are:

LCLEXPND = percentage of the firm's total expenditures in 1975  
which were made locally,

LOCOWN = percentage of the firm owned by local residents,

TOTEXP = total expenditures of the firm in 1975 measured in tens  
of thousands of dollars, as a proxy for firm size,<sup>3</sup>

$DF_1 - DF_3$  = dummy variables for type of firm organization and operation,  
where  $DF_1$  is an independently owned and operated business,  
 $DF_2$  is a branch operation,  $DF_3$  is an "other" classification  
including franchises, subsidiaries and cooperatives, with  
the excluded dummy class being "head offices,"

$DSIC_1 - DSIC_6$  = dummy variables for Standard Industrial Classification  
categories, which are, respectively, trucking-transportation-  
warehousing, wholesale trade, finance-insurance-real estate,  
business services, health services, legal and miscellaneous  
services, with the excluded dummy class being construction.

The community characteristics were chosen to examine the importance  
of market proximity. Location theory stresses that firms will tend to  
locate where the costs of access to major markets are minimized [Estall and  
Buchanan; Smith]. Thus, as distance from markets increases (DISSMSA,  
(DISSMSA2), exports from firms in the more distant communities should be

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<sup>3</sup>While measuring firm size in terms of numbers of employees is more  
conventional, it did not prove to be a statistically significant predictor.  
It also reduced the overall significance of the regression equation, and is  
positively correlated with total expenditures only at the .32 level.

less than in closer communities. Also, a larger economic base, represented by area employment (MFGEMP75, SEREMP75), should provide a larger local market, and thus lead to a lower percentage of exports.<sup>4</sup>

The characteristics of the firms included variables that would distinguish among firms with respect to their potential for generating export earnings, and thus allow communities or industrial developers to focus efforts on those with more export potential.

The results of the regression model are presented in Table 2. The model as a whole is highly significant, although the  $R^2$  of .34 indicates that substantial proportions of the variation in the percent of exports remain to be explained. Results of significance tests on the coefficients of the individual variables indicate that they can be used with a high degree of confidence to distinguish among firms and community conditions with regard to export potential. The four community variables are the most important in determining export levels. Using standardized regression coefficients, the coefficients of these variables are larger than those of other variables.

Among the community characteristics, distance from the nearest SMSA (DISSMSA) is the most important factor determining the level of firm exports. Besides being the most statistically significant community variable, its magnitude of influence (based on standardized regression coefficients) is the largest of all variables, including firm characteristics. The sign of the coefficient indicates, as expected, that the

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<sup>4</sup>While population is a more popular proxy for local market size, employment was used because the sample represents industries not dependent on population. However, Braschler found an almost perfect relationship between county population and total employment in Missouri. In the present study, manufacturing and service employment were correlated with county and town population at the .8 to .9 level.



Table 2: Results of regression of percent of sales exported as a function of community and firm characteristics.

Variable	Coefficient	Standard error
Community characteristics		
MFGEMP75	0.0023 <sup>d</sup>	0.0015
SEREMP75	- 0.0016 <sup>d</sup>	0.0011
DISSMSA	- 0.3702 <sup>b</sup>	0.1918
DISSMSA2	0.0024 <sup>c</sup>	0.0015
Firm characteristics		
LCLEXPND	- 0.2677 <sup>a</sup>	0.0552
LOCOWN	- 0.3137 <sup>a</sup>	0.0713
TOTEXP	0.0087 <sup>a</sup>	0.0016
DF <sub>1</sub>	- 19.9443 <sup>a</sup>	5.8299
DF <sub>2</sub>	- 9.2691	8.8848
DF <sub>3</sub>	- 20.9409 <sup>b</sup>	9.4755
DSIC <sub>1</sub>	- 13.8023 <sup>b</sup>	6.8467
DSIC <sub>2</sub>	- 9.5173 <sup>c</sup>	5.6915
DSIC <sub>3</sub>	- 5.3673	7.2894
DSIC <sub>4</sub>	1.0847	5.6026
DSIC <sub>5</sub>	- 15.0683 <sup>b</sup>	6.7363
DSIC <sub>6</sub>	10.7334 <sup>d</sup>	7.4369
R <sup>2</sup>	.342	
F - Ratio (16,282)	9.174 <sup>a</sup>	

Significance levels: a = .01; b = .05; c = .10; d = .15

farther a community is from an SMSA, the lower will be the percentage of a firm's sales which are exported. At the same time, the sign of the coefficient of the squared distance term indicates that the negative effect of distance from market diminishes as distance increases.

The signs of the coefficients of the two employment variables indicate that the relationship of local market size and economic base to level of exports differs depending on whether it is measured by service sector employment or manufacturing employment. The expectation was that the larger the local market, the lower would be the percentage of a firm's sales exported. This was the relationship that was found between total service sector employment and exports. However, manufacturing employment was positively related to the level of firm exports. That is, as county manufacturing employment increased, the percentage of sales exported by nonmanufacturing firms also increased. This result may be interpreted as supporting a job creation/industrialization strategy that includes both manufacturing and nonmanufacturing industries. A further interpretation is that increases in nonmanufacturing employment, which traditionally accompany manufacturing expansion, are not necessarily of the non-basic type. On the contrary, the "basic" role of nonmanufacturing appears to increase as the manufacturing base expands.

The coefficients of the non-dummy variables describing firm characteristics were all highly significant at greater than the .01 level. The positive sign of the coefficient for a firm's total expenditures (TOTEXP) shows that the larger the firm the higher will be the percentage of its sales which are exported. The negative signs of the coefficients for the percent of a firm's expenditures made locally (LCLEXPND) and the

percent of a firm which is locally owned (LOCOWN) indicate, respectively, that the larger the proportion of a firm's expenditures made locally, and the greater its percentage of local ownership, the lower will be the percentage of a firm's sales which are exported. Looked at another way, a firm which is nonlocally oriented to begin with because of the residence of its owners and because of where it purchases inputs will also tend to be nonlocally oriented in its sales. This result implies that communities interested in nonmanufacturing, export oriented industries may have to accept the trade-off that such businesses are also less likely to have strong local linkages.

The regression results for the dummy variables show the differences in the level of exports which can be expected depending on type of firm organization ( $DF_1 \dots DF_3$ ) and type of business ( $DSIC_1 \dots DSIC_6$ ). A significant coefficient for one of these variables means that the percent of sales exported can be adjusted up or down, depending on sign, for businesses in those categories. For example, the excluded class for firm organization was head offices. The negative signs of the coefficients for independent, branch, and "other" operations mean that the percentage of sales exported by the latter three types is less (by the size of the coefficient) than for head offices, on the average. However, since the coefficient for branch offices is not significant, it must be concluded that this type does not differ from head offices in its export orientation. The coefficients of the dummy variables for the type of business are interpreted similarly.

### Summary

Using a sample of selected nonmanufacturing businesses from non-metropolitan counties in Wisconsin, this study has shown that certain businesses do indeed play an export role, but that the level of exports depends on several factors. The results showed that as a firm's total expenditures, the percent of that total spent nonlocally, and the percent of nonlocal ownership all rise, the percentage of sales exported will also rise. The level of exports also depended on the type of firm organization (head office, branch office, subsidiary-franchise-cooperative, independent), and on the type of business, as determined by Standard Industrial Classification categories.

Community characteristics, all apparently market related, were the most important factors explaining the percentage of a firm's sales which were exported. Of these, distance from the nearest SMSA had the largest weight and was inversely related to percent of sales exported. The effect of this relationship diminished as distance increased. Also, total local service sector employment was inversely related, but total local manufacturing employment was positively related to percent of sales exported. This last result suggests that nonmanufacturing industry may be an effective complement to manufacturing in strategies designed to increase and diversify the export base of nonmetropolitan communities.

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