

# Domestic Wood Products Manufacturing Trends and Factors to Enhance Competitiveness

Urs Buehlmann

Department of Wood and Paper Science, NC State University  
Raleigh, NC, United States

Matthew Bumgardner

Northeastern Research Station, USDA Forest Service  
Princeton, WV, United States

Albert Schuler

Northeastern Research Station, USDA Forest Service  
Princeton, WV, United States

and

Rich Christianson Wood and Wood Products Magazine  
Lincolnshire, IL, United States

## ABSTRACT

There is little question that imports have captured a substantial portion of the domestic furniture market. However, there is much speculation and concern as to the future of this and related industries. This study sought to obtain industry perspectives of trends in domestic manufacturing and importing, and to identify factors that can enhance domestic competitiveness. A mail survey was conducted between August and November of 2002. Manufacturers in three secondary industry sectors and in two size categories were randomly selected from the distribution list of a major wood products trade publication and included in the survey. Perspectives as to the future state of the domestic industry differed widely by sector and company size. There were also differences concerning factors that can enhance the competitive situation of domestic manufacturers. This information can be used to assess the import pressures specific sectors and company sizes are experiencing and to develop strategies for survival in an increasingly global marketplace.

Keywords: Furniture; Cabinets; Competitiveness; Wood products.

## 1. INTRODUCTION

### 1.1 Domestic Competitiveness Faltering

Many wood products industries in the U.S. are facing ever-increasing pressure from foreign competition. For example, there are indications that many major U.S. manufacturers of residential furniture may have lost their competitive edge and little evidence exists that a turnaround is in the making. In fact, a leading trend has been for U.S. home furniture

manufacturers to close domestic plants and substitute components or complete lines of furniture with imported products. Today, we conservatively estimate that approximately 40 percent of all wood residential furniture sold in the United States is imported from foreign countries. Foreign manufacturers, led by China, Canada and Italy, have nearly doubled their share of the U.S. wood household furniture market since 1990 [1].

While the impact on the U.S. wood home furniture market has been most pronounced, imports have also increased their share of market for wood office furniture, kitchen cabinets, and upholstered furniture [1,2]. Reasons for domestic market share losses include increasing globalization exposing companies previously sheltered from international competition, improvements in containerized shipping technology that lowered transportation costs and reduced damage, a U.S. economy that outperformed the rest of the world thereby attracting foreign products, and lower wage and regulation costs in many parts of the world [2]. In view of these trends, it is not surprising that many industry observers question whether America's secondary wood products industry will become a mere shell of its former self in a few years time. But what does the remaining industry think, and what can they do to compete?

### 1.2 Objectives

Several ideas for improving domestic competitiveness in the household furniture industry have been discussed in the literature [2,3]. However, there is little information concerning how industry representatives feel about proposed solutions. A comprehensive study conducted by North Carolina State University, the USDA Forest Service and *Wood & Wood Products* magazine sought the input of industry executives to shed light on the import situation and

to better determine the U.S. wood product industry's prospects and plans for the future. The objectives of this research were: (i) to obtain industry perspectives of emerging trends in domestic manufacturing and importing, and (ii) to identify factors that can enhance domestic competitiveness.

## 2. METHODS

### 2.1 Data Collection

The initial mailing list for the survey contained 2,100 firms, drawn from the distribution list for *Wood and Wood Products* magazine. Stratified sampling was employed, with the mailing list being split between household furniture (HF), kitchen and bath cabinets (KBC), and office/hospitality/contract furniture (ORC) manufacturers. The sample was further stratified by size to include those firms with 20-99 employees (termed "small firms") and those firms with 100 or more employees (termed "large firms"). Firms with fewer than 20 employees were excluded.

Approximately 350 firms were randomly selected within each stratum for small HF, large HF, small KBC, and large ORC firms; 130 large KBC and 508 small ORC firms were also selected for inclusion in the mailing list, reflecting their relative presence in the sampling frame. Two questionnaire/cover letter mailings and a reminder postcard were sent, respectively, as part of the survey in August and September of 2002. The questionnaire mailings included post-marked return envelopes.

The number of usable questionnaires returned was 341. After adjusting for non-deliverable addresses, firms out of business, and firms not actually manufacturing the products of interest, the response rate was 18 percent. Sixty-two percent of the sample had less than 100 employees and 59 percent generated less than \$10 million in sales in 2001. Table 1 shows a breakdown of the sample by firm type and size.

To test for nonresponse bias, the responses to two questions were analyzed by comparing respondents to the first ( $n=177$ ) and second ( $n=164$ ) questionnaire mailings. It was possible that firms with a high level of concern regarding threats posed by imports were more likely to respond than less concerned firms. The first question asked how committed the company was to maintaining a domestic manufacturing presence using a seven-point response scale (1 = *not at all committed* to 7 = *very committed*). The second question asked the extent to which respondents agreed with a statement suggesting that by the end of the decade little would remain of domestic wood furniture and other wood products manufacturing in the United States (the response categories were *strongly agree*, *agree*, *disagree*, *strongly disagree*, and *not sure*). For the first question, there was no evidence of significant differences between the two groups ( $t=0.66$ ,  $p=0.51$ ).

Likewise, there was no evidence to support significant differences between groups on the second question (chi-square=3.21,  $p=0.52$ ). From these results, it was concluded that nonresponse bias was not a significant factor in the survey.

**Table 1.** Sample breakdown by firm type and size.

Firm Type	Firm Size	Number in
		Sample
HF	Small	52
HF	Large	55
KBC	Small	60
KBC	Large	27
ORC	Small	98
ORC	Large	49

### 2.2 Data Analysis

An alpha level of 0.10 was chosen for all tests. Questions regarding emerging trends in domestic manufacturing and importing (Objective 1) were primarily structured with categorical responses. These questions were analyzed using chi-square tests for independence with firm category. A significant result indicated that there was dependence between firm category and the categorical variable in question, or stated another way, that there were differences among firm categories.

Questions regarding factors that can enhance domestic competitiveness (Objective 2) were grouped into four sets of scaled items. MANOVA was used to determine if overall differences existed between the two levels of firm size (small and large) and three levels of firm type (HF, KBC, ORC), with the item sets serving as the dependent variables in four separate MANOVA analyses. When a significant MANOVA result was obtained, an ANOVA was performed on each dependent variable to determine the source(s) of differences. When a significant ANOVA result was obtained, Duncan's multiple range test was used to determine differences in group means.

Prior to analysis, responses were transformed (row centered) in each set of items by subtracting the individual's average score from each item's score [4] and adding a constant so that all transformed data had a positive value [5]. In essence, this procedure places all respondents on "equal footing" as to their answers to scale questions.

### 3. RESULTS

#### 3.1 Trends in Domestic Manufacturing and Importing

Results of questions addressing the first objective suggest that there were differences among the firm categories in many cases. Chi-square tests suggested the following trends.

- There was a difference among firms with respect to the question, "Over the last five years, have you increased use of wood imports in your product line?" (chi-square=57.6,  $p < 0.01$ ). The range in responses was 75.0 percent of small KBC firms responding "no" to 40.0 percent of large HF responding "no."

- There was a difference among firms with respect to the question, "Over the last five years, have you lost significant business due to imports?" (chi-square=49.8,  $p < 0.01$ ). The range in responses was 65.5 percent of large HF responding "yes" to 7.7 percent of large KBC answering "yes."

- There was a difference among firms with respect to the question, "For your company, approximately what percent of sales will result from domestically produced and/or sourced products three years from now?" (chi-square=25.5,  $p = 0.04$ ). The range in responses was 45.5 percent of large HF indicating that over 80% of sales would be from domestic products to 70A percent of large KBC firms indicating domestic sales exceeding 80% in three years.

- There was a difference among firms with respect to perceptions of the viability of domestic manufacturing. Respondents were asked, "Many industry observers predict that by the end of the decade, little will remain of domestic wood furniture and other wood products manufacturing in the U.S. Looking at trends in your company's market segment, do you" with response categories of *strongly agree*, *agree*, *disagree*, *strongly disagree*, and *not sure*. There were differences among firms (chi-square=39.9,  $p = 0.01$ ), ranging from 61.1 percent of large HF either *agreeing* or *strongly agreeing* to 17.0 percent for small KBC firms.

- When small firms and large firms were considered separately, there were no statistical differences among firm types concerning planned levels of spending on capital improvements over the next three years. The majority of small firms planned for capital expenditures of less than \$500,000, while most large firms had plans for spending under \$1,000,000.

#### 3.2 Factors That Can Enhance Competitiveness

The second objective addressed factors that could enhance domestic competitiveness. When asked, "How committed is your company to maintaining a domestic manufacturing presence?" the overall average response was 6.1 on a scale from 1 = *not at all committed* to 7 = *very committed*. There were no differences among firm categories (ANOV A p-

value=0A8), suggesting an overall general desire to keep at least a portion of manufacture in the U.S.

Respondents were asked to rate the importance of 11 factors inherent to maintaining a strong domestic manufacturing presence. As shown in Table 2, there was a firm type effect in the MANOVA using the 11 factors as dependent variables. The follow-up ANOV A's on the dependent variables revealed a significant difference among firm types for *better control over manufacturing*, with HF firms rating this significantly higher than OHC firms.

**Table 2.** MANOV A results for importance of factors to companies wishing to maintain a strong domestic manufacturing presence (scale: 1=*not at all important* to 7=*very important*).

	$\lambda$ stat.			
	$p$			
MANOVA Results				
Interaction	0.99			
Firm Size	0.27			
Firm Type	0.08			
	Mean	Mean	Mean	
Firm Type	HF	KBC	OHC	
Better control over manufacturing	5.6	5A	5.3	0.0

Respondents were asked to rate the potential of 12 actions domestic manufacturers could take to enhance their competitiveness. As shown in Table 3, there were firm type and firm size effects in the MANOV A using the 12 actions as dependent variables. The follow-up ANOV A's on the dependent variables revealed a significant difference among firm types for *production of customized products* with HF firms rating this significantly lower than KBC and OHC firms, *workforce training/education* with KBC firms rating this significantly higher than OHC and HF firms, and *greater use of outsourced labor* with OHC firms rating this significantly higher than KBC firms.

Regarding the firm size effect (Table 3), the follow-up ANOV A's on the dependent variables revealed a significant difference for *realization of shorter lead times* with large firms rating this higher, and *greater use of outsourced labor* with small firms rating this higher.

**Table 3.** MANOV A results for potential of factors to enhance the competitiveness of companies wishing to maintain a strong domestic manufacturing presence (scale: 1 =low potential to 7=high potential).

	λ. stat.		p	
MANOVA Results				
Interaction	0.13			
Size	0.06			
Type	0.05			
ANOVA Results		Mean	Mean	
<i>Firm Size</i>		small	large	
Realization of shorter lead times	5.7	6.0		0.02
Greater use of outsourced labor	4.3	3.8		<0.01
ANOVA Results		Mean	Mean	Mean
<i>Firm Type</i>		HF	KBC	OHC
Production of custom products	5.1	5.8	5.5	<0.01
Workforce training/education	4.9	5.3	5.0	0.01
Greater use of outsourced labor	4.1	3.9	4.2	0.07

Respondents were asked to indicate their level of agreement that seven possible themes would achieve maximum effect in an industry-wide promotion campaign for domestically produced furniture. Table 4 indicates that there was a firm type effect in the MANOV A using the seven themes as dependent variables. The follow-up ANOV A's on the dependent variables revealed a significant difference among firm types for *the tradition of American furniture manufacturing* with HF firms rating this significantly higher than OHC firms, and *use of environmentally certified wood* with OHC firms rating this significantly higher than HF and KBC firms.

Lastly, respondents were asked to rate the helpfulness of eight types of public sector assistance to firms wishing to maintain a strong domestic manufacturing presence. There were no firm type or firm size effects in the MANOV A using the eight assistance types as dependent variables (firm size *p* value=0.89; firm type *p*-value=0.43). There was unanimity across all firms that financial assistance was generally most helpful, followed by information assistance and protection assistance.

**Table 4.** MANOVA results for focus of industry-wide promotion campaign for domestically produced furniture and cabinets to achieve maximum effect (1=strongly disagree to 7=strongly agree).

	λ stat.		p	
MANOVA Results				
Interaction	0.18			
Firm Size	0.57			
Firm Type	0.07			
ANOVA Results		Mean	Mean	Mean
<i>Firm Type</i>		HF	KBC	OHC
The tradition of American furniture manufacturing	5.0	4.9	4.7	0.05
Use of environmentally certified wood	4.2	4.2	4.6	0.01

#### 4. DISCUSSION

The results suggest that HF firms, especially large HF firms, are facing the most import pressures. Compared to the other firm categories, large HF firms were the most likely to: have increased use of wood imports in their product lines over the past years (60 percent); lost significant business to imports over the last five years (65 percent); and agree that little will remain of the domestic industry by the end of the decade (61 percent). Nearly half of small HF firms also agreed with this statement. In addition, only 45 percent of large HF firms indicated that more than 80 percent of sales would come from domestically produced and/or sourced products in three years.

KBC firms seemed to be facing the least pressure from imports. Small KBC firms and large KBC firms were the least likely to have lost significant business to imports over the last five years, with 73 percent and 85 percent answering "no" to this question, respectively. Small and large KBC firms also reported that a higher percentage of sales would come from domestically produced and/or sourced products in three years compared to the other firm categories at 69 percent and 70 percent, respectively.

Overall, responding firms indicated a strong commitment to maintaining a domestic manufacturing presence. However, many also agreed that the domestic industry would be smaller by the end of the decade. Several interesting differences were found among firm types concerning factors to enhance competitiveness. HF firms rated control over manufacturing as more important than did OHC and KBC firms. This may be an indication that they have enough experience with importing to know that at least some control over manufacturing is lost when imported products and/or components are incorporated into the product mix. HF firms would also put more emphasis on the

tradition of American manufacturing than would OHC firms, perhaps because household furniture is generally a more mature product type than are OHC products.

HF firms did not see the potential in customized products that KBC and OHC firms did. Perhaps this indicates that HF firms now recognize the ability of foreign competitors to mimic "customized" products. It could also reflect a commodity mentality on the part of HF manufacturers, or that HF manufacturing facilities are not set up to expedite changes in product designs and materials.

KBC firms see the greatest potential in workforce training and education. Perhaps this reflects a higher level of automation and computerized processes in cabinet facilities compared to HF facilities, and more customized products compared to OHC products. OHC firms saw more potential in outsourcing labor than did KBC firms. This might coincide with KBC firms' higher rating for the potential of workforce training. OHC firms also saw the highest potential in promotion of environmentally certified wood, which might reflect their primarily corporate customer base, as opposed to HF and KBC firms that sell more to consumers.

Small firms rated use of outsourced labor as having higher potential to enhance competitiveness than did large firms, perhaps suggesting that smaller firms struggle to recruit, hire, and retain qualified workers. Large firms see more potential in reducing lead times as a means to enhance competitiveness than do small firms.

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