

# An Analysis of Furniture, Cabinet and Fixtures Manufacturers in the U.S. South<sup>\*1</sup> - Competitive Implications for South Korea Manufacturers -

Richard P. Vlosky<sup>\*2</sup> · Se-Bin Kim<sup>\*3</sup>

## 미국 남부 가구류 생산업체 분석<sup>\*1</sup>

- 한국 가구업체와의 경쟁 관계 -

Richard P. Vlosky<sup>\*2</sup> · 김 세 빈<sup>\*3</sup>

### 요 약

이 研究는 美國 南部의 9개 州에 소재하고 있는 家具工場에 대한 設問調査를 통해 産業構造와 마케팅 전략을 調査하였다. 이번 조사 結果를 요약하면

1. 家具工場이 사용하는 原資材는 red oak, pine, poplar, maple 등으로 한국 家具工場이 原資材의 95% 以上을 南洋材에 의존하고 있는 것과 뚜렷한 차이를 보였다.
2. 家具工場의 68.8%는 主要市場을 자기 州內에 가지고 있고, 28.8%가 州 밖에 그리고 調査工場의 2.5%만이 輸出했다. 아울러 輸出이나 자기 州外에 市場을 가지고 있을 수록 工場規模가 컸다.
3. 主要市場까지의 距離는 50%가 160km 以內 였는데 이것은 활엽수 製材木 工場의 30%가 800km 밖에까지 市場을 가지고 있는 것에 비해 매우 좁은 市場을 형성하고 있는 것으로 나타났다.
4. 製品의 流通은 직접 消費者에게 出荷하는 것이 3/4로 압도적이었지만, 중간유통기관에 出荷하는 곳일수록 工場規模도 컸다.
5. 家具産業의 성공에 寄與하는 要因으로는 製品品質과 長期的인 消費者와의 關係 增進을 가장 중요한 要因으로 지적하였고, 그 다음으로 기업에 대한 評判과 높은 消費者 서비스를 지적하였다. 반면에 家具産業發展의 障礙要因으로는 原資材의 品質과 原料의 不安定한 供給이 제일 중요하게 인식되어 있었다. 그러나 海外供給者와의 競爭은 障礙要因으로 거의 인식되고 있지 않았다.
6. 工場의 擴張이나 移轉에 가장 큰 영향을 미치는 要因으로는 勞動力 問題(生産성과 費用)가 가장 중요하게 지적되었고, 그 다음으로 稅金構造, 建設費 등이 지적되었다.

**Keywords** : Furniture, cabinets, fixtures, U.S. south, marketing

\*1 접수 1995년 12월 6일 Received December 6, 1995

\*2 美國 루지애나 주립대학 농업연구소 Louisiana State University Agricultural Center, Baton Rouge, Louisiana USA

\*3 충남대학교 농과대학 College of Agriculture, Chungnam National University, Daejeon 305-764, Korea

## 1. INTRODUCTION

A number of countries around the globe are pursuing initiatives to add value in their wood products sectors by manufacturing finished products rather than intermediate inputs to production or even exporting raw materials. Beyond the production of primary products such as lumber, plywood, particleboard and medium density fiberboard, and intermediate products such as hardwood dimension and parts, the production of furniture, cabinets and store fixtures is a logical next step in the wood products value chain. For the purposes of this paper, value-added, an important indicator of industry health and success is defined as "a measure of manufacturing activity derived by subtracting the costs of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments for the products manufactured". Thus, value-added equals value of shipments minus production inputs, and represents the amount available for wages, salaries and profits in an industry. Value-added is a better indicator of industry activity than value of shipments because value-added excludes the costs of inputs of other industries.

This research, based on a comprehensive analysis of the Southern U.S. furniture, cabinet and fixture industries, had two objectives: 1) To better understand these industries structures and; 2) To provide competitive environment information to companies in South Korea and other countries that are current or potential marketers of furniture and other finished wood products.

The study examined factors that foster or hinder industry development. Highest rated factors that contribute to company success were the ability to supply quality products to customers, development of long-term oriented customer relationships, company reputation and offering a high level of customer service. The

foremost impediments to company success were acquiring quality raw material, developing a consistent raw material supply and volatile pricing. With regard to location decision factors that influence corporate expansion or location, manufacturers identified productivity of labor, labor costs, taxes and a skilled labor supply as the most important factors.

## 2. METHODS & MATERIALS

The sample frame for the study consisted of value-added wood products manufacturing firms in the South United States (Texas, Arkansas, Mississippi, Alabama, Georgia, Florida, South Carolina, North Carolina and Louisiana). SIC (Standard Industrial Classifications) 2434, wood kitchen cabinets; SIC 2511, wood household furniture, except upholstered; SIC 2512, wood household furniture, upholstered; SIC 2517, wood television, radio, and etc. cabinets; SIC 2521, wood office furniture and; SIC 2541, wood office and store fixtures, partitions, etc. (USDC, 1992). A database census of 2,654 companies in these SIC categories was extracted from the 1994 PhoneDisk PowerFinder CD-ROM directory (Database America Companies, 1994). From this database, a sample of 2,000 companies was randomly selected for the study.

In general, survey procedures were conducted in accordance with the Total Design Method (Dillman, 1978). This procedure consisted of a pre-notification postcard, an initial survey mailing, a post mailing reminder and a second survey mailing.

## 3. RESULTS & DISCUSSION

### 3.1 Profile of respondents

Of the 2,000 surveys mailed, 208 were undeliverable or out of business, reducing the sample to 1,792. The total study response rate was 20.2 percent (362/1,792). Of the 362 returned surveys, 11 were not completed and 23 were

from companies that indicated they were not in the furniture business. The balance of returned surveys were all useable, resulting in an adjustable usable response rate of 18.7 percent (328/1,758) ranging from 10 percent (wood partitions & fixtures) to 30 percent (upholstered furniture).

All respondent companies were from one of the nine states in the Southern United States. Total 1994 respondent corporate sales was \$1.099 billion with an average of \$3.5 million. Fifty-three percent of respondent companies had less than \$1 million in sales in 1994 (Fig. 1). Upholstered furniture represented 39 percent of total respondent sales revenue, followed by the household furniture (32 percent), kitchen cabinets (13 percent), office furniture (9 percent), office/store fixtures (6 percent) and wood television and radio cabinets (less than 1 percent). Ranges of company sizes for each of the six sectors can be found in Table 1.

In 1994, respondent companies employed 15,521 people. Upholstered furniture respondents represented 45 percent of total employees.

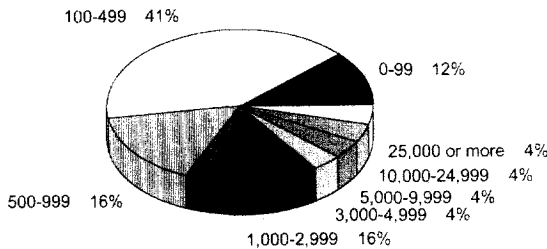


Fig. 1. Average 1994 sales by company.

Notes: Percent by sales category.  
n=309 companies, unit: \$1,000

Table 1. Sales ranges by respondent sector.  
(Unit: US\$1,000)

	High	Average	Low
Kitchen Cabinets	20,000	25	951
Household Furniture	50,000	15	4,443
Upholstered Furniture	107,000	131	13,753
TV/Radio Cabinets	700	20	270
Office Furniture	50,000	50	4,354
Fixtures	10,000	125	1,732

Note: n=309 companies.

followed by the household furniture (28 percent), kitchen cabinets (14 percent), office furniture (8 percent), office/store fixtures (5 percent) and wood television and radio cabinets (less than 1 percent).

### 3.2 Non-response bias

Non-response bias was measured using a two-tailed t-test conducted on percent of companies by state, comparing respondents and companies that fell into the non-response/undeliverable category. No difference in state distribution was detected at  $\alpha = .05$ . In addition, research has shown that late respondents typically respond similarly to non-respondents. Accordingly, second mailing respondents were compared to first mailing respondents by state of origin. In this case as well, no difference in state distribution was detected at  $\alpha = .05$ .

### 3.3 Species used as raw materials

Study results indicated that red oak was the dominant species used by study respondents in 1994 with 37 percent (257.3 MCBM) of total respondent raw material volume (Fig. 2). The most used species (by volume) by study respondents after red oak in order were pine (17.7 percent), poplar (16.6 percent), maple (13.8 percent), ash (6.5 percent) and cherry (4.1 percent). This raw material mix is much different than the

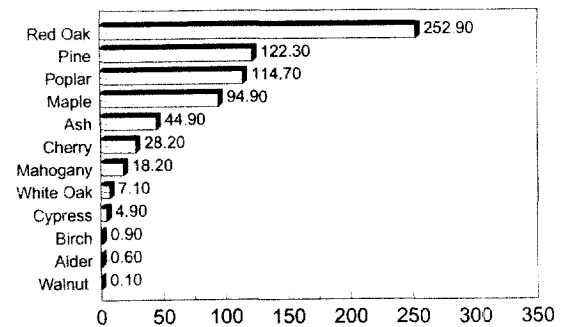


Fig. 2. Species used as raw materials inputs in 1994.

Notes: Respondent volume by species,  
Total volume = 693.8 MCBM

species used by the Korean furniture industry which uses Southeast Asian hardwoods for over 95% of its raw material needs (F.R.I., 1991).

Table 2 shows that for the top six species used by study respondents in 1994, the kitchen cabinet sector dominated in usage by total volume for all species while Table 3 indicates that on an average volume usage per company basis, other respondent groups were important. For example, the upholstered furniture sector used more red oak (4.867 CBM) and poplar (4.217 CBM) while the television/radio cabinet sector used more pine (2.424 CBM), office fixtures respondents used more pine (5.158 CBM) and the kitchen cabinet group used more cherry (1.260 CBM) and maple (1.601 CBM) on average.

### 3.4 Wood products raw material inputs

Table 4 shows the raw material inputs by value for each of the respondent categories. Hardwood lumber had the highest average per-

cent by value across all categories (30.9 percent) and constituted 72.6 percent of the raw material input value for the upholstered furniture industry. Hardwood dimension contributed the least with only 2.8 percent of the total.

### 3.5 Markets and marketing

Study respondents reported that they sold 68.8 percent of their 1994 production (by sales revenue dollars) to in-state customers with 28.8 percent going to customers in other U.S. states and 2.5 percent to export customers. Analysis of variance (ANOVA) using respondent SIC categories as treatments resulted in significant differences for in-state, other U.S. states and export markets at  $\alpha = .05$ . The kitchen cabinet sector had the highest average percentage of sales to in-state customers (90.5 percent) while upholstered furniture manufacturers had the most sales to other U.S. states (58.6 percent). Office furniture respondents had the highest

Table 2. Species used as raw materials inputs in 1994.

	(Unit : Cubic meters)					
	Red Oak	Pine	Poplar	Maple	Ash	Cherry
Kitchen Cabinets	221.794	58.080	43.498	81.640	43.334	27.720
Household Furniture	2.416	10.627	7.373	7.218	1.793	422
Upholstered Furniture	24.336	72	33.734	1.795	158	36
TV/Radio Cabinets	4.836	7.272	2.405	7	2	5
Office Furniture	489	12.226	1.613	806	250	461
Fixtures	3,420	36.103	28.022	4.992	158	38
Total	257.291	124.380	116.645	96.458	45.695	28.682

Note: Total volume reflected by respondents.

Table 3. Species used as raw materials inputs in 1994.

	(Unit : Cubic meters)					
	Red Oak	Poplar	Maple	Pine	Ash	Cherry
Kitchen Cabinets	2.705	946	1.601	1.452	1.171	1.260
Household Furniture	173	461	605	886	199	38
Upholstered Furniture	4.867	4.217	449	36	79	36
TV/Radio Cabinets	967	803	2	2.424	2	2
Office Furniture	122	269	201	4.075	250	115
Fixtures	228	2.002	384	5.158	26	5
Total	9.062	8.693	3.242	14.031	1.727	1.456

Note: Average volume by respondent group.

Table 4. Raw material inputs in 1994.

(Unit: %)

	Hardwood	Plywood	Particleboard	MDF	Softwood	Veneer	Hardwood Dimension	Other
Kitchen Cabinets	25.4	30.5	18.6	7.9	6.9	1.6	1.3	8.0
Household Furniture	35.4	19.6	10.0	5.8	13.5	5.4	8.7	1.6
Upholstered Furniture	72.6	10.8	0.7	1.2	6.0	0.7	2.2	5.8
TV/Radio Cabinets	14.0	22.2	37.4	12.9	6.1	1.3	2.1	4.0
Office Furniture	23.2	22.2	31.2	11.0	1.8	5.2	0.6	4.9
Fixtures	14.8	29.8	19.1	15.9	5.3	4.0	2.2	8.9
Total	30.9	22.5	19.5	9.1	6.6	3.0	2.8	5.5

Note: Percent by value in 1994.

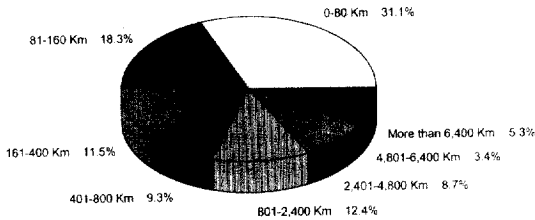


Fig. 3. Market radius.

Note: Percent of responses, n = 322.

average sales to export markets(3.6 percent). In addition, company size (by sales revenue and employees) was found to be positively correlated to increased sales to out-of-state and overseas customers.

Similarly, as seen in Fig. 3, nearly fifty percent of respondents market their products within a 160km radius of their manufacturing facility. Contrasted one to a narrow market radius in the U.S. hardwood dimension industry (Vlosky, 1995) nearly thirty percent of respondents market their products beyond a 800Km radius.

Nearly three-fourths(71.6 percent) of respondent 1994 sales(by revenue) were shipped directly to customers, followed by wholesalers (13.6 percent), stocking distributors(6.3 percent) and the balance to other(mail order, contractors, retailer intermediaries). Analysis of variance(ANOVA) using respondent SIC categories as treatments resulted in significant differences for all distribution channels at  $\alpha = .05$ . In addition, company size(by sales revenue and

employees) was found to be positively correlated to increased sales to distribution intermediaries as opposed to direct sales to customers.

The wood fixtures sector had the highest average percentage of direct sales(96.2 percent) while upholstered furniture manufacturers had the most sales to both wholesalers (30.2 percent) and stocking distributors(27.3 percent). By selling direct, the furniture manufacturer is directly involved and has more control in all aspects of the sales transaction(Lawser, 1992). The direct method of selling is preferred by most experienced furniture manufacturers because they prefer to be directly involved and have more control over the sales transaction. They also want to develop closer, long-term relationships with their end users(Lawser, 1992).

Word-of-mouth was the promotional method most cited by study respondents, followed by, in ranked order, networking, the use of company sales representatives, membership in industry associations and magazine advertising. This is consistent with a studies conducted on the secondary wood products industry in Louisiana and the hardwood dimension industry that found that word-of-mouth was the most cited promotional method(Vlosky *et al.*, 1994; Vlosky, 1995).

### 3.6 Value-added manufacturer success and impediment factors

Using 5-point scaled questions indicating level of importance(1 = very unimportant to 5 = very important), study respondents were asked to rank factors that contribute to the success of their business as well as those factors that impede success in the marketplace. As seen in Fig. 4, the two most important and equally ranked success criteria for respondent companies are product quality and development of long-term customer relationships. The importance of relationship factors to company success is further indicated by the subsequent highest ranked factors, offering high levels of customer service and overall company reputation. An understanding of the customer base and development of a long-term orientation can be a significant factor in building or maintaining market share. Analysis of variance(ANOVA) using respondent SIC categories as treatments did not result in significant differences across company success criteria at  $\alpha = .05$ .

On the other side of the equation, respondents were asked to evaluate factors that are a hindrance to their success(Fig. 5). The foremost impediment is acquisition of quality raw material followed closely by development of consistent raw material supply. But competition from overseas suppliers is not accepted to impediments. I suggest that these factors can be mit-



Fig. 4. Company success factors.  
Note: n = 319 companies.

igated if companies focus on the factors that they themselves identified as contributors to success, particularly those that are relationship oriented. However, in this case, rather than these factors being applied to respondent manufacturer relationships with customers, an upstream perspective needs to be developed with raw material suppliers.

The success and impediment responses can help existing companies improve their core capabilities and market position as well as identify important issues for individuals that are considering manufacturing value-added wood products. Analysis of variance(ANOVA) using respondent SIC categories as treatments did not result in significant differences across company success impediment criteria at  $\alpha = .05$ .

### 3.7 Industry location decision factors

As part of the evaluation process that identifies high potential value-added industries, information about factors that encourage or deter industry location is required. Nineteen factors that influence industry expansion for existing companies or location decision criteria for companies considering immigration were analyzed. Five-point scaled questions indicating level of importance(1 = very unimportant to 5 = very important) were used. As seen in Fig. 6, labor issues(productivity and costs) are deemed most important by study respondents. Subse-

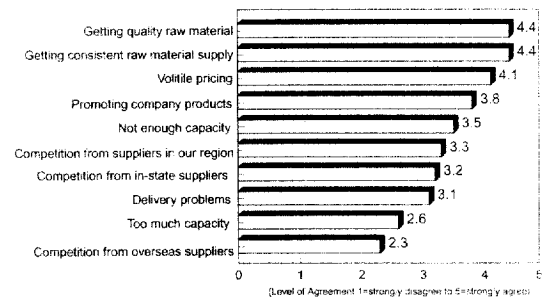


Fig. 5. Impediments to company success.  
Note: n = 319 companies.

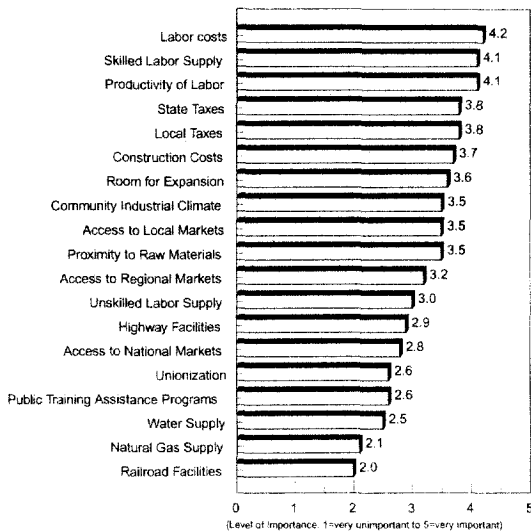


Fig. 6. Factors influencing expansion or building new facilities.

Note: n = 302 companies.

quent factors, in order of importance are a favorable tax structure, construction costs, room for expansion and an amenable community industrial climate. Analysis of variance (ANOVA) using respondent SIC categories as treatments did not result in significant differences across these criteria at  $\alpha = .05$ .

These results contrast to results found by Jones *et al*(1992) in a study that included an examination of location factors for selected forest manufacturing industries. The 36 forest furniture and flooring manufacturers queried said that the most important location decision factor was securing and adequate wood raw material supply followed by access to markets, personal considerations(attitudes towards industry and personal ties to the area), labor costs and availability(low wages, high productivity, and adequately skilled labor), service utilities and last, taxes and regulations.

#### 4. CONCLUSIONS

Korean companies that have value-added furniture industry sectors can use the information

contained in this paper as one input in the business development planning process. The data suggest that there are a number of areas that can be addressed if finished wood products are to be manufactured and sold in the United States. Important points are :

1. Red oak was the dominant species used by study respondents with 37 percent(257.3 MCBM) of total respondent raw material volume followed by pine(17.7 percent), poplar(16.6 percent), maple(13.8 percent), ash(6.5 percent) and cherry(4.1 percent). This raw material mix is much different than the species used by the Korean furniture industry which uses Southeast Asian hardwoods for over 95% of its raw material needs.
2. Study respondents reported that they sold 68.8 percent of their 1994 production (by sales revenue dollars) to in-state customers with 28.8 percent going to customers in other U.S. states and only 2.5 percent to export customers.
3. Nearly fifty percent of respondents market their products within a 160km radius of their manufacturing facility. This is contrasted to the U.S. hardwood dimension industry for which nearly thirty percent market their products beyond a 800km radius.
4. The two most important and equally ranked success criteria for respondent companies are product quality and development of long-term customer relationships. The importance of relationship factors to company success is further indicated by the subsequent highest ranked factors, offering high levels of customer service and overall company reputation
5. The foremost impediment is acquisition of quality raw material followed closely by development of consistent raw material supply. Competition from overseas suppli-

ers was not identified as an impediment to business success.

6. Labor issues (productivity and costs) are deemed most important by study respondents. Subsequent factors, in order of importance are a favorable tax structure, construction costs, room for expansion and an amenable community industrial climate.
7. Factors that manufacturers identified as being critical to success as well as those factors that are impediments can help potential Korean manufacturers be more competitive in the U.S. marketplace.

### ACKNOWLEDGEMENT

The authors is wishes to acknowledge JoAnn Doucet, Staff Assistant, Louisiana Forest Products Laboratory for her help on this project.

### REFERENCES

1. Database America Companies. 1994 Phone-Disk Power Finder CD-ROM directory
2. Dillman, D.A. 1978. Mail and Telephone Surveys-The Total Design Method. John Wiley & Sons. New York, New York
3. Forestry Research Institute. 1991. Forest Products Industry in Korea 1991. Research Bulletin No. 59
4. Jones, S.B., J.E. Bodenman and Stephen M. Smith. 1992. Characteristics of Forest Manufacturers in the Northern and Central Appalachian States. *Forest Products J.* 42(6) : 33-41
5. Lawser, S.V. 1992. Resource Guide for Forest Furniture Manufacturers. Mountain Association for Community Economic Development, Berea, Kentucky
6. US Department of Commerce, Bureau of Census. 1992. Census of Manufacturers
7. Vlosky, R.P., P. Chance and O. V. Harding. 1994. An Overview of the Secondary Wood Products Industry. Working Paper #1. Louisiana Forest Products Laboratory, Louisiana State University Agricultural Center, Baton Rouge, Louisiana
8. Vlosky, R.P. 1995. Characteristics of U.S. Hardwood Dimension Manufacturers. *Forest Products Journal* In Press