

THE AMISH FURNITURE CLUSTER IN OHIO: COMPETITIVE FACTORS AND WOOD USE ESTIMATES

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Abstract.—This paper is an assessment of wood use by the Amish furniture cluster located in northeastern Ohio. The paper also highlights the competitive and demographic factors that have enabled cluster growth and new business formation in a time of declining market share for the overall U.S. furniture industry. Several secondary information sources and discussions with local manufacturers were utilized. Wood use for the cluster was estimated at 44 million board feet per year, a volume equivalent to 11 percent of the total volume of hardwood lumber produced in Ohio or 19 percent of the hardwood lumber used in appearance-based applications in the State. Although the Amish firms are highly concentrated within the Holmes County region, the typical firm is small in size (median of four employees). As the overall furniture manufacturing sector in the United States continues to struggle with imports, the Amish segment likely will become an increasingly important market for hardwood lumber, both regionally and nationally. However, the large number of small firms can create distributional challenges for suppliers.

INTRODUCTION

Amish Furniture Manufacturing

The Amish traditionally have undertaken agriculture-related occupations (Stinner and others 1989); however, as farmland has become increasingly scarce and expensive, and as the Amish population has grown, more are seeking opportunities in nonfarming occupations such as manufacturing (Lowery and Noble 2000). Amish-made furniture is an example of an emerging manufacturing sector.

Holmes County, Ohio, is the largest Amish settlement in the world; the Amish comprise nearly half of the county's total population (Lowery and Noble 2000), which was estimated at 38,943 in 2000 (USDC Census Bureau 2007). In 1973, only 3 percent of Amish heads of households in Holmes County were employed in the secondary wood sector; by 1997, this percentage had increased to 14 percent. These are likely conservative estimates as several furniture manufacturers were included in a broader manufacturing category. When general manufacturing is combined with primary and secondary wood manufacturing, 34 percent of the heads of household in Holmes County were employed in these sectors in 1997, up from 16 percent in 1973 (Table 1). Agriculture-related occupations declined from 48 percent to 21 percent of Amish occupations in the county over the same period (Lowery and Noble 2000).

The Amish furniture sector employs many aspects of competitiveness frequently listed as critical for the survival of domestic manufacturers (Bumgardner and others 2004, Buehlmann and others 2006). Amish furniture often is associated with quality craftsmanship and solid wood construction. The Amish name serves as a domestic brand name with wide familiarity among consumers. There are dedicated Amish-made furniture retail stores located throughout the United States (Amish.Net n.d.). In most of these stores, semi-customization is possible, allowing customers to choose from different species, finishes, and hardware

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Table 1.—Amish employment in selected occupational sectors in Holmes County, Ohio, 1973 and 1997 (Lowery and Noble 2000)

Sector, 1973	%	Sector, 1997	%
Agriculture	48	Agriculture	21
Manufacturing	10	Manufacturing	15
Secondary Wood	3	Secondary Wood	14
Primary Wood	3	Primary Wood	5

for a given piece and design. The products often are locally or regionally sourced and thus the customized requests are available with relatively short lead times.

Competitive Factors of the Ohio Cluster

Aspects of “clustering” are present with the concentration of Amish furniture manufacturers in Holmes County. Clusters can be defined as industries (manufacturers, suppliers, services, etc.) related to the same product existing in close proximity. Clusters often include research and educational institutions, consultants, etc. that help support the core industry. Clusters can be characterized as having well developed supply chains, wide use of current technology, and intense competition among local firms (Schuler and Buehlmann 2003). In spite of the local competition, each cluster element reinforces the others and helps create a competitive advantage for all. For the Amish, competition is tempered by a sense of cooperation (National Hardwood Lumber Association 2007). With furniture, cooperation can come from joint design and production of an entire furniture collection by individual manufacturers that focus on specific pieces such as chairs or tables.

An example of a competitive advantage arising from furniture clustering in Holmes County is Ohio Certified Stains, maintained by a group of manufacturers that has worked with local suppliers to establish a collection of standardized stains. Each color within the system matches if bought from a participating supplier (Anonymous 2005, p.9). Another example of clustering is found in distribution, as many of the dedicated Amish retail stores are located near the manufacturing centers in Pennsylvania, Ohio, and Indiana (Amish.Net n.d.). Porter (1998) claims that cluster effects can extend downstream to channels and customers; that is, distribution becomes part of the cluster and can generate competitive advantage. The Amish clusters of manufacturing and retail are proximate to several major population centers, and thus potential markets. This is in contrast to other notable competitive furniture clusters (e.g., northern Italy and Denmark), where most of the production is export oriented (Schuler and Buehlmann 2003). To date, most consumption of Amish-made furniture has been domestic, although interest in exporting is growing. Conversations with local manufacturers suggest distribution from the Holmes County cluster reaches nearly all 50 states.

OBJECTIVE

As the domestic furniture manufacturing industry continues to decline as a market for hardwood lumber, the Amish-based sector is positioned to become an increasingly important component. Little is known about the size of this industry segment or its impact on regional or national hardwood lumber demand. This study is a preliminary assessment of wood use by Ohio’s Amish furniture cluster.

METHODS

Determining the Number of Firms

Data were collected from the 2005-2006 edition of “The Furniture Book: A Complete Guide to the Furniture Manufacturers and Wholesalers in Ohio’s Amish Country” (Anonymous 2005). This guide (hereafter, referred to as The Furniture Book) covers all known Amish establishments in Holmes County, Ohio, and portions of five surrounding counties, measuring roughly 1000 sq. miles in area. Further, a meeting was held with four representatives from three Amish furniture manufacturers in Holmes County to discuss the project and the assumptions made in determining wood use estimates. These firms were larger in size and older in establishment age than the average Holmes County Amish furniture firm.

Each of the nearly 600 entries in The Furniture Book was analyzed. Data of interest included number of employees, year of establishment, and product descriptions. A total of 153 entries were removed from the list; those removed consisted primarily of finishing and distribution firms, as well as manufacturers of lawn/outdoor furniture, bedding, upholstery, and crafts. Thus, 429 establishments were identified as manufacturers of household furniture, components, and related products². Discussions with the local manufacturers indicated that a few firms listed in The Furniture Book had gone out of business; conversely, a few existing firms were not listed. Consequently, the figures reported above reflect adjustments for unlisted firms and for those no longer in business.

As a cross-reference to the listings in The Furniture Book, the “Secondary Directory of Ohio Wood Manufacturing Companies, 2002” (Romig and others 2002), a directory compiled by Ohio State University and the Ohio Department of Natural Resources, was analyzed (referred to hereafter as the Directory). For Holmes County, 80 firms were listed that produced household furniture and related products. Of those, 67 firms, or 84 percent, also were listed in The Furniture Book. This cross-listing suggests general agreement between the sources, although it is apparent that the number of listings in The Furniture Book was much larger than those in the Directory.

Determining Employment and Wood Use Figures

Employment data were available from The Furniture Book for 271 of the firms. For the 158 firms not reporting number of employees (including a small number added through discussion with local manufacturers but with unknown employment information), data were imputed. It was noted that many firms advertised in The Furniture Book. For firms with one, two, or three employees, the advertisement rate was about 25 percent. For firms with four employees, this figure jumped to near 50 percent, and was more than 80 percent for firms with five employees. Very few of the firms with missing employment data were advertisers, so it was assumed that these firms tended to be small. These firms therefore were assigned employment values of one, two, or three employees in proportion to the prevalence of these figures among reporting firms. Given that the overall employment mean for reporting firms was 7.3 and the median was 4.0 (discussed more in the Results section), these estimates seemed reasonable.

The cross-reference with the Directory provided employment figures for six nonreporting firms in The Furniture Book. For these firms, assigned employment (as described above) was replaced with the figure

²Related products included items such as grandfather clocks, porch swings (if specified as being made from hardwoods), jewelry cabinets, log furniture, mirrors, and fireplace mantels. There also were some millwork and cabinet products. Such products were only occasionally listed compared to household furniture products.

Table 2.—Number of firms and employees, median firm size, and median year of establishment for furniture manufacturers, finishers, and wholesale distributors in Ohio’s Amish furniture cluster

Firm type	Number of firms	Total employment ¹	Employees per firm ²	Year established ²
Manufacturers	429	2,723	4.0	1996.0
Finishers	50	197	4.0	2000.0
Wholesale Distributors	13	71	5.5	1997.0

¹ Based on the sum of reported (various sources) and assigned employment.

² Based on reporting firms only (Anonymous 2005).

reported in the Directory. The range in reported employment for these firms was 8-65, somewhat higher than the assigned values (range 1-3). While it was believed that most nonreporting firms were small, obviously some were larger companies. Also, discussion with local manufacturers provided estimates for 26 additional Furniture Book entries with missing employment data, and again these tended to be higher than the imputed values.

Once a total number of employees was established, this figure was multiplied by an estimate of hardwood lumber use per employee. Employment in the wood household furniture industry, according to U.S. Department of Labor (USDOL) data (USDOL Bureau of Labor Statistics 2006), was divided by hardwood lumber use by the furniture industry, according to the Hardwood Market Report (2004, 2005, 2006) for the 5-year period of 2000-2004 (the latest year for which hardwood lumber use data were available). Using this method, we estimated the average wood use per employee over the period to be 17,433 board feet (bf) per year; discussion with local manufacturers suggested this was a reasonable estimate. When we considered the appropriateness of this ratio, the generally small and sometimes less mechanized nature of Amish firms must be balanced with the fact that most Amish furniture is constructed of nearly all solid wood, which is uncommon in the broader domestic furniture industry.

RESULTS

Firm Size and Establishment

Ohio Amish furniture manufacturers employed a median of 4.0 employees in 2005; the median year of establishment was 1996 (Table 2). These figures suggest that the typical Amish furniture manufacturer in Ohio is small and relatively new. The number of employees ranged from 1 to 105. Figure 1 shows the distribution of firm size (including reported and imputed values), with an obvious skew to the right. The small size of the typical Amish firm is countered by the sheer number of establishments: 429 firms in an approximately 1000-sq.-mile area, or roughly the size of two counties in Ohio.

The 1990s generally were favorable times for the overall domestic furniture industry, as shipments increased in real terms (constant 1982 dollars) from \$6.3 billion in 1990 to \$7.7 billion in 1999 (Luppold and Bumgardner, in press). Many Amish producers in Ohio entered the market around this time, based on the median establishment age of 1996. As shown in Figure 2, a plurality of the Amish firms present in 2005 was established in 1999, which also was the peak year for value of domestic furniture shipments. Since 1999, furniture imports have increasingly captured market share from domestic manufacturers; it seems this rise in imports negatively influenced the establishment rate of Amish furniture firms as well. On the other hand, 27 percent of the Amish furniture manufacturers operating in Ohio in 2005 were established since 2000. Porter (1998) claims that it takes about a decade for a cluster to establish depth and to realize a competitive advantage; from Figure 2 it seems that the majority of firms were established between 1989

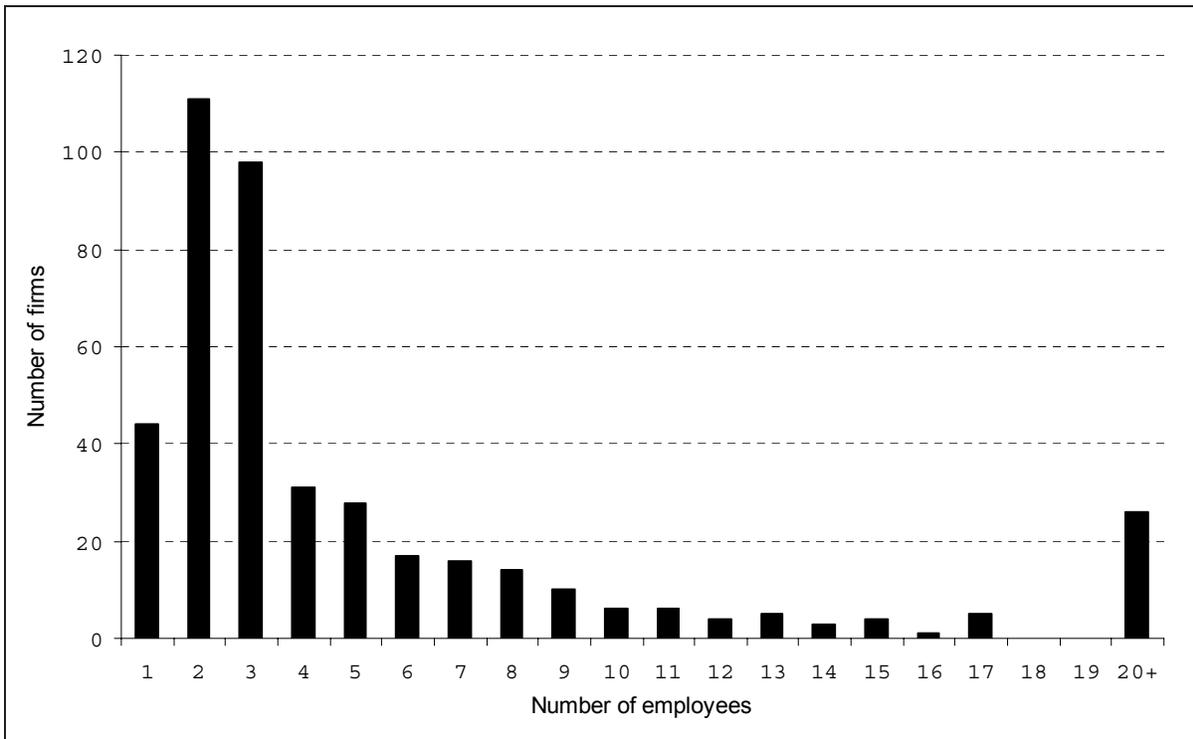


Figure 1.—Distribution of establishment size for Amish furniture manufacturers in Ohio's Holmes County cluster (various sources).

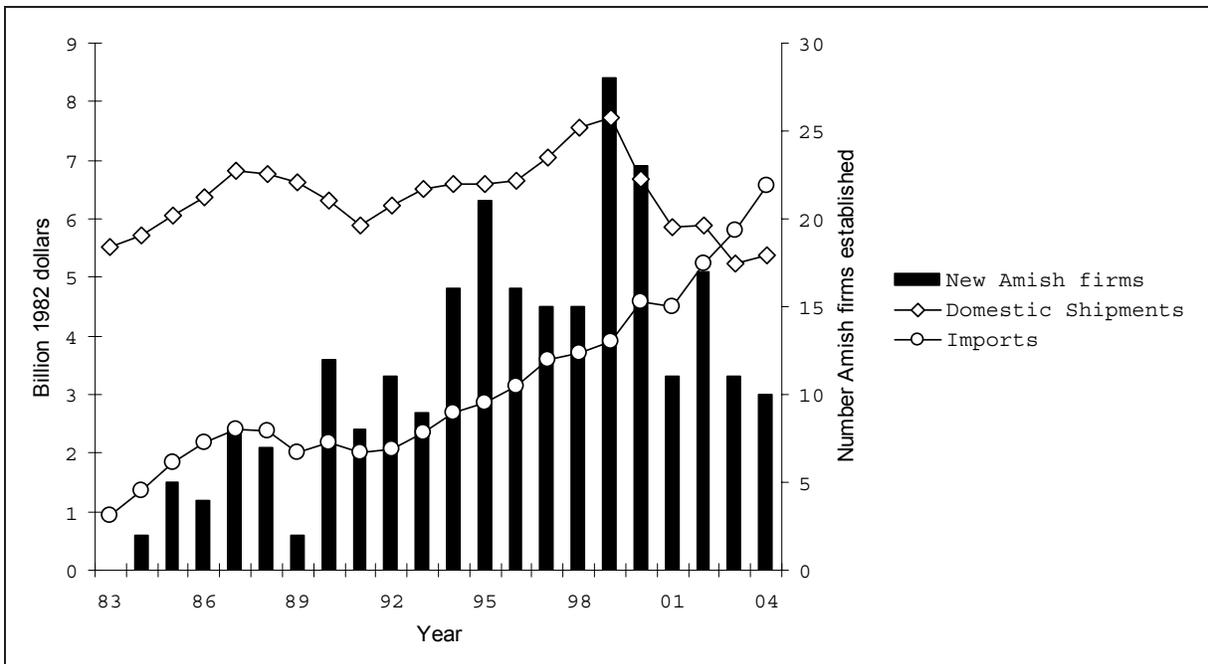


Figure 2.—Value of overall domestic wood household furniture shipments and imports by year (Luppold and Bumgardner, in press), and year of establishment for Ohio Amish furniture manufacturers in operation in 2005 (Anonymous 2005).

and 1999 and thus the cluster is maturing. In sum, it seems that the Amish furniture cluster in Holmes County arose from an economic transition away from locally oriented agricultural occupations, due in part to an increasing population and decreasing land base for farming. As such, it increasingly operates within the parameters of the broader U.S. economy.

Employment and Wood Use

The total number of employees of reporting firms was 1,959; the total number of employees including assigned employment was 2,723 (Table 2). However, these figures included some known component manufacturers that supplied local furniture manufacturers. Their inclusion would inflate wood use estimates since the same wood would be double-counted—once for the employee at the component firm and once for the employee at the furniture firm. Discussion with local manufacturers identified several such firms, which were removed for generation of wood use estimates. The adjusted figures were 1,911 employees for reporting firms and 2,497 employees including assigned estimates. The latter figure, multiplied by the average consumption per employee for the overall furniture industry (17,433 bf) results in hardwood lumber use of 43,530,201 bf annually by the Ohio Amish furniture cluster.

As Ohio was listed by the USDC Census Bureau (2006) as producing 401 million bf (mmbf) of hardwood lumber in 2005, these results suggest that the Amish furniture industry consumes the equivalent of about 11 percent of the hardwood lumber produced in Ohio. Including only appearance-based uses (58 percent of total production excluding pallets and railway ties) (Hardwood Market Report 2006) results in consumption of the equivalent of nearly 19 percent of Ohio's grade lumber.

New Business Development in the Cluster

Data also were available in The Furniture Book for service providers in the cluster, including finishing and wholesale distribution. Fifty finishing establishments were listed. The median number of employees per firm was 4.0. Median year of establishment was 2000 (Table 2). These results suggest that the finishing portion of the cluster was established later than (i.e., as a result of) the manufacturing portion, and that these firms are similar in size to the manufacturers. New business formation is a characteristic of successful clusters, and increases the collective pool of competitive resources that gives companies in the cluster competitive advantage over firms in other locations (Porter 1998). The sum of employees by reporting finishing firms was 124. When we assigned to those with missing employment data the mean/median of 4.0 (very few finishers advertised, so there was no basis for assigning employment; range in reported employment was just 1 to 10), there were 197 employees in wholesale finishing in Ohio's Amish furniture cluster.

For wholesale distributors, 13 establishments were listed. Of these, 10 provided employment and year of establishment data. The median number of employees per firm was 5.5. Median year of establishment was 1997 (Table 2). Similar to finishing firms, these results suggest that the distribution portion of the cluster was established slightly later than the manufacturing firms (e.g., new business formation), and they are similar in size to the manufacturers and finishers. The sum of employees by reporting firms was 62. To assign employment figures to firms with missing values, it was noted that the rate of advertising went up substantially for firms with greater than three employees; since none of the firms with missing values advertised, an employment number of 3 was assigned to the four missing values. As the range in employment among the distribution firms with known values was 3 to 14, this seemed like a suitable estimate. As a result, there are an estimated 71 employees in wholesale distribution in Ohio's Amish furniture cluster, although a majority of distribution employment is non-Amish as indicated through discussion with local manufacturers.

DISCUSSION

When wood household furniture manufacturers, finishers, and distributors, are combined, approximately 2,991 persons are estimated to be employed in Ohio's Amish furniture cluster, excluding a small number of lawn/outdoor furniture, bedding, upholstery, and crafts manufacturers, as well as other suppliers and service providers in the cluster. This employment corresponds to nearly 500 establishments in an approximately 1000-sq.-mile area. In sum, it is a concentrated cluster of many small firms. This cluster reasonably could be consuming about 44 mmbf of hardwood lumber per year, or the equivalent of about 11 percent of Ohio's total hardwood lumber output and 19 percent of the hardwood lumber used in appearance-based applications in Ohio.

As the Amish furniture manufacturing and distribution model seems to employ many of the competitiveness factors discussed in the literature, and has fared relatively well during a very volatile period in domestic manufacturing, this segment likely will continue to be an important regional market for hardwood lumber. Perhaps similar conditions exist in other areas with Amish concentrations (e.g., portions of Pennsylvania and Indiana). Collectively, Amish furniture manufacturing could be having a measurable impact on U.S. hardwood lumber demand. However, the small size and numerous manufacturers in these clusters can create distribution challenges for suppliers. For example, portions of one load of lumber may be delivered to multiple firms, each with different specifications and products. Perhaps this is one reason why investment in lumber sorting technologies is a priority for hardwood sawmills (Buehlmann and others 2007).

Can the Amish furniture model work elsewhere in the United States? Portions seemingly could be implemented (e.g., development of supply chains that can offer semi-customized pieces, more emphasis on brand image); however, other features might be more difficult to replicate, such as the cooperative aspects of the society and the commitment to furniture manufacturing as a way of life as farming becomes less viable. Firms operating within the Amish cluster are positioned to take advantage of niche opportunities by cooperating with others to source components and services not easily produced in-house, especially given their typically small size. The clustering dynamic thus seems paramount to the success of the Amish model, even as firms seek to be individually profitable.

Study Limitations

The majority of firms and associated data used in this analysis came from The Furniture Book. However, the figures used in this paper include both reported and assigned employment numbers, and other secondary data sources were utilized. The procedures also were discussed with local manufacturers, which resulted in changes to some employment assignments and firms included in the analysis. The firms included in the wood use analysis likely included some that produce components supplied to local furniture manufacturers, so wood-use estimates might be slightly inflated. Although all known components firms that supplied local firms exclusively were removed from the analysis, some could have been missed and some supplied a combination of local and nonlocal secondary manufacturers. Lastly, although the terminology used throughout the report used the name "Amish" to describe all firms, some were non-Amish owned but located within the cluster. Discussion with local manufacturers suggested the non-Amish proportion was about 15 percent, but even among these firms most employees were Amish. It also should be noted that the "furniture" terminology used throughout the paper included some cabinet and millwork firms, but this proportion was small.

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