

---

# OPPORTUNITIES FOR DEVELOPMENT OF LOCAL FOREST MARKETS: THE CASE OF AMISH FURNITURE MANUFACTURING

Matt Bumgardner<sup>1</sup>, Gary Graham<sup>2</sup> and Charles Goebel<sup>3</sup>

<sup>1</sup> USDA Forest Service, Northern Research Station, 359 Main Road, Delaware, OH 43015, mbumgardner@fs.fed.us

<sup>2</sup> Ohio State University Extension, 75 East Clinton Street, Suite 109, Millersburg, OH, 44654, graham.124@osu.edu

<sup>3</sup> School of Environment & Natural Resources, The Ohio State University, 1680 Madison Avenue, Wooster, OH, 44691, goebel.11@osu.edu

**Keywords:** *furniture, clustering, competitiveness, Amish, hardwood markets, local*

## Abstract

A dramatic decline in the production of hardwood furniture in the United States has had profound impacts on employment and hardwood markets. Against this backdrop, the Amish-based furniture manufacturing cluster in Ohio has expanded and hardwood lumber consumption by the cluster is significant. Recent research suggests that 71 percent of firms in the cluster expanded during a 3-year period from 2006-2008, even as the overall domestic industry contracted. Another measure of success (and indicative of the small size of many of the firms) is the finding that a plurality of firms (46 percent) began their operations by retrofitting existing buildings (often farm buildings), but that most firms had since expanded by constructing new facilities (56 percent). Clustering has enabled several competitive advantages related to supply chain management, productivity, and distribution, and has led to local forest-based development. For example, a considerable volume of wood manufacturing inputs, and final product sales, are based on local and regional markets, although finished products are distributed throughout the United States. The Amish furniture cluster in Ohio is a case of a small-scale solution that can compete in a global market, and therefore benefit forest landowners through development of local forest markets.

## Introduction

The decline in wood furniture manufacturing in the United States has been well-documented, with imports from low-cost sources such as China, Vietnam, and other locations being the primary driver (e.g., Dugan 2009). According to data from the U.S. Bureau of Labor Statistics (2012), there has been a 67 percent decline in employment in the nonupholstered wood household furniture sector, declining from 116,626 employees in 2001 to just 38,246 by 2011. Similarly, the number of establishments in this sector has declined by 36 percent over the same period, with a loss of 1,565 firms (U.S. Bureau of Labor Statistics 2012).

An important component of the furniture manufacturing shift to offshore sources is the impact on local forest economies, for both finished products and production inputs such as hardwood lumber. For example, hardwood lumber consumption by the U.S. furniture industry declined from 20 percent of total U.S. production in 1999 to 8 percent by 2008 (Hardwood Market Report

Figure 1. Map of the state of Ohio, United States, with Holmes County highlighted.



*Table 1. Actions taken by firms when first starting furniture manufacturing operations in the Holmes County cluster.*

Start-up actions taken	Percent
Retrofit an existing building or buildings	46.3
Constructed an entirely new building or buildings	41.7
Combined existing and new buildings	10.4
Other	1.6

*Table 2. Actions taken by firms to expand furniture manufacturing operations in the Holmes County cluster after beginning operations.*

Expansion actions taken	Percent
Did not expand	29.2
Expanded by retrofitting an existing building or buildings	13.5
Expanded by constructing a new building or buildings	56.3
Other	1.0

*Table 3. Future plans for firms to expand furniture manufacturing operations in the Holmes County cluster.*

Future plans for expansion	Percent
No expansion planned	58.2
Will expand by retrofitting an existing building or buildings	7.9
Will expand by constructing a new building or buildings	27.5
Other	6.4

2009). Overall, the loss of furniture manufacturing in the United States was the leading cause for the decline of U.S. hardwood lumber production from 1999 (the historical peak) to 2003 (Luppold and Bumgardner 2010).

Against this backdrop, the number of firms in the Amish-based furniture cluster in and around Holmes County, Ohio, expanded as opportunities for production and marketing of semi-customized solid hardwood furniture were identified and pursued by local manufacturers (Bumgardner et al. 2007). Such cases of competitive manufacturing models help shed light on opportunities to develop or maintain local forest-based markets. For example, research indicates that the Holmes County furniture cluster consumes the equivalent of 19 percent of the grade hardwood lumber production in Ohio annually (Bumgardner et al. 2011a). Given the small size of most of the firms (median of four employees) in this cluster (Bumgardner et al. 2007), it seems possible that clusters of small-scale firms can contribute to demand for local forest products.

Clusters are defined as, “. . . critical masses – in one particular place – of unusual competitive success in particular fields” (Porter 1998, p. 78). Similarly, Brookfield (2008, p. 408) refers to such clusters as, “. . . an industrial district made up of a number of [locally-owned] firms, possibly even including some large firms,

but absent a dominant one.” One of the key advantages of clustering is aggregate productivity. According to Porter (1998, p. 80), “A cluster allows each member to benefit as if it had greater scale or as if it had joined with others without sacrificing its flexibility.” An example of such productivity in the Holmes County cluster is related to hardwood lumber use per employee, which was found to be quite similar to the broader U.S. furniture industry, despite the small size of most firms within the cluster (Bumgardner et al. 2011a).

Cluster development in the Holmes County region is evident by the timing of different types of firms becoming established in the cluster. The median establishment year for manufacturers was 1996, 1997 for wholesale distributors, and the year 2000 for specialized finishing companies (Bumgardner et al. 2007). The presence of finishing firms using a standardized set of finish colors is a key element of cluster success, as it enables the production of semi-customized products that can be made uniform across multiple manufacturing firms. Furniture manufacturers within the cluster can either finish in-house (often also using the standardized finishes) or make use of the finishing services within the cluster. Furthermore, some of the manufacturers focus on producing components that are then purchased and used by other manufacturers to build furniture, whereas other manufacturers produce and assemble all of their furniture production in-house. The wood use characteristics of furniture producers and component producers are described in Bumgardner et al. (2011a), but much of the hardwood lumber used by both groups is sourced locally.

In this paper, we describe some of the growth attributes and local economic contributions associated with the Amish-based furniture cluster in Ohio, which had an estimated 3,000 employees and 500 firms in 2005 (Bumgardner et al. 2007).

## Methods

Results presented here are based on a mail survey of furniture manufacturers in the Amish cluster in Holmes and surrounding counties in Ohio (Figure 1). For brevity, the cluster is referred to throughout the paper as the Holmes County cluster or region, even though surrounding counties are included in an area approximately 1,000 square miles (2,590 square km) in size.

Table 4. General marketing channels for selling furniture products from the Holmes County cluster. \*Respondents were asked to indicate each channel type that accounted for at least 10 percent of total sales, thus columns total to more than 100 percent.

Channel type	Furniture firms (% indicating*)	Component firms (% indicating)
Directly to local retail stores	59.6	3.6
Directly to retail stores in Ohio	71.1	14.3
Directly to retail stores outside Ohio	77.7	7.1
To distributors who sell locally	7.9	3.6
To distributors who sell in Ohio	18.7	10.7
To distributors who sell outside Ohio	34.9	17.9
Directly to consumers	23.0	10.7
To local manufacturers	15.7	89.3
To other manufacturers	8.4	64.3

While details of the survey method employed can be found elsewhere (Bumgardner et al. 2011a), a brief description is provided below.

A packet containing the questionnaire, a cover letter, and postage-paid return envelope was mailed in May of 2008 to 569 firms appearing in *The Furniture Book: A Complete Guide to the Furniture Manufacturers and Wholesalers in Ohio's Amish Country* (Anonymous 2005), which served as the sampling frame. A reminder post card was mailed to nonrespondents approximately 1 month after the initial mailing, and a second packet (containing a duplicate questionnaire, postage-paid return envelope, and updated cover letter) was mailed to all nonrespondents approximately 2 weeks after the postcard. All mailings originated from (and were returned to) the Ohio Agricultural Research and Development Center in Wooster, Ohio.

A total of 196 usable questionnaires were returned, for an adjusted response rate of 43.4 percent after removing undeliverable packets and/or those firms that had ceased operations or were not manufacturers. More than 96 percent of respondents indicated that they were the shop owner or co-owner, thus respondents were very familiar with the specifics of their respective operations. As described in Bumgardner et al. (2011a), tests for nonresponse bias suggested such bias was not a serious problem in the study.

Table 5. Percentage of product sales staying within geographic ranges, on average, for firms within the Holmes County cluster.

Geographic unit	Furniture firms (%)	Component firms (%)
Holmes County region	20.5	53.4
State of Ohio	47.9	72.8
United States	96.8	96.6

## Results and Discussion

### Growth of the Cluster

Growth within the cluster has been impressive, given the trend toward imports and loss of domestic market share in the broader furniture industry. Nearly 71 percent of respondents indicated that they had expanded into making new products during the 3-year period from 2006-2008, which also included the beginning of the recession in late 2007. However, cluster growth may have been leveling off thereafter, as only 55 percent indicated they had plans to expand into new products during the 2008-2010 period.

Growth also was measured in terms of changes in physical manufacturing facilities. As shown in Table 1, a slim plurality of the firms (46 percent) made use of existing buildings (often farm buildings) when first starting-up. However, for those firms that have since grown, the most common means of expansion was to construct entirely new buildings to house machinery and warehousing needs (Table 2). Also of interest was that most firms expanded after first building their facility (nearly 70 percent), suggesting growth in the overall cluster. However, most firms (58 percent) indicated they had no plans for further expansion (Table 3). When coupled with the timing of firm establishment described previously (manufacturers forming just prior to distributors, who formed just before finishers), a picture emerges of cluster establishment. A distinguishing characteristic of the Holmes County furniture cluster is that it developed locally and with little external support by way of government grants, loans, or other financial incentives (Bratkovich et al. 2009).

An important point regarding the physical facilities in the cluster, consistent with the above findings, is that furniture manufacturing represents a broader transition in Amish communities from an agricultural-based economy to one centered on manufacturing (Kreps et al. 1994, Lowery and Noble 2000). It is therefore not an uncommon sight to see a barn or other farm building with an attached dust collection unit or other evidence of wood manufacturing, which represents this transition.

### Impacts on Local and Regional Forest Markets

An important component of the success of the cluster has been the associated impacts on local forest product markets, particularly for hardwood lumber and components. For example, most furniture manufacturers sold directly to local retail stores, and a large majority sold to

retail stores in Ohio (Table 4). The largest percentage sold to retail stores outside of Ohio, which is an indication of growth in the markets being used by firms in the cluster. Fewer firms sold to distributors, directly to consumers, or to other manufacturers. However, a substantial percentage (23 percent) sold directly to consumers, which represents the importance of the region as a destination location for hardwood furniture purchasing. It also seems distributors become more important for sales farther from the cluster (Table 4).

A subset of the sample (n=28) were component manufacturers and these firms were considered separately from the furniture manufacturers to determine impacts on the local forest economy. As shown in Table 4, a large majority of these firms (89 percent) sold to local manufacturers. As described in other studies (Bumgardner et al 2011a), the presence of component manufacturers is important to the aggregate productivity evident in the cluster. A majority but smaller percentage also sold to manufacturers outside the Holmes County region.

Relatedly, Table 5 shows the percentage of product sales, on average, staying within certain geographic boundaries. For component manufacturers, over half remained within the Holmes County region and nearly three-quarters stayed within Ohio. This finding is consistent with Brookfield (2008), who states that clusters are characterized by firms that outsource manufacturing inputs, and Porter (1998), who states that an important characteristic of clusters is the presence of specialized supplier bases that enables vertical interfirm integration. It has been shown that firms within the cluster rate access to local suppliers and manufacturing services as key advantages to being in the cluster (Bumgardner et al. 2011b). Table 5 also shows that for furniture manufacturers, most product sales (52 percent) are destined for out-of-state markets.

## Summary

The Amish furniture manufacturing cluster in Ohio is a case of a small-scale manufacturing solution that has emerged and successfully competed in a global market, benefitting landowners through development of local forest markets. The cluster has grown as part of a transition from agricultural production to manufacturing in the Amish community as opportunities for semi-customized production of solid wood furniture were realized and marketed by local manufacturers. A considerable volume of wood manufacturing inputs, as well as final product sales, are based on local and regional markets, although finished products are distributed throughout the United States. Clustering has enabled several competitive advantages related to supply chain development, productivity, and distribution.

## References

- Anonymous. 2005. *The Furniture Book: A Complete Guide to the Furniture Manufacturers and Wholesalers in Ohio's Amish Country, 2005-2006 edition*. Overland Publishing, Inc., Orrville, OH, 168 p.
- Bratkovich, S., Fernholz, K., Bowyer, J., and Lindburg, A. 2009. *Forest-based Economic Clusters: Models for Sustainable Economic Development*. Dovetail Partners, Inc., Minneapolis, MN, 9 p.
- Brookfield, J. 2008. *Firm clustering and specialization: a study of Taiwan's machine tool industry*. *Small Business Economics*. 30:405-422.
- Bumgardner, M., Romig, R., and Luppold, W. 2007. *Wood use by Ohio's Amish furniture cluster*. *Forest Products Journal*. 57(12):6-12.
- Bumgardner, M.S., Graham, G.W., Goebel, P.C., and Romig, R.L. 2011a. *How clustering dynamics influence lumber utilization patterns in the Amish-based furniture industry in Ohio*. *Journal of Forestry*. 109(2):74-81.
- Bumgardner, M.S., Graham, G.W., Goebel, P.C., and Romig, R.L. 2011b. *Perceptions of firms within a cluster regarding the cluster's function and success: Amish furniture manufacturing in Ohio*. *Proceedings of the 17<sup>th</sup> Central Hardwood Forest Conference, GTR-NRS-P-78, USDA Forest Service, Northern Research Station, Newtown Square, PA*, p. 597-606.
- Dugan, M.K. 2009. *The Furniture Wars: How America Lost a Fifty Billion Dollar Industry*. Goosepen Press, Conover, NC, 450 p.
- Hardwood Market Report. 2009. *2008: The Year at a Glance - 12<sup>th</sup> Annual Statistical Analysis of the North American Hardwood Marketplace*. *Hardwood Market Report, Memphis, TN*, 78 p.
- Kreps, G.M., Donnermeyer, J.F., and Kreps, M.W. 1994. *The changing occupational structure of Amish males*. *Rural Sociology*. 59(4):708-719.
- Lowery, S. and Noble, A.G. 2000. *The changing occupational structure of the Amish of the Holmes County, Ohio, settlement*. *The Great Lakes Geographer*. 7(1):26-37.
- Luppold, W.G. and Bumgardner, M.S. 2010. *Two eras of globalization and hardwood sawtimber*. In Gan, J, Grado, S., and Munn, I.A. (eds.). *Global Change and Forestry: Economic and Policy Impacts and Responses*. Nova Science Publishers, Inc., New York, p. 171-178.
- Porter, M.E. 1998. *Clusters and the new economics of competition*. *Harvard Business Review*. November-December:77-90.
- U.S. Bureau of Labor Statistics. 2012. *Quarterly Census of Employment and Wages*. Available online at <http://www.bls.gov/data/> (accessed July 9, 2012).