

Economic Impacts of the Forest Products Industry in the South (2009)

Ram P. Dahal

(Corresponding author)

Graduate Research Assistant

Department of Forestry, College of Forest Resource

Mississippi State University

rdahal@cfr.msstate.edu

Phone: 662.694.0336

Ian A. Munn

Professor

Department of Forestry, College of Forest Resource

Mississippi State University

imunn@cfr.msstate.edu

Phone: 662.325.4546

James E. Henderson

Assistant Extension Professor

Department of Forestry, College of Forest Resource

Mississippi State University

jhenderson@cfr.msstate.edu

Phone: 662.325.0754

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Abstract

The forest products industry is an important component of local, state, regional, and national economies. Assessing the economic contributions of the forest products industry in the South, one of the leading timber producing region in the world, is crucial. Impact Analysis for Planning (IMPLAN), an input-output model, was used to assess the economic contribution of the forest products industry for the southern United States. Two aspects of economic contribution, direct impacts and the associated Social Accounting Matrix (SAM) multipliers, were compiled for three primary forest products industry sectors (lumber and wood products, paper and allied products, and wood furniture) for 2009, the most recent data available, and compared to study of the industry by Tilley and Munn (2007). The forest products industry proved to be an important source of employment and income for the South in 2009 despite of disproportionate impacts of the current recession. Results of this study will update the baseline economic information and will provide crucial information to concerned authority to strengthen the economic health of the industry.

Keywords: input-output model, IMPLAN, direct impacts, SAM, economic impacts

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Introduction

Southern United States forest-based industries are an important component of local, state, regional, and global economies. Occupying approximately 214 million acres (40%) of the total land area (Alig and Bulter 2004); the South is one of the largest producers of timber products in the world (Prestemon and Abt 2002). Representing only two percent of the world's forest area, southern forests render 18% of world's pulpwood, 7% of industrial roundwood (Hansen et al. 2010), and 8.6 billion cubic feet of wood (Smith et al. 2009). The South's forest-based industry generates about 40% of U.S forest-based industry employment and 1.3% of total states employment (Tilley and Munn 2007). Thus, forest resources are a major economic asset in this region.

The southern region has a long history of dominating the U.S. forest product industry. In 1982, the South generated the highest forest-based industry output (Teeter 1989); in 1992 the industry generated 633,367 jobs (Aruna et al. 1997) which increased to 771,329 in 1997 (Abt et al. 2002) and 718,176 in 2001 (Tilley and Munn 2007). However, no comprehensive study of the industry has been conducted since then. With the recent economic recession, an updated analysis of the economic contribution of the forest-based industry is crucial.

Economic impacts of the forest products industry can be estimated in number of ways and impact analysis of planning (IMPLAN), an input-output model, is the most effective and widely used method (e.g., Hodges et al. 2011, Hodges et al. 2009, Munn and Henderson 2002, Cox and Munn 2001, and Hotvedt et al. 1988). This study also used IMPLAN to assess the economic

contribution of the forest products industry for the South. Two aspects of economic contribution, direct impacts and SAM (Social Accounting Matrix) multipliers, were compiled for three primary forest products industry sectors (lumber and wood products, paper and allied products, and wood furniture) for 2009 and compared to 2001, the last comprehensive study of the industry in the South. Direct impacts illustrate the initial impact of the economy and SAM multipliers illustrate the chain of direct effects to the rest of the economy. To quantify the impact of the forest products industry, four key statistics were measured: employment (consisting of the number of full- and part-time jobs), wages and salaries (sum of employee compensation and proprietor income), total industry output (value of production by industry for a given time period), and value-added (sum of employee compensation, proprietary income, property income and indirect business taxes). The forest products industry impacts the South's economy in three ways: direct, indirect, and induced effects. Direct effects are those attributed to the forest products industry, indirect effects result from inter-industry exchanges made necessary by the activities of the forest products industry as it buys goods and services from other sectors, and induced effects are due to household spending by employees of the forest products industry and its supporting sectors.

This study updates baseline economic information of the forest products sector and provides crucial information for elected officials and other policy makers. Documenting these changes is necessary to determine when or if legislative action is needed to support this industry that is so important to rural economies.

Data sources and methods

Data used in this report came from Minnesota IMPLAN Group (MIG) IMPLAN 2009 database of the 13 southern states. This data was used to generate economic impacts of the forest products industry and was measured in 2009 dollars. IMPLAN is a non-survey-based computer software and modeling system that constructs regional economic accounts and regional input-output tables at flexible spatial scales (Shaffer et al., 2004; Tilley and Munn, 2007). Results from the 13 southern states were aggregated and compared to 2001 regional impacts of industry by Tilley and Munn (2007).

Economic contributions of the industry were estimated using IMPLAN software V3.0. IMPLAN V3.0 uses 440-sector input-output transaction table based on North American Industrial Classification System (NAICS). Forest-related industry were first categorized into three broad industries: lumber and wood products, paper and allied products, and wood furniture (Table 1.); and IMPLAN models were constructed for 13 southern states for each three major forest products industries. The 13 Southern states were then combined to generate regional impacts. The four key statistics along with SAM multipliers were estimated for each sector of the forest products industry.

Results

The forest products industry comprised 1.6% of the total economy of the South in 2009. The industry generated 0.8% of total employment, 1.0% of wages and salaries, and 1.0% of value-added for the region. The wood furniture sector accounted for the largest share of employment (35.1%) within the forest products industry, while the paper and allied products sector

contributed the lowest, 31.0%. However, the paper and allied products sector accounted for the largest share in wages and salaries (46.7%), total industry output (60.3%) and value-added (53.7%). Of \$132.6 billion of the forest products industry output, value-added by the industry represented 32.5%, the largest contributor being wood furniture sector (38.3%) and the smallest being the paper and allied products sector (28.9%). Average annual wages for employees in the industry were \$55,600 compared to \$47,300 for the South as a whole (Table 2.).

SAM multipliers also varied considerably sector-wide. Regional multipliers for each sector were slightly higher than average state multipliers. Regional multipliers for employment, total income, and personal income were higher for the paper and allied products sector whereas for total industry output and value-added it is higher for lumber and wood products. For lumber and wood products sector, average state multipliers were 2.53, employment; 2.38, total income; 2.28, personal income; 2.05, output; and 2.49, value-added (Table 3.). For wood furniture sector, average state multipliers were 2.06, employment; 2.06, total income; 1.96, personal income; 1.88, output; and 2.32, value-added (Table 3.). Similarly for the paper and allied products sector, average state multipliers were 3.73, employment; 2.66, total income; 2.58, personal income; 1.76, output; and 2.55, value-added (Table 3.).

Discussion and conclusion

From 2001 to 2009, employment in the forest products industry in the South decreased by 33.9%. Furthermore, employment in each of the three sectors decreased South-wide. Industry wages and salaries decreased by 4.9% in nominal terms compared to a 39.3% increase for the South as a whole. Average annual wages for employees in the industry, however, increased from \$38,600 to \$55,600.

In nominal terms, total industry output for the forest products industry in the South increased by only 15.1% over the study period. In contrast, total industry output for the South increased by 51.7%. Output for the lumber and wood products sector was down for the region by 21.6% while for the paper and allied products sector it increased by 42.7%, and for the wood furniture sector it remained relatively flat (-4.3%).

Relative to the South's total economy, the forest products industry generated 0.8% of the employment, 1.0% of value-added, and 1.6% of total industry output in 2009, a decrease from 1.3%, 1.3%, and 2.1% respectively in 2001. Although the direct impacts of the industry decreased as a share of the total economy of the South, some of this decrease was offset by increases in the multipliers. Compared with 2001, the average state multipliers for all sectors of the forest products industry were higher in 2009. Within the three forest products sectors, average state multipliers for employment, total income and personal income were greatest for the paper and allied products sector while average state multipliers for output and value-added were greatest for the lumber and wood products sector.

Although the economic contributions of the forest products industry have decreased, the industry is still one of the major economic contributors of the South. Tracking the economic contribution of the industry over time will provide important information on industry trends and is very crucial for policy making. This study documents the impacts of the forest products industry on regional economy and provides baseline economic information to formulate plans and policies in order to strengthen the economic health of the industry, and local economies that benefit from the forest products industry.

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Table 1. IMPLAN sectors included in the aggregated forest products sector

Aggregated forest products sectors	IMPLAN sectors (NAICS code*) contained in the aggregated sector
Lumber and wood products	Logging (1133); sawmills and wood preservation (3211); veneer and plywood manufacturing (321211, 321212); engineered wood members and truss manufacturing (321213, 321214); reconstituted wood products manufacturing (321219); wood container and pallet manufacturing (32192); prefabricated wood building manufacturing (321992); all other miscellaneous wood product manufacturing (321999)
Paper and allied products	Pulp mills (32211); paper mills (32212); paperboard mills (32213); paperboard container manufacturing (32221); coated and laminated paper, packaging paper manufacturing (322222, 322221); all other paper bag and coated and treated paper manufacturing (322223, 322226, 322224, 322225); stationary product manufacturing (32223); sanitary paper product manufacturing (322291); all other converted paper product manufacturing (322299)
Wood furniture	Wood windows and door and millwork manufacturing (32191), wood kitchen cabinet and counter top manufacturing (33711); upholstered household furniture manufacturing (337121); non-upholstered wood household furniture manufacturing (337122); institutional furniture manufacturing (337127); wood TV , radio and sewing machine housing (337129); wood office furniture manufacturing (337211); custom architectural woodwork and millwork (337212, 337214); showcase, partitions, shelving and lockers (337215)

*Numbers in the parenthesis are NAICS code.

Table 2. Economic contribution of the forest products industry in the South

Forest Products sector	Employment		Wages and salaries (\$MM)		Total industry output (\$MM)		Total value-added (\$MM)	
	2009	2001*	2009	2001*	2009	2001*	2009	2001*
Lumber and wood products	159,690	254,616	7,095.3	8,152.8	27,512.8	35,101.5	10,284.1	11,791.8
Wood furniture	164,972	260,489	6,844.6	7,503.4	25,129.2	24,094.5	9,634.8	9,650.1
Paper and allied products	145,788	197,037	12,198.1	11,816.4	79,991.1	56,064.2	23,135.9	18,221.6
Total	470,449	712,142	26,138.0	27,472.6	132,633.2	115,260.2	43,054.8	39,663.5
South total	57,143,482	54,290,945	2,705,635.5	1,942,181.8	8,156,392.1	5,377,658.7	4,407,927.2	2,998,482.0

* Tilley and Munn 2007

Table 3. SAM multipliers of each industry in the South

Forest Products sector		Employment		Wages and salaries		Personal income		Total industry output		Total value-added	
		2009	2001*	2009	2001*	2009	2001*	2009	2001*	2009	2001*
Lumber and wood products sector	State mean	2.5322	2.1117	2.3764	2.1005	2.2834	2.0888	2.0515	1.8268	2.4865	2.2342
	South	2.5548	NA	2.412	NA	2.3091	NA	2.0726	NA	2.5141	NA
Wood furniture sector	State mean	2.0570	1.7090	2.0647	1.8017	1.9639	1.7367	1.8834	1.7822	2.3227	1.9962
	South	2.0863	NA	2.1095	NA	2.0066	NA	1.9170	NA	2.3407	NA
Paper and allied products sector	State mean	4.0262	2.5492	2.6060	1.9368	2.4946	1.8372	1.7607	1.5719	2.4384	1.9446
	South	4.0985	NA	2.6631	NA	2.5491	NA	1.7939	NA	2.4961	NA

* Tilley and Munn 2007