

(Economic) Life without Missouri's Forests

Prepared by the Missouri Department of Conservation, 2017.

What would life be like if Missouri had no forests? Besides being a lot less pleasant, scenic and enjoyable for us and the plants and animals that rely on Missouri's forests, Missouri's wallets would take a big hit! Working with data collected by the Federal government, other branches of state government and the Missouri Department of Conservation's (MDC) own foresters, MDC undertakes periodic assessments of the economic impact of the forest products industry on the state as a whole.

Economic impact analysis (EIA) examines the effect of a policy, program, project, activity or event on the economy of a given area. The area can range from a neighborhood to the entire globe. Economic impact is usually measured in terms of changes in economic growth (output or value added) and associated changes in jobs (employment) and income (wages). The analysis typically measures or estimates the level of economic activity occurring at a given time with the activity occurring, and calculating the difference from what would otherwise be expected if the activity did not occur (which is referred to as the counterfactual case). This analysis can be done either before or after the fact (ex ante or ex post). The term economic impact can be applied to analysis of the economic contribution of a given activity or industry to the existing local economy.

It is also commonly conducted when there is public concern about potential economic impacts of a proposed project or policy. EIA differs from Cost-benefit analysis (CBA). In one sense, EIA is broader in that it counts business relocation and resulting spending multiplier impacts on a given area, while CBA is usually not constrained to any specific study area and thus ignores effects of business activity shifts among locations. On the other hand, CBA is broader in that it also counts non-economic benefits that have a value to people though they do not directly affect the flow of money in the economy (such as the value of effects on personal travel time savings, safety, security and quality of life improvements)

One typical method of undertaking an EIA is to use an input-output model. An input-output (I-O) model is a representation of the flows of economic activity between sectors within a region. The model captures what each business or sector must purchase from every other sector in order to produce a dollar's worth of goods or services. Using such a model, flows of economic activity associated with any change in spending may be traced either forwards (e.g., spending generates employee wages, which induces further spending) or backwards (e.g., purchases lead firms to purchase additional inputs - groceries, utilities, etc.). Multipliers for a region may be derived from an input-output model of the region's economy. IMPLAN is a computer-based, input-output modeling system. With IMPLAN, one can estimate I-O models of over 50 sectors for any region consisting of one or more counties. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model

The Missouri Department of Conservation has been tracking the state’s forest products industry over the years. In 2016, the most recent available data, forest products, wood, lumber, paper and related industries contributed \$10.3 billion to the Missouri economy, in 2017 dollars (see Table 1). These industries support nearly 46,000 jobs at a payroll of over \$2.4 billion and are responsible for nearly \$800 million in taxes that help to run our state and country, including \$95 million in state sales tax. These numbers include logging and sawmill operations, secondary wood products, furniture and cabinet makers, log cabins, paperboard manufacturing and so on. The grand total includes not only the direct effect of jobs in the industry but secondary effects in the economy as a whole. Secondary effects are the changes in economic activity from subsequent rounds of re-spending of primary dollars. There are two types of secondary effects: 1) Indirect effects are the changes in sales, income, or employment within the region in backward-linked industries supplying goods and services to forest products industry. 2) Induced effects are the increased sales within the region from household spending of the income earned in the forest products and supporting industries. Forest products employees spend the income they earn from tourism on housing, utilities, groceries, and other consumer goods and services. This generates sales, income, and employment throughout the region's economy.

Year	Industry Definition					
	Narrow		Intermediate		Broad	
	Employment	Output (millions)	Employment	Output (millions)	Employment	Output (millions)
2001	11,594	\$1,618,857	30,349	\$4,385,105	55,984	\$9,394,203
2003	11,567	\$2,443,997	27,397	\$5,168,521	49,218	\$10,664,500
2006	12,140	\$2,694,541	29,941	\$6,130,615	49,426	\$11,197,057
2008	13,099	\$2,706,128	28,570	\$5,383,812	49,067	\$11,007,711
2010	10,617	\$1,511,250	21,964	\$3,215,161	41,206	\$7,966,484
2011	10,957	\$1,597,534	26,092	\$4,512,863	42,538	\$8,717,537
2012	11,184	\$1,770,337	24,503	\$4,139,936	41,391	\$8,724,565
2013	11,744	\$1,701,752	24,901	\$4,027,862	41,842	\$8,432,402
2014	13,699	\$2,112,287	27,965	\$4,880,115	44,216	\$9,589,594
2015	14,763	\$2,136,553	30,044	\$5,068,191	46,989	\$9,946,967
2016	13,971	\$2,233,315	27,143	\$4,592,205	45,512	\$10,309,727

Table 1 – Economic impacts of the forest products industry in Missouri, from 2001 to 2016 in 2017 dollars, based on IMPLAN and MDC data.

Of course the economic impact of the forest products industry depends on how broadly the industry is defined. The numbers above represent the impact of forest products defined to include all primary and secondary processors, as well as paper products. Using a narrower definition without paper products shows a total impact of \$4.6 billion in 2016, supporting about 27,000 jobs. For those interested in the narrowest definition, just field and logging operations plus primary mills, the 2016 total impact is estimated at \$2.2 billion, supporting almost 13,000 jobs at a payroll of about \$706 million (see Table 1).

Naturally these numbers fluctuate from year to year, as forest products and related industries are affected by the overall economy. The grand total has varied from \$8 billion in 2010 to \$11.2 billion in 2006 (all figures are in 2017 dollars). Employment has ranged from 56,000 in 2001 to 41,200 in 2010. Treating 2001 as the base year, output has varied from 73% to 167% of the base, depending on industry definition (see Figure 1). Employment has varied from 72% to 113% of base.

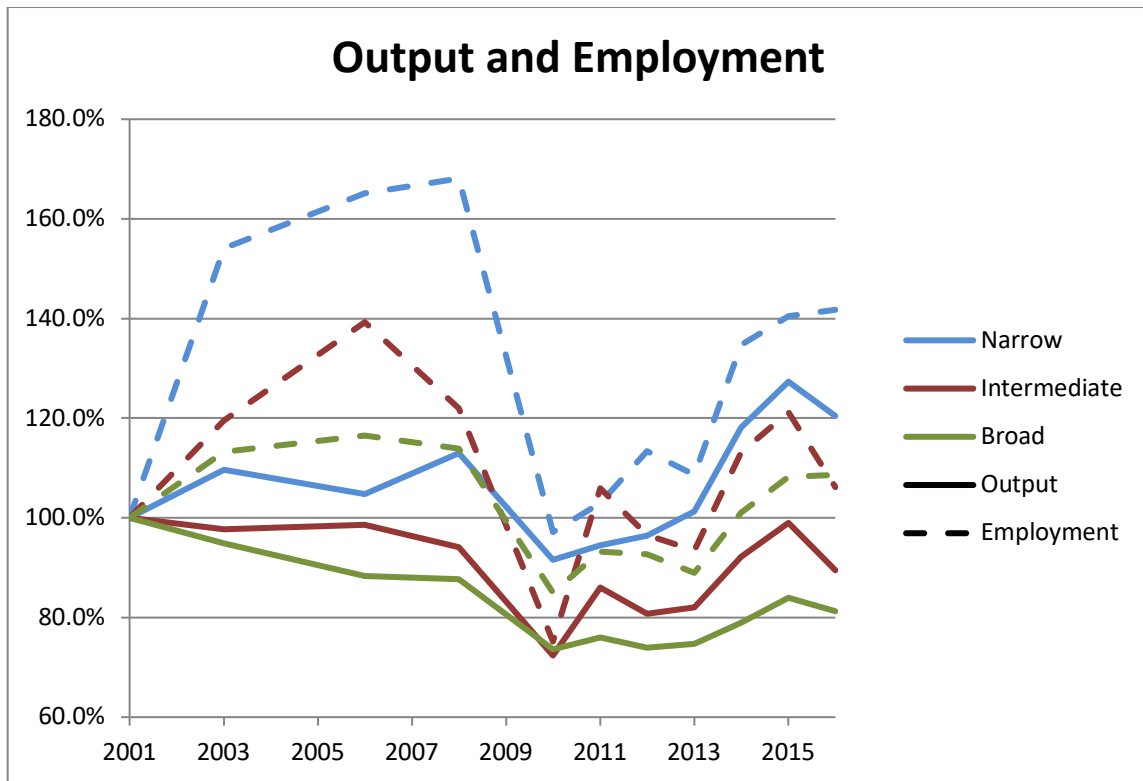


Figure 1

These trends are borne out by data from Timber Product Output (TPO) surveys that the Missouri Department of Conservation (MDC) conducts on a regular basis. Every three years MDC foresters census all primary wood processing businesses in the state to determine the level of harvest by species and county. Between 2000 and 2016 the Missouri TPO has shown a slight decline in the number of primary mills operating in the state, and since 2009, an increase in the total volume of roundwood received by those mills (Figure 2).

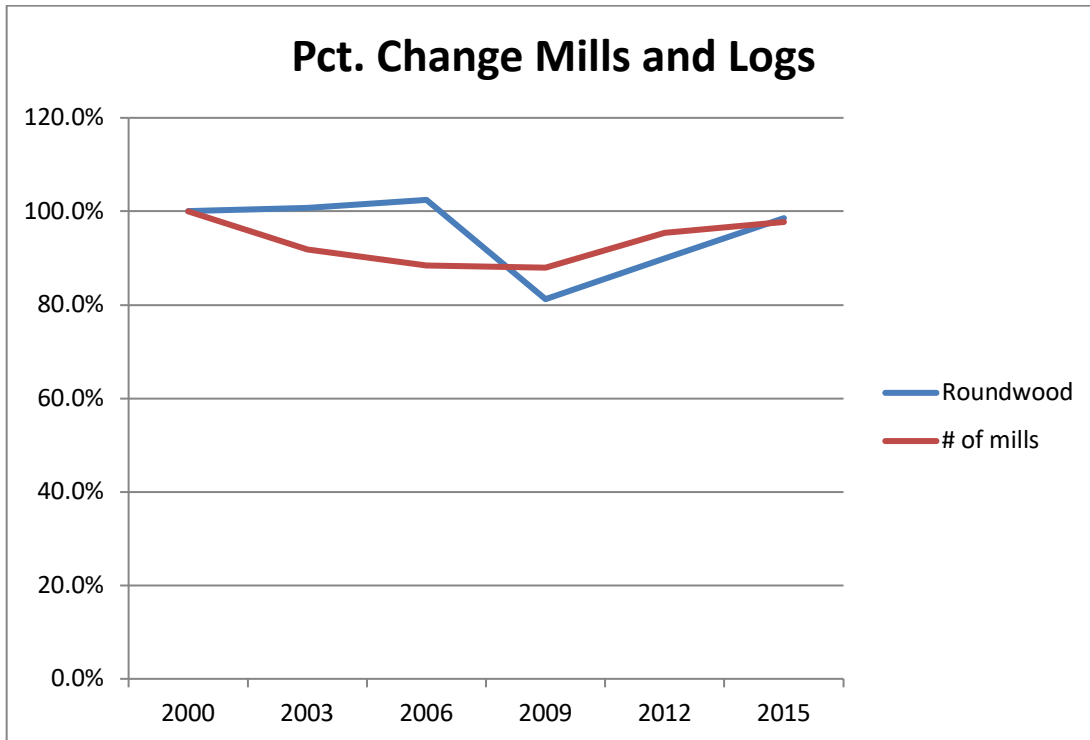


Figure 2

All results are based on data collected by the US Bureau of Economic Analysis, the US Bureau of Labor Statistics, the US Department of Agriculture, and the Missouri Department of Conservation (MDC), and compiled by the Minnesota IMPLAN Group and MDC.

But that \$9.9 billion estimate using 2016 data doesn't even include the value of a day spent walking in Missouri's woods with your family searching for morels, trying to spot a migrating warbler or next season's big buck. That part is priceless!