

CONSERVE. PROTECT. LEAD.



TFSWEB.TAMU.EDU

ECONOMIC CONTRIBUTION OF THE TEXAS CHRISTMAS TREE INDUSTRY

XUFANG ZHANG (FOREST ECONOMIST), AARON STOTTMAYER (FOREST RESOURCE ANALYST)
FOREST ANALYTICS DEPARTMENT, TEXAS A&M FOREST SERVICE

INTRODUCTION

Christmas trees are an important holiday tradition in many households, businesses, communities, and organizations across the U.S. According to the National Christmas Tree Association, almost 350 million Christmas trees are growing on approximately 15,000 tree farms across 350,000 acres of land in the U.S. Among all Christmas tree species, the most popular include Fraser fir, noble fir, Douglas-fir, balsam fir and Scots pine (National Christmas Tree Association 2020).

Real Christmas trees benefit the environment in many different ways compared to artificial ones. As petroleum-based products, artificial Christmas trees contain plastics that are not biodegradable and may contain metal toxins such as lead which creates a long-term environmental burden upon their disposal. However, much like forest trees, Christmas trees growing on tree farms reduce soil erosion and improve water quality, provide habitat for wildlife, create scenic beauty and recreational opportunities, sequester carbon, emit oxygen, and are renewable and compostable.

Figure 1 shows a timeline of real and artificial Christmas tree sales in the United States from 2004 to 2018. In general, total sales of Christmas trees have increased in recent years. The number of real Christmas trees sales is higher despite the growing trend in purchasing artificial Christmas trees. In 2018, the United States sold over 32.8 million real Christmas trees, reaching the highest level since 2013 (National Christmas Tree Association 2020).

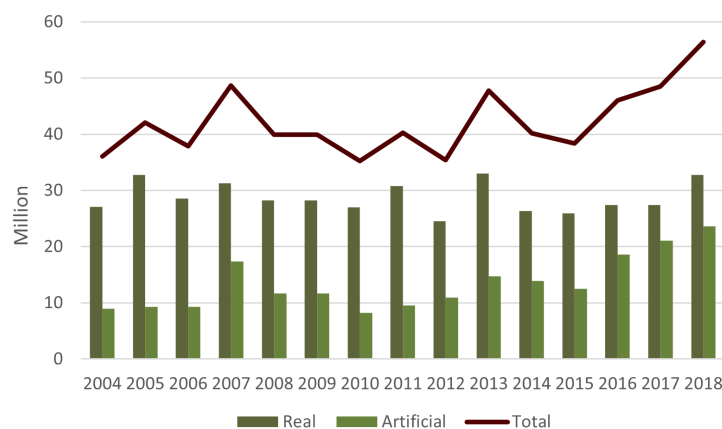


Figure 1. Sale quantity of Christmas trees in the United States from 2004 to 2018 (Source: National Christmas Tree Association)

Texas is an important contributor to Christmas tree sales in the U.S. with over 4 million purchased annually. Prior to the 1980's, most of the trees sold in Texas were imported from other states, including Oregon, Wisconsin, and Michigan. And while retail sales of Christmas trees imported from northern and western states are still a significant portion of the Christmas tree industry in Texas, there is now a large and growing number of choose-and-cut tree farms across Texas (Texas Christmas Tree Growers Association 2020).

The most suitable and commonly grown Christmas tree species in Texas include Virginia pine, Afghan pine, Eastern redcedar, shortleaf pine, Arizona cypress, and Leyland cypress. The U.S. Bureau of Labor Statistics estimated that in 2019 the Texas Christmas tree industry ranked 2nd in the U.S. South for average annual employment and wages behind Florida, and 4th nationally after California, Florida, and Oregon (U.S. Bureau of Labor Statistics 2020). With limited information currently available, this report examines the contribution of the Christmas tree industry to the Texas economy.

METHODS

To estimate the contribution of the Texas Christmas trees industry to the state's economy, the IMPLAN (impact analysis for planning) input-output modeling system was employed (IMPLAN Group 2017). IMPLAN is widely used for conducting economic simulations (Steinback 1999, Prato and Hey 2006, Joshi, et al. 2017).

To simulate the overall impact of the Christmas tree industry on the states' economy, IMPLAN estimated how the direct effects of the sector's expenditures contributed to the indirect effects of supporting sectors as well as induced effects of consumption by households. The direct, indirect, and induced effects are related to changes in employment, labor income, value added, and industrial output resulting from industry activities. In addition, the multiplier effect of the social accounting matrix (SAM) was evaluated by calculating the relationship between different sectors to reflect industry impacts on the local economy.

To obtain a conservative estimate of the portion of the greenhouse, nursery, and floriculture production sector (Sector 6) belonging to Christmas tree production, an estimate of employment and wages paid to Texas growers and their employees in Texas in 2017 was obtained for the Nursery and Tree Production sector (NAICS code 111421; U.S. Bureau of Labor Statistics 2020) and applied to Sector 6 in the IMPLAN model (Hughes, 2015; Khanal et al., 2017).

RESULTS

Results of the economic contribution analysis of the Texas Christmas tree industry are shown in Table 1. The Christmas tree industry generated over \$400 million in direct effects and employed nearly 4,000 people with a payroll of over \$110 million. The state received about \$150 million from Christmas tree activities through payroll, other employee compensation, and property taxes. Ancillary industries indirectly contributed \$235 million in output, provided 1,800 jobs with \$86 million in labor income, and \$130 million in value added. Induced effects were \$190 million, 1,200 jobs, \$62 million in labor income, and \$108 million in value added. Including direct, indirect, and induced impacts, the sector had a total economic contribution of \$824 million in industry output, supporting nearly 7,000 jobs with a payroll of \$262 million, and \$394 million in value added.

CONSERVE. PROTECT. LEAD.



TFSWEB.TAMU.EDU

CONSERVE. PROTECT. LEAD.



TFSWEB.TAMU.EDU

Table 1. The economic contribution of the Christmas tree industry in Texas*

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	3917	113.98	153.49	401.83
Indirect Effect	1806	86.32	132.12	234.98
Induced Effect	1231	61.80	108.38	187.10
Total Effect	6953	262.10	393.99	823.90
SAM	1.78	2.30	2.57	2.05

*Economic contribution analysis was conducted based on the 2017 IMPLAN data and results are given in 2020 dollars. Labor income, value added, and output are expressed in millions of dollars.

The SAM multiplier reflects the additional jobs, labor income, value added, and output to the local economy created by an industry to the local economy (IMPLAN Group 2017). Every job created by the Texas Christmas tree industry resulted in an additional 0.78 jobs and \$1.30 in payroll in Texas. An additional \$1.57 of value-added was created when one dollar of value-added was generated by the Texas Christmas tree industry. The SAM multiplier for output was 2.05, indicating that every dollar of output generated by the Texas Christmas tree industry contributed an additional \$1.05 to the rest of the state's economy.

In conclusion, real Christmas trees have numerous environmental benefits over artificial alternatives; they are renewable and recyclable, stabilize soil and protect water supplies, absorb carbon while emitting oxygen, and provide habitat for wildlife. And while the Texas Christmas tree industry has received relatively little attention in the past, results of this study clearly demonstrate that it is an important contributor to the state's economy.

REFERENCES

- National Christmas Tree Association, 2020. <https://realchristmastrees.org/>
- Texas Christmas Tree Growers Association, 2020. <https://www.texaschristmastrees.com/>
- U.S. Bureau of Labor Statistics, 2020. <https://www.bls.gov/data/>
- IMPLAN Group., 2017. IMPLAN System (data and software). 16740 Birkdale Commons Parkway, Suite 206, Huntersville, NC 28078.
- Steinback, S.R., 1999. Regional economic impact assessments of recreational fisheries: an application of the IMPLAN modeling system to marine party and charter boat fishing in Maine. *North American Journal of Fisheries Management*, 19 (3), 724-736.
- Prato, T. and Hey, D., 2006. Economic analysis of wetland restoration along the Illinios river. *Journal of the American Water Resources Association*, 42 (1), 125-131.
- Joshi, O., Henderson, J.E., Tanger, S.M., Boby, L.A., Pelkki, M.H. and Taylor, E.L., 2017. A Synopsis of Methodological Variations in Economic Contribution Analyses for Forestry and Forest-Related Industries in the US South. *Journal of Forestry*, 115 (2), 80-85.
- Bureau of Labor Statistics, 2020. Quarterly Census of Employment and Wages .Washington, DC: United States Department of Labor, Bureau of Labor Statistics. Online at: <https://www.bls.gov/cew>.
- Hughes, D.W., 2015. Economic impact analysis of SC's forestry sector. 2015 Contribution of Forests and Forests Products to the South Carolina Economy.
- Khanal, P.N., Straka, T.J. and Willis, D.B., 2017. Economic contribution analysis of South Carolina's forestry sector, 2017. South Carolina State Documents Depository.