COLORADO STATE UNIVERSITY EXTENSION

ECONOMIC AND COMMUNITY CONTRIBUTION ANALYSIS OF THE FOREST PRODUCT INDUSTRY IN COLORADO

MOUNTAIN REGION STATEWIDE

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PROJECT INTRODUCTION

Regardless of where they live, Coloradans, like all Americans, rely on forest products every day. Broadly defined, a forest product is made from materials derived from the practice of forestry – the management of treed ecosystems.

However, there are thousands of overlooked items made from forest products that may be used without even noticing where they come from. In addition, **the active management of Colorado forests** provides significant **economic and ecological benefits**:

- Create local jobs and support the local economy
- Reduce the likelihood and severity of wildfires
- Protect water resources and water quality
- Foster carbon neutral energy independence
- Create diverse wildlife habitat
- Increase forest resilience to severe insect or disease events
- Raise revenue for public education through timber sales on trust lands

This project compiles and analyzes both qualitative and quantitative information on economic and ecological contributions and assesses the impact of public investment on the forest product industry.

INTERNSHIP GOALS

1. **Establish** points of contact with forest product businesses in Colorado and request necessary information about their economic and ecological contributions
2. **Compile and analyze** the information gathered under the consultation with CSU economics faculty
3. **Produce** a preliminary report

HOW DOES THIS APPLY TO YOUR EDUCATION

This project matches **my research interests** in natural resource economics and gives me a chance to work with **a diverse range of public and private stakeholders**, while developing skills of data collection and economic contribution analysis. The creation and editing of the report will foster the development of technical writing skills, and potentially provide **opportunities for outreach and academic journal publications.**

WHAT YOU DID

Chapter 2 defines the range of the forest product industry in Colorado using 3-digit NAICS codes: (113) forestry and logging, (115) support activities for agriculture and forestry, (321) wood product manufacturing, and (337) furniture and related-product manufacturing. Data as to these industry sectors were collected from the BEA and the Census Bureau and analyzed into figures to examine **historical trends and the current state**.

Chapter 3 illustrates 2024 awardees of USDA Wood Innovation Program Grants in Colorado and utilizes the amount of the grants to conduct **an ex-ante economic impact analysis** to assess the impact of a source of public funding to the forest product industry. This analysis estimates dollar values of economic activities in every industry sector in Colorado created by circulating external grants along supply chains within the local economy.

Chapter 4 conducts **an ex-post economic contribution analysis** of the forest product industry based on the 2022 data on input and output model of Colorado economy and external final demand on each industry sector. This analysis gives an alternative measure of economic contribution compared to gross statistics about employment, value-added, and output from government agencies.

Chapter 5 describes **agricultural and ecological contribution** of the forest product industry in a qualitative perspective. Beetle killed and dead trees that otherwise cannot be commercialized for can be used to produce compost for agriculture. Forest product industry utilizing overcrowded stock of trees in dense forests can reduce the risk of large-scale wildfires and protect watershed management.

Chapter 6 illustrates **present and emerging trends** in the forest product industry, focusing on the businesses contacted and visited through this internship and how innovation impacts its contribution.

Table 1. Economic base contribution in 2022

Industry Sector	Base Contribution	Direct Effect	Indirect/Induced Effect	Total	Gross Contribution
113 Forestry and Logging	Output	$75,740,145	$93,406,539	$169,146,684	$215,824,064
	Employment	734	515	1,248	1,982
	Value Added	$52,588,952	$49,613,773	$102,202,725	$142,064,309
115 Support Activity for Agriculture and Forestry	Output	$59,960,491	$76,562,081	$136,522,573	$523,682,812
	Employment	1,783	338	2,121	15,562
	Value Added	$50,793,154	$42,370,132	$93,163,286	$443,274,067
321 Wood Product Manufacturing	Output	$634,188,507	$1,263,084,167	$1,897,272,674	$2,498,102,426
	Employment	1,885	4,730	6,616	6,664
	Value Added	$198,650,965	$635,203,848	$833,854,813	$702,217,999
337 Furnituer and Related Product Manufacturing	Output	$1,328,647,469	$2,556,489,452	$3,885,136,921	$2,564,770,174
	Employment	5,487	10,027	15,514	10,532
	Value Added	$461,233,118	$1,353,039,545	$1,814,272,663	$885,319,014
Forest Product Industry (aggregation)	Output	$2,098,536,612	$3,989,542,239	$6,088,078,851	$5,802,379,476
	Employment	9,889	15,610	25,499	34,739
	Value Added	$763,266,188	$2,080,227,298	$2,843,493,487	$2,172,875,389

WHAT YOU LEARNED

- **Methods for economic contribution analysis** based on the input-output model: theoretical assumptions and building up a model for Colorado with data from IMPLAN.
- **The difference between** economic impact analysis and economic contribution analysis through relevant journal articles
- **Trends in employment and real GDP** by industry sectors in the forest product industry
- **Various innovative companies** and their forest products in Colorado: mass timber products as a construction material (Timber Age System, Golden West Pine Mills), carbon sequestration and carbon credit using woody biomass (Charm Industrial), biochar for versatile applications (Biochar Now)
- USDA Forest Service Wood Innovation Program Grants awarded $3.6M to Colorado in 2024, **creating $17.2M value of economic activities (4.71 times)**
- **Base contribution** of the forest product industry: over **$6,088M output, 25,499 jobs, and over $2,843M value added** to Colorado's economy
- **Gross contribution** of the forest product industry: over **$5,802M output, 34,739 jobs, and over $2,172M value added** to Colorado's economy

Table 2. Economic impact analysis of USDA Wood Innovation Program Grants

Industry Sector in 3-digit NAICS	Change in Final Demand		IMPACT	New Output
111 - Crop Production	$0		$36,107	$2,494,978,393
112 - Animal Production and Aquaculture	$0		$63,601	$6,440,116,642
113 - Forestry and Logging	$314,000	Eagle Wood Cutting and Processing, KFB forestry, Route Millworks	$359,737	$123,714,049
114 - Fishing, Hunting and Trapping	$0		$488	$74,548,198
115 - Support Activities for Agriculture and Forestry	$1,050,000	Biochar Now, Lignum Support	$1,076,146	$366,716,413
211 - Oil and Gas Extraction	$0		$215,118	$24,526,663,495
212 - Mining (except Oil and Gas)	$0		$23,860	$2,864,389,930
213 - Support Activities for Mining	$0		$75,669	$12,748,199,943
221 - Utilities	$600,000	EcoTech Biofuels, Yosemite Clean Energy	$921,806	$14,189,571,139
23 - Construction	$0		$123,378	$54,012,825,437
311 - Food Manufacturing	$0		$150,071	$18,478,866,043
312 - Beverage and Tobacco Product Manufacturing	$0		$35,452	$4,872,739,896
313 - Textile Mills	$0		$341	$34,398,290
314 - Textile Product Mills	$0		$2,680	$294,919,909
315 - Apparel Manufacturing	$0		$2,082	$233,388,747
316 - Leather and Allied Product Manufacturing	$0		$413	$46,485,250
321 - Wood Product Manufacturing	$1,703,000	Golden West Pine Mill, Colorado School of Mines, Redstone Timber Frames, Timber Age Builders	$1,901,492	$1,774,719,460

NEXT STEPS

Disseminate findings to state legislators, relevant stakeholders, and academic audiences to **enhance the awareness** of economic impact of public funding to the forest product industry and its economic, agricultural, and ecological contributions.