



FOREST PRODUCTS INDUSTRY IN ALABAMA: CONDITIONS, CHALLENGES & OPPORTUNITIES



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**CONDITIONS,
CHALLENGES &
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An aerial photograph of a landscape that has been cleared of its original forest. The ground is covered in a dense layer of greyish-brown debris, likely wood chips or mulch, with some sparse green vegetation beginning to grow. A light-colored, unpaved dirt road winds through the cleared area, starting from the top left, curving to the right, then turning back to the left, and finally heading towards the bottom right. In the bottom left corner, a small, denser area of green trees remains. A solid blue rectangular box is superimposed over the upper-middle portion of the image, containing the text 'KEY TAKEAWAYS' in white, bold, sans-serif capital letters.

KEY TAKEAWAYS

KEY TAKEAWAYS

Auburn University conducted in-depth interviews with individuals working in the forest products industry in Alabama to explore participants' perspectives on the challenges and opportunities facing the industry. This report describes the findings of that research, and below are the key takeaways:

- The data shared in this report is derived primarily from the perspectives of those who work at or with sawmills in Alabama. This data provides insights into a large portion of the industry in Alabama, but it is important to note that other key sectors of the industry did not contribute data to this report.
- Participants discussed a range of challenges for the industry, including profitability, supply chain issues, workforce-related issues, the public perception of the industry, and public policies and regulations.
- Insofar as opportunities, participants viewed Alabama's timber supply and infrastructure as strengths, as well as the demand for forest products and new technological advancements as additional areas of opportunity.
- Overall, participants expressed a desire to see continued investment in the industry within the state and coordinated efforts to address challenges and embrace opportunities quickly, effectively, and collectively.

PROJECT SUMMARY





PROJECT SUMMARY

Introduction

The forest products industry is one of the most important sectors of the Alabama economy, with a total impact of \$1.028 billion annually.¹ It is also vital to the livelihoods and economic development of many rural areas of the state. The industry has faced numerous challenges in recent years, yet stakeholders remain committed to their work and are cautiously optimistic about the future of the sector. To gain a fuller picture of the perspectives, values, and motivations of industry stakeholders from across the state, the Auburn University Rural Partnership Institute designed a study to interview key participants from sawmills² and other forest products operations. In these interviews, participants were prompted to discuss their personal work history, business operations, experience of change, and perceptions of the challenges and opportunities for the industry in Alabama.

¹ See <https://www.aces.edu/blog/topics/farm-management/agriculture-forestry-grow-alabama-an-economic-contribution-study/>

² Defined as solid wood mills that purchase large-diameter roundwood, including hardwood mills, softwood mills, plywood mills, veneer mills, and pole mills. Fiber mills (pulp and paper, composite, and pellet mills) were not included in the sample.



Methods

The Auburn University research team conducted semi-structured interviews with 46 participants between April 2024 and November 2025. Participants were recruited through industry associations in Alabama, networks within the Auburn University College of Forestry, Wildlife and Environment, and word of mouth from prior participants. The selection of participants was intended to represent diverse industry functions, including mills (hardwood, softwood, poles, veneer), manufacturers (engineered wood, treated lumber, pallets), and services (wood dealers, logging crews, land management). Participants' roles within the industry included mill and general managers, procurement foresters and managers, business owners, consultants, and administrators. Interviews lasted between 30 minutes and 2 hours and were recorded with the interviewee's consent. These recordings were later transcribed, and the data were coded in multiple rounds in MAXQDA Analytics Pro by the Auburn University research team. Pseudonyms are used for all quotes attributed to participants to protect the confidentiality of their comments to the research team.

Responses regarding transportation and trucking came from pilot interviews of loggers and truck drivers conducted by research team members to create a survey of logging business owners. Interviews were conducted in-person at conferences and meetings with suppliers during 2025 and 2026. Responses regarding air quality regulations came from a survey distributed to mill representatives over this same timeframe. This survey was distributed via mail to a sample of 92 mills in the state of Alabama, using the Alabama Forestry Association mill directory for primary mills. A total of 19 responses were returned (20% response rate).

PROJECT SUMMARY



Findings and Discussion

During interviews, participants were prompted with open-ended questions designed to elicit responses about their perspectives, values, attitudes, and beliefs, without reference to specific policies, initiatives, regulations, or organizations. While participant perspectives and experiences varied widely from individual to individual, in general, the discussions addressed their perceptions of the major challenges the industry currently faces and the opportunities available to individual operators, the sector, and the state of Alabama as a whole to continue to thrive in the provision of forest products. The following section summarizes the major challenges identified by participants, and the subsequent section summarizes opportunities.

CHALLENGES



CHALLENGES

“When I was in junior high and high school, my dad could go in the Carolinas and call on 50 customers. Now you go in the Carolinas and there’s three.”

Profitability

Demand for Forest Products

Mill representatives from across Alabama reported demand as the main challenge to profitability for mills that produce dimensional lumber and related products, due to the confluence of a down housing market, low lumber prices, and increased production. Participants suggested that lumber demand has not recovered from the economic shocks of the Great Recession and the COVID-19 pandemic, leaving prices largely stagnant even as production and operational costs have increased. For instance, Jeremiah, a mill manager, stated: “The logs, they’re still up. Lumber’s way down. There’s no profit margin there.” As Jeremiah suggested, profitability has been a challenge because sales prices have not kept pace with operating and supply costs.

In response to low profit margins, many mills have increased production. Yet interviewees argued that this has contributed to lower lumber prices due to oversupply. Silas, another mill manager, related: “If everyone’s producing more, that supply’s going up, demand better start going up.” Many participants were hoping for an increase in new housing starts, which would drive up lumber demand and stabilize the market. Others identified related issues that have hampered profitability for lumber mills, including declines in demand from overseas buyers of American lumber and the consolidation of sales outlets into fewer big box stores.

While representatives of dimensional lumber mills raised concerns about declines in demand, producers of traditional hardwood products, such as furniture and flooring, reported that their markets have largely collapsed. The market for hardwood flooring has been hurt by the advent

of look-alike products such as laminate and luxury vinyl plank (LVP). Wyatt, a mill manager, reflected on what has happened to the business over his career: “The biggest change is losing the flooring market.” In response, some producers have tried alternative products, such as cross ties, or moved toward custom production for specialized customers, although this increases labor costs. Interviewees reported that the hardwood market has also been hit hard by imported core veneer, which can be produced more cheaply overseas in Cambodia, Vietnam, and the Baltic region. Another major challenge reported in interviews was the collapse of domestic furniture manufacturing, most of which has also moved overseas where labor costs are lower. Roy, a mill owner, shared how the customer base for hardwood furniture inputs has changed over two generations: “When I was in junior high and high school, my dad could go in the Carolinas and call on 50 customers. Now you go in the Carolinas and there’s three.” As Roy suggested, the collapse in demand for hardwood materials to manufacture furniture domestically has hurt many mills.

Production Costs

Industry representatives stated in interviews that production costs have increased in recent years. In particular, participants suggested that following the widespread supply chain disruptions of the COVID-19 pandemic and the aftereffects of inflation, crucial harvesting and milling equipment have become more expensive to obtain and maintain. This opinion was shared by Mark, a mill manager: “We’ve been just trying to make everything run as long as possible, as you should.



But that rubber tire wheel loader there that would have cost \$275,000 to \$300,000 a few years ago is over half a million dollars. Everything’s up in price to the point where it’s not unaffordable, but you try to get a little more out of it if you can.” As Mark suggested, the increased purchase price of vital equipment like loaders has put added pressure on mill operators to run equipment longer than they would otherwise in order to justify the expense or pay down the debt. Yet as other participants stated, this practice can lead to increased maintenance costs. For example, Roy, a mill owner, explained: “Your repairs and maintenance costs have doubled in the past couple of years. Replacement parts [are] more expensive.” According to industry stakeholders, the pressure of inflation has increased equipment costs at the front end and over the lifetime of the equipment, factors that further strain the profitability of mills operating on already thin margins.

CHALLENGES



Supply Chains

Inputs: Logging and Transport

A major issue related to supplying fiber to mills concerns loggers and logging businesses. Almost every participant interviewed shared concerns about the aging of the logging workforce, with an average age estimated at 50 to 55. Stakeholders wondered who would take up that work as loggers retire or leave the business. This viewpoint was shared by Clint, a procurement manager: “We’ve gotta have loggers to keep this mill running. That’s a big challenge, you know, the age of the loggers. You hear more [loggers] going out of business than you have getting in business.” Interviewees highlighted several hurdles to starting a logging business, from high equipment costs, financing, operating expenses, insurance, and long hours required to keep up productivity, all of which work against younger entrants. In addition to concerns about loggers aging out, many stakeholders also worried that loggers would leave the business rather than lose money during down periods, for instance due to wet weather or mill quotas. This point of view was summed up by Reid, a procurement forester: “It’s so hard to get pulpwood hauled already. I’ve started hearing of [loggers] that are starting to go out of business now and not being able to produce. Will we have that production there or will it be gone? I don’t know if we’ll have the logging force for everyone to be satisfied and happy.” As Reid suggested, if logging operators leave the business during bad times, it could limit sawmill output when good times return because of the inability to get timber cut.



**We’ve gotta have loggers
to keep this mill running.**

A related issue impacting both loggers and wood processors concerns transportation costs. Whether companies buy stumpage or gate wood, the timber needs to be shipped by truck from the forest to the mill. Interview participants overall suggested that fuel costs limit the area that they can source from to a 50- to 100-mile radius. For instance, Troy, a mill owner, said: “We try to mainly source within about a 100-mile radius, but that’s not a firm thing. There may be times you get out to a 125, 150, you never know. But it’s gotten tighter because diesel’s gotten a lot higher.” As Troy stated, the farther a mill must go to source timber, the tighter their profit margins become, because more

fuel is required to bring in the same amount of wood. These challenges can be compounded for hardwood mills, as the growth in hardwood volume in the state has not kept pace with the growth in softwood volume.³ Yet even for softwood mills, transportation costs have begun to restrict the area that they can source from. Reid, a procurement forester, stated: “Those longer distances, with how much freight ends up being with it, I mean, it’s just not feasible to do. We do get to a certain spot where it just ain’t gonna work, money-wise.” While currently mills can obtain enough timber to operate, interview participants expressed concerns about the impact of logging and transport on input supply chains in the coming years.

³ See Hartsell, A. J., & Gray, J. A. (2023). Alabama’s Forests, 2020. U.S. Department of Agriculture, Forest Service, Southern Research Station. <https://doi.org/10.2737/srs-rb-235>

CHALLENGES

Byproduct Disposal

A major concern for sawmill operators is disposal of the residual byproducts of the milling process. The major kinds of residues are bark, which can be used as fuel for pulp boilers or dry kilns; sawdust and shavings, which can be used for mulch or animal bedding (for instance, in the poultry industry); and chips, which are an input for the production of pulp and paper products.⁴ Access to residual markets is important because sawmills do not have the footprint available to store byproducts indefinitely. Additionally, while residual sales are typically not highly profitable, they can be an important source of cash flow, especially for smaller mills.



In this context, interview participants expressed concerns about shrinking markets and profit margins for residuals. A major concern has been shutdowns of pulp and paper mills, which drives down chip prices and can increase transport costs, as sawmills must look further afield for buyers. Roy, a mill owner, stated: “Chip prices haven’t changed in 12 years.” In response to tighter and more distant markets for chips, sawmills have looked to other buyers, such as pellet mills and oriented strand board (OSB) plants. Yet the limited outlet for residuals has increased competition, a viewpoint expressed by Mark, a mill manager: “They’re oversupplied, which not only drives the price down for us, it also went from, ‘Hey, you can send us everything you produce,’ to, ‘Hey, we can only take X amount of loads this week.’” As Mark suggested, the remaining buyers for chips have been oversupplied, which lowers prices for sawmills and limits the quantity of residuals they can dispose of. Some participants were concerned even that disposal of chips might become a cost to sawmills, rather than a source of cash flow. Tom, the general manager of a mill, stated: “Obviously we’re not in the sawmill business to make chips, but you make chips. And if we have to start putting cash to get rid of chips, then our health is drastically reduced.”

⁴ See Hartsell, A. J., & Gray, J. A. (2023). Alabama’s Forests, 2020. U.S. Department of Agriculture, Forest Service, Southern Research Station. <https://doi.org/10.2737/srs-rb-235>



“I don’t think that anyone in any industry can sit here and say I’m fully staffed.”

Workforce

Rural Labor Markets

Finding good workers for logging and mill operations is a perennial concern for the industry, and this perspective is evident among the participants in this study. Participants noted the challenges of getting enough employees to cover their staffing needs, which is a perspective expressed by Silas, a plant manager: “I don’t think that anyone in any industry can sit here and say, ‘I’m fully staffed.’ If they can, kudos to them. I’d love to hear how they did it.” As Silas pointed out, labor supply has been a persistent issue for many industrial operations in Alabama. However, for the forest products industry, which operates in some of the most rural areas of the state, the challenge may be more acute. Jonah, a procurement manager, attributed his experience dealing with staff turnover to the more limited pool of rural labor: “It’s difficult work and it’s hard to get quality people ‘cause you put these mills in rural areas specifically. Even at this small little mill, we’ve gone through three sets of employees in the last four or five years.” For Jonah, Silas, and others, the limitations of rural labor markets increase the challenges of fully staffing their operations and retaining good employees over the long haul.

CHALLENGES

Other participants echoed these concerns and suggested that the quality of the local workforce leaves much to be desired from the perspective of running a sawmill. Tom, a mill manager, said that his mill faces the problem of absenteeism: “We have an attendance policy, of course. And when they don’t come to work three days a week, they consider themselves being fired.” Tom shared how he has dealt with employees who show up late, cannot secure transport, or miss work too often for a variety of reasons that he viewed as illegitimate. This point of view was communicated by many other interview participants who directly manage mill workers. In sum, industry stakeholders relate that the scarcity of quality labor in the rural areas where they operate has been a major challenge to their productivity and profitability.

Workforce Training

While the availability of labor is one concern, a separate issue identified by interview participants is the skill set and knowledge of employees who work in mill operations or logging. These industry stakeholders suggested that for employees to be successful, they need some initial experience and training. However, getting employees up to speed is potentially costly to mills and logging crews. Silas, who manages wood processing at a mill, stated: “It’s about just having a workforce that understands without strictly on-the-job training. That’s



one of the biggest feats that we see, ‘cause there’s a lot of time and energy put into training people.” For Silas and others, it is important that mill workers understand not just the basics of operating machinery, but that they have a conception of the overall purpose of the industry and the benefits it brings to the state.

Yet providing on-the-job training can potentially interfere with profitability. In an industry where profit margins are thin, any time an employee spends in training detracts from their contribution to production. Rather than relying on companies to provide on-the-job



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There's a lot of time and energy put into training people.

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training, interview participants expressed a need for public institutions and educational facilities—from the high school level to community colleges and universities—to do more to prepare incoming workers. Participants shared ideas and initiatives they believed could be successful in this regard, ranging from sawmill credentialing programs in high schools, to apprenticeships and internships for workers who might step into procurement or administration. For instance, Troy, a mill owner, suggested: “In Tennessee, they have an apprenticeship program. They’re able to bring somebody in, and the apprenticeship program will pay them for the teaching ‘til they’ve got ‘em to the level that they really wanna make ‘em a full-time employee.” As Troy argued, an apprenticeship or similar program would reduce the potential risks associated with hiring. Both the employer and the employee would have the opportunity to see if they are a good fit, while the costs to the company would be very low. As advocated by participants in these interviews, such a program would help reduce the costs of onboarding new employees and improve both retention and the bottom line.

A close-up photograph of a tree trunk cross-section, showing concentric growth rings in shades of brown and orange. The rings are more densely packed in some areas and more spread out in others, creating a textured, wavy pattern.

CHALLENGES

“I feel like forestry’s kind of on the back burner.”

Public Perception of the Industry

Lack of Knowledge

Interview participants shared concerns that the public does not know enough about their industry, its role in their lives, and its contribution to the state. These concerns centered on the notion that the industry would benefit from greater political support if its contributions were better known and understood, but that forestry is not a major concern for many members of the public or political figures. As Reid, a procurement forester, remarked: “I feel like forestry’s kind of on the back burner.” For Reid and other participants, the geographical location of logging and sawmills in primarily rural areas means that many people are never exposed to the industry in their daily lives. For others, however, even rural residents who have more frequent encounters with the industry are not fully aware of the labor, technology, and investment that goes into providing necessary wood products. This view was summed up by Silas, a plant manager: “A lot of times people drive by [the mill] and they don’t really know, you know, just the work and the time it takes to produce a quality product so people can build houses successfully.” Other interviewees shared concerns that consumers do not understand the constraints that the industry operates under, and that higher prices for wood products do not translate directly into higher profits for the industry but only serve to cover increased production costs.

Relatedly, stakeholders in these interviews suggested that the public remains largely unaware of how their lives depend on forestry and wood products, even in unexpected ways. This perspective was shared by Darren, a procurement manager: “They have no idea that everything in their life depends on a piece of wood. Even down to your cell phone screen. I mean, everything you use in your home is shipped on a wood pallet.” As Darren expressed, even everyday consumer goods that are not made directly of wood can be dependent on their industry. For these industry insiders, greater public awareness about the impact and importance of forestry would translate into greater support in keeping their industry going through tough times.



Misperceptions

Interview participants also suggested that there are many misperceptions about the forest products industry among members of the public, which they view as undermining public support for the industry and dampening consumer interest in forest products. For participants in these interviews, the biggest public misperception they would like to see corrected concerns the sustainability of forestry and forest products. In particular, stakeholders



argued that the public does not recognize how managing forests for timber production can be beneficial for the health of the trees and the whole forest ecosystem. For instance, stakeholders suggested that forest stands that are not harvested for timber are liable to die from other causes, such as pests, diseases, storms, or just old age. This view was shared by Troy, a mill owner: “The other thing that people don’t seem to realize is trees are like people. They get old and they die. You know, they don’t live forever. And if you don’t harvest them, the good Lord will.” As Troy and others suggested, many members of the public are not aware of the practices that comprise sustainable forest management, which can include thinning, prescribed fires, reseeding, and other practices that promote forest health and regeneration: practices that are beneficial not just for trees, but for wildlife and plant biodiversity. As

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stakeholders suggested, the public can be misguided by thinking that forestry is not a sustainable practice, because often members of the public only notice forests when they have been cut. Interview participants shared the hope that the public would understand that harvested forests will come back. Reid, a procurement forester, stated: “It’s a renewable resource. It’s gonna grow back in 20, 30 years or less than that and do it all over again.”

Yet, inducing landowners to practice sustainable forest management, according to stakeholders, requires maintaining strong demand for timber, which in turn depends on a strong industry and consumer demand for wood products. Part of what concerned interview participants was the belief that the public perceives wood products as not renewable or sustainable. Several made the comparison to plastic products to suggest that consumers should choose wood if they truly harbor environmental values. Roy, a mill owner, said: “You know, the plastic bags and all the plastic straws, all that stuff, really are not environmentally friendly. Where your paper and other wood products are, you know, a lot more environmentally friendly and will actually break down.” As Roy and others suggested, wood products biodegrade more quickly than plastics and come from a renewable resource, rather than petroleum. In this view, better public understanding could inspire consumers to view wood products as the sustainable choice.



Limits of Technological Solutions

Technology holds a lot of promise for sustaining the Alabama forest products industry into the future. Automation of mill production processes, for instance, may increase productivity while alleviating the workforce challenges identified by many stakeholders. However, the simple story of technological progress obscures some of the barriers to adoption that many mills and wood processors face. Smaller operations especially may lack the capital or access to financing to make upgrades possible. This position was summed up by Bobby, a plant manager: “How do you make it cost effective for me to put in a three-quarter-of-a-million-dollar machine that replaces two people? I can’t do that. My return on investment is 27 years or something.” As Bobby suggested, the long-term potential benefits of automation may not justify the outlay for investment in the short-term. An additional factor that mill operators must take into account is the production lost while upgrades are being installed, which can add to the cost and risk of technological adoption. As Tom, a mill manager, remarked: “Downtime is a terrible thing.” Mills operating on tight margins may not be able, financially, to take the time off from production to upgrade.



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My return on investment is 27 years or something.

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For some interviewees, technological upgrades do not suit their product lines. While some mills specialize in a small range of products that are produced at scale, others tackle orders that require customization. Wyatt, who manages a mill, compared his business to a plywood mill: “If you’ve ever been in a plywood mill before, everything is one size, maybe one or two different thicknesses and you can automate a lot. We’re handling everything from 7-foot to 5-foot-wide, to 22 inches by 22 inches. So that’s why it takes a lot of labor, to be able to do all these different things.” As Wyatt and others suggested, mills that take on a lot of special customer orders cannot easily automate their production. It would require downtime to shift a highly automated line from one product to another, and for the smaller volumes that these mills operate at, it would not make financial sense.



However, even mill operators that choose, for financial or operational reasons, not to adopt newer technologies, may still find themselves forced to adapt. The pace of technological change can quickly make older equipment obsolete, and suppliers may no longer provide replacements or repairs. Mark, who manages an older mill, stated: “They don’t make parts for a lot of that equipment out there. So if something breaks, you have to either fabricate it yourself or find someone that can.” Smaller, less capitalized mills may find themselves scrambling for spare parts or forced to upgrade before the useful life of their equipment has passed, simply because suppliers have moved on to new product lines.



“There is no way to make it pulling 80,000 pounds”

Public Policy and Regulation

Transportation and Trucking

Industry representatives identified transportation regulation as a major challenge for timber hauling in Alabama. The central issue raised by participants was the difference between the weight allowed on interstate highways and the higher operating weight allowed on state roads. Log trucks are limited to 80,000 pounds on interstate highways, while Alabama’s 10 percent weight tolerance allows log trucks to operate up to 88,000 pounds on other state roads. As a result, a load that is legal on a state road may be subject to penalty on the interstate. Participants suggested that this difference often leads loaded log trucks to avoid interstate routes, even when those routes would be more direct or better suited for heavy truck traffic.

Participants described this regulatory difference as a challenge for both profitability and efficiency. Several logging business owners and truck drivers stated that hauling at 80,000 pounds (truck and load combined) does not allow them to cover the full costs of operating trucks, including fuel, equipment, maintenance, insurance, and driver wages. With a typical log truck tare weight of 27,300 pounds,⁵ this leaves roughly 52,700 pounds of legal payload. Jake, a logging business owner, explained: “There is no way to make it pulling 80,000 pounds. You need [to] haul at least 28 tons [56,000 pounds of payload] to have a shot at making it.” Similarly, Wade, another logger, connected payload directly to the cost of keeping trucks on the road: “Both the loggers and the truckers need to haul a weight of 30 tons [60,000 pounds of payload] to pay for the upkeep on the trucks, the insurance to cover trucks in case of an accident . . . and to pay our drivers a competitive rate.”

⁵See Conrad, J. L. (2018). Costs and Challenges of Log Truck Transportation in Georgia, USA. *Forests*, 9, 650. <https://doi.org/10.3390/f9100650>

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Several participants also pointed to a mismatch between mill expectations and highway weight rules. Travis, a logging business owner, stated: “Mills pay up to 88,000 pounds. We would love to haul this amount without penalty.” Another participant, Daniel, argued that “mills would have to increase pay to loggers/truckers to make 80k worth it.” These comments suggest that the burden of transportation regulation is felt most directly by loggers and truckers, even though mills depend on them for efficient and reliable wood delivery.



A related concern was that avoiding interstate highways can make hauling less efficient and, in the view of participants, less safe. Respondents argued that interstate highways are often better suited for log trucks because they have wider lanes, better shoulders, longer sight distances, fewer intersections, and more consistent traffic flow. Russell, a truck driver, explained: “Interstates are built to withstand heavier loads than state highways. Interstate travel would allow drivers to bypass small towns with tight turns and red lights.” Others noted that when loaded trucks avoid interstates, they may be routed through small towns, school zones, stop signs, red lights, and areas with more turning movements and local traffic. Participants therefore framed the interstate weight limit as a practical safety issue as well as an economic one. In their view, the current rules may encourage trucks to use roads with more conflict points in order to avoid penalties on roads that are designed for heavier and more continuous traffic.

These laws were made when trucks and trailers did not have the technology or equipment that we have now.

Participants also expressed frustration with axle-weight limits and enforcement. Some respondents argued that gross vehicle weight is not the only issue; the distribution of weight across axles can also create compliance problems. Nathan, a logging business owner, stated that “axle weight is the problem” and argued that “per axle weight need[s] to change.” Another participant said simply, “Abolish axle weight restrictions.” These comments reflect a broader concern that hauling timber is different from hauling uniform freight. Logs vary in size, moisture content, and shape, and participants suggested that this makes it difficult to load each truck in a way that is both profitable and precisely compliant across all axle groups.

Concerns about weighing and enforcement further shaped how participants understood the issue. Some respondents reported using loader or mill scales to stay within legal limits, but still described receiving tickets after being weighed by enforcement officers. Carter, a truck driver, explained: “We personally use the same scales that the DOT uses. Many times the DOT will give us a ticket when we get to the mill, when we are in fact not overweight.” For these participants, the issue was not only the legal weight limit itself, but also the uncertainty created by scale variation, shifting loads, and fines for relatively small overages. In this context, the higher state-road allowance was viewed as a practical buffer for a commodity that is difficult to weigh and distribute with precision.



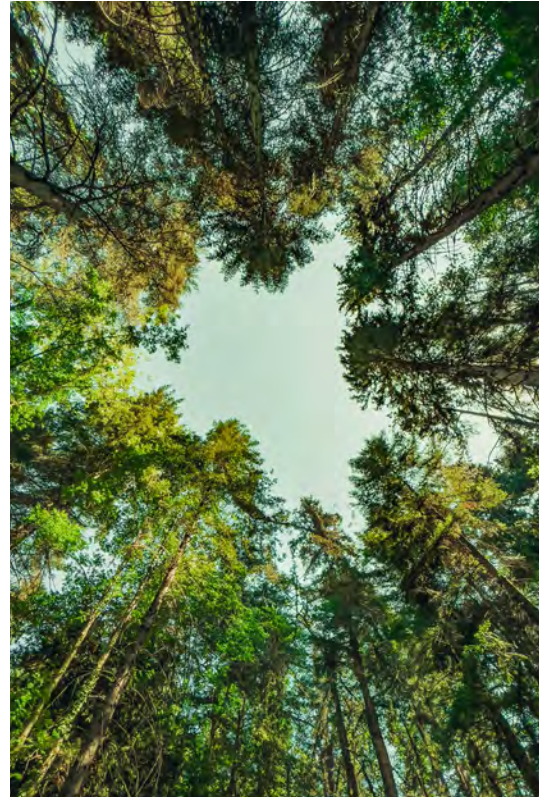
Finally, some participants argued that existing weight regulations have not kept pace with improvements in truck technology. Respondents pointed to changes in tires, wheels, braking systems, trailers, and other equipment as evidence that modern log trucks can safely haul heavier loads than older trucks. Blake, a logging business owner, stated: “When the 80k limit was put in place we did not have radial tires and hub pilot wheels . . . Technology has allowed us to haul more weight safely.” Another participant similarly explained: “These laws were made when trucks and trailers did not have the technology or equipment that we have now. Our trucks are better, brakes are better.”

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Air Quality Standards

Mill representatives also raised concerns about environmental regulations, especially in relation to air-quality permitting and the revised fine particulate matter, or PM2.5, standard. PM2.5 refers to fine particulate matter that is small enough to be inhaled deeply into the lungs. It is regulated under federal air-quality standards because of its effects on public health and air quality. For forest products facilities, PM2.5 regulation is especially relevant because emissions can be associated with boilers, dryers, kilns, and other equipment used in wood processing. The Environmental Protection Agency's revised annual PM2.5 standard, which lowered the standard from 12.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 9.0 $\mu\text{g}/\text{m}^3$, therefore raised concerns about how future permitting, operations, costs, and facility investment may be affected. While respondents differed in how prepared they felt for the revised standard, they generally described the rule as a growing concern for the industry.

For many respondents, the most immediate concern was that stricter PM2.5 standards could make permitting more difficult and more expensive. David, a director of engineering and technical services at a sawmill, reported that his facility had obtained air permits within the past 5 years at a cost of approximately



\$100,000, with the permitting process taking between 6 and 12 months. He also expected that future air permitting or emissions control requirements under the revised standard could cost an additional \$50,000 to \$100,000. Elaine, an environmental manager at a mill, reported an even higher expected cost, estimating that her facility could spend more than \$500,000 in response to the revised standard. As these responses suggest, environmental regulation was viewed not only as a compliance requirement, but also as a financial and planning challenge for mills considering new construction, expansion, or major renovations.



Several respondents connected the revised PM2.5 standard to broader concerns about investment and economic growth. Many agreed that stricter standards could increase the regulatory burden on their facilities over the next 5 to 10 years, make it harder to obtain new or modified permits, and create challenges for the forest products industry as a whole. Ethan, a procurement manager at a sawmill, reported that his facility was not planning to expand, citing market uncertainty and regulatory concerns among the reasons for caution. Other respondents indicated that permitting challenges could delay project timelines, reduce the scope of planned investments, or require additional spending on modeling, control technologies, consultants, or equipment. Cole, an environmental manager at a mill, stated that the facility would likely “delay or cancel construction plans due to permitting hurdles,” while another respondent reported that their facility might “redesign or reduce the scope of the project to avoid modeling or stricter control.”

Respondents also suggested that environmental regulation can affect day-to-day operations, even when it does not lead to major changes in production volume. Some expected the revised PM2.5 requirements to increase the time and effort required for future permitting,

while others anticipated moderate or significant effects on project timelines. A smaller number of respondents also expected decreased production efficiency or reduced output for new or modified projects. These concerns were especially important because many mills are already operating under tight margins and facing higher costs for equipment, labor, repairs, and other inputs. For these participants, the revised PM2.5 standard represented another source of cost and uncertainty for mills trying to plan future construction, expansion, or major equipment changes while managing difficult market conditions.

Overall, mill representatives described environmental regulation as a necessary but increasingly complex part of operating in the forest products industry. Their concern was not only whether facilities could meet the revised PM2.5 standard, but how the costs, timelines, paperwork, and uncertainty associated with permitting could affect investment decisions and long-term competitiveness.





OPPORTUNITIES

OPPORTUNITIES

“There’s probably gonna be more supply 10 years from now than there was today.”

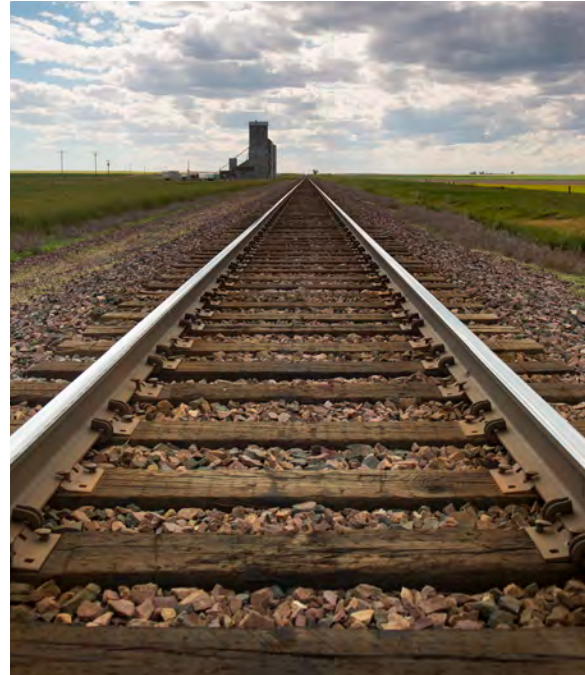
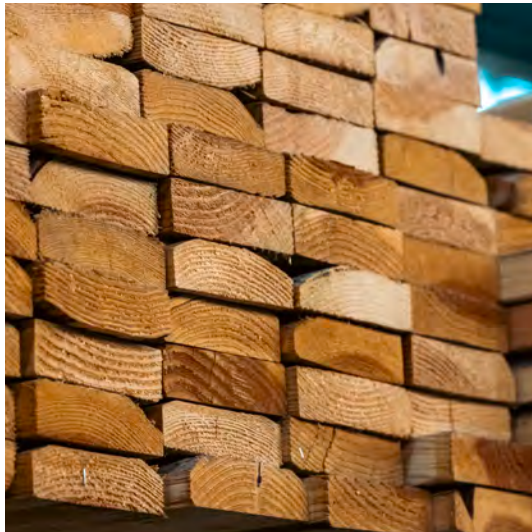
Timber Supply

Interview participants expressed optimism about the availability of timber to feed their mills now and well into the future. Many pointed to Alabama as sitting at the heart of the nation’s “wood basket” and thus, it is well positioned to take advantage of that supply to feed manufacturing. The volume of trees grown on all timberlands in the state has increased steadily since the 1970s, by 98% for softwood and 107% for hardwood.⁶ For many respondents, their daily experience tells a similar story of plentiful fiber supply. For instance, Jonah, a procurement manager, said: “I can take you right from here and go north of this mill and I can drive probably for 2 hours and never go past a gas station. So, it’s still very rural. There’s a lot of supply here.” Jonah and others argued that the availability of so much raw material is important for the success of the industry. Others also suggested that the supply of timber in the state will continue to increase thanks to advances in forestry and land management practices. This view was shared by Derek, who works at a wood product manufacturer: “The current forestry practices out there, there’s no way they’ll ever run outta wood. The way things are right now, there’s probably gonna be more supply 10 years from now than there was today.” Derek’s words expressed a common view among respondents, which is that fears of a “timber famine” in Alabama have been greatly reduced thanks largely to professional forest management.⁷

⁶See Hartsell, A. J., & Gray, J. A. (2023). *Alabama’s Forests, 2020*. U.S. Department of Agriculture, Forest Service, Southern Research Station. <https://doi.org/10.2737/srs-rb-235>

⁷See Fickle, J. E. (2014). *Green gold: Alabama’s forests and forest industries*. The University of Alabama Press and the Alabama Forestry Foundation.

Even so, others pointed to the interdependency of forest landowners and a thriving wood processing sector, which might be threatened if actions are not taken to ensure the industry continues to survive and thrive. Tom, who manages a mill, said: “If landowners don’t receive a financial return on their timberlands, then it’ll be done something else with, right? When you remove timber, put it in pasture, put it in row crop, put concrete on it, it does not go back to active forest management.” Tom’s concern, which was shared by others interviewed for this report, is that the economic headwinds facing the industry might incentivize landowners to use their land for some other purpose, either in agricultural production or for housing and commercial development. Some respondents imagined, in other words, that the trend toward more and more forests might be reversed at some point in the near future.



Infrastructure and Market Access

For many mill representatives interviewed for this report, one of the Alabama forest products industry’s great advantages is its location, which gives access to domestic demand and export markets for wood products. Representatives overall suggested that the state benefits from investments in transportation infrastructure—highways, railroads, and ports—that open up these markets for mills. This perspective was reflected in a comment from Graham, a mill executive: “We’ve made a huge investment in the Port of Mobile that unlocks a lot of opportunity for Alabama. We’ve got the U.S. Highway 43 corridor from Tuscaloosa to Thomasville. For this region here, that’s a huge opportunity.”



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As Graham suggested, past and future investments in infrastructure in Alabama provide many opportunities for mills and other vital rural industries to find markets for their products locally, regionally, and globally. Others argued that Alabama's infrastructure provides an important competitive advantage for core industries like pulp and paper, even as new entrants to the market, such as Brazil and Uruguay, benefit from cheaper labor and more efficient mills. Jonah, a procurement manager and wood dealer, saw an opportunity in this: "There's a hole there for somebody to come in [to build a pulp mill], here in this area. I think that they'll be fairly easy to get somebody started, 'cause the supplier base is here. The labor force would be kind of here. And the infrastructure's here for it." As Jonah suggested, the geographic proximity of labor, supply, and transportation infrastructure would make an attractive opportunity for new pulp and paper mill construction, although a major hurdle is the permitting process for such mills. For these reasons, many stakeholders interviewed suggested that political leadership could work to ease the burdens on new mill startups, as well as continue to invest in infrastructure, so that the industry thrives in the years to come.

“ . . . the supplier base is here. The labor force would be kind of here. And the infrastructure's here for it. ”



“We’re gonna always need wood products.”

Demand for Forest Products

Mill representatives interviewed for this report were cautiously optimistic about future demand for wood products. In large part, respondents believe that, despite shifting consumer preferences and long-term decline for products such as paper and hardwood flooring, there will always be demand for the products that Alabama’s forest industry offers. For instance, Tate, who manages procurement at a mill, said: “We’re gonna always need wood products. I’m sure products will change, like always. We’ve had a succession, you know, lumber to plywood to OSB [oriented strand board], engineered wood products. I’m sure they will figure something else out to do with wood.” From Tate’s point of view, while the most prominent and profitable products might shift over time, what has remained consistent is the demand for wood products overall.

Traditional Products

Despite innovations, industry stakeholders pointed out that there is still a lot of demand in traditional product sectors. Much of this demand is tied to housing starts, so respondents were hopeful that the housing market will heat up in the near term. Likewise, interviewees expressed the belief that some wood products will always be necessary. An important example is the manufacture of pallets to move goods across the country and the world. This notion was stated by Reid, a procurement forester: “Amazon’s probably selling however much products every day and shipping it. You know, I don’t see that slowing down any.” Consumer demand, from this perspective, will ensure there is always a need for shipping materials like pallets and cardboard.

OPPORTUNITIES



Innovative Products

Many stakeholders interviewed were also intrigued by innovative wood products that could come into mass production in the near future. In their view, these new products could absorb more timber supply and residuals, thereby increasing prices and offsetting the decline of dominant products made from pulp and paper. One particular idea is cross-laminated timber (CLT), an engineered wood product that has proven useful for multi-story construction projects. Silas, a plant manager, was particularly excited about the growth potential of CLT: “I think we have some progressive ideas on what we can do. You know, the cross-laminated timbers, just from that perspective, there’s a lot of push to grow that industry.”

Participants also related that for certain products, synthetic materials just cannot replicate the characteristics that make wood so versatile. An example of this is railroad cross ties, as shared by Larry, the manager of a mill: “The railroad has spent fortunes trying to find something that’ll work besides wood for the ties. They’ve tried plastic, they’ve tried concrete, tried everything. Nothing will give a little bit and do it.” For Larry and others, wood provides the stability and flexibility necessary for railroads, something that cannot be supplanted by other materials. For this reason, many in the sector expressed excitement about upcoming railroad company mergers and expansions that could increase demand.





“

... there's a lot of push to grow that industry.

”

Another innovative product line that has generated excitement in the industry is biomass pellets, which are already being used to generate electricity in Europe. While the participants in these interviews represented sawmills and not pellet mills, they nevertheless saw a lot of potential for biomass as a source of demand for residual materials like chips. This notion was shared by Mark, who manages a mill: “If [pellet mills] are as competitive as anyone around us, what that will do for us and for everyone is drive the demand up just a little bit. So even if we're not selling to them directly,

it'll still help locally just to bring that price up and help with the overhead and the cost.” As Mark suggested, even sawmills that do not sell directly to potential pellet mills could benefit from increased prices for their residuals. Further, these products have the potential to support the forest product industry's sustainability credentials. However, despite the general optimism about these innovative products, some respondents expressed skepticism. Several said they are waiting to see where the market goes, and others were doubtful that there will ever be sufficient demand to supplant the importance of pulp and paper in driving the industry's success.



OPPORTUNITIES

“There’s a lot of things that we’re doing in a data-informed world . . . ”

Technological Opportunities

When mill representatives were asked in interviews about how the industry has changed over the course of their careers, many pointed to technology. While the industry has always been developing technologically throughout its history,⁸ many stakeholders expressed the belief that recent advances in mill automation, logging machinery, and fieldwork and logistics data represent a major shift in their work. One of the most evident areas is logging, where advanced machinery has made the work more productive for the crew owner and safer and easier for the logger.

Jonah, who is both a procurement manager and wood dealer, shared: “Everything’s become so automated now. There’s nobody [with] boots on the ground anymore. Used to have old skidders come out there, guy had to get on the ground and move it, you know, slow, and people would get hurt. You’re moving so much volume that there’s a lot more opportunity.” For Jonah and others, advances in logging equipment like fellers, skidders, and loaders have increased the volume that a single crew can produce. These advances also mean that crews can be smaller, which may be an advantage in addressing labor shortages in the industry. Yet many interviewees were concerned as well that the cost of acquiring such equipment—sometimes in excess of \$1.5 million for the standard crew equipment—could limit the entry of aspiring loggers into the industry.

⁸ See Fickle, J. E. (2014). *Green gold: Alabama's forests and forest industries*. The University of Alabama Press and the Alabama Forestry Foundation.

Regarding mill operations, stakeholders suggested that technologies for automation and optimization have increased the efficiency of their operations. Larry, who manages a mill, shared how technology has impacted his work: “Optimization in the plant. We used to do it by eye. Now when our log goes in, it goes on the carriage, which is what takes it to the big saw. When it loads on there, a 3-D scanning camera system scans the log to determine the most efficient way to cut it. So, without that, I don’t think you can compete anymore.” For Larry and other mill stakeholders, technology such as scanners has enabled them to use raw material more efficiently. Mills can produce more volume from the same inputs, and less production is lost during the process to sawing residues. As Larry suggested, these advances are necessary for mills to compete in a situation of high input costs and low output prices.

Another important technological advance that goes beyond direct impacts on productivity is the availability and use of data. Several stakeholders suggested that they rely on data analysis to generate information about current and future lumber markets, which helps to inform decisions about product lines and make the most efficient use of inputs. Jared, who works at a wood product manufacturer, shared his company’s philosophy: “There’s a lot of things that we’re doing in a data-informed world to give people those data points to help make better decisions. So, you think about how important all that is now, that has nothing to do with treating lumber or loading trucks or putting tags on lumber.” Jared went on to suggest that his company uses data to optimize decisions across everything from lumber prices to trucking logistics, all of which contribute to competitive advantage in a tight market.



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While stakeholders reflected a positive attitude toward technology, they also shared that it can be expensive and challenging to implement, especially for smaller, less-capitalized operations. Past experience suggests that the costs of new technology will come down over time, but many are finding ways to adapt less expensive alternatives to their present needs. A great example is the use of phone apps for forestry fieldwork. Reagan, a procurement forester, demonstrated how he adapts a hunting app: “If I zoom into where we are currently sitting, say this little piece of property, if I click it, it’ll show the lat[itude] and long[itude]. It’s set up for deer hunters, but it tells you the tax address, which is a great way to be able to find people.” As Reagan suggested, an app designed to facilitate hunting can be useful for finding the contact information of landowners who might be looking to sell timber, which saves him the time of tracking down property records at the local courthouse. Industry stakeholders shared their ability to adapt software, even when it was not built for forestry purposes.

“Everything’s become so automated now.”



CONCLUSION

An aerial photograph of a winding asphalt road with yellow center lines, cutting through a dense, vibrant green forest. The road curves from the top left towards the bottom right of the frame. The surrounding trees are lush and cover the entire landscape.

CONCLUSION

As a major driver for Alabama's economy, the forest products industry plays an important role in both small towns and metropolitan areas. Challenges facing the industry present opportunities for the state, stakeholder groups, and local decision-makers to tackle issues collectively. Among the challenges identified by sawmill stakeholders is the cost of doing business, which has increased in recent years, for everything from equipment and inputs to transportation and regulatory compliance. Concurrently, sawmills are grappling with low demand for lumber and chips, yet many see the potential of new products and markets. Another major concern in coming years will be the workforce for mills and logging, which will likely need to be addressed through a combination of technological adoption and training programs. Yet stakeholders also point out that technology brings its own challenges, not least of which is the cost, in time and capital, of upgrading operations. In sum, investments in workforce development, training, and solutions to address transportation-related regulatory challenges would yield significant benefits for the industry, according to participants. Encouraging opportunities for technological advancements and production innovation are additional areas for growth and development within the industry. Overall, those working in or with sawmills in Alabama acknowledge the need to balance ongoing challenges with the wealth of opportunity in the state related to its timber supply and infrastructure.

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