Warnell School of Forestry & Natural Resources
UNIVERSITY OF GEORGIA

Safety and Efficiency of State-Legal Log Trucks on Interstate Highways in Eight Wood Baskets in the US South

Executive Summary

Georgia Forestry Foundation and Forest Resources Association

The US South harvests more than 200 million tons of timber annually, nearly all of which is transported by log trucks. Southern states limit gross vehicle weight (GVW) of log trucks to 80,000 lbs, plus a state-specific tolerance of 5–12.5%. However, state weight tolerances are not valid on interstate highways where the federal limit is 80,000 lbs. The disparity between tandem axle weight limits on interstate and non-interstate highways is also substantial. Consequently, most loaded log trucks avoid interstate highways, meaning they must travel through cities, school zones, intersections, and other areas with elevated accident risk.

The purpose of this study was to compare weight limits for log trucks in the US South to those in other US regions and other countries, evaluate the relationship between truck weight and safety, and quantify the benefits of allowing state-legal, loaded log trucks to operate on interstate highways. A review of state statutes was conducted to compare weight limits for log trucks in the South to other US regions and timber-producing countries. A literature review was completed to summarize the current state of knowledge regarding the relationship between truck weight and safety, pavement damage, and bridge damage. An analysis of actual timber deliveries in eight wood baskets (Augusta, Brunswick, Macon, and Savannah, GA; Brewton and Prattville, AL; Eastover, SC; and Roanoke Rapids, NC) was conducted to estimate the percent of routes that would benefit from interstate access and quantify the safety and efficiency benefits of allowing state-legal, loaded log trucks to operate on interstate highways. The findings of this study are summarized below.

Literature Review Summary Findings

- Southern states' gross vehicle weight limits, including tolerances, for log trucks are among the lowest of the regions and countries analyzed.
- Several southern states' tandem axle weight limits, including tolerances, are significantly higher than states in other regions and in other countries.
- Pavement damage is determined by axle weight more so than by gross vehicle weight. Consequently, regions and countries with higher GVW limits than the South, but lower axle weights, likely experience less pavement damage per ton of wood hauled.
- Bridge damage is affected by gross vehicle weight more so than axle weight.
- The relationship between truck weight and safety is unclear. Some researchers suggest that accident risk per mile traveled may increase as truck weigh increases, but overall accident risk may be reduced because fewer trips are needed to move the same cargo.

- The South has the highest rate of fatal log truck crashes of any US region, even though it has the lowest gross vehicle weight limits for log trucks.
- Past research shows that increasing truck weight limits reduces hauling costs and reduces pavement damage costs *as long as axles are added* to maintain or reduce axle weights.
- Bridge damage costs generally increase when truck weight limits are increased.

Route Analysis Summary Findings

- Applying state weight tolerance to interstate highways would improve the safety and efficiency of timber transportation in the US South.
- Allowing log trucks to operate on interstate highways shifts miles traveled on state and US highways and non-interstate urban streets to interstate highways, which are safer and designed to accommodate heavy trucks.
- In seven of the eight wood baskets analyzed more than half of the harvest sites had at least one load of timber that would benefit from interstate access.
- Approximately 58% of the routes analyzed in the Augusta, GA wood basket would benefit from interstate access compared to 24% in the Brunswick, GA wood basket.
- Major safety improvements were observed on interstate routes compared to current routes that avoid interstate highways. Significantly fewer intersections, stop signals, and cities and towns were encountered on interstate routes compared to current routes.
- Reductions in average travel time were observed in six of the eight wood baskets with savings ranging from an average of three minutes in the Prattville, AL wood basket to fifteen minutes in Augusta, GA.
- Average travel distance was similar or slightly longer on interstate routes compared to current routes in every wood basket.
- Hauling cost savings were observed in six of the eight wood baskets analyzed. Estimated annual savings for a typical logging business ranged from $3,369 in the Prattville, AL wood basket to more than $20,000 in the Augusta, GA and Brewton, AL wood baskets. Cumulative estimated annual savings across all eight wood baskets totaled $7.4 million.
- Fuel consumption and carbon dioxide emissions were lower on interstate routes than current routes in every wood basket except for Brunswick, GA and Eastover, SC.
- Pavement damage was reduced significantly in every wood basket when log trucks traveled on interstate highways. Across all eight wood baskets, annual pavement damage costs were reduced by an estimated $4.9 million when log trucks shifted from current routes to interstate routes.

Prepared by:
Joe Conrad, Assistant Professor of Forest Operations, jlconrad@uga.edu