

Optimizing Efficiencies in Timber Truck Routing



Tim Nadreau, Ph.D.

Problem

- Transportation and logistics becoming more efficient
- Traditional freight trucking has reduced “Empty Miles” from 35% in 2010 to 20.6% in 2020 to 14.8% in 2021
- These gains are not being realized in natural resource industries

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Background and Research Question

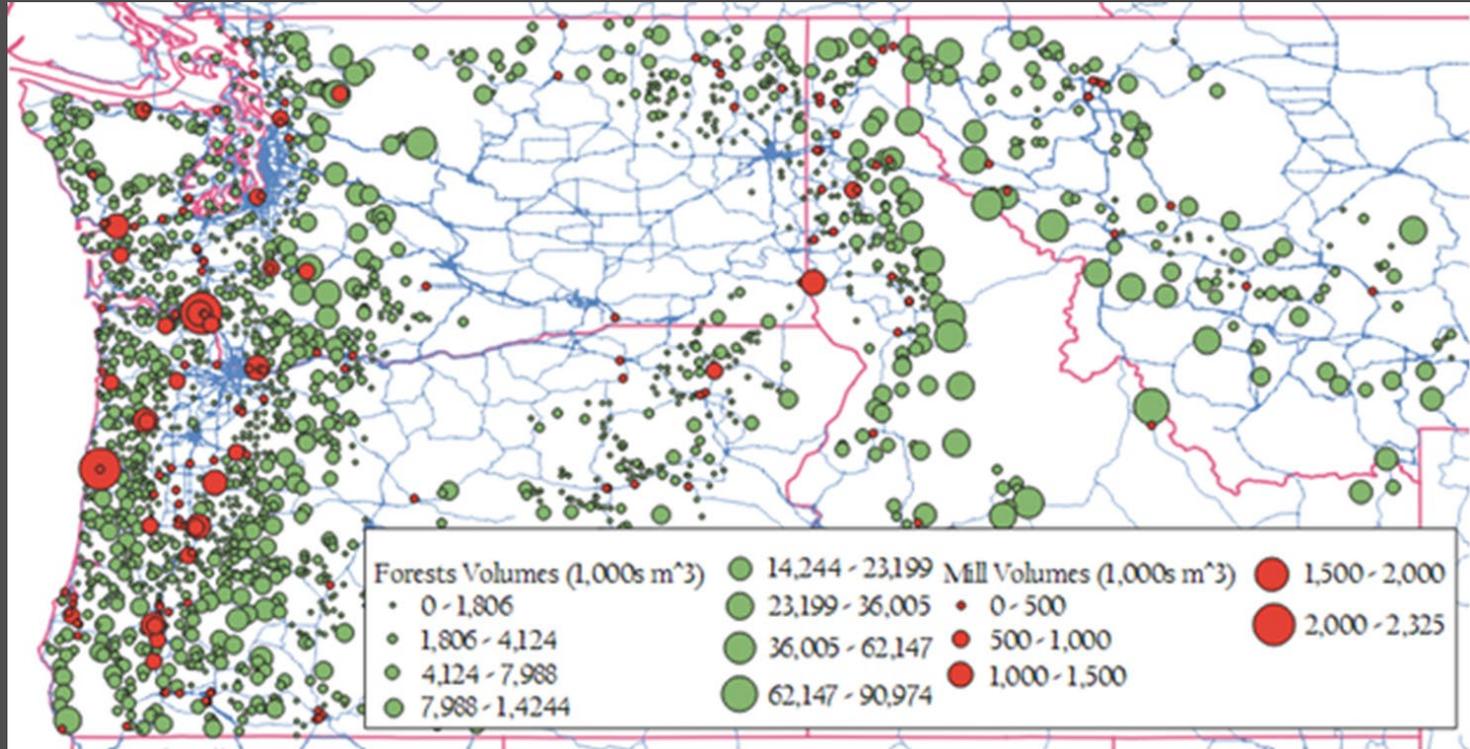
- Log truck transport still roughly 50% of “empty” or “backhaul” miles
- Trucks only make money when full



- Think about how this would work if this were air travel

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Jessup, Wagner, and Latta (2022)

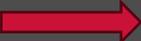


Jessup, Wagner, and Latta (2022)

	Roundtrip	Coordinated
Haul miles	28,711,254	30,272,130
Backhaul miles	28,711,254	22,941,218
Total miles	57,422,508	53,213,348
Total trips	1,707,380	1,634,317
% of empty backhaul miles	50.00%	43.11%
Total cost	\$94,813,788	\$89,165,681

Uber for the Log Truck Industry

- Matching-Markets problem with A-symmetric information

Mill's trucking cost  Trucking revenues

Trucking cost  Backhaul miles

- Non-centralized organization: log owners, truckers, and mills
- Reducing the A-symmetric information allows for expanded service areas
- Easier than Uber - origin and destinations are fixed

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Uber for the Log Truck Industry

- Timing becomes an issue
 - loggers won't wait
 - Mills can only accept loads at defined times
 - Congestion can affect trucking rates
- More drivers are profitable – no longer a side hustle

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Conclusions and Next Steps

- Increased efficiency from reduction in backhaul miles is possible
- Allows for increased profitability of both mills and truckers
- Emissions can be reduced
- The PPF moves out and new forests are able to be accessed and harvested

Some Concerns

- Dealing with timing (i.e., loggers don't want to wait)
- Agent adoption rates

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Questions

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