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New Model Offers Flexibility in Figuring Owner/Operator Trucking Costs

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Understanding and commanding costs is essential to any business. In the trucking industry, establishing cost estimates for owner/operators is difficult — and, with increased demand for on-time quality delivery of products, imperative. Designed to determine trucking costs using a variety of truck configurations, product characteristics and input prices — and incorporating additional performance measures — a recently developed spreadsheet model is flexible enough to be used not only by owner/operators and trucking firms that lease their services, but by shippers and economic developers.

Simulations Demonstrate Opportunities for Owner/Operators

Owner/operators and other decision makers can draw important conclusions from running model simulations that include the sensitivity of costs and equipment use, wait time and trip distance, labor and fuel price. Relationships of these variables and the costs of operations are important for owner/operators and others.

Economies of Utilization: While owner/operators' equipment usage may be limited by the hours of serviceallowed by federal regulations, opportunity exists for the entrepreneur who uses a strategy of increased equipment use, perhaps by adding a driver and using a team concept. Additional revenue from increased equipment use may more than offset higher labor and other increased costs by decreasing fixed costs. This principal of economies of utilization is demonstrated in the cost-estimating model.

Wait Time: Another important factor in trucking costs, wait time, is also clearly demonstratd in the model. Because wait time is an opportunity cost rather than an out-of-pocket expense, many owner/operators do not consider wait time in estimating their trucking costs. However, every idle hour may be an opportunity to lower costs through higher equipment use. In fact, for short movements, loading and unloading times are the driving forces in increased costs.

Fuel Efficiency: Fuel efficiency is a third factor driving the model, which shows that revenue adequacy may result by driving 55 miles per hour rather than 70 miles per hour. The trade-off truckers face, of course, is fuel economy versus time.

Model Provides Flexibility for Users

This spreadsheet model used data updated from previous studies, journal articles and interviews to provide a range of alternatives that can be easily adapted for a particular equipment configuration, product or trip, with equipment and input price that can be quickly updated.

Our spreadsheet model focuses on variables within and outside the decision maker's control, other cost relationships, and performance measures:

Equipment Characteristics
- Owned or leased equipment
- Tractor or truck configuration
- Trailer type
- Number of tires

Operational/Trip Characteristics
- Annual miles per truck
- Size of service area
- Driving hours/team driving
- Trip distance
- Percent time loaded, backhaul and deadhead miles
- Truck weight/payload

Input Prices
- Labor rate, including wait time
- Interest rate for purchase and leasing
- Average speed
- Fuel price/gallon
- Maintenance & repair/mile

Fixed Costs
- Owned or leased equipment
- Equipment costs
- Depreciation
- Return on investment
- License fees, insurance, sales tax
- Management & overhead costs

Variable Costs
- Maintenance & repair
- Fuel
- Labor
- Tires

Performance Measures

Because different cost measurements are important to the entities using truck costs or transportation comparisons, our model was designed to provide flexibility in providing alternative performance measures to fit individual needs. These measures include, but are not limited to:

- Cost per mile
- Cost per hundred weight
- Cost per ton-mile
- Cost per hour
- Cost per trip

By changing variables to compensate for different truck and trip characteristics, equipment costs, and other factors, decision makers can update the model to fit specific criteria.

Conclusion

Owner/operators can use the model to understand their costs in making on-time quality deliveries, and to benchmark their performance against other competitors and industry standards. Larger firms that lease owner/operator services can experience reduced search costs, as well as increased customer service in building ongoing relationships with independent truckers. Shippers may use the data as a negotiating tool to arrive at equitable rates. Economic developers need truck cost estimates to compare transportation modes and accurately estimate transportation costs.

Clearly shown in the model's "base case" are factors that drive owner/operator trucking costs, including economies of utilization, wait time and fuel efficiency. By running simulations ofthese situations, decision makers can analyze specifc costs and find opportunities for more efficient business practices.

A copy of the full report, "Truck Costs for Owner/Operators" (MPC Report No. 97-81), including detailed explanations of the spreadsheet model, is available from the Upper Great Plains Transportation Institute. Contact: Mark Berwick (701) 231-9594.