

- Carriers that have extensive terminal networks in the U.S. and Canada and wide authority in both countries have LTL (Less Than Truck Load) rates substantially below tariff bureau rates.
- Shippers should be aware that they can negotiate commodity rates (as opposed to the higher class rates) with carriers if they have regular movements between city pairs.

While this report addresses various means available to help shippers secure the lowest transportation costs, it is important to be aware that efficient goods distribution requires more than obtaining the lowest freight rate. It includes determining the lowest total cost consistent with service requirements to distribute goods from the factory to the customer's dock.

The concept of viewing distribution as a total system is most often referred to as "physical distribution or logistics management". Tradeoffs are at the heart of the concept. Reduced transportation costs can often translate to increased costs tied up in inventory. Slower modes such as rail also often result in higher loss and damage charges and higher obsolescence costs, although rates may be cheaper.

A simplified example shows how physical distribution analysis can help shippers evaluate the tradeoffs involved in selecting the best distribution channels. Consider the hypothetical case of a medium-sized electronics component manufacturer in Ottawa shipping an annual volume of 500,000 lb. to customers in Houston, Texas. Every day he produces 2,000 lb. of goods for export to Texas worth approximately \$20,000. The alternatives he has identified are to ship 10,000 lb. by air approximately once a week, 40,000 lb. by truck approximately once a month, or 60,000 lb. by rail (without his own siding) every six weeks. On the basis of these shipping sizes and frequencies, the company's total distribution costs would be as follows:

Trade-offs in Distribution

	Air	Motor Carrier	Railway
1. Basic Transportation	\$180,000	\$ 90,000	\$ 75,000
2. Pick up and Delivery Charges	22,500	—	6,300
3. Warehousing (prior to shipping)	2,000	20,000	30,000
4. Interest on Pre-shipment Inventory and Goods in Transit	200	5,200	12,600
5. Product Loss and Damage	2,500	5,000	7,500
TOTAL	\$207,200	\$120,200	\$131,400
Distribution cost per pound	41.2¢	24.0¢	26.3¢

If this hypothetical shipper selected the transportation mode only on the basis of freight rates, he would obviously select the rail mode. However, if the other physical distribution elements are taken into consideration, using a motor carrier would be the most cost effective.

Because the rail mode is the slowest and delivery times most variable, it requires the shipper to keep a larger inventory (in plant or on wheels) than would be required for other modes. (For air, minimal or no inventory is required.) Rail also ties up significantly more of the shipper's working capital in goods than do the other modes. Finally, loss and damage charges using rail are shown to be higher here for this imaginary shipper, because this mode could cause greater damage to fragile goods, for example, computers.

Looking at each mode's costs on a per-unit basis, the highway mode is shown to be the most economic for this shipper because while its transportation rates are not as low as that of the rail mode, the associated savings in warehousing, working capital costs, and loss and damage, more than compensate for this drawback. Thus, from a total physical distribution/logistics standpoint, this shipper should choose to ship by motor carrier.

Analyzing your transportation alternatives on an annual volume basis for shipments to a specific market as shown above is a beneficial exercise which will point you in the right general direction. However, changing circumstances in plant production capacity, new sales orders, inventory, terms and conditions of sale, customer delivery requirements, cash flow, availability of new carriers, transportation legislation, and a host of other factors, mean that you should evaluate your transportation options frequently. For example, if your sales arrangements are C.O.D. and you happen to find yourself in a cash flow crunch, it may be worth your while occasionally to pay a premium transportation charge to get your goods to the customer as quickly as possible.

Furthermore, no two companies are exactly alike. Traffic managers in some of Canada's largest firms in the same industry competing in identical markets often make very different transportation arrangements for very good reasons, and with equally profitable results. For example, a second Ottawa electronic components manufacturer (in competition with our illustrated hypothetical shipper above) with parallel export volumes to Texas would face a different set of options and decision-making criteria if he owns a fleet of trucks, or if his customer wishes to pay a premium for expedited delivery, or if his customer has negotiated special volume discounts or backhaul rates for input materials returning from Central Canada to the Southern U.S., or...

The fact is that for any industrial sector or regional group of companies, there is no "one