Organizing the Local Drayage Market for Piggyback Services

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INTRODUCTION

In 1981 the Interstate Commerce Commission (ICC) deregulated the trailer on flatcar (TOFC)/container on flatcar (COFC) market for railroads, as well as motor carrier services (drayage) incidental to TOFC/COFC. Because the trailers and the containers are placed on the railroad flatcars, the common name given to such an operation is piggyback. Until recently, motor carrier operations incidental to piggybacking have been fairly local in nature, and in early railroading and other urban goods movement, products were brought to and taken from central railroad terminals and other urban demand and supply points by horse-drawn wagons called drays and driven by draymen; thus the motor carrier services incidental to TOFC/COFC have historically been called drayage.

The TOFC/COFC market entails railroads moving motor carrier (or other) trailers and containers in line-haul service for distances generally greater than 400 miles. Growing rapidly from a small base of traffic in the mid-1950s, piggyback is now the second largest carloading operation in the U.S. rail system (approximately 14 percent of the carloadings). Some railroads have a higher percentage of their business in intermodal operations, and some predictions place intermodal operations at over 50 percent of rail business in the future, as well as paving the way to rails' re-entry into the merchandise traffic market.

The theory behind the intermodal linking of rail and truck is that railroads are more efficient in the line-haul segment of transportation where relatively few units of labor can move relatively large numbers of trailers/containers with relatively less fuel than the motor carriers, which must devote large numbers of on-board personnel to move trailers/containers over the road. Motor carriers, on the other hand, are more efficient in the pickup and delivery segment of transportation where only one unit of labor with a relatively inexpensive piece of capital can pick up a shipment as opposed to rail with multiple units of labor and relatively expensive capital. Piggyback service has used the most efficient aspect of each mode.

Although piggyback service has grown dramatically, it has grown less than many had anticipated. In a study performed in the late 1970s at the University of Pennsylvania, the drayage charges for an average piggyback move from Philadelphia to Chicago were 30 percent of the total door-to-door charges for the move. Many would regard these charges as high and many would attribute them to the regulated nature of the market.

In a deregulated market moving fully loaded trailers, one would predict that rates would fall to the level of average motor carrier costs (including a normal profit) in a truckload operation with no scale economies and free entry. This, in turn, would be equal to motor carrier marginal costs. Thus one would anticipate the perfectly competitive solution.

The study of a particular market, the Philadelphia drayage market, suggests that the anticipated results do not occur. Instead, motor carriers charged rates that ranged from an index scale of 1 to a high of 2.25 for the same move.

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High-volume piggyback yard with trailer pickup area in background.

[The level of 1 corresponds to motor carrier costs (sufficient to replace capital).] One of the conditions for perfect competition is full information. As is discussed below, this is the missing ingredient in the local drayage market.

SOLUTION

Collection of Data

The deregulated drayage market in Philadelphia was investigated. Carriers were solicited for information on their current tariffs for the Philadelphia market. About 35 carriers deal with Conrail. Chessie, the other Philadelphia rail carrier, utilizes its own motor carrier, Chessie Motor Express (CMX), to serve its intermodal operation.

Many of the 35 carriers did not have formal tariffs. They quoted rates to and from the piggyback ramp over the telephone or sent a salesman to negotiate a rate. Some carriers stated but did not publish a mileage-based tariff—either household goods mileage or straight line distance, i.e., rate x between mileages A and B—whereas others do publish such a mileage tariff. Some carriers listed every place in the Philadelphia region and quoted a rate for each place. Finally, other carriers formed zones, i.e., grouping points, with rates quoted for each zone. Some of the published tariffs were sophisticated and lengthy, whereas others were relatively simple and only a page long.

After data on the existing tariffs and quotes were collected, each carrier's rates were plotted on a map of the Philadelphia area in order to examine the visual logic of each carrier's rates. Most of the rates appeared to be based on a distance logic [with some adjustment for time aberrations caused by natural barriers and tolls (Delaware River) and congestion (Philadelphia)], although there were vastly different rates for the same distances.

Each carrier offers several classes of service. Under the class of service called "drop and pick" or "drop and pull," the carrier picks up a trailer from the railroad at the piggyback terminal, drops it at the shipper's location, and departs. The shipper contacts the carrier at a later time to have the carrier pull the trailer to the piggyback yard. This type of arrangement can occur with either a full or empty trailer.

Carriers also provide a "stay with" service: the carrier delivers the trailer to the shipper/receiver, and the driver stays with the trailer until it is loaded or empty, then taking it to the yard. Usually the first 2 hours of the stay-with service are provided without additional charge (some carriers provide only 1 hour without charge) after which a fee is charged usually on an hourly basis (some carriers charge in 15-minute increments). Other carriers present a matrix of miles or zones as rows and drop-and-pick and various stay-with service hours as columns, with each cell of the matrix yielding a rate. In such tariffs, after a certain distance, the stay-with service becomes less expensive than the drop-and-pick service, because it takes longer for the driver to bobtail (drive the tractor only) to and from the carrier's terminal than to stay with the trailer. Carriers tend to charge different hourly rates for the stay-with service.

Other items may also lead to differing tariffs among the carriers. Driver-assisted loading and unloading is included in some of the tariff rates quoted (whether used or not). In other tariff rates driver-assisted loading and unloading is additional and the charges differ from carrier to carrier. Helpers are available from some but not all carriers; again the charges for the service differ among the carriers. Some carriers charge a premium per hundredweight for loads exceeding a particular weight, which, depending on the carrier, ranges from 36,000 to 44,000 lbs. In addition to the charges described above, other charges for ancillary services are imposed by various carriers.

Given the variety of rates and charges for ancillary services, it is easy to understand the confusion that customers might face. Also a customer could be misled by the basic quotation, which is then inflated by charges for ancillary services.

In addition, many customers appeared to believe that they were dealing with a regulated market in which a single rate is quoted by all carrier participants. Indeed, some carriers published their tariffs for intermodal services with MAC (Middle Atlantic Conference) and used MAC cost inflaters to increase the rates periodically.

The investigation revealed that all carriers were being utilized despite the fact that the rates of the most expensive carrier were 2.25 times higher than those of the least expensive carrier. A shipper survey indicated that the carriers with the highest charges were not providing better service than the carriers with lower rates; in fact, the low-cost carriers were ranked higher in service provision than the high-cost carriers.

After noting the spatial rate pattern of the various firms and the similarity of points carrying the same rates, a set of 16 zones, reflecting the composite of the carriers' experience, was drawn for the Philadelphia region.

Publication of Drayage Guide

To assist shippers in understanding the drayage market, carriers were informed that their services would be advertised free to all shippers if they would respond with their maximum class rates, with all ancillary charges to be included in such rates, in the format shown in Figure 1. The information collected was to be tabulated and distributed to shippers in the form of a drayage guide.

Twenty-six carriers responded to the request for maximum class rates. Given that the rates were maximum class rates, carriers could charge lower rates than they indicated but not higher, and were informed that they would be dropped from the guide if found to be charging more than indicated in the guide. The drayage guide would be published and updated every 3 months. Ultimately, it is anticipated that the guide will be on line and subject to immediate updating by the carriers.

The first issue of the drayage guide was published only for the carriers so that they could respond with any reactions or changes before the second issue, to be sent to the shippers, was published. The final drayage guide lists the carrier participants, the carrier contact person, telephone number, and address. For each zone and each service type (i.e., drop and pick, 2 hour stay with and 4 hour stay with), carriers with rates within \$20.00 of the low-cost carrier or the lowest five carriers (whichever constraint is binding) are denoted by an X. The range of rates for the carriers denoted by an X is given for each location.

Zone	Drop & Pick	2 Hour Stay With	4 Hour Stay With
1			
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.			
16			

FIGURE 1 Format used for carriers to provide information on maximum class rates for drayage services.

Thus the guide lists all motor carrier participants and then denotes the carriers that offer the lowest-cost service. Shippers can respond to whichever carrier in the list they choose; shippers will not know the actual rate charged by any carrier but will know that the carriers denoted by an X will be within a certain range or lower. Indeed, some of the other carriers may also quote a rate within the same range or lower since the rates are maximum class rates.

When the carriers received the first drayage guide, many wished to change their initial submissions. In many cases the market information was also new to the carriers; many had been unaware of the charges of other carriers. Although the initial low-cost carriers did not change their rates, many of the high-cost carriers reacted to the first guide by lowering their rates substantially. Thus additional low-cost carriers were listed in the second issue of the drayage guide. While the range of rates from highest to lowest did not change for the second issue of the guide, the average rate fell dramatically as did the variance about the mean. Not many changes occurred in the third issue of the guide.

Shippers surveyed after the second issue of the drayage guide was published have praised the guide and have requested similar guides for other locations. Discussions with both shippers and carriers have revealed many moves at rates substantially below the rate ranges found in the guide. This is due to a contracting arrangement with shippers or load balancing practiced by the carriers. Some carriers have saturated certain areas and can maintain high load factors because of high sales. Such carriers prefer drop-and-pick operations because they schedule the tractor for other service while the shipper/receiver is loading or unloading the trailer.

Work is continuing on a centralized dispatch system that could match loads and minimize bobtailing and thus further lower costs and rates.

Plans exist for publishing guides for other areas. The New York and Chicago markets appear to be likely locations, given their major participation in the intermodal market. Because drayage costs are 30 percent of a New York-to-Chicago move, they are naturally a subject of major concern. They are also the the largest single item of door-to-door intermodal costs. If intermodal shipments are to become competitive with door-to-door trucking, rates must fall. Given the prevalent role of drayage and the potential substantial savings in drayage costs based on making more information available and improving communication, the competitive role of piggyback may well be enhanced by the concept of a published drayage guide.

CONCLUSION

The local Philadelphia drayage market, although deregulated and having many of the characteristics of a perfectly competitive market (e.g., many participants, virtually free entry, limited capital, or skill barriers), was not performing as a competitive market. Rates ranged from an index of 1 to 2.25 for the same move, both high-cost and low-cost carriers were being used, and no service differentials were found.

An investigation of the market found that the missing ingredient from the perfect competition theory was full knowledge. The railroads did not understand the market, the shippers did not understand the market, and many thought that all carrier-quoted rates were equal. Carriers, often small and not overly sophisticated from a marketing standpoint, were unaware of the rates of their competition and too busy driving to determine these rates.

The publication of a drayage guide enabled carriers to compare their rates with those of other carriers. In addition, shippers could determine the variations in carrier rates. The published rate ranges gave shippers a benchmark for their rate negotiations with the carriers of their choice. The railroads gained better knowledge of the drayage market and could direct shippers to lower-cost drayage services.

An interesting observation resulting from the investigation was that the relationship between intermodal participants tended to keep drayage rates above cost. Without adequate information, rates can be set too high over costs and high profits can result due to ignorance. Shippers' agents are major customers of piggyback service. Many shippers' agents have ties with local draymen. If local drayage rates exceed the costs of drayage service, then shippers' agents can make a normal profit by brokering the load and an excess profit from draying it.

The reception of the drayage guide has been positive. Guides for other locations should be forthcoming.