

In Praise of the Boxcar

When I talk about boxcars I often notice that the other person's eyes glaze over. It could be disinterest or it could be disbelief. You see, I believe that the future of the railroad industry lies in the lowly boxcar!

The boxcar has many hidden charms. For one, it is relevant. Out of the half trillion dollars spent on surface freight in the U.S. in 1999, well over half was spent on moving general merchandise in boxes, bags, shrink-wrapped stacks, and bins—the kind of traffic suitable for trailers, containers, and boxcars. As nearly as I can figure, over \$200 billion of that was spent moving things in dry van truckload lots, as compared to perhaps \$5 billion spent moving things in railroad boxcars. That means there is an enormous up-side potential for boxcars, opportunities that will only increase as population grows and finished goods markets mature. On the other hand, bulk transportation is in evolutionary decline. In particular, coal faces an uphill battle from environmental pressures, as evidenced by other countries' support for the Kyoto Protocol of December 1997, and even more widespread support for the Copenhagen Accord that resulted from the December 2009 United Nations Climate Change Conference.

For another thing, boxcars can carry more than trailers or containers. Street clearances generally limit the inside dimensions of a dry van trailer or container to 102 inches wide, 10 feet high, and 53 feet long. Boxcars average 113 inches wide and are up to 18 feet high and 86 feet long. Laws protecting highways and bridges from rapid destruction generally limit the lading that can be carried in a dry van to 50,000 pounds. A boxcar can carry three-to-four times that weight.

Boxcars have lower terminal costs than container-on-flat-car (COFC) or trailer-on-flat-car (TOFC). Normative boxcar pick-up and delivery costs inside urban areas are less than intermodal drayage costs. In 1999, an intermodal terminal lift charge was at least \$30. Add to that the Federal Highway Administration's estimation of an intermodal drop and hook charge: \$100 plus \$1.51 per mile per the FHA's Office of Policy and Development computer model. Compare \$130+ per van to the 1999 out-of-pocket cost of an 8-hour Class I switching crew of \$793 (engineer: \$240 + conductor: \$204 + supervision: \$41 + engine ownership: \$125 + engine maintenance: \$100 + fuel: \$83) divided by twelve boxcars per 8-hour crew equals \$66 per boxcar. So with rational switching a boxcar's out-of-pocket terminal cost could be half of COFC/TOFC's, and that boxcar holds a lot more than each trailer or container.

Boxcars also have lower linehaul costs than trailers or containers. They have a lower wind resistance and a higher ratio of lading weight to gross weight than COFC or TOFC. In linehaul service boxcars require a small fraction of the labor needed for a highway trailer. A truck driver can haul a maximum of three trailers on designated highways, but only one trailer on many highways and most surface streets. Guess how many crew members a train with 100+ boxcars requires. Guess how many will be required with future technology (although no technology can now match the safety or the cost of two vigilant crewmembers).

As just specified in "Guns and Butter," in 1995, the National Private Truck Council estimated the average cost per mile of a non-union dry van at \$1.15 and of a unionized dry van at \$1.45, while Conrail's costing model estimated the variable cost of a TEU (truck equivalent unit) in boxcar capacity at only 70¢ per mile, with an actual average charge of \$1.06 per mile.¹

Like containers and trailers, boxcars have a universal configuration, so they can be re-loaded to avoid the poor empty-to-loaded ratio of bulk equipment. Also like containers and trailers, clearing-houses could collect information about boxcar size, condition, and location in order to match an empty with a loading opportunity. More significantly, unlike containers and trailers, boxcar pick-up and delivery is not fully contestable, so boxcar rates are not as vulnerable as TOFC/COFC to being whipsawed down to marginal cost.²

Boxcars are capable of greater reliability than trailers. Train crews are better trained, better paid, and more easily monitored than truck drivers. Boxcars run on a right-of-way where traffic can be scheduled and controlled to avoid congestion and gridlock. Rail lines are not as vulnerable to theft and inclement weather as highways. To avoid blockages, railroads could maintain parallel rights-of-way or emergency trackage rights over a competitor's line.

The bottom line is that boxcars have both natural cost and natural revenue advantages over trailers and containers. They are a unique weapon for railroads.

So if boxcars are so wonderful, why were they almost extinct by the Twenty-First Century? The problem, in a word, is *quality*. This does not mean normative quality—quality that should/could be—but empirical quality—quality that is/was. The service quality of the carload product that railroads offer simply does not meet the minimum acceptable threshold of most merchandise shippers. For the most part, railroads do not know when they will be able to provide an empty boxcar; if it will be clean and serviceable; when it will be picked up; or when it will arrive at its final destination. For the most part, railroads do not offer multiple pick-ups per day; multiple deliveries per day; personnel to help load or unload; or accurate invoices. Large railroads generally do not even solicit boxcar business proactively.

Shippers have obliged by locking in to the inherently inferior product. They have designed all their pallets and racks to fit only 96" to 102" widths. They have paved over their sidetracks and built more truck docks. They have built new facilities far away from rail right-of-way. They use boxcars, if at all, for a kind of semi-moving storage, not for time-sensitive supply chains.

What if railways could raise the quality of the boxcar product up to shippers' quality threshold while staying below over-the-highway cost? Better yet, what if they could raise the quality of boxcar service well above that of dry vans and increase the value margin over truck? The last and most important question is: why have the railroads not already perceived that they could do this? Asking that, dear reader, I leave to you, so that you also can watch people's eyes glaze over.