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This series of articles in Wheat Life abstracts from the recent USDA report on agricultural transportation in the United States, done with the assistance of Washington State University’s Transportation Group (TRG) in the School of Economic Sciences, which was asked to partner in conducting that national study. This article looks specifically at the findings of that study which looks at the rail rate structure for agricultural commodities and compares it to rates for other commodities. The link for the overall study is www.ams.usda.gov/RuralTransportationStudy

Any examination of the effects of deregulation and the performance of the Surface Transportation Board (STB) under that deregulation should include an analysis of rail rates that have evolved since implementation of the Staggers Act of 1980 (Staggers Act). Subsequent articles in Wheat Life will discuss the impact of those rates.

Importance of Reasonable Rail Rates to Agriculture

Because grain and oilseeds are bulk commodities with a low value in proportion to their weight, the costs of rail transportation to market represent a significant percentage of the average on-farm price of the commodities (Figure 1). For example, average rail tariff rates as a percent of the farm price of wheat have varied from 11.3 percent in 2007, when wheat prices were high, to 23.1 percent in 1999, when wheat prices were low. Recent wheat prices would shrink that percentage. Rail transportation costs for individual movements of agricultural products have been as much as 40 percent of the delivered price.

Agricultural producers are “price takers” rather than “price makers,” with little control over the price they receive for their products. They are unable to pass cost increases onto customers and must absorb them because of their lack of market power. Consequently, increases in transportation costs result in decreased producer profit. For agricultural shippers with no cost-effective alternative to rail, and located far from markets, rail is the only transportation available. The rail rate determines the net price the producer receives.

When wheat prices increase, as in the current situation, (railroads believe) growers can afford to pay more for transportation services from railroads. Thus, increases in rail rates are often seen, as indicated in the chart below. It appears in some cases that railroads have increased their rates proportionately more than the increase in farm prices and then have been reluctant to follow the price of grains down.

Despite these concerns, rates for land transportation of agricultural commodities in the United States remain among the lowest in the world. Although rail rates for agricultural commodities have not fallen as much as rates for some other products (such as coal), Figure 1 shows that the rail transportation cost during 2007, as a percentage of the price of a bushel of wheat, was at a 13-year low.

![Figure 1: Wheat-Average Rail Tariff Compared to Average Farm Price](image_url)

* Marketing year ending May 31

Sources: AMS, Rail Tariff Data: STB Waybill Samples, 1995-2007; Average Farm Price: USDA/NASS, Crop Value Summary
Agricultural shippers have had some legitimate complaints about rail rates—and especially rail service quality—following some mergers of the 1990s. However, service has improved in recent years; in fact, the rail share of agricultural exports has actually increased over the last two decades.

This is probably the result of several factors:

- Following the merger-related service disruptions of the 1990s, rail service quality recovered.
- Although rail rates have risen, truck rates have risen even faster over the last several years.
- The STB took action to restrain railroad fuel surcharges.
- Railroad grain car capacity and productivity increased.

Rates and Railroad Deregulation – HOW WE GOT HERE

For nearly 100 years, the performance of railroads reflected the constraints put on them by Federal regulation. The Interstate Commerce Commission Act of 1887 (ICC Act) created the Interstate Commerce Commission (ICC). ICC implemented the provisions of the ICC Act, working for “just and reasonable” rates without price discrimination. The regulatory environment created by the ICC Act and subsequent statutes required railroads to employ cost-of-service pricing and to price at average cost, with some variation usually allowed by commodity and length of haul. Cost-of-service pricing at average cost caused movements to be lost to competitive transportation modes in many corridors.

Pervasive regulation interfered with the ability of railroads to react to competitive situations and efficiently manage their firms. Rate adjustments were slow, innovations were stymied and rationalization of rail infrastructure was expensive and time-consuming. The unwieldy regulatory framework, along with increased competition from other modes—in part due to government promotion of competing transportation modes—led to a loss of market share of intercity freight and the attendant revenue. The railroads were unable to maintain their infrastructure, were close to bankruptcy and were not competitive.

Regulatory reform happened slowly. The most important legislation was the Staggers Act of 1980. Railroads seized on their new regulatory freedom to actively pursue profits and return on investment, using differential pricing, cost efficiencies, abandonment of un-remunerative rail lines, mergers with other railroads, and the rate innovations of contracts and multiple-car pricing.

Railroads have also successfully controlled and reduced costs by abandoning rail lines, creating short line railroads, reducing labor in operations and administration, making longer hauls, increasing traffic density on rail lines and using new technologies imaginatively. Increasing shipment and car sizes, running directionally, and sharing dispatching have also contributed to efficiency.

Railroads adopted differential pricing to use their capacity efficiently and recover their high fixed and common costs. If a railroad charged the same prices to all shippers, some shippers would find it more profitable to ship by another mode. As these shippers withdrew, the railroad would have to raise prices on its remaining customers to cover its fixed costs. Differential pricing also gives railroads the flexibility to react to differences in modal competition.

Consequently, the variable cost of providing rail transportation serves only as a floor below which rates should not go and bears little relationship to individual rail rates. Instead, rail rates are based on the price and service characteristics of competing transportation modes.

With differential pricing, shippers are charged different rates for the same service based on the shipper’s dependence upon rail service. Differential pricing results in unequal rates and revenue-to-variable cost ratios for different commodities, geographical locations and producers, even in similar circumstances. Consequently, with differential pricing, captive shippers bear a higher proportion of a railroad’s fixed and common costs than non-captive shippers.

The Staggers Act relies on competition to limit rail rates, but includes rate appeal procedures to limit the rates railroads could charge captive shippers (who have no competitive choice). A shipper must meet three conditions to appeal rail rates:

- Shippers may appeal only tariff rates. The STB has no jurisdiction over contract rates and rates for exempt movements.
- The movement must have a revenue-to-variable cost ratio that exceeds 180 percent.
- The shipper must show that the railroad has market dominance, which is the lack of effective intermodal and rail-to-rail competition.

Although differential pricing offers shippers the benefit of having viable and stable rail service, reaction to rail deregulation from shippers has not been all positive. Shippers feel responsiveness to shipper needs has been lost, rail costs have been shifted to the shipper, overall rail service and capacity have decreased, rates are generally increasing and rates have been “unfair and inequitable” in some corridors and for some commodities. Such shippers often charge that railroads unreasonably raise their rates to levels that are far beyond those that should be charged.
Recent Rail Rate Levels – THE RESULTS

STB waybill rate data is used in Figure 2 to examine the real revenue per ton-mile for the period 1985 to 2007. STB uses the Tornqvist Index to track rail rates. The Tornqvist Index measures the change in prices in categories and assigns a percentage weight to each category based on its share of total revenue. The index is essentially the weighted average of price changes within the various categories. Both the prices within the various categories and the weights assigned to each category can vary.

The downward pressure on rates identified above as a result of railroad efficiency improvements and competitive pricing is evident. From 1985 to 2004 the rail rate index fell almost continuously, with only a slight increase being noted in 2002. However, as frequently stated to the STB by shippers, the years since 2004 have seen rapidly increasing rates for shippers. Starting in 1985, rail rates dropped about 10 percent in the first two years, continued dropping at nearly that rate through 1992 and then declined at a slower rate during the period between 1992 and 2000. Over the next few years, the rates hovered in a narrow range, varying both positively and negatively until 2004. From 2004 to 2007, the rate index has increased nearly 12 percent, from 56.8 to 65.5.

Various studies have agreed with the findings that overall rail rates decreased substantially from the mid-1980s to the early 2000s. The causes of the decrease included:

- The rationalization of the rail network, with abandonments and creations of short line or regional railroads decreasing costs while maintaining much of the original traffic.
- The ability of railroads and shippers to engage in long-term contracting as provided by the Staggers Act of 1980.
- The increase in trainload shipments.
- The shifts to larger-capacity rail cars and technology innovations.

But the story doesn’t continue as positively for agriculture. A recent STB study of railroad rates from 1985 to 2007 found that “inflation-adjusted rates” increased from 2005 to 2007. STB wrote, “This represents a significant change from prior years, given that inflation-adjusted rail rates declined in every year but one from 1985 through 2004.” STB further elaborated, “In fact, adjusting for the purchasing power of the dollar, shippers spent $7.8 billion more in 2007 than they would have if the rate levels of 2004 had remained in place.” The STB rate study further points out that well over half the increase in rail rates between 2004 and 2007 could be attributed to higher fuel costs. Yet, even after consideration of fuel costs, railroad rates have been steadily increasing during the last few years.

The Government Accountability Office (GAO) has reported that the percentage of traffic in tons traveling at rates above a revenue-to-variable cost ratio (R/VC) of 300, which is substantially above the statutory regulatory level of 180, has generally increased from 1985 through 2005. The share of tonnage traveling at rates over 300 percent R/VC increased from 6.1 percent in 2004 to 6.4 percent in 2005.

But the story is incomplete. GAO reports that the railroad industry revenue reported as miscellaneous income during 2005 increased tenfold from 2000, rising from $141 million to more than $1.7 billion. This revenue includes some fuel surcharges, congestion fees and revenue derived from railcar auctions. These revenue streams are in addition to recent rate increases.

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**Figure 2: STB Rail Rate Index 1985 to 2007**

Real Revenue Per Ton-Mile (1985=100)

Agriculture Rates are Higher Than Those of Other Commodities

In another study, the GAO found that “although rates have declined since 1985, they have not done so uniformly, and rates for some commodities are significantly higher than rates for others” (Figure 3). Specifically, GAO found that “grain rates declined from 1985 through 1987, but then diverged from the other commodity trends and increased, resulting in a net 9 percent increase by 2004.” In 2005, rates for all commodities increased by 9 percent over 2004 rates, the largest annual increase in 20 years. Rail rates for grain increased 8.5 percent over 2004.

According to the American Association of Railroads Freight Commodity Statistics, agricultural rates not only are higher than those of other commodities, but also have increased more rapidly (see Figure 4). For instance, rail rates for grain and oilseeds increased to $2,809 per carload in 2008, up 73 percent from 2003; rates for all other commodities increased to $1,556 per carload, up 50 percent. In addition, grain and oilseed rates during 2008 were 81 percent higher than those paid by all other commodities, compared to 50 percent higher in 1997.

Where We Are Now

Captive shippers, who have carried a large part of railroad fixed and common costs since railroads were de-regulated, expected their rates to drop as railroads gained economically stability, but that has not happened. Not only are rail rates for agricultural products higher than those for other commodities, but the rates have increased more rapidly from 2004 to 2007. The current Surface Transportation Board actions have not moderated this impact.

Because individual farmers cannot raise the prices of their commodities to reflect rising costs, any increase in costs reduces their profit. High rail rates damage the economic health of the farming sector and rural communities and also make it more difficult for America to compete in export markets.