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The Western Rail Service Crisis: One Year Later

In the summer of 1997, the Union Pacific Railroad (UP) suffered a cascading service failure that snarled traffic and brought freight shipments in some areas to a complete halt. It proved to be the beginning of the worst rail service crisis in 20 years (AO March 1998). Early optimism that the service problems might quickly be resolved proved premature, and only since mid-August 1998, after more than a year of substandard service, has rail service in the western U.S. returned to stability. But many steps taken by UP early in the crisis, although slowing its recovery in the short term, will add to overall rail capacity in the western U.S. for many years to come.

The recent improvements in rail service should allow carriers to handle the 1998 grain and soybean harvest, which promises to be the largest in history. Yet despite the UP recovery and overall improvements in rail service in the western U.S., grain shippers this fall encountered many of the same storage problems experienced last year.

Bumper crops of grain and soybeans have combined with large carryin stocks to push grain storage capacity beyond its limits in many regions. Particularly hard-pressed for storage are areas in the Corn Belt and corn-producing regions of the

Northern and Central Plains. This fall's ground piles of grain, however, are not the result of transportation snags but of large crops, worldwide economic problems, and increased competition that have reduced demand for U.S. grain, particularly at Pacific Northwest export facilities.

UP's service problems in 1997 originated in the Houston/Gulf Coast region, which elicited little surprise among those in the rail and grain industry familiar with operations in that area. Houston is a key node in the U.S. rail network, with direct links to Los Angeles, Kansas City (via Dallas/Ft. Worth), St. Louis, Chicago, New Orleans, and the Mexican border crossings, and Houston has long been considered one of the most troublesome spots in the U.S. rail network. A congestion problem similar to the 1997/98 event occurred there in 1978.

Rail traffic patterns in the Houston region are complex and difficult to manage because Houston's importance is threefold: the region is at once a key transit point in the U.S. rail network, a critical port, and home to many important petrochemical facilities. Consequently, Houston originates a significant amount of rail traffic (particularly chemical traffic), terminates a considerable volume of traffic (particularly agricultural traffic), and

serves as an important transit point for other traffic.

The extent of rail traffic moving to, through, or from Houston make the configuration of rail infrastructure in the Houston/Gulf Coast region both complicated and fragile. It is complicated by virtue of geography and because much of this rail complex was developed somewhat haphazardly at a time when Houston was far less important to the U.S. rail network. It is fragile because for many years the financial weakness of the Southern Pacific Railroad (SP) prevented that firm from making investments in the Houston area that might have prevented or mitigated some of the problems seen last year.

Problem Solving: One Step Back, Three Steps Forward

The noticeable improvement in UP's rail operations starting in mid-August 1998 came just in time to handle the 1998 fall harvest shipments. Two key factors laid the foundation for recovery in the troubled western region. First, the market found alternatives to UP's service. Second, slowly but doggedly, UP pulled itself together by simply going about its business, unifying its operations after the merger with SP (approved in 1996), and investing in much-needed capacity expansion.

At the height of the rail service crisis, many western livestock and poultry feeders shifted to truck transportation for their feed supplies. For example, poultry feeders in Arkansas and east Texas trucked their feed products and grains from inland river points or from as far away as Missouri and Iowa. Western Plains hog feeders and California feedlot operators scrambled to secure steady supplies of feed grains and feed ingredients normally delivered by rail. Trucking grain such long distances is a short-term measure. In a longer term development, shippers have turned away from UP, which has lost significant market share to its principal competitor, Burlington Northern Santa Fe (BNSF).

The rail service recovery was also facilitated by the working out over time of UP's service recovery plan. Key elements were the implementation of the UP/SP merger and the investment of significant funds by

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UP to undertake much-needed capacity expansions in several critical locations.

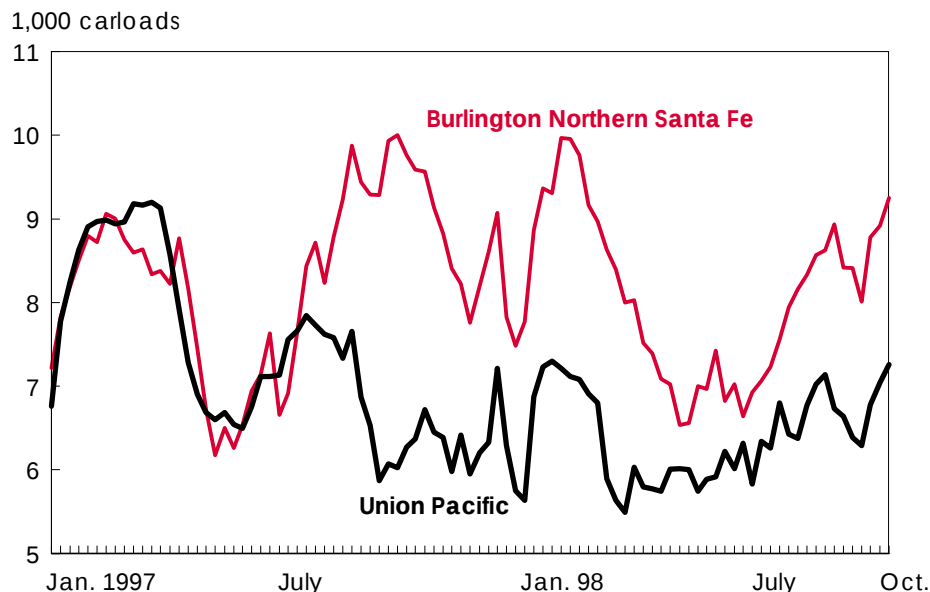
Conventional wisdom suggests that the merger of UP and SP caused the service failure in Houston. Conventional wisdom could be right—many railroad observers believe that UP failed to listen to SP personnel who had critical knowledge of the yard operations in Houston. But it could be wrong—while the service failure occurred after the merger was approved, it began before UP and SP actually combined operations in the Houston area. SP's facilities were inadequate, and a breakdown in Houston may have been inevitable.

In any case, some of the steps UP took to implement the merger and restore service in the long run initially intensified short-term problems. For example, after a period of recovery in January 1998, UP implemented directional running operations across its Southern Tier. Prior to the merger, the two railroads had a number of parallel lines running across eastern Texas, Arkansas, and southern Missouri. UP switched several of these single-tracked mainlines, which had previously handled two-way traffic, into "one-way-only" service lanes.

Directional running increases system capacity by improving both train speed and yard efficiency, and was anticipated to be one of the primary benefits of the UP/SP merger. However, when UP implemented the system, the result was almost disastrous. Because former SP engineers were new to the UP lines, just as UP engineers were unacquainted with the former SP lines, UP's locomotive crews needed to be trained and certified on these unfamiliar routes. This training disrupted rail operations and reduced the number of crews available for duty, and service tumbled to unacceptably low levels.

UP also integrated the SP into its computer system during the crisis. Railroads are sophisticated users of information technology, and rail operations as diverse as crew calling and train dispatching depend on a railroad's information and telecommunications technology. UP integrated the SP into its computer-driven Transportation Control System (TCS) in four phases. Disruptions occurred in each case as trains operating on the SP system were stopped and infor-

Union Pacific Lost Market Share of Grain Shipments in 1997



Weekly carloadings (3-week centered average) for western railroads.

Source: Association of American Railroads.

Economic Research Service, USDA

mation on their locations, along with the contents and routing instructions of each carload, was entered into UP's main computer system. The last (and largest) of these TCS "cutovers" began July 1, 1998, when the remaining SP lines in the West were folded into UP's operations. Shortly after this TCS cutover, USDA received numerous complaints from agricultural shippers in California. But again, the short-term pain associated with this step was needed to integrate UP/SP operations and restore rail service to normal levels.

UP's service woes demonstrated that its infrastructure could not adequately handle major disruption or anticipated traffic growth. An aggressive capital spending campaign aimed at increasing system capacity laid the groundwork for UP's recovery while complicating it in the short-term. UP expects to spend \$400 million on merger-related capital projects in 1998; much of this investment is in the Houston/Gulf Coast region where UP intends to spend some \$600 million over the next 3-5 years. In addition to these merger-related capital investments, UP invested an additional \$400 million during the summer of 1998 in a massive track maintenance and capacity expansion project on its Central Corridor between Chicago and Utah.

Although these capital investment projects will provide the infrastructure needed for better service in the years ahead, their initial implementation slowed UP's service recovery this spring and summer.

Only since mid-August 1998 has UP's service returned to normal. UP's terminal performance, grain car movements, and train velocity have all improved in recent weeks, and several weather-related disasters confirm that UP's "recoverability"—its ability to handle unanticipated problems with only minor disruptions—has improved markedly.

A case in point was UP's handling of the effects of Tropical Storm Charlie, which produced severe flooding in the Rio Grande Valley in late August. UP's crucial Sunset Line from Houston to Los Angeles was washed out in three dozen places in Texas, yet UP was able to reroute most of its trains over other lines during track repairs. Service was restored within 2 days. Had floods of this magnitude occurred 3 or 4 months earlier, most analysts believe that UP's Texas operations would have been crippled. In March 1998, problems at the border had halted UP trains as far away as Kansas and forced UP to embargo traffic to Laredo.

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But in the aftermath of Tropical Storm Charlie, which forced the U.S. Customs Service to shut down all international trade by rail and road at the Laredo gateway, traffic resumed without difficulty once floodwaters ebbed. More recently, UP has responded to additional weather crises, including Hurricane Georges, severe flooding in Texas, and heavy rains in the middle regions of the country. So far, UP has maintained and even improved rail service to most shippers during these weather disruptions.

Fall Situation for Grain Shippers & Railroads

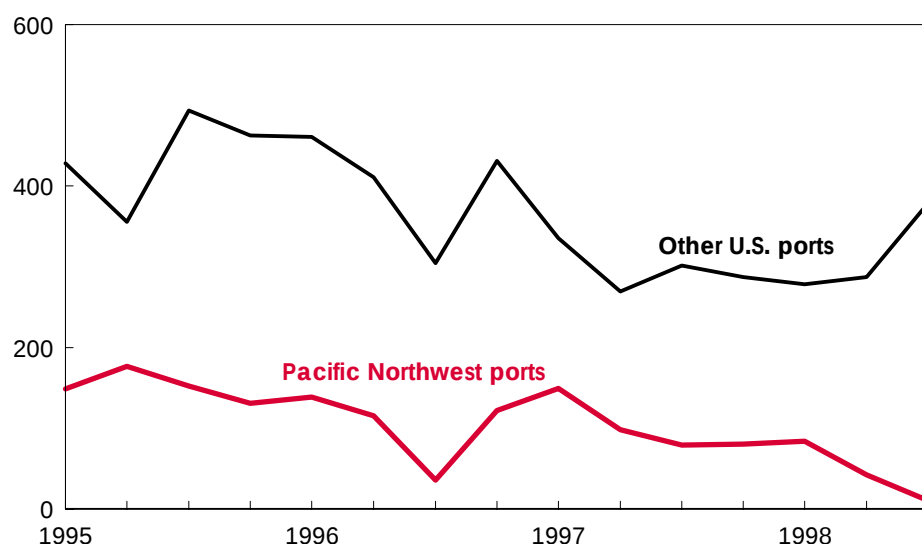
The situation for midwestern grain shippers this fall is, in some ways, much like last year. Excellent grain and soybean crops have left many country elevators and subterminals piling grain on the ground as available storage capacity was again pushed beyond its limits. This year's grain piles, however, have almost nothing to do with rail transportation problems, but resulted from bumper crops and slack export demand for U.S. grains and soybeans. Particularly hard hit are the Northern and Central Plains and the western growing areas of the Corn Belt. Lack of demand for midwestern grain at Pacific Northwest ports is affecting shippers and producers in these regions, as well as the two western railroads—BNSF and UP—that serve this market.

U.S. production of grains (excluding rice) and soybeans for the 1998/99 marketing year is forecast to be an all-time record at 16.2 billion bushels, up 3 percent from last year and 13 million bushels higher than the previous record in 1994/95. With large carryin stocks, this year's available supplies are the largest since the mid-1980's. September 1 stocks, at 4.4 billion bushels, were up 22 percent from a year ago and the largest since 1993. This year's September stocks also mark the third consecutive year in which grain and soybean stocks have grown, gradually adding to the demand for storage at a time, when storage capacity has been trending downward, at least up until this year.

From December 1, 1987 to December 1, 1997, U.S. grain storage capacity has consistently been on the decline, falling more

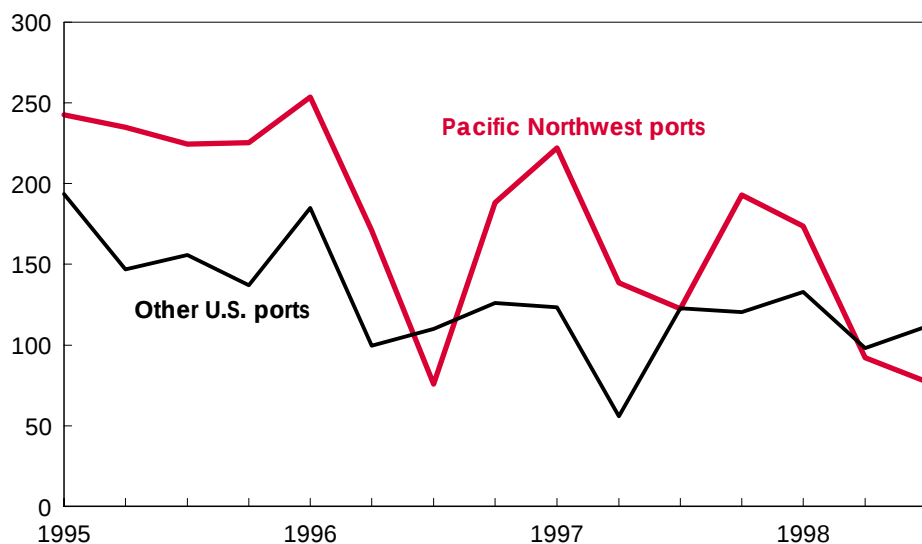
Corn Export Inspections Have Declined at Pacific Northwest Ports . . .

Million bu.



. . . Reflecting Lower Rail Shipments of All Grain for Export

Million bu.



Quarterly data based on carloads (100 short tons and average bushel weight of 58 pounds).

Economic Research Service, USDA

than 4.4 billion bushels to 18.9 billion in 1997. Most analysts, however, anticipate that storage capacity will have expanded during 1998 when USDA's National Agricultural Statistics Service releases storage capacity numbers for December 1, in its January 1999 *Grain Stocks* report. Even so, September 1 stocks and fall production (corn, sorghum, and soybeans) in the Central Plains and eastern and western Corn Belts reached or surpassed available stor-

age capacity, forcing elevators and farmers to scramble to put grain into temporary storage or ground piles. Low harvest-time prices and a weak basis (difference between futures market price and local cash price) have also encouraged farmers to hold grain at least into the early months of 1999, adding to the demand for storage.

While many producers continue to hold grain in anticipation of higher prices,

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projected grain and soybean use for 1998/99 suggests that processors, millers, feeders, and exporters will demand more grain this marketing year than last. Domestic use for 1998/99, projected at 11.8 billion bushels, would be up 2 percent from last year and an all-time high. Export use this marketing year, while not a record, is also projected up 5 percent from last year at 3.9 billion bushels. If these projections hold, 1998/99 grain and soybean use would total 15.7 billion bushels, just 6 million bushels short of the 1994/95 record.

Domestic commodity demand is driving demand for rail grain transportation, which has strengthened throughout calendar year 1998. Grain carloadings on U.S. railroads during the first two quarters of 1998 were down 6 percent from the same period in 1997 and 11 percent from 1996. Third-quarter grain carloadings this year, however, were up 2 percent over third-quarter 1997 and 11 percent over 1996.

Grain carloadings have increased substantially with the beginning of the fourth quarter, although carloadings through October continue to be down 2 percent from last year. As the fall harvest shipping season went into full swing, grain loadings, which had averaged 22,100 cars per week for the first three quarters, jumped to an average 26,400 cars weekly for October. This upswing is consistent with the normal seasonal pattern of grain shipping, but this year's October numbers are running ahead of last year by 3 percent and ahead of the same weeks in 1996 by 6 percent.

It was strong demand for rail-delivered grain in the eastern U.S., however, that kept grain carloadings nationwide from falling well below last year's levels. As a group, the major eastern railroads—Conrail, CSX Transportation, Illinois Central, and Norfolk Southern—have reported grain carloadings up each quarter over the same quarters in 1997. In contrast, the major western railroads—BNSF, Kansas City Southern, and UP—have experienced losses in grain carloadings as a group every quarter so far this year compared with last year. Driving these losses in rail grain traffic in the western U.S. is the loss of demand for grain from the upper Midwest and Plains at the Pacific Northwest

export facilities along the Columbia River in Oregon and Washington, and on Puget Sound in Seattle and Tacoma, Washington.

Rail shipments of grain for export so far in 1998 have been down nationally for the third straight year. Carloads of grain shipped to export position from January through October were down 12 percent this year from 1997, down 21 percent compared with 1996, and down 42 percent from 1995. The loss in export rail grain demand has occurred despite stronger-than-expected demand for export wheat at the Texas Gulf. While shipments to Texas Gulf ports have been up 17 percent from 1997, shipments to the Pacific Northwest have been down 30 percent.

The impact of the loss in the Pacific Northwest export rail market is substantial for shippers and producers in the western reaches of the corn belt in Nebraska, southwestern Minnesota, and eastern North and South Dakota. It has also resulted in a serious loss in rail grain traffic for the two carriers—BNSF and UP—serving this market. Rail shipments to the Pacific Northwest accounted for 60 percent of all export rail shipments during 1995-97. Export rail shipments to the next-largest export rail market—at the Texas Gulf—during the same years were roughly half the volume shipped to Pacific Northwest facilities. But in third-quarter 1998, shipments to the Texas Gulf actually exceeded shipments to the Pacific Northwest.

Not only have financial problems in Asian importing countries reduced demand for U.S. grain, but they have also reduced total waterborne commerce trade in the Pacific sea trade lanes, which has led to a surplus of vessels (AO May 1998). As a result, ocean freight rates for grain shipments to Japan from U.S. Gulf ports, for example, are down 44 percent from the previous three-year average. Ocean rates from Pacific Northwest ports, on the other hand, have not fallen as far, narrowing the ocean rate differential between Gulf and Pacific Northwest ports enough to make Gulf ports an attractive option. Since shipping midwestern grain by rail to the Pacific Northwest is generally more expensive than by barge to the Gulf, the lower ocean freight rate differential leaves grain exporters lit-

tle incentive to book sales from Pacific Northwest ports. Until that differential widens, shipments through the Pacific Northwest are likely to remain at current low levels, keeping rail transportation demand in this corridor well below normal levels and reducing grain transportation demand on BNSF and UP.

The drop in rail volumes to the Pacific Northwest has occurred largely because of reduced demand for the export of corn from these ports. So far for 1998, Pacific Northwest ports have accounted for only 13 percent of total corn exports, compared with 24 percent during 1995-97. While total U.S. corn exports through September 1998 were down 12 percent from last year, Pacific Northwest corn exports plummeted by 58 percent for the same period. U.S. corn exports have tended to level off since the second quarter of 1997 and even turned up somewhat in the third quarter of 1998, but Pacific Northwest corn exports have continued to fall.

Contrast with earlier years is even more dramatic. Export inspections of corn at Pacific Northwest facilities totaled 478 million bushels during the first three quarters of 1995 but reached only 137 million bushels for the first three quarters of this year. The difference between the volume of corn exported from the Pacific Northwest in the first 9 months of 1995 and the first 9 months of this year is roughly the equivalent of 100,000 rail carloads of grain or 2,564 additional carloads per week for BNSF and UP, the two railroads that serve this port region. Had volumes remained the same in 1998 as they were in 1995, grain traffic for these two railroads would have been 17 percent higher through September this year.

Lack of demand for midwestern grain at Pacific Northwest ports hurt not only shippers and producers who rely on this market, but also the UP and BNSF. Last year these railroads struggled to meet shipper demand; this year their grain business has suffered from lack of export demand in the Pacific Northwest market. *William J. Brennan (202) 690-4440 and Jerry D. Norton (202) 720-4211, Agricultural Marketing Service*
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