

# U.S. railroads: the facts

There is no exaggeration in comparing the railroad industry today with New York City and other urban centers blighted by decades of disinvestment. There are a few rail lines that have managed to thrive over the past 50 years and continue to modernize and make capital investments. But even these fall far short of minimal levels of service and financial viability appropriate to the transportation needs of the late 20th century. Today in key areas of profitability, service, and equipment, current levels are not only far below those prior to the 1930s Depression—but even lower than those during the Depression.

As a result, there exists a number of bottlenecks that are strangling the industry; without management teams and investment incentives to tackle these bottlenecks, the transportation snarls gripping urban and rural areas alike will continue to worsen.

### Profitability

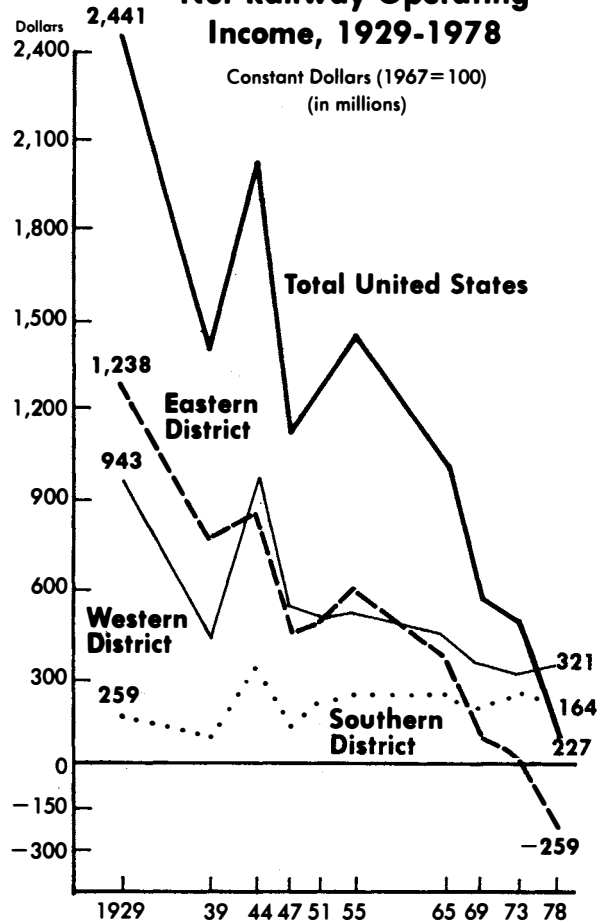
The most often cited measures of railroad profitability are (1) the net railway operating income (NROI), defined as the remainder of operating revenues after deducting operating expenses, taxes and rents for equipment and joint facilities, but before recording non-operating income and deducting fixed charges; and (2) the rate of return, the ratio of NROI to net investment in transportation property. In current dollar terms, the picture is bad enough (see Table 1). In 1929 NROI for the U.S. as a whole was \$1,252 million; in 1978 it was only \$443 million, a 65 percent drop. The rate of return was 5.30 percent in 1929; last year it was a scant 1.62 percent. The largest component of the decline has been Eastern District railroads, primarily the old Penn Central and current Conrail systems. In 1929 Eastern District railroads turned a \$635 million profit. Today they are running a half-billion dollar deficit.

The Southern and Western Districts, in contrast, appear to be performing reasonably well, given the general decline in railroads. Both have rates of return comparable to 1929. The Southern District showed a \$320 million profit last year, and the Western District \$628 million, substantially over the 1929 figures. However, a mere 2 percent per annum projected growth rate since 1955 shows that while Southern District profits

did increase at about that rate, the Western District's were considerably less. And the 2 percent projection does not even include the effects of inflation.

But a comparison of NROI in constant dollar terms lays out the real horror story. If we were to inflate 1929 dollars into today's dollars, railroads on the whole would have earned nearly \$5 billion in 1929 versus the paltry \$443 million last year. Southern and Western

**Figure 1**  
**Net Railway Operating Income, 1929-1978**  
Constant Dollars (1967=100)  
(in millions)



District roads would have made \$507 million and \$1.85 million, respectively!

In 1967 dollars, the picture is just as incredibly bad (see Figure 1). The touted "recovery" in recent years, even for Western and Southern roads, barely reached the pathetic levels of 1974—which by that time were almost the lowest since 1929. Since 1967, neither the Southern nor Western District has come near to attaining, in constant dollar terms, their profit margins of 1939—at the depths of the Depression. The total rail system has not come near 1939 profits since 1946!

**Service**

Railroads are the most energy-efficient form of land transportation, averaging about 200 ton-miles per gallon of fuel, versus only 60 ton-miles for trucks. Yet, since 1929, railroads have carried a steadily decreasing percentage of total freight and passengers moved in the United States.

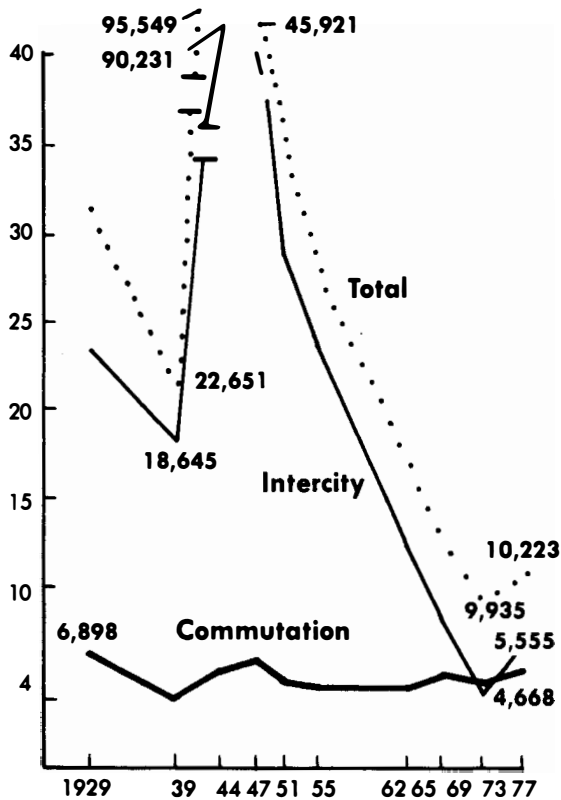
Figure 2 shows the precipitous decline in railroad

passenger miles. Today, total passenger miles are only one-third of 1929 levels, and only 22 percent of 1947 levels. Intercity passenger miles have plunged 77 percent since 1929, and 86 percent since 1947. Only in part can this be attributed to the rise in automobile and air transportation, as becomes obvious by noting that commuter passenger miles are one-third less than 1929 levels—despite the tremendous urban-suburban sprawl since World War II. The fact of the matter is that railroads have invested in neither modernized nor expanded facilities—for reasons that will be made clear in the next section—nor have they increased their efficiency.

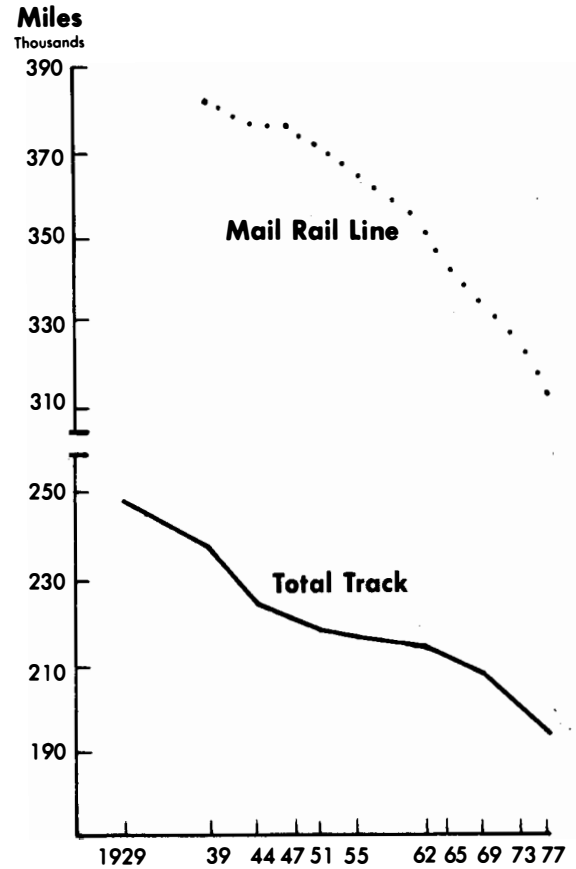
Table 2 depicts the decline in railroad freight transportation relative to other modes. Prior to the Depression and during the war years, railroads carried over 75 percent of all intercity freight. Today they carry less than half.

Supposedly in "response" to the slackening rate of demand, railroads have cut service drastically. A key

**Figure 2**  
**Passenger Miles, 1929-1978**  
(in millions)



**Figure 3**  
**Rail and Track**



indicator of these cutbacks is that rail track has been abandoned at an accelerating rate, and is now 25 percent less than in 1929 (see Figure 3). While new rail laid has been increasing more or less steadily since the early 1960s from a nadir of 300,000 tons per year to 950,000 tons in 1977, it is still below even the 1939 level—and only 40 percent of the 2.3 million tons laid in 1929.

In addition, for many years the industry has increasingly taken freight trains out of regularly scheduled service. This practice is epitomized by Conrail, which now runs the vast majority of its freight trains on an “as needed” basis. The abandonments and service cutbacks have accelerated loss of rail traffic; shippers never know when they will receive either cars or trains, and have thus been forced to shift to truck, despite higher costs. The traffic losses more than offset the “savings” railroads attain by triaging less-than-load scheduled trains. More trains are then cut, rates go up, more business is lost, *ad infinitum*. This austerity approach is

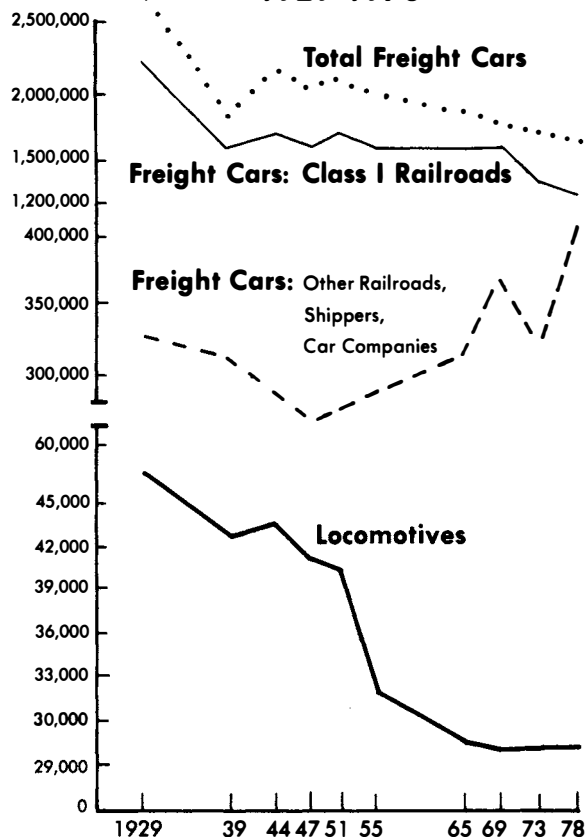
identical to the New York City “solution” of Felix Rohatyn’s Big Mac. At the end of the line, as in New York, is bankruptcy, where the taxpayer pours billions of dollars into sheer junkheaps.

The inefficiency of rail service is reflected in several measures. First, the number of locomotives and rail cars available have sharply declined (see Figure 4, Table 3). Today there are fewer than half the locomotives and one-third the cars than there were in 1929.

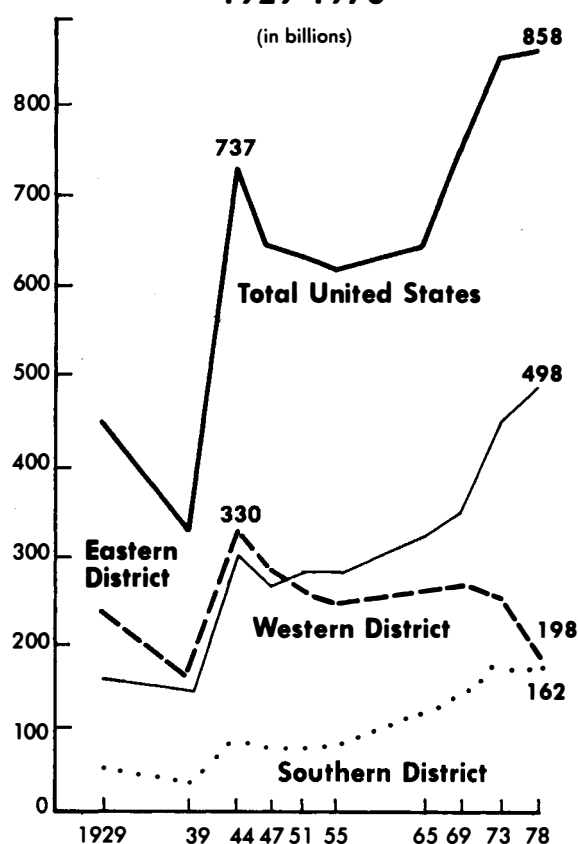
Second, a serviceable car is in a train on average only 13 percent of the time, while its average daily mileage in 1978 amounted to a miserable “record” 59.5 miles, according to the Association of American Railroads. While this is an improvement over the 7.4 percent of 50 years ago, it is nevertheless an indictment of the lack of systems management, since cars and locomotives are designed much better today than in 1929.

The problem is a complex amalgam of poor management, archaic Interstate Commerce Commission regulations, and most especially, the lack of investment

**Figure 4**  
**Freight Cars and Locomotives,**  
**1929-1978**



**Figure 5**  
**Ton Miles Of Freight,**  
**1929-1978**



in modernizing terminals and in computer routing of traffic. The Department of Transportation estimates that a capital investment level of \$4.2 billion per year is necessary to modernize the rail system, but expects railroads to fall short by \$1.3-1.6 billion annually. In addition, research and development comprises only .1 percent of the railroad budget, as compared with 3-5 percent for other industries.

The AAR has made the remarkable calculation that even if trains traveled an infinite number of miles per hour, efficiency would increase only 5 percent! Most of the time, the average rail car is tied up in terminals or yards or is simply broken down. For a mere \$500 million, the entire U.S. railway system could be computerized, a step that industry experts agree would easily double car utilization, if coupled with minimal procedural changes in terminals. Even Conrail could afford this, but refuses to make the investment.

The 13 percent train-time figure paints a better picture than is actually the case. It accounts only for "cars in service," excluding those in disrepair, "out of service," or just sitting in yards and sidings. If the 13 percent figure were a true measure, cars would be in trains 47 days a year. In fact, the average car is moving only 22 days a year—6 percent of the time—and makes an average of less than 15 trips per year! Furthermore, a greater proportion of cars are out of service today than ever before. In 1929, 89 percent of the fleet was at least operational, if not being used very much; today, only 81 percent is in service.

### **The phony numbers**

The rail industry likes to point out that despite all its problems—including the misfortunes of Eastern District roads and the relative decline in the proportion of freight carried by rail (Table 3)—ton-miles have nearly doubled since 1929 (Figure 5), and ton-miles per loaded car have more than quadrupled (Table 4). Ton miles is the non-financial basis by which the industry measures its prosperity.

As their proportion of freight has dropped, railroads have concentrated on increasing ton miles, primarily by carrying longer-haul loads, which reduce the proportion of terminal time (though the growing inefficiencies and lack of capital investment mentioned above have more than offset these gains). Ton-miles, however, have increased on average *less than 1 percent a year since 1947!* A meager 2 percent growth rate since then would have increased ton miles by 43 percent over current levels (see Table 5).

Even worse, freight car mileage and originated tonnage—that not received from any other rail line, and therefore representing the real freight total of the rail system—are virtually *the same as in 1929*. What the railroads have done is to nearly double the distance the average ton is hauled and nearly double the actual load and load capacity of the average car, to achieve the

doubling of ton-miles per car loaded. But in reality, they are moving no more than they did 50 years ago! Furthermore, the emphasis on longer hauls has drastically cut service to short-haul shippers, underscoring the decline of Eastern roads where routes are much shorter.

Given that originated freight and car mileage have stagnated while advancing technology has meant a substantial increase in car capacity and locomotive horsepower and durability (Table 3), the number of cars and locomotives have dropped sharply, as noted above. Today car capacity is barely larger than in 1929, while the number of cars in the average train has climbed by 50 percent.

The emphasis on longer trains with larger loads has helped reduce car loadings by over 50 percent, in addition to generally inefficient car utilization. In 1929, there were 53 million loadings; last year, there were 23 million. What is saddest about this statistic is that it is doubtful that railroads today could handle as many loadings as there were in 1929.

Table 5 takes several key categories and compares actual yearly levels with what they would be today based on only a 2 percent annual growth rate. The disparity is striking.

### **The rail car fiasco**

Besides the push for fewer cars carrying heavier loads over longer distances, declining profits have been the greatest factor in railroads' reducing their car fleets. The combination of lagging industry investment in cars plus incentives to the private sector to build cars has resulted in a sharp rise in non-railroad-owned cars (Figure 4). In 1929, Class I railroads owned 87 percent of all cars; last year this was down to 74 percent. Since 1970 the total rail car fleet has declined nearly 8 percent. Railroad-owned cars fell nearly 12 percent, but non-railroad-owned cars *increased* 8 percent.

To the benefit of the car leasing companies and short-line railroads largely controlled by these companies, Class I railroads have increased the rate of retirement of their own cars. Between June, 1977 and June, 1979, railroads put nearly 58,000 of their own cars on line, but retired 124,000—a net capacity loss of 2.7 million tons. The "privates" have filled the gap, getting the additional benefits of investment tax credits and accelerated depreciation tax deferrals, while the railroads must pay inflated leasing costs and lose both the tax credits and the cars as assets.

To make matters worse, there is now an average shortage of 25,000 cars per day, with an order backlog of 18 months. This translates into about 60 million tons per month lost by the railroads, or about 35,000 billion ton-miles each month—4 percent of each year's total ton-miles.

—Steve Parsons

**Table 1**  
**Net railway operating income (NROI)**

(in current millions of dollars)

Year	Total U.S.	Eastern District	Southern District	Western District
1929	1,252	635	133	484
1955	1,128	481	197	449
1978	443	- 506	320	628
Change 1929-78	- 809	-1,141	187	244
% change 1978*	- 65	- 180	141	50
1978*	1,851	758	310	708

\*Projecting a 2 percent growth rate from 1955 to present.

**Table 2**  
**Rail As Percentage Of Total Transport**

Year	Railroads		Truck		Great Lakes		River/Canal		Total mn. t.m.*
	mn. t.m.*	%	mn. t.m.*	%	mn. t.m.*	%	mn. t.m.*	%	
1929	454,800	78	19,589	3	97,322	17	8,661	2	580,472
1939	338,850	69	52,821	11	76,312	16	19,937	4	487,920
1944	746,912	78	58,264	6	118,769	12	31,386	3	955,331
1950	596,940	64	172,860	19	111,687	11.5	51,657	5.5	933,144
1960	579,130	53	285,483	26	99,468	9	120,785	11	1,084,866
1970	771,168	51	412,000	27	114,475	8	204,085	14	1,501,728
1974	885,582	49	555,000	31	90,695	5	277,580	15	1,808,857
1978	870,000	47	602,000	32	98,000	5	291,000	16	1,861,000

\*t.m. = ton miles

**Table 3**  
**Freight Car Capacity**

Year	Total Freight Cars	Avg. Capacity Per Car (tons)	Total Capacity (tons)
1929	2,620,662	46.3	120,873,650
1939	1,961,705	49.7	97,496,738
1944	2,067,948	50.8	105,051,750
1965	1,800,662	59.7	107,499,520
1970	1,784,181	67.1	119,718,540
1978	1,652,774	76.7	126,767,760
1929-1978	-957,888	+30.4	+5,894,110
	-36.7%	+65.7%	+4.9%

**Table 4**  
**Comparison Of Freight Car Miles And Ton-Miles**  
**1978 and 1929**

	<b>Total Ton Miles</b>	<b>Ton Miles Per Car</b>	<b>Avg. Haul Per Car</b>	<b>Originated Tonnage (millions)</b>	<b>Total Car Mileage (millions)</b>	<b>Number Of Cars</b>	<b>Avg. Load Per Car</b>	<b>Avg. Daily Car Mileage</b>
1929	447,332	8,468	317 mi.	1,339	29,142	2,610,662	35.4	34.4
1978	858,105	36,714	587 mi.	1,389	29,052	1,652,774	62.1	59.5
1929-1978	+92%	+334%	+85%	+85%	+3.7%	-.3%	-37%	+73%

**Table 5**  
**The Unnecessary Car Shortage**

	<b>Ton-Miles</b>	<b>Originated Tonnage</b>	<b>Freight Car Miles (millions)</b>	<b>No. Of Cars</b>	<b>No. Of Locomotives</b>	<b>Passenger Miles (millions)</b>
Actual 1947	654,728	1,537	32,201	2,025,008	41,719	45,929
Actual 1978	858,105	1,389	29,052	1,652,774	27,772	10,223
if 2% growth since 1947	1,233,860	2,896	60,684	3,816,207	78,621	86,555
% higher than 1978	43%	108%	109%	131%	183%	747%