

COMPETITIVE EFFECTS OF RAILROAD MERGERS

by *Curtis M. Grimm** and *Joseph J. Plaistow**

ABSTRACT

In the post-Staggers era, the U.S. railroad industry has experienced a significant number of mergers and a sharp reduction in the number of Class I rail carriers. This paper provides analysis of the competitive effects of these rail mergers, with a focus on Union Pacific-Southern Pacific, Burlington Northern-Santa Fe, and Southern Pacific-Santa Fe. Specifically, a methodology to quantify horizontal competitive effects of rail mergers is developed and applied to these mergers.

INTRODUCTION

In the post-Staggers era, the U.S. railroad industry has experienced a significant number of mergers and a sharp reduction in the number of Class I rail carriers. This has given rise to increasing concern by shippers as to the effect of these mergers on rail competition. It is therefore important to carefully analyze the competitive impacts of rail mergers since 1980. Much of the debate regarding competitive effects contains misconceptions regarding the degree to which mergers have reduced competition in specific markets. Shippers have argued that there is an important cumulative effect on competition given the continuous reduction in the number of Class I carriers since 1980. Others have pointed to declines in rail rates since 1980 concurrent with merger activity as evidence that newly proposed parallel mergers will not reduce competition. Furthermore, many observers have been unaware of important differences with regard to competitive impacts of the recent mega-mergers. In this paper, we examine competitive effects more carefully, using a qualitative method for mergers prior to the mid 90's, and a quantitative method developed by the authors for the SP-SF, BN-SF, UP-SP and Conrail consolidations. Finally, the paper will explore policy implications.

THE END-TO-END MERGER WAVE: ICC RAIL POLICY 1980-1995

The 4-R and Staggers Acts, along with ICC administrative actions, encouraged end-to-end consolidations and set off a railroad merger wave.

However, it was a conscious, explicit policy of the ICC to encourage end-to-end mergers but to discourage parallel mergers. Indeed the only major parallel merger proposed to the ICC between 1980 and 1995, the Southern Pacific-Santa Fe, was turned down by the ICC:

[A]s the Commission warned over five years ago in its Merger Policy Statement, parallel mergers are not favored where there are no other competing railroads. See *Merger Policy Statement*, 363 I.C.C. 784, 791 (1981). The burden of demonstrating that such a merger is in the public interest is a heavy one, and must be borne on the shoulders of substantial evidence. *SFSP*, 2 I.C.C 2d at 833 (1986)

As a result of this policy, the U.S. railroad system went through a major restructuring in the early 1980's, leaving three large systems dominant in the East and four major roads dominant in the West, without significant horizontal anticompetitive effects. The major consolidations restructuring the U.S. system in the early 80's as well as subsequent consolidations up to the mid-90's, as listed in Table 1, were primarily end-to-end. This can be documented most readily by simple inspection of maps of the merging carriers, which are available by request from the authors. Thus, it is incorrect to offer predictions about effects of recent parallel mergers based on experience regarding the end-to-end consolidations between 1980 and 1995.¹

RECENT MERGERS: PARALLEL EFFECTS

Recent U.S. rail mergers have raised more serious issues regarding horizontal competitive effects. In this section of the paper, we will describe the methodology we have developed to quantify these effects. Then we will present our analysis of 2-1 horizontal effects for the SP-SF, BN-SF, UP-SP, and NS-CSX-CR mergers.

Table I**Class I Unification 1980-1998**

<u>Effective Date of Unification</u>	<u>Type of Unification</u>	<u>Applicant Railroads</u>	<u>Controlling Railroad/ Company</u>
6/2/80	Control	DT&I	GTW
12/1/80	Merger	SLSF	BN
9/23/80	Control	C&O/SCL	CSX
6/3/81	Control	Maine Central	Guilford
1/1/82	Merger	BN/C&S/FW&D	BN
6/1/82	Consolidation	SOU and N&W	NS
12/22/82	Merger	UP/MP/WP	UP
1/1/83	Consolidation	Family Lines/L&N	Seaboard System
7/1/83	Control	Boston & Maine	Guilford
1/5/84	Control	D&H	Guilford
2/19/85	Control	SOO/CMSP&P	SOO
3/26/87	Control	CR-government	CR-private
8/12/88	Merger	UP/MKT	UP
10/13/88	Control	SP/SSW/DRGW	DRGW
4/27/95	Purchase	UPC&NW	UP
9/22/95	Merger	BN/ATSF	BNSF
9/11/96	Merger	UP/SP	UP
6/20/98	Control	NS/CSX/CR	NS and CS

Source: Railroad Mergers by Frank N. Wilner and AAR *Railroad Ten-Year Trends*

Methodology to Quantify Horizontal Competitive Effects of Rail Mergers

The starting point in conducting a rigorous evaluation of the consequences of railroad mergers is the definition of the relevant markets. The Department of Justice and Federal Trade Commission's horizontal merger guidelines for defining relevant markets provide a clear and powerful market definition tool. Accordingly, boundaries for markets can be established as follows:

Specifically, the Agency (DOJ or FTC) will begin with each product (narrowly defined) produced or sold by each merging firm and ask what would happen if a hypothetical monopolist of that product imposed at least a 'small but significant and non-transitory' increase in price, but the terms of sale of all other products remained constant. If, in response to the price increase, the reduction in sales of the product would be large enough that a hypothetical monopolist would not find it profitable to impose such an increase in price, then the Agency will add to the product group the product that is the next-best substitute for the merging firm's product.

Department of Justice and Federal Trade Commission Horizontal Merger Guidelines, April 2, 1992, Section 1.11.

To apply these standards to railroad mergers, it must first be understood that a railroad's "products" consist of the transportation of commodities between specific origin-destination pairs. A railroad is truly a multi-product firm, in that each origin-destination and type of commodity shipped can properly be regarded as a unique product. If we begin with such a correctly-defined product of the merging firm – we must then ask, in the words of the merger guidelines, whether in response to a hypothetical price increase, "the reduction in sales would be large enough that hypothetical monopolist would not find it profitable to impose such an increase in price." As to numerous commodities and shippers, there is clear evidence that a hypothetical rail monopolist could profitably increase prices.

While some shippers in a broader market could shift to other competitors in response to such a price increase, this does not help in rendering a price increase by a monopoly railroad unprofitable. The key is that a monopoly railroad can selectively raise prices to specific shippers in accordance with the availability to the particular shipper, for particular movements, of source, product or intermodal competition.

Another market definition issue is the scope of the geographic market. A key point here is that shippers captive to one railroad with another nearby benefit from indirect competition in many ways.

With reference to Figure 1, Industrial Site #1 is a shipper served by only Railroad B, but with Railroad A located in the vicinity. There are many ways a shipper in the position of Industrial Site #1 could gain value from the presence of an independent Railroad A. This shipper benefits from Railroad A/B competition in at least the following ways:

Industrial Site #1 can transload by truck to Railroad A, or threaten (tacitly or explicitly) to do so and use this threat to gain a reduced contract rate.

Industrial Site #1 can shorthaul Railroad B, or threaten to do so and use this threat to gain a reduced contract rate. This may involve STB action to limit the rate charged by Railroad B in such an instance.

Industrial Site #1 can build out a spur line to connect with Railroad A, or threaten (tacitly or explicitly) to do so and use this threat to gain a reduced contract rate. A variant of this occurs when plant expansions are required to handle increasing volumes.

Industrial Site #1 can relocate plant/facility to Railroad A's line upon receiving a more favorable contract rate, or threaten to do so, and use this threat to gain a reduced contract rate.

Referring to Figure 2, the shipper has "captive" plants located on both railroads (Industrial Site #2B is captive to Railroad B and Industrial Site #2A is captive to Railroad A) but relative production levels across the two plants are determined in part by rail rates to each plant. Thus, Railroad B and

Figure 1

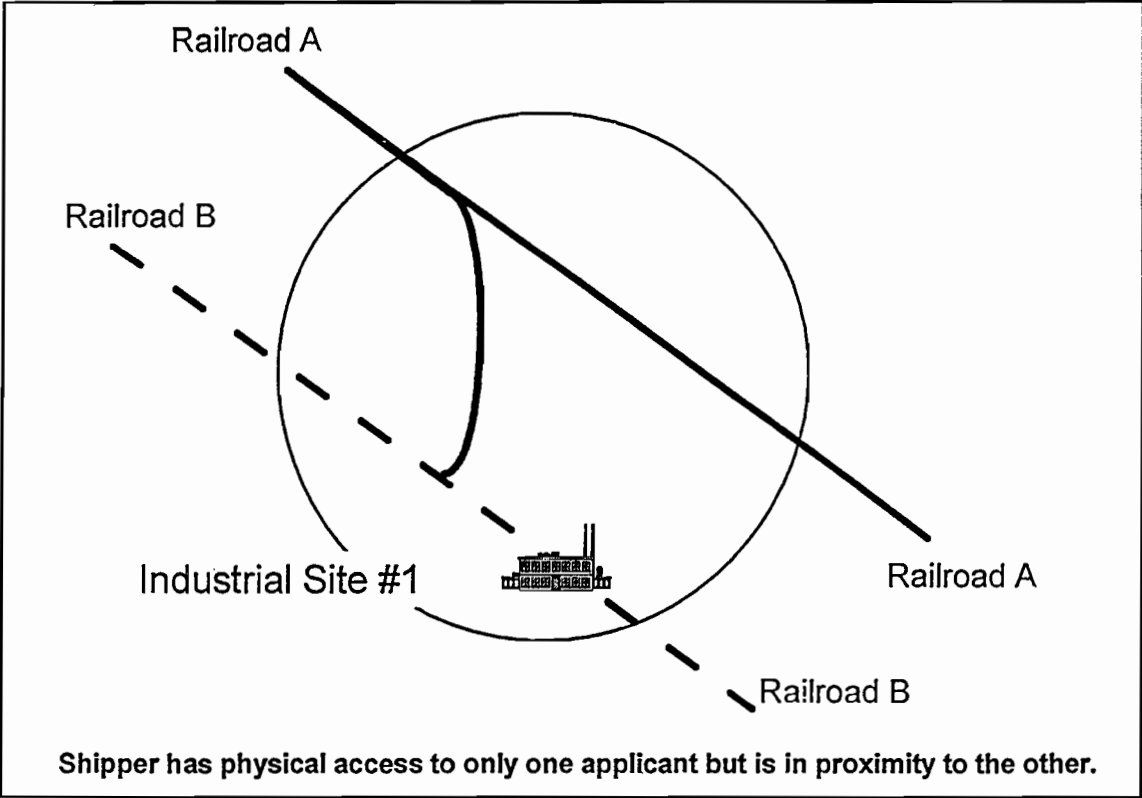
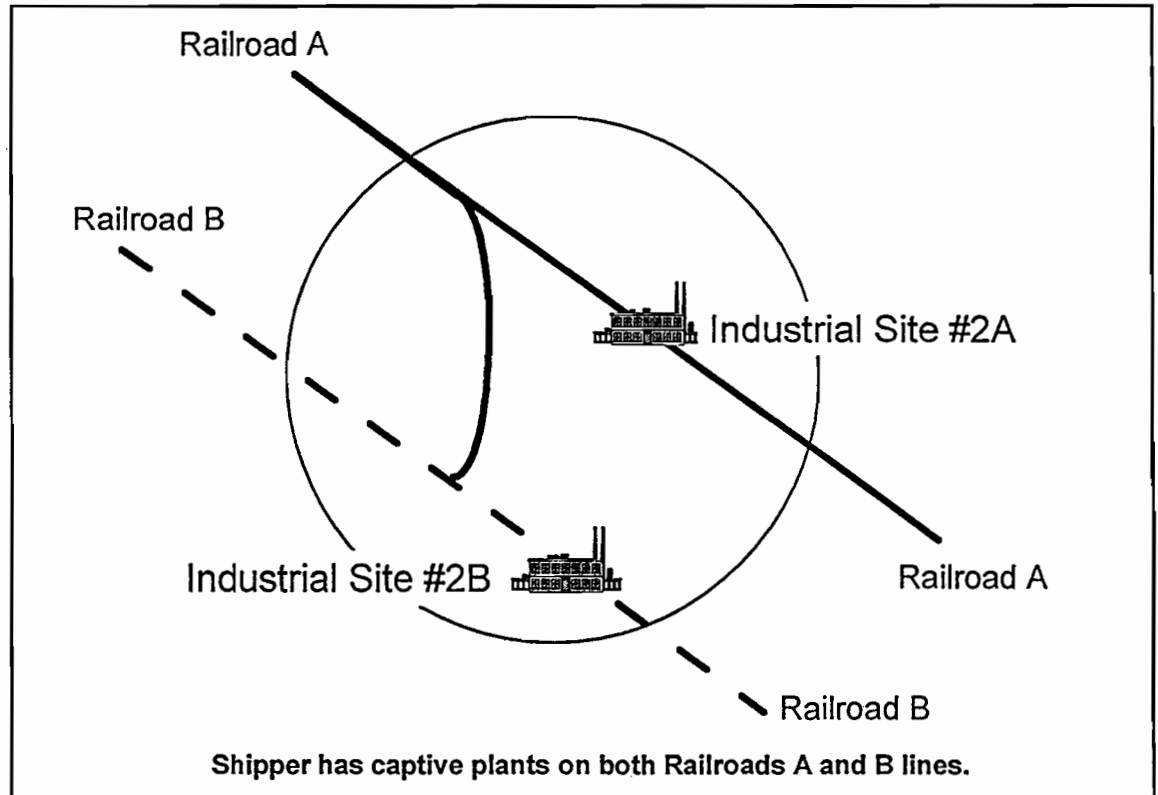


Figure 2



Railroad A will compete with regard to this shipper's traffic.

Industrial Site #3 competes in the product market with Industrial Site #4, as depicted in Figure 3. This product market competition will result in "upstream" competition between Railroad B and Railroad A.

Following a Railroad A/B merger, a shipper faces a choice between Industrial Site #5 and Industrial Site #6, as depicted in Figure 4. Prior to the merger, the shipper would have received the benefits from Railroad B and Railroad A ex ante site location competition; the choice of a site would not be finalized until a long-term contract with one of the railroads was locked in.

The examination of types of shippers impacted by a loss of competition, as discussed above, supports a definition of rail markets as narrowly defined origin-destination pairs using BEA's. A BEA-BEA market definition also follows that of the Justice Department in the SP/SF and UP/SP cases, in particular that of Witness Pitman in his testimony and academic writings related to the SP/SF case,² defining markets as flows between origin and destination BEA's. In the SF/SP case, the ICC supported this definition of markets, but the STB found it too broad in the UP/SP case.

A final issue in defining rail markets is the complexity that many long-haul movements entail coordination by more than one carrier. It is common for connecting carriers to submit a single competitive bid for the entire movement. Therefore, competition is greatly enhanced when the alternative, fully-independent routings are available. If one firm participates on all routings, competition can be greatly hampered. The Commission has clearly stated that independence of routings is critical:

Competition between railroads generally requires the presence of two or more independent routes, that is, routes having no carriers in common. When a single carrier is a necessary participant in all available routes, *i.e.*, a bottleneck carrier, it can usually control the overall rate sufficiently to preclude effective competition.

Consolidated Papers, Inc., et al v. Chicago and North Western Transportation Co., et al, 7 I.C.C. 2d 330, 338 (1991).

Accordingly, we focus our primary attention on instances where the number of independent railroad routings is reduced, especially from 2-to-1. The ICC's and STB's notion of independent routes set forth can be illustrated in the table below.

MEMPHIS TO SAN ANTONIO	
Current Rail Routes	Market Share for That
SP DIRECT	17%
UP DIRECT	31%
BN-UP	4%
CSXT-UP	26%
NS-UP	22%

Prior to the UP/SP merger, there were five rail routings in the Memphis to San Antonio market, but only two independent routes. Either UP or SP becomes a bottleneck carrier for each of the five routes, leaving two independent competing routes pre-merger. After the UP/SP merger only one independent route remains, as UP/SP participates in each of the routes. Thus this BEA pair constitutes a 2-to-1 market with regard to the UP/SP merger.

2-1 Horizontal Effects: The Evidence

Figure 5 provides a comparison of 2-to-1 competitive impacts across three mergers;³ SP/SF, BN/SF, and UP/SP. The comparison shows clearly that the competitive harms of the UP/SP merger dwarf those of the primarily end-to-end BN/SF consolidation, as well as the largely parallel SF/SP proposed consideration, which the ICC denied as anticompetitive. Other methodology is used to estimate 2-1's, as shown in Figure 6, also corroborate the substantial and unprecedented horizontal competitive effects of the VP-SP merger. Figure 6 shows the results of four alternative methodologies that were all included as testimony in the UP/SP merger case.

In comparison, the joint acquisition of Conrail by NS and CSX was pro-competitive in that 1-2 strongly outweighed 2-1 effects. On a BEA-BEA basis, it was estimated that \$706 million of revenue

Figure 3

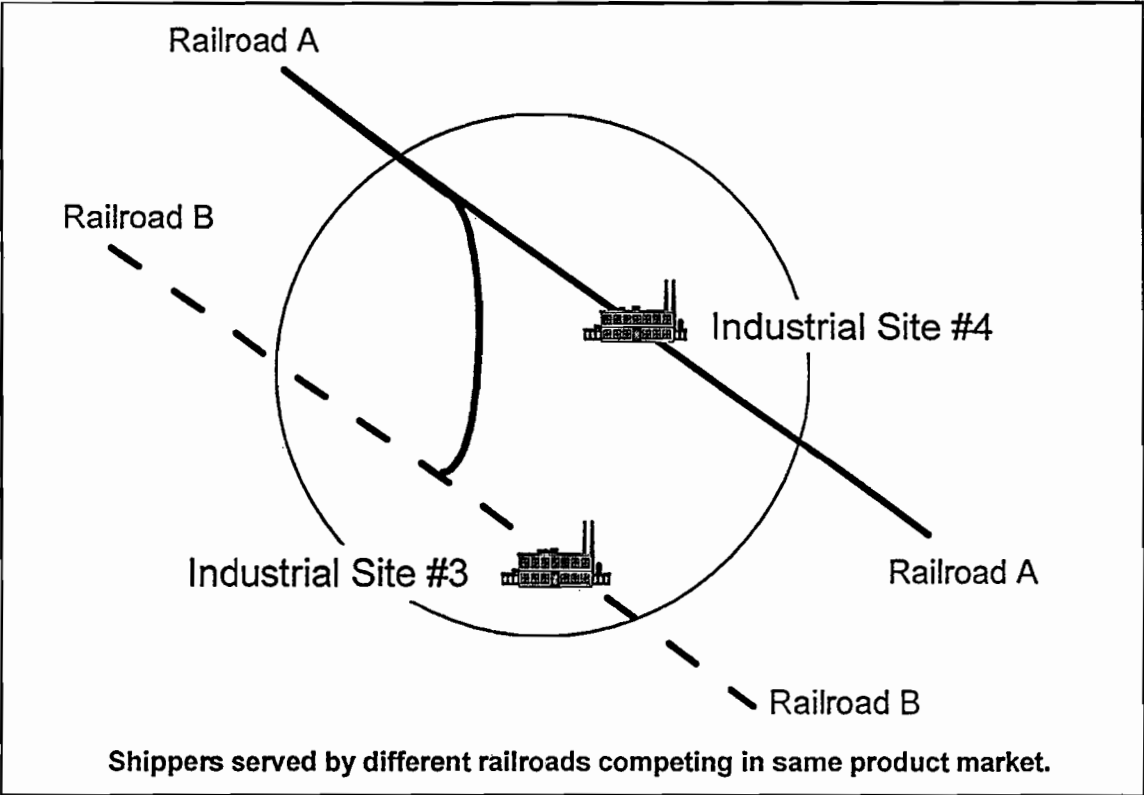


Figure 4

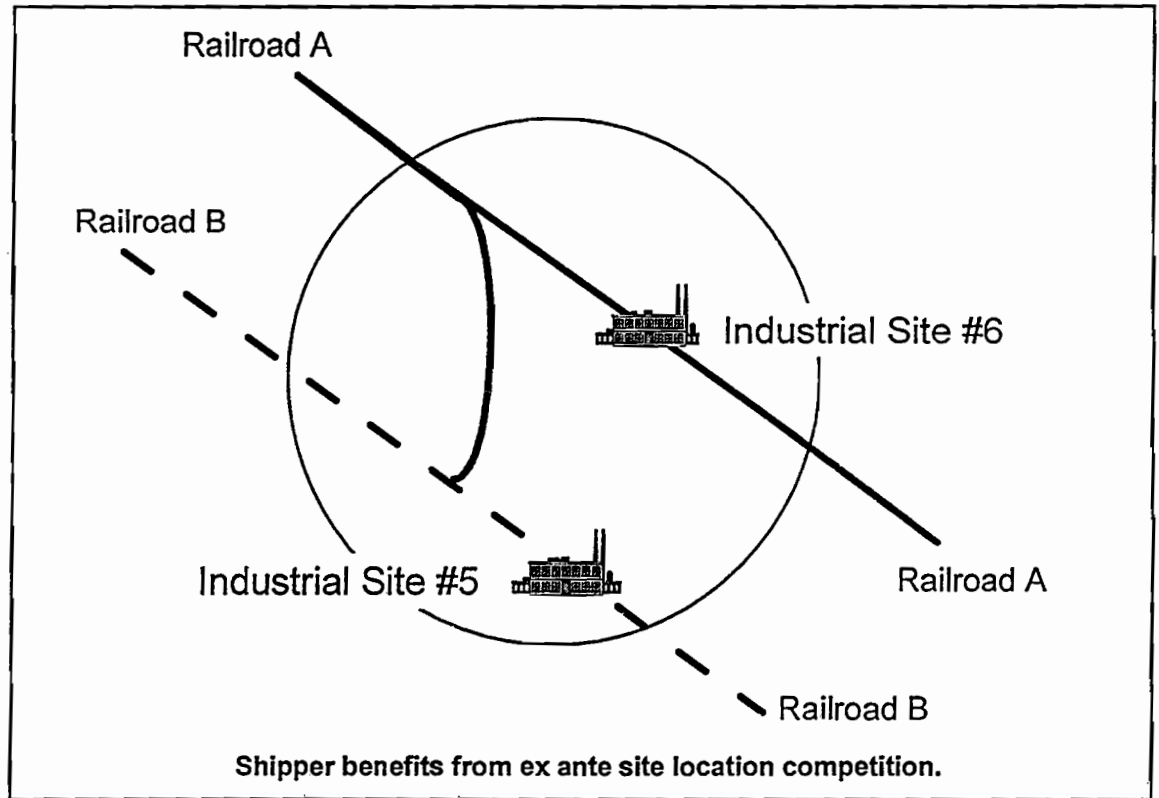


Figure 5

Comparative Mergers - Competitive Impact (2 - to - 1)

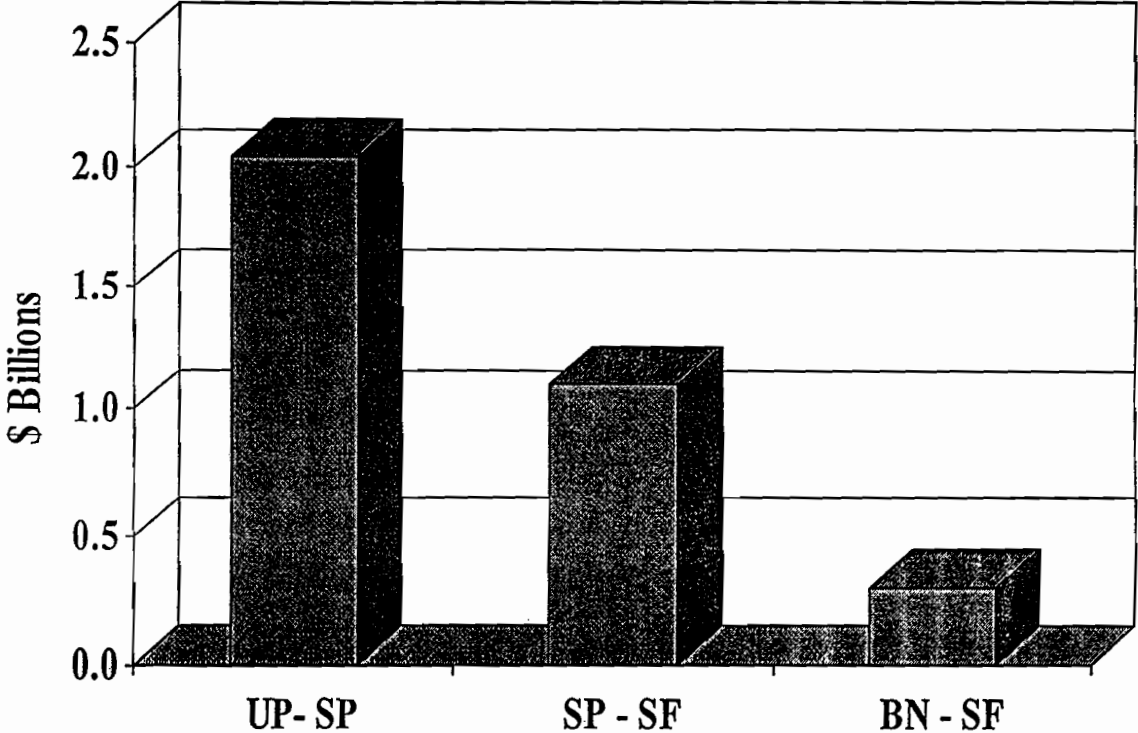
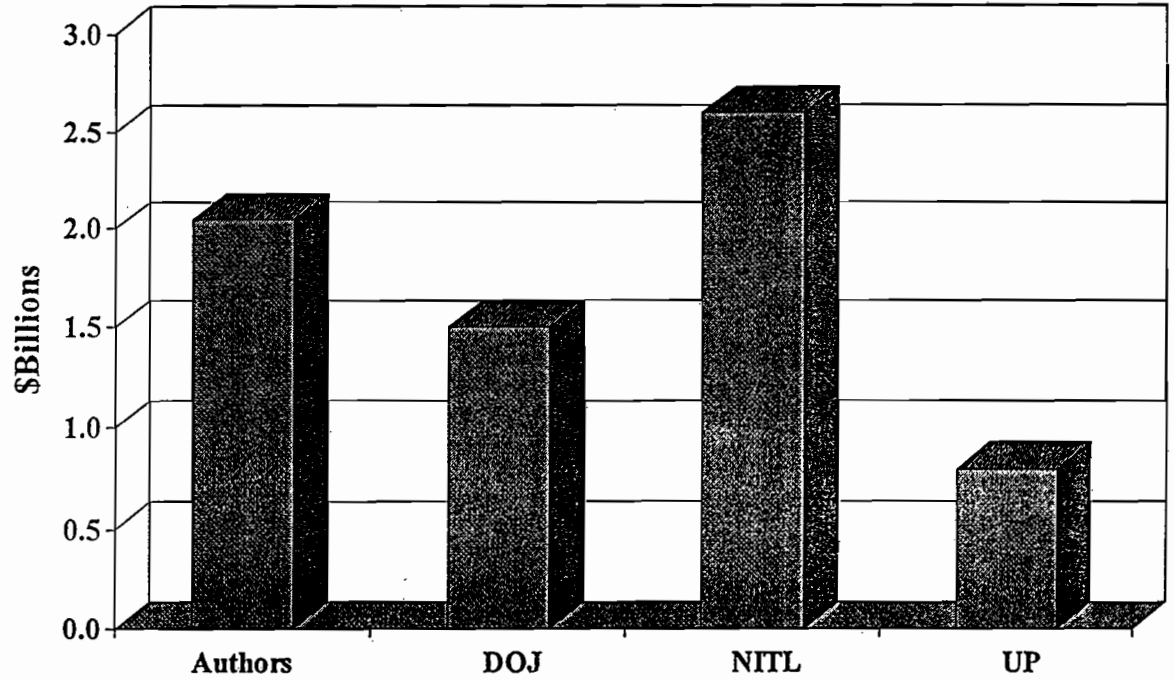


Figure 6
UP-SP Merger - Competitive Impact (2 - to- 1) Estimates by
Parties of Record



from Conrail-only traffic would be served by both Norfolk Southern and CSX after the merger.⁴

IMPLICATIONS

One of the essential premises underlying the deregulation of transportation, communications and other industries is that in the absence of price and entry regulation, these industries would be sufficiently competitive to generate improvements in allocative, technical and dynamic efficiency in each industry. However, competition must be preserved and promoted for this premise to be realized.

Recently shipper support has intensified for legislation to provide the needed competition for rail shippers. The Canadian model provides one such example of what this might entail.⁵ However, to the extent that support for competitive access legislation is premised on counterbalancing or undoing anticompetitive effects of rail mergers, our analysis suggests that attention should be focused on only the Union Pacific-Southern Pacific merger, which had unprecedented parallel effects and resulted in elimination of rail competition in many Western markets.

Under this approach, regulators would first identify the sites requiring added access because of problems flowing out of recent mergers and second, work to find a reasonable remedy for restoring competition. This tailored approach would provide competitive relief to shippers most aggrieved and build on the Staggers deregulatory foundation.

Union Pacific's service meltdown focused attention on Houston as one potential site for application of the tailored approach to restore rail competition. Shippers have testified that reduction in rail competition from the UP/SP merger left them with insufficient rail options. In the UP/SP merger, BNSF was granted access to 2-to-1 shippers in the Houston area, but questions remain as to the viability of a tenant's competition over the landlord's long-distance trackage rights.⁶

REFERENCES

- Harris, Barry C. (1997) Verified Statement, STB Finance Docket No. 33388, CSX/NS June 19, 1997.
- Pittman, R.W. (1990) Railroads and Competition: The Santa Fe/Southern Pacific Merger Proposal, *The Journal of Industrial Economics*.

ENDNOTES

* Robert H. Smith School of Business
University of Maryland

** L.E. Peabody & Associates, Inc.
Alexandria, VA

1. The UP/MKT merger did contain parallel elements, but the parallel elements involved low traffic volume, and resulted in three or four competing railroads after the merger. However, most affected markets had three or four competing railroads after the merger. The Wisconsin Central merger also had parallel elements within Wisconsin.
2. Pittman, R.W. (1990) Railroads and Competition: The Santa Fe/Southern Pacific Merger Proposal, *The Journal of Industrial Economics*.
3. The 2-1 competitive impacts of the BN/SF merger were calculated using precisely the same methodology as for the UP/SP and SFSP, based on the same 1994 data. It could be argued that the 2-1 impact of the BN/SF and UP/SP mergers were partially ameliorated by various settlements and conditions. The results provided in Figure 5 do not attempt to estimate the impacts of such conditions. Of course, the extent to which the UP/SP settlement with BN/SF actually ameliorates the 2-1 competitive harm of the UP/SP merger was a sharply contested issue in that case and continues to be debated.
4. Harris, Barry C. (1997) Verified Statement, STB Finance Docket No. 33388, CSX/NS June 19, 1997.
5. Canada's 1987 National Transportation Act included several provisions to increase rail intramodal competition, in particular for shippers captive to a single railroad. Most importantly, the Canadian interswitching legislation promotes such competitive access in a more vigorous manner than U.S. reciprocal switching legislation. Such access is provided to shippers primarily within an urban area through rates set by government fiat. Dating back to 1908, interswitching was required within distances of four miles. In

ther words, assume a coal mine has physical access to only one railroad (Railroad A), but is located within four miles of a second railroad (Railroad B). The coal mine can arrange to ship its coal with Railroad B, with Railroad A required to move the coal from the mine to the junction with Railroad B at prescribed rates. The 1987 legislation extended this to 30 kilometers and also provided the National Transportation Agency to set compensatory rates for such interswitching, to be adjusted annually. Shippers outside this limit who compete with shippers within the 30 kilometers limit can apply to be deemed within the limit. According to the National Transport Agency of Canada (1992), Canadian National and Canadian Pacific currently interswitch between 130,000 and 140,000 cars annually, with half that volume outside the previous four mile limit. According to the National Transportation Act Review Commission (1992), the percentage of shippers having access to two or more railroads has increased from 54 to 80 percent because of the extension of the interswitching limit.

6. Our testimony on October 16, 1998 in the oversight portion of the UP/SP merger proceeding showed that BNSF had gained only a 9% market share using their trackage rights. UP had a 91% market share.