SURFACE FREIGHT TRANSPORTATION: ACCOUNTING FOR SUBSIDIES IN A "FREE MARKET"

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INTRODUCTION

Over the past twenty years, the national paradigm of transportation regulation has undergone "a great transformation."[1] In the area of surface freight transportation, the original paradigm emphasized extensive oversight of each mode of transportation to preserve shipper choice in the routing pattern of freight and to provide shippers with non-discriminatory rates.[2] The paradigm shifted as the health of the railroad industry declined and policymakers began endorsing a pro-market regime that relied on competition.[3] That policy prevails today. Under the new paradigm, the nation collectively benefits from the competitive rivalry between firms in the same and different transporta-

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1. Joseph D. Kearney & Thomas W. Merrill, *The Great Transformation of Regulated Industries Law*, 98 COLUM. L. REV. 1323, 1324 (1998).

2. In the case of the trucking industry, extensive federal regulation was instituted by the Motor Carrier Act of 1935, Pub. L. No. 255, 49 Stat. 543. The Motor Carrier Act had four primary objectives: 1) controlled competition to ensure a financially healthy industry, 2) minimal duplication of service, 3) nondiscriminatory and reasonable rates, and 4) dependable service. PAUL TESKE ET AL., DEREGULATING FREIGHT TRANSPORTATION: DELIVERING THE GOODS 60 (1995). Similarly, the Interstate Commerce Act of 1887, ch. 104, 24 Stat. 37 (codified as amended at 49 U.S.C. §10921 (1994)), paved the way for extensive federal regulation of the railroad industry. Other significant legislation reinforced this regulation. *See, e.g.*, Transportation Act of 1920, Pub. L. No. 152, 41 Stat. 456; Transportation Act of 1940, Pub. L. No. 785, 54 Stat. 898. Barge transportation was also regulated. *See id.* § 201, 54 Stat. at 929; *see also* THEODORE E. KEELER, RAILROADS, FREIGHT, AND PUBLIC POLICY 26 (1983). However, both the barge and trucking industries were afforded regulatory exemptions not available to the railroad industry. *Id.*

3. KEELER, *supra* note 2, at 26-42; W. KIP VISCUSI ET AL., ECONOMICS OF REGULATION AND ANTITRUST 532-33 (3d ed. 2000).

tion modes.[4] Where regulatory oversight is deemed necessary because markets cannot effectively compete, policymakers use market principles to guide regulation.[5] This regulation becomes a proxy for what market forces would yield *if* they resulted in competition.

The nation will not fully realize the benefits of this paradigm, however, until policymakers recognize that historic or continuing subsidies embedded in the transportation industry may distort shipper choices in a manner that impedes market forces. Transportation subsidies may allow one mode of transportation, or a segment of firms within that mode, to provide services at a level in excess of what market forces would otherwise warrant absent the subsidy. Such firms may then gain a competitive advantage over their non-subsidized rivals.

Furthermore, when regulators conclude that market forces cannot yield the benefits of competition on their own and implement rate regulation to achieve a proxy to competitive market pricing, failure to consider the effects of subsidization in the regulated firm may lead the regulator to incorrectly estimate the competitive price such a firm would be willing to charge in light of the subsidy. Because the regulator will invariably estimate the costs the firm would pay in an efficient market as well as the firm's need to sustain a competitive return on its investment, failing to consider a subsidy will result in overestimating the firm's actual costs and competitive returns. Thus, the assumption that no subsidies exist results in pricing regulations inconsistent with competitive market behavior once the impact of subsidies is considered.

This Article examines two illustrations of the effects of historic and continuing subsidies and demonstrates how they may distort not only competition, but also regulations designed to reach market-oriented results.[6] The first illustration, discussed in Part I, concerns the

4. In this new paradigm, a regulator's role "has been transformed from one of protecting end-users to one of arbitrating disputes among rival providers and, in particular, overseeing access to and pricing of 'bottleneck' facilities that could be exploited by incumbent firms to stifle competition." Kearney & Merrill, *supra* note 1, at 1326.

5. For example, federal law empowers regulators to review the reasonableness of railroad freight rates only when the deregulated market does not yield competition. *See* 49 U.S.C. §§ 10701–10707 (1994). For a more detailed discussion of rate reasonableness review, see *infra* Part I.C.

6. These illustrations are not exhaustive, as other subsidies exist in the transportation field. For example, the federal government subsidizes canals and waterway systems that support barge traffic. In 1990, the government spent $776 million to build, operate, and maintain inland waterways, collecting only $63 million from fuel taxes. CONG. BUDGET OFFICE, PAYING FOR HIGHWAYS, AIRWAYS, AND WATERWAYS: HOW

rate regulation of railroads. Regulators have purported to adopt rate regulations that ensure that railroad pricing is consistent with an efficient market in areas where competition is absent and new firms cannot enter the market. However, the existence of historic subsidies may distort the current regulatory standards governing pricing to favor incumbent railroads. Part II discusses the second illustration of the effects of subsidies: the impact of federal highway subsidies on rail-truck competition. This Part also compares the types of subsidies that railroad and trucking firms have received and studies their overall impact on firm and market structure.

I
RAILROAD RATE REGULATION

Government involvement with the railroad industry began shortly after the advent of the steam-powered locomotive and continues today. The first part of this section surveys the government's role in the railroad industry, including the provision of historical subsidies for many railroads. The second part provides a justification for one very important aspect of government oversight: the regulation of railroad freight rates. After exploring the need for such oversight, the section discusses the current regulatory constraints on railroad rates—in particular, the "stand-alone cost" method of determining whether rates are excessive. The stand-alone cost method acts as a surrogate for competitive pricing where market forces are unable to provide this discipline. The final part of this section argues that the stand-alone cost method of rate regulation inaccurately reflects railroad costs to the detriment of shippers because it ignores historical subsidies.

A. Railroads: A History of Subsidization

While current public policy promotes less regulatory intervention with railroads in the belief that market forces generally should determine industry behavior, federal, state, and local governments played a critical role in early railroad development. Only one decade after the invention of steam engines designed to operate on iron tracks did their use begin to rival that of the era's predominant mode of freight transportation: water-borne transit.[7] Railroads offer significant advantages

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CAN USERS BE CHARGED? 53 (1992) [hereinafter PAYING FOR HIGHWAYS]. Air carriers are also heavily subsidized. While in 1991 taxes on the industry generated $4.9 billion in revenues, the Federal Aviation Administration spent $7.2 billion. *Id.* at 29 & n.1.

7. Steam engines were invented in 1830. TESKE ET AL., *supra* note 2, at 21-22. Teske notes that "by 1840, U.S. railroad mileage equaled that of canals." *Id.* at 22;

over canals. Canals require proximity to natural waterways that many regions of the United States do not have. Thus, geography constrains the scope of a canal system, particularly in the western United States.[8] Furthermore, railroads move goods and people much more quickly than water-borne transit.[9]

Government policy promoted the development of a transportation network in order to encourage people to settle the territories of the western and southern United States.[10] While this policy initially favored canals and roadways, public demand for railroad subsidies grew predominant by 1850.[11] Settlers in the western territories lobbied for railroad development in order to spur economic growth in their regions.[12] Government policy opted against direct intervention, however, preferring to adopt various forms of indirect assistance to railroads. Beginning with rather modest forms of aid, this assistance escalated throughout the Nineteenth Century. For example, the government provided route surveys for the construction of railroad lines and contracts for mail delivery.[13] Railroad development in Wisconsin provides an illustration of how railroad promoters sought capital to

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see also THOMAS E. ROOT, RAILROAD LAND GRANTS FROM CANALS TO TRANSCONTINENTALS 11 (1986) (noting that there were 3,326 miles of canals and 2,818 miles of railroads by 1840).

8. ROOT, *supra* note 7, at 11; *see also* Bruce Seely, *A Republic Bound Together*, 17 WILSON Q. 19, 25 (1993) (noting that "the wild success of the railroads emptied many canals of commercial traffic within a few years of their opening"); JOHN F. STOVER, AMERICAN RAILROADS 10 (1961) (noting that canals "were stymied by mountains and were certain to freeze over in winter").

9. ROOT, *supra* note 7, at 11.

10. ROOT, *supra* note 7, at 4-6. European powers had only recently transferred many of these lands to the United States. The United States government sought to perfect title to these new territories through exploration and settlement. *Id.* at 6. After President Thomas Jefferson commissioned explorations in the western United States, Albert Gallatin, then Secretary of the Treasury, proposed an ambitious plan of improvements that included a road network and canals. *See* ALBERT GALLATIN, ROADS AND CANALS, S. DOC. NO. 10-250, at 724-41 (1st Sess. 1808), *reprinted in* S. DOC. NO. 61-499, at 2 (2d Sess. 1910).

11. This year marked the first significant railroad land grant provided by the federal government: the Illinois Central Land Grant. The Act establishing this Grant provided for "the Right of Way [and] a Grant of Land to the States of Illinois, Mississippi, and Alabama, in Aid of Construction of a Railroad from Chicago to Mobile." Act of Sept. 20, 1850, ch. 61, 9 Stat. 466, 466. Prior to 1850, congressional interest in railroads developed because it was thought that railroads offered a better way to move mail and had a military advantage. ROOT, *supra* note 7, at 12-13.

12. *See, e.g.*, ROBERT S. HUNT, LAW AND LOCOMOTIVES: THE IMPACT OF THE RAILROAD ON WISCONSIN LAW IN THE NINETEENTH CENTURY 3 (1958) (describing development of railroad in Wisconsin).

13. ROOT, *supra* note 7, at 11.

build their lines both from local and state governments and, eventually, from the federal government:

> Wisconsin, like all frontier communities, was short of capital, and capital in unprecedented amounts was what it needed. The promoters resorted to two expedients. The Wisconsin constitution prohibited the state from contracting debts to finance internal improvements, but it did not forbid the legislature to authorize cities and counties to buy railroad stock. This was the first device the promoters used. A second was to sell stock to individuals, mainly farmers, who usually made payment with notes secured by mortgages on their farms. The company converted the notes and mortgages into cash immediately by discounting them in the Eastern money market. Even these expedients, however, failed to produce enough capital, and the promoters began to eye covetously the only real source of capital Wisconsin had—the public lands within its borders.[14]

Initially, government grants of land were fairly limited. In 1835, Congress first granted land to a railroad for the construction of a right-of-way that included thirty feet on either side of the line, rights to timber for construction and repair up to one hundred feet on either side of the line, and ten acres for railroad terminals.[15] For the next seventeen years, Congress entertained requests for individual grants of land for railroad rights-of-way on a case-by-case basis.[16] However, this process of individualized review grew too onerous, and, in 1852, Congress passed a law that provided for a general land grant for all rail companies in existence or chartered within ten years of the passage of the law.[17] This law allowed the railroad firm to claim a one

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14. HUNT, *supra* note 12, at 4-5. Unfortunately, for many of the farmers that became railroad investors, the railroad industry proved volatile. As Hunt explains:

> The railroads perpetrated frauds and corruption such as no one had dreamed of: some of them did not lay a foot of track; others used the proceeds of their bond sales to pay handsome sums to directors and officers; still others sold the notes and mortgages at disgraceful discounts on the Eastern market. They changed routes at will, leaving villages and farmers high and dry; they issued bogus stock; they continued to accept notes and mortgages after they knew that their roads were bankrupt. The panic of 1857 put on the finishing touches. Every railroad in the state defaulted on its bonds. The farmers now found themselves holders of worthless railroad stock and obligors on sizable mortgage notes they could not hope to pay.

Id. at 46.

15. Act of Mar. 3, 1835, ch. 45, §2, 4 Stat. 778.

16. ROOT, *supra* note 7, at 13.

17. Act of Aug. 4, 1852, ch. 80, § 1, 10 Stat. 28.

hundred foot right-of-way; to use earth, stone, and timber from adjacent lands; and to use additional land for depots and water tanks.[18]

When grants began to be awarded to individual railroads, they became considerably more generous than the previous general grants. In 1850, Congress permitted the Illinois Central, Mobile and Chicago, and Mobile and Ohio Railroads ("Illinois Central Land Grant") to select every "alternate-even section" of land within a six-mile strip of the location of the right-of-way as well as the right-of-way itself.[19] The railroad could use or sell each section, a one-mile square of land along the right-of-way, for any purpose. The land could even be sold to other developers to fund additional construction. By permitting the railroads to have alternate-even sections of land, the government created a checkerboard pattern of development in which the railroad and government shared in any appreciation of land values as a result of the railroad's construction.[20]

The Illinois Central Land Grant's checkerboard scheme for additional land near the right-of-way served as a template for more ambitious land grants that established railroads west of the Mississippi River. As one author notes: "[I]n 1856, the doctrine could be advanced that where a railroad was to be built through the public lands it was [as] a matter of course entitled to an extensive portion of those lands to aid in its construction."[21] From 1862 to 1871, Congress enacted a number of statutes, collectively known as the Pacific Railroad Laws, chartering western railroads and providing direct federal land

18. *Id.* at §§ 1–3.

19. Act of Sept. 20, 1850, ch. 61, 9 Stat. 466. A section of land is defined as "[a] piece of land containing 640 acres, or one square mile." BLACK'S LAW DICTIONARY 1356 (7th ed. 1999). "Alternate-even section" simply means that the one square mile parcels the railroad obtained were non-contiguous, allowing the government to share in any escalation of real estate values as a result of the railroad's development activities. *See infra* note 20. For an interesting discussion of the creation of the Illinois Central Railroad and President Abraham Lincoln's role as an advocate of the new railroad, see Sandra K. Lueckenhoff, *A. Lincoln, a Corporate Attorney and the Illinois Central Railroad,* 61 MO. L. REV. 393 (1996).

20. The revenue sharing potential of a checkerboard arrangement was crafted because of the opposition of some members of Congress to subsidies. The checkerboard pattern defused arguments that the grants were truly "donations" to railroads. Instead, they were "investments" that assured greater returns on the remaining government lands. ROOT, *supra* note 7, at 16. This checkerboard pattern is also discussed in *Northern Indiana Public Service Co. v. Carbon County Coal Co*., 799 F.2d 265, 272 (7th Cir. 1986) (noting that checkerboard pattern has disadvantage of requiring coordinated development in subsequent years).

21. JOHN BELL SANBORN, CONGRESSIONAL GRANTS OF LAND IN AID OF RAILWAYS 54 (Arno Press 1981) (1899).

grants. These new laws permitted even greater access to federal lands and provided other forms of subsidy.[22]

As Thomas Root observes, the Pacific Railroad Laws followed a consistent drafting pattern.[23] Each statute included: 1) a provision that created the railroad as a means to encourage settlement;[24] 2) a provision for a right-of-way for the railroad which could be used for national defense;[25] 3) a provision for financing the railroad through bonds and land grants;[26] 4) a provision that allowed the railroad to take construction materials from public lands;[27] and 5) a provision that stated the government's preference for using the new rail system.[28] In all respects, the provisions relating to land grants were very generous.

For example, Congress allotted the Union Pacific Railroad a 400-foot area surrounding the right-of-way.[29] Congress also granted Union Pacific ten alternating sections of land within twenty miles of either side of the right-of-way for each mile of track laid in the same checkerboard fashion that Congress used in the Illinois Central Land Grant.[30] In federal territories, Union Pacific could claim double the number of sections of land. Ultimately, Union Pacific asserted land grant claims on 11.4 million acres of land.[31]

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22. Act of July 1, 1862, ch. 120, 12 Stat. 489, *amended by* Pacific Railroad and Telegraph Act of July 2, 1864, ch. 216, 13 Stat. 356 (creating Union Pacific Railroad); Act of July 2, 1864, ch. 217, 13 Stat. 365 (creating Northern Pacific Railroad); Act of July 27, 1866, ch. 278, 14 Stat. 292 (creating Atlantic and Pacific Railroads); Act of Mar. 3, 1871, ch. 122, 16 Stat. 573 (creating Texas Pacific Railroad).

23. ROOT, *supra* note 7, at 23.

24. *See, e.g.*, Act of July 1, 1862, ch. 120, § 1, 12 Stat. 489, 490. For example, in the creation of the Union Pacific, the statute authorized the new railroad "to lay out, locate, construct, furnish, maintain, and enjoy a continuous railroad and telegraph [from the] one hundredth meridian . . . west . . . between the south margin of the valley of the Republican River and the north margin of the valley of the Platte River . . . to the western boundary of Nevada Territory . . . ." *Id.*

25. *See, e.g.*, *id.* § 3, 12 Stat. at 492.

26. *See, e.g.*, *id.* §§ 5, 11, 12 Stat. at 492, 495.

27. *See, e.g.*, *id.* § 2, 12 Stat. 491.

28. *See, e.g.*, *id.* § 6, 12 Stat. 493. Other provisions dealt with compliance, issues related to completion and maintenance of the railroad system, and an allowance to permit the joining of unconnected railroad segments into a continuous line. *Id.* §§ 4, 6, 7, 17, 20, 12 Stat. 493, 497-98.

29. The provision granted "said railroad to the extent of two hundred feet in width on each side of said railroad where it may pass over the public lands." *Id.* § 2, 12 Stat. at 491.

30. Pacific Railroad and Telegraph Act of July 2, 1864, ch. 216, § 4, 13 Stat. 356, 358. This provision was an amendment to the original land grant to Union Pacific which offered approximately half as much land to the railroad. *See supra* note 22.

31. ROOT, *supra* note 7, at 120. Root estimates that railroads received about 130.4 million acres of land through federal and state land grants. *Id.* at 119-20.

Additionally, while the Union Pacific land grant excluded "mineral lands" from the grant,[32] this statutory language was later amended to permit land grants for parcels that contained coal and iron ore—two essential inputs for railroads that relied on coal burning steam locomotives operating over steel rails.[33] The scope of such land grants is significant, and in a coal-rich state like Colorado in 1885, railroad companies owned and operated most of the principal coal mines.[34]

Railroads enjoyed the benefits of these vast land transfers well into the Twentieth Century. For example, the Southern Pacific Railroad, which Union Pacific acquired in 1996, relied on land sales to generate revenues to upgrade its track network and equipment.[35] From 1988 through 1993, Southern Pacific generated two billion dollars through line sales and real estate sales.[36] Other railroads maintained real estate departments to manage the sale of unneeded parcels often acquired from land grants.[37]

While railroads received significant subsidies, railroads also incurred special duties that tempered the ultimate value of such subsidies. During the growth of the industry from the 1830s to the 1880s, certain common law duties and obligations governed railroads. The courts treated railroads as common carriers[38] and correspondingly identified four basic obligations: 1) the carrier cannot refuse to serve freight or passenger customers; 2) the carrier is required to provide

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32. Act of July 1, 1862, ch. 120, § 3, 12 Stat. 489, 492, *amended by* Pacific Railroad and Telegraph Act of July 2, 1864, ch. 216, 13 Stat. 356.

33. Pacific Railroad and Telegraph Act of July 2, 1864, ch. 216, § 4, 13 Stat. at 358.

34. ROOT, *supra* note 7, at 71.

35. For the regulatory analysis of this merger, see *Union Pacific Corp.—Control & Merger*, 1 S.T.B. 233 (1996).

36. Holt Hackney, *Southern Pacific: Finally, Some Good News?*, FIN. WORLD, Apr. 12, 1994, at 17; *see also* Phyllis Berman & Roula Khalaf, *A Game of Chicken*, FORBES, May 28, 1990, at 38 (noting that Morgan Stanley raised one billion dollars for leveraged buyout of Southern Pacific in 1988).

37. During the late 1980s, many railroad firms shed their real estate to fund capital expansions in rail operations. These historic land grants represented much of this land. *See* Brian Bremner & Chuck Hawkins, *Almost Everybody Wants to Break Up Santa Fe*, BUS. WK., Mar. 6, 1989, at 67 (noting that in 1988 Santa Fe Southern Pacific Corporation's real estate and other sales totaled approximately $3.1 billion); Sallie Gaines, *End of the Line*, CHI. TRIB., Sept. 26, 1990, Commercial Real Estate, at 44 (noting that Burlington Northern, Union Pacific, Chicago and Northwestern, and Norfolk and Southern all sold portions of their real estate holdings).

38. A common carrier is defined as "one who engages in the transportation of persons or things from place to place for hire, and who holds himself out to the public as ready and willing to serve the public, indifferently, in the particular line in which he is engaged." Burnett v. Riter, 276 S.W. 347, 349 (Tex. Civ. App. 1925), *cited in* JAMES A. HENDERSON, JR. ET AL., THE TORTS PROCESS 266 (5th ed. 1999).

service at a reasonable price; 3) the carrier is required to serve all customers equally; and 4) the carrier is liable to the shipper for the safe transportation of the goods or passengers committed to its care.[39] As the industry grew, this body of common law could no longer adequately regulate the perceived abuses of the industry. For example, courts were unable to resolve what constituted a "reasonable" rate.[40]

The pressure for federal regulation of railroad rates intensified as pricing discrimination became more pronounced after the Civil War. Price wars on competitive routes broke out and rates fell to levels generally believed to be unprofitable.[41] On other routes, where a particular railroad enjoyed a monopoly, railroads commanded fairly high premiums, angering shippers.[42] The rate wars inspired railroad firms to form cartels to control pricing, but those cartels were unsuccessful in stopping some firms from breaking the price agreements.[43] Ultimately, courts deemed these cartels illegal.[44] Thus, the railroad industry had an interest in the development of federal pricing regulation.[45] Indeed, after the inception of the Interstate Commerce Commission (ICC) in 1887, "empirical evidence reveals that financial markets expected the profitability of the railroads to improve with regulation."[46]

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39. KEELER, *supra* note 2, at 20; TESKE ET AL., *supra* note 2, at 22.

40. TESKE ET AL., *supra* note 2, at 23. Robert Bork discusses the issue in light of the development of antitrust law. The United States Supreme Court had struggled with the notion of reasonable rates, concluding that the only true reasonable rate was that set by competitive forces. ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 22-26 (1978) (discussing United States v. Joint Traffic Ass'n, 171 U.S. 505 (1898) and United States v. Trans-Mo. Freight Ass'n, 166 U.S. 290 (1897)).

41. KEELER, *supra* note 2, at 21-22; *see also* RON CHERNOW, TITAN: THE LIFE OF JOHN D. ROCKEFELLER, SR. 135-37 (1998) (describing double cartel between oil producers and railroads developed in part to quell "fierce, internecine price wars" between railroads).

42. KEELER, *supra* note 2, at 22.

43. *Id.*; VISCUSI ET AL., *supra* note 3, at 532.

44. *See, e.g.*, *Joint Traffic Ass'n*, 171 U.S. at 505; *Trans-Mo. Freight Ass'n*, 166 U.S. at 290.

45. KEELER, *supra* note 2, at 22; VISCUSI ET AL., *supra* note 3, at 532.

46. VISCUSI ET AL., *supra* note 3, at 534. In support of this proposition, the authors cite a study showing stock movements for railroad firms from 1883 through 1887. *See* Robin A. Prager, *Using Stock Price Data to Measure the Effects of Regulation: The Interstate Commerce Act and the Railroad Industry*, 20 RAND J. ECON. 280, 280-87 (1989); *cf.* Paul H. Rubin, *What Do Economists Think about Antitrust?: A Random Walk Down Pennsylvania Avenue*, *in* THE CAUSES AND CONSEQUENCES OF ANTITRUST: THE PUBLIC-CHOICE PERSPECTIVE 33, 55-56 (Fred S. McChesney & William F. Shughart II eds., 1995) (noting that after *Joint Traffic Ass'n*, 171 U.S. 505, and *Trans-Mo. Freight Ass'n*, 166 U.S. 290, railroads simply replaced overt price-fixing with private rate agreements).

Two rationales have been put forward for increased federal regulation of railroads during this period:

> It would appear that the formation of the ICC was a response to the inability of the railroad industry to maintain stable prices at profitable levels. One explanation for such price instability is that the railroads were attempting to keep rail rates artificially high so as to reap above-normal profits. If that is true, then price wars were not indicative of "destructive competition" but rather of collusive pricing . . . . Under this view, the ICC's role is as a cartel rate-setter, which is clearly not in society's best interests. Another explanation is a natural monopoly argument that can be made for railroad regulation. An examination of the production technology suggests that average cost might have been declining in output. There are several components of cost that do not rise proportionately with traffic volume, including right-of-way, the cost of track, and certain equipment like locomotive power and train stations. If marginal cost lies significantly below average cost and competition leads to marginal cost pricing, then firms will earn below-normal profits when they are unable to coordinate their pricing decisions. In that case, there is an economic rationale for regulation.[47]

Regardless of which explanation for ICC regulation is correct, the railroad industry benefited from federal regulation until the growth of the trucking industry.[48] Indeed, some economists suggest that during this period, the ICC was an agency "captured" by railroad interests. They cite the railroad industry's successful effort to regulate the trucking industry in 1935 when trucking began to pose a serious competitive threat.[49] Only well into the Twentieth Century, long after railroad net-

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47. VISCUSI ET AL., *supra* note 3, at 534. The authors overlook a third possible rationale for such regulation that better reflects the popular sentiment of the time: protection of farmers and other small shippers from the market power of the railroads. *See* STOVER, *supra* note 8, at 126-30.

48. VISCUSI ET AL., *supra* note 3, at 535. As Keeler explains:

> [T]he officially sanctioned maximum rates that the ICC imposed on various routes served as a better stabilizer of profitable rates than any previous pools had done. Rate wars were averted, rail profitability improved, and risk to rail investors was significantly reduced. In short, although various shippers unquestionably benefited from ICC rate regulation, from the firms' viewpoint ICC regulation had about it the quality of a government cartel.

KEELER, *supra* note 2, at 23 (citation omitted).

49. KEELER, *supra* note 2, at 26 ("As truck competition increased . . . , the railroads clamored more and more loudly for placing the trucking industry under the same regulation they were subject to."); Sam Peltzman, *The Economic Theory of Regulation After a Decade of Deregulation*, *in* BROOKINGS PAPERS ON ECONOMIC ACTIVITY: MICROECONOMICS 22 (Martin Neil Bailey & Clifford Winston eds., 1989); TESKE ET AL., *supra* note 2, at 32.

works were constructed, did federal regulation grow burdensome from the perspective of the railroad industry.[50]

Beyond regulation and common law, many of the railroads that enjoyed land grants also incurred special obligations under the land grant statutes. For example, the Illinois Central Land Grant provided the government with preferential rights to use the railroads that received federal lands "free from toll or other charge upon the transportation of any property or troops of the United States."[51] The Pacific Railroad Laws similarly had provisions that required preferential treatment for government traffic. The Union Pacific law allowed the government to use the railroad to "transport mails, troops, and munitions of war, supplies, and public stores."[52] Moreover, the original Interstate Commerce Act of 1887 permitted discounts and discriminatory pricing in favor of government traffic.[53] Rate discounts for government traffic were fairly insignificant until the late 1930s but rapidly increased with the advent of the Second World War.[54] In 1944 alone, it is estimated that the War Department saved approximately two billion dollars on its freight bill.[55]

Therefore, the large government discounts occurred long after railroad firms had constructed their networks and after the industry had become relatively mature. Furthermore, the government provided railroads with relief if they elected to settle any existing land claims that were not yet established: The Transportation Act of 1940 allowed railroads to receive full compensation for transportation services if they filed a release waiving pending land claims or other forms of reimbursement related to land claims.[56] Ultimately, railroads ceded claims to approximately eight million acres of land.[57]

While the obligations for government discounts ended, railroad firms continued to face significant regulations that hampered their ability to compete. From the late 1940s onward, railroads began los-

50. Keeler observes, for example, that railroads did not begin vigorously lobbying for greater regulatory freedom until the mid-1950s. KEELER, *supra* note 2, at 29; *see also* VISCUSI ET AL., *supra* note 3, at 533. Congress first began to loosen the grip of regulation with the Transportation Act of 1958, Pub. L. No. 85-625, 72 Stat. 568.

51. Act of Sept. 20, 1850, ch. 61, § 4, 9 Stat. 466, 467.

52. Act of July 1, 1862, ch. 120, § 6, 12 Stat. 489, 493.

53. Interstate Commerce Act of 1887, ch. 104, 24 Stat. 379, 387. The Act also had exceptions that allowed discounting for "charitable purposes . . . [and] ministers of religion." *Id.*

54. ROOT, *supra* note 7, at 111.

55. *Id.*

56. Transportation Act of 1940, Pub. L. No. 785, § 321(b), 54 Stat. 898, 954.

57. ROOT, *supra* note 7, at 111-12.

ing more and more of their business to the trucking industry.[58] The regulations that the railroad industry initially advocated to keep the trucking industry at bay became detrimental to its cause. The ICC hindered the railroad industry's ability to compete with the trucking industry by closely regulating rates, preventing rates from declining at some times and from increasing to reflect inflationary pressures at others.[59] The ICC monitored abandonments, often thwarting railroad efforts to shutter service on unprofitable rail lines.[60] The ICC pursued a policy of "rate equalization" that effectively set rates equally between an origin and destination regardless of the relative efficiency of the routing.[61] Finally, the ICC provided freight shippers with an "open routing" system whereby regulators required railroad firms to maintain interchanges with other railroads "on practically all possible combinations of railroad tracks between two points" so that a shipper could determine exactly where the freight moved.[62]

The weight of such regulations began to weaken the industry substantially in the 1970s as many railroads became bankrupt.[63] As a result, railroad firms received some additional modest subsidies in order to reduce the impact of regulation.[64] However, Congress emphasized initiatives that encouraged deregulation[65] and, particularly after

58. KEELER, *supra* note 2, at 28; VISCUSI ET AL., *supra* note 3, at 533.

59. KEELER, *supra* note 2, at 28-29; VISCUSI ET AL., *supra* note 3, at 535-36.

60. VISCUSI ET AL., *supra* note 3, at 537. The authors note that Conrail abandoned 2,600 miles of its route network, or 15% of its total track network, immediately after abandonment regulations were loosened. Those abandoned segments represented only 1% of the railroad's revenues. *Id*. at 544; *see also* Joseph D. Kearney, *Will the FCC Go the Way of the ICC?*, 71 U. COLO. L. REV. 1153, 1157-61 (2000) (noting that petitions for abandonment required substantial ICC attention).

61. Baltimore Gas & Elec. Co. v. United States, 817 F.2d 108, 110 (D.C. Cir. 1987).

62. *Id*.

63. KEELER, *supra* note 2, at 32.

64. *See, e.g.*, Railroad Revitalization and Regulatory Reform Act of 1976, Pub. L. No. 94-210, §§ 501–512, 90 Stat. 31, 66-80 (codified at 45 U.S.C. §§ 821–832) (providing financing for rehabilitation projects); Regional Rail Reorganization Act of 1973, Pub. L. No. 93-236, 87 Stat. 985 (providing for federal bailout of several bankrupt eastern railroads); *see also* Frank N. Wilner, *Back Where We Started: Virtually Regulation-Free at Century's Start, Transportation Industry Comes Full Circle*, TRAFFIC WORLD, Dec. 20-27, 1999, at 30, 36 (noting beneficial federal tax change intended to assist railroads improve profitability).

65. The legislation of the 1970s which provided for loans and bailed out bankrupt eastern railroads also sought to eliminate burdensome regulations. For example, the Regional Rail Reorganization Act eased restrictions on abandonments for Conrail, a consolidation of several bankrupt eastern railroads that the government took over. Pub. L. No. 93-236, § 304, 87 Stat. at 1008-09; *see also* Kearney, *supra* note 60, at 1159-60. The Railroad Revitalization and Regulatory Reform Act provided additional

1980, initiatives that encouraged rate-making freedom.[66] With these reforms, the railroad industry's financial health improved significantly.[67] In addition, the industry grew more concentrated through several mergers.[68]

B. The Continuing Need for Regulatory Oversight of Railroad Rates

While the movement toward deregulation encouraged greater reliance on market forces than on direct regulation, a role for the regulation of the railroad industry still exists. Because regulators have embraced the market paradigm, the issue of when to regulate turns on the question of whether there is an inability to achieve effective market competition as a result of anticompetitive behavior. The greater industry concentration and pricing freedom that railroad firms enjoy may raise the risk of anticompetitive behavior that would in some instances undermine market-oriented reforms.

When railroad service is what economists have termed a "contestable market," such anticompetitive concerns are minimal. In contestable markets, even a monopolist—a firm that is the sole provider of a service or good—will be constrained from using market power to raise rates because entry into the market "is absolutely free, and exit absolutely costless."[69] In short, if potential competitors are waiting on the sidelines to enter the marketplace as soon as a monopolist begins charging supracompetitive prices, then the monopolist will behave as

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reforms aimed at streamlining the regulatory process and prohibiting discriminatory tax treatment of rail properties. *See generally* Pub. L. No. 94-210, 90 Stat. at 31.

66. The Staggers Rail Act of 1980 was the major piece of reforming legislation that permitted railroads to have control over freight rates. The Act also established other reforms that freed railroads from regulation, such as the ability to abandon unprofitable track. Pub. L. No. 96-448, 94 Stat. 1895. Earlier legislation had already begun the movement toward deregulation. *See, e.g.*, Pub. L. No. 94-210, 90 Stat. at 31.

67. VISCUSI ET AL., *supra* note 3, at 549. *But see* Stephen R. Klein, *Transportation: Commercial*, STANDARD & POOR'S INDUS. SURVS., Feb. 3, 2000, at 1, 5-6 (noting railroad profits have slipped in past few years due to various factors).

68. The ICC, and its successor agency, the Surface Transportation Board (STB), have always advocated a policy that favored railroad consolidation. This policy can be traced to the Transportation Act of 1920, ch. 91, § 407, 41 Stat. 456, 481. The policy favoring mergers has continued to the present day. *See infra* note 257.

69. Coal Rate Guidelines, Nationwide, 1 I.C.C.2d 520, 528 (1985) (quoting William J. Baumol, *Contestable Markets: An Uprising in the Theory of Industry Structure*, 72 AM. ECON. REV. 1, 3 (1982)). For a brief overview of contestable market theory, see VISCUSI ET AL., *supra* note 3, at 160-61.

if those potential entrants are in the market, charging consumers a competitive price.[70]

Potential competitors need not offer railroad service *per se* to have this effect as long as they can provide an alternative technology that serves a shipper's needs. The use of trucks, barges, or even air carriers as alternatives to rails provides a method for shippers to bypass rail service.[71] Other less obvious methods of bypass may also exist for some shippers who might otherwise appear dependent on the rail service of one firm. For example, electric utilities may switch their power source from coal to gas or elect to have the power generated elsewhere entirely, simply moving the electricity over transmission wires.[72] Also, some shippers dependent on the rail service of one firm may be able to build out a connecting rail line to a monopolist's.[73] The threat of a build-out constrains the monopolist railroad firm's ability to charge supracompetitive prices. These alternatives to railroad service may make the market for railroad service contestable in many instances even though entry or exit is not costless. At a minimum, these potential substitutes create a limit price that moves railroad pricing somewhat closer to a competitive price.

However, the ICC has recognized that the railroad industry does not generally reflect a contestable market for shippers who are dependent on rail service.[74] Indeed, the railroad industry has significant barriers to entry and high costs of exit.[75] As one economist puts it:

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70. WILLIAM J. BAUMOL ET AL., CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE 349 (1982) ("A contestable market is one in which the positions of incumbents are easily contested by entrants.").

71. *See* Wesley W. Wilson, *Legislated Market Dominance in Railroad Markets*, *in* 4 RESEARCH IN TRANSPORTATION ECONOMICS 49, 54 (B. Starr McMullen ed., 1996) (citing modal shifts, product substitution, and geographic substitution).

72. Energy deregulation has increased the ability of utilities to buy coal by wire, obtaining electricity over transmission wires from other generating facilities that have lower energy costs. *See* Mark A. Glick et al., *Mergers in Western Coal Markets: Conforming Antitrust Analysis to the New Reality*, 99 W. VA. L. REV. 433, 449 (1997).

73. *See* Daniel Machalaba, *Opening Lines: Tired of Costs, Delays of Railroads, Firms Lay Their Own Tracks*, WALL ST. J., Feb. 6, 1998, at A1.

74. *See Coal Rate Guidelines*, 1 I.C.C.2d at 520.

75. An entry barrier is understood as "anything that requires an expenditure by a new entrant into an industry, but that imposes no equivalent cost upon an incumbent." William J. Baumol & Robert D. Willig, *Fixed Costs, Sunk Costs, Entry Barriers, and Sustainability of Monopoly*, 96 Q. J. ECON. 365, 408 (1981). "[I]f the incumbent were established before regulation of the industry began, but future entrants must incur heavy legal and delay expenses before they can start business, then these costs do constitute an entry barrier in the sense defined." BAUMOL ET AL., *supra* note 70, at 289.

> Common sense . . . indicates that the railroad industry is not contestable: entry entails a long and tedious process of buying up parcels of land, generally requiring powers of eminent domain (which, in turn, requires some government intervention). Engineering and building a railroad line also require considerable time and expense. So entry into the industry is anything but easy.
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> . . . [E]ven without regulation, exit from the industry would be difficult by the standards of many other industries: heavy sunk costs, often financed with debt, are incurred to serve a specific market, without the opportunity to transfer them to other markets easily. While bridges, ballast, rails, and ties can be moved from one route to another, they can be moved only at great expense.
>
> Overall, then, rail markets seem unlikely candidates for contestability. As firms are driven out of rail markets by rate wars, losing firms are likely, because of sunk costs, to go bankrupt rather than exit easily. And the entry of new firms into a given market should not be expected to be fast or easy.[76]

After measures encouraging market reform were implemented, very limited forms of entry have occurred,[77] and firms have generally exited the market through mergers.[78] Entry during the period of deregulation was reflected in railroad firm network expansions in the Wyoming Powder River Basin to access coal mines and construction of shorter line segments that extend from a specific shipper to another railroad.[79] In addition, the ICC and its successor agency, the Surface

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76. KEELER, *supra* note 2, at 48, *quoted in Coal Rate Guidelines*, 1 I.C.C.2d at 529.

77. The Dakota, Minnesota and Eastern, a regional railroad, has proposed to build a 280 mile rail line and upgrade 600 miles of existing lines to serve coal mines and transport coal from Wyoming to Midwestern energy customers. *See* Anna Wilde Mathews, *I Think I Can . . . Ferrets and Other Obstacles Face Would-Be Rail Baron*, WALL ST. J., May 13, 1999, at B1. The implementation of this project, much less its success, remains uncertain.

78. Some railroad firms, like the Milwaukee Road and the Rock Island, exited through bankruptcy during the 1970s and early 1980s. *See* Chicago, Rock Island & Pac. R.R., 363 I.C.C. 150 (1980) (recommending abandonment and discontinuance). The Milwaukee Road trimmed from a 10,000 mile transcontinental railroad to a 3,200 mile Midwestern railroad that was ultimately acquired. *See* Chicago, Milwaukee, St. Paul & Pac. R.R., 2 I.C.C.2d 161, 169 (1984).

79. With respect to track extensions between shippers and railroads, see *supra* note 73. With respect to more significant construction, Burlington Northern constructed a 103.5 mile line to access Wyoming coal mines that Chicago & North Western acquired jointly for $76.2 million. The new railroad was completed in July 1984. Michael W. Blaszak, *Chicago & North Western: Evolution of a Survivor*, TRAINS, Apr. 1994, at 32, 37-38; *see also* Burlington N., Inc., & Chicago & N.W. Transp. Co.—Constr. & Operation, 348 I.C.C. 388 (1976).

Transportation Board (STB),[80] have occasionally granted competitive access of a railroad firm's line to a rival to facilitate entry. However, these agencies have done so only to preserve competition that would otherwise be lost as a result of a merger.[81] They have not encouraged entry by entirely new firms, instead preferring to grant such access to existing railroads.[82] Thus, oversight of rates becomes necessary for shippers captive to railroad service.

C. The Federal Rate Regulation Scheme

Federal regulators have determined whether railroad rates are subject to regulation based on a two-step analysis.[83] First, regulators inquire whether the railroad has "market dominance."[84] Market dominance is statutorily defined as "an absence of effective competition from other carriers or modes of transportation for the transportation to which a rate applies."[85] Thus, before the federal agency determines the appropriate maximum rate, it must assess whether "there are any alternatives sufficiently competitive (alone or in combination) to bring market discipline to [the railroad's] pricing."[86] Initially, federal regulators considered four factors in determining market dominance: 1) lack of competition from other railroads, 2) lack of competition from other modes of transportation, 3) lack of source competition for the shipper's good, and 4) inability of consumers to find substitute prod-

80. Congress abolished the ICC effective January 1, 1996, and created the STB to replace it. ICC Termination Act, Pub. L. No. 104-88, § 101, 109 Stat. 804 (1995) (codified as amended at 49 U.S.C. § 702 (Supp. III 1994)).

81. *See, e.g.*, Union Pac. Corp.—Control & Merger—S. Pac. Transp. Corp., No. 32760 (S.T.B. May 6, 1996), 1996 STB LEXIS 148, at *2-3.

82. Railroad mergers are exempt from the antitrust laws. Recent merger proceedings exemplify federal regulatory policy toward trackage rights. *See, e.g.*, Union Pac. Corp.—Control and Merger, 1 S.T.B. 233 (1996); Burlington N. Inc.—Control and Merger, 10 I.C.C.2d 661 (1995).

83. Therefore, even if a shipper can demonstrate that a rate is unreasonable, the shipper may still not obtain relief if the railroad is not proven market dominant. *See* Westmoreland Coal Sales Co. v. Denver & Rio Grande W. R.R., 5 I.C.C.2d 1067, 1097-98 (1988).

84. Market dominance is a "qualitative" limitation of the rate review process. Rate Guidelines—Non-Coal Proceedings, 1 S.T.B. 1004, 1009 (1996), 1996 STB LEXIS 360, at *6.

85. 49 U.S.C. § 10709(a) (1994).

86. Metro. Edison Co. v. Conrail, 5 I.C.C.2d 385, 410 (1989). However, a shipper cannot intentionally choose to be captive. As the ICC noted, deregulation "gave shippers the ability to contract with carriers. Therefore, the shipper could protect itself by negotiating with various carriers before making substantial investments that would tie it to a particular carrier." Product & Geographic Competition, 2 I.C.C.2d 1, 11 (1985). Of course, this assumes that a shipper will not lose options in the future through railroad consolidations—a trend the industry has experienced.

ucts for the shipper's good.[87] However, since late 1998, federal regulators have considered only the first two factors.[88]

In the second step of the analysis, federal regulators ask whether the rate is reasonable. The rate is automatically deemed reasonable if railroad revenues generated from the movement of the freight divided by the variable costs associated with moving the freight are less than 1.8, the "revenue-variable cost percentage."[89] Stated simply, variable costs are those incremental costs attributed to moving the particular freight, excluding common costs associated with maintaining a track network.[90] Furthermore, shipments moving under private contract and certain categories of freight, such as intermodal, are exempted from rate reasonableness review entirely.[91] Only non-exempt rates above

87. Market Dominance Determinations, 365 I.C.C. 118, 131 (1981). For recent applications of the four factor test, see Arizona Public Service Co. v. Atchison, Topeka & Santa Fe Railway, No. 41185, 1997 WL 420253 (S.T.B. July 21, 1997) and West Texas Utilities. Co. v. Burlington Northern Railroad, No. 41191, 1 S.T.B. 638 (1996).

88. *See, e.g.*, Market Dominance Determinations, No. 627, 1998 WL 887185 (S.T.B. Dec. 10, 1998); *see also* Minn. Power, Inc. v. Duluth, Missabe & Iron Range Ry., No. 42038, 1999 WL 485895 (S.T.B. July 7, 1999). The permanence of the new approach is still in some doubt. The D.C. Circuit recently remanded the Board's decision to consider only railroad and other modal competition in evaluating market dominance. *See* Ass'n of Am. R.R. v. STB, 237 F.3d 676 (D.C. Cir. 2001).

Regulators decided to narrow the factors relevant to market dominance for practical considerations. They also concluded that railroads were using the geographic competition and product substitution factors "to delay and thwart the prosecution of rail rates cases." CF Indus. v. Koch Pipeline Co., No. 41685, slip op. at 6 (S.T.B. May 3, 2000).

89. 49 U.S.C. § 10707(d)(1)(A)-(B) (Supp. III 1994). The statute defines this benchmark as a "revenue-variable cost percentage." *Id*. Regulators include numerous costs in this ratio, such as costs associated with merger-related congestion. FMC Wyo. Corp. v. Union Pac. R.R., No. 42022, slip op. at 10-12 (S.T.B. May 10, 2000), *available at* http://www.stb.dot.gov/decisions/ReadingRoom.nsf/dd3c7524168c498185256507004c4a19/3c2100064adf78b98525691a0050b82a?OpenDocument&Highlight=0,42022.

90. In discussing rate reasonableness review in a merger proceeding, the STB described variable cost "as the cost that varies with the level of traffic" a railroad provides over its network. CSX Corp.-Control and Operating Leases/Agreements, No. 33388, 1998 WL 456510, at n.95 (S.T.B. July 20, 1998); *see also FMC Wyo. Corp.*, No. 42022, slip op. at 10 n.4.

91. Because rate regulation is premised on a failure of market forces in disciplining freight rates, no federal jurisdiction exists when it appears that market forces are at work. In certain cases, federal regulators and Congress have gone as far as automatically assuming that competition exists. For example, rate relief is not available to shippers who have negotiated rates with railroads by contracts rather than relying on tariffs. *See* 49 U.S.C. § 10709(c) (1994). The ability of shippers to contract with railroads, rather than relying on a published tariff, may suggest that competition in the marketplace exists. Certain commodities have similarly been exempted on the ground that sufficient competition exists to constrain rates. *See* 49 C.F.R. § 1039 (1999) (exempting agricultural commodities and other items).

this congressionally-mandated benchmark are scrutinized by applying "constrained market pricing" theory.[92]

In describing constrained market pricing, the ICC has said, "An important feature . . . is that a captive shipper need not bear the costs of any facilities or services from which it derives [no] benefit."[93] The ICC and STB have recognized four pricing constraints that limit a railroad's freedom to set rates: 1) revenue adequacy,[94] 2) management efficiency,[95] 3) phasing,[96] and 4) stand-alone cost.[97] In addition, the

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92. *See* Coal Rate Guidelines, Nationwide, 1 I.C.C.2d 520, 547 (1985).

93. *Id.* at 528.

94. Railroads may not set rates that would allow them to accrue profits in excess of "revenue adequacy." *Id.* at 534-35. The revenue adequacy rate cap permits a railroad to earn revenues that

> provide a rate of return on net investment equal to the current cost of capital (i.e., the level of return available on alternative investments). Thi[s] is the revenue level necessary for a railroad to compete equally with other firms for available financing in order to maintain, replace, modernize, and, where appropriate, expand its facilities and services. If railroads cannot earn the fair market rate of return, their ability both to retain existing investments and obtain new capital will be impaired, because both the existing and prospective funds could be invested elsewhere at a more attractive rate of return.

Id. at 535.

Once a railroad's overall return exceeds revenue adequacy, a railroad may not price discriminate against certain shippers to earn a rate of return in excess of the federal agency's estimate of the cost of capital. *Id.* at 535-36. When a railroad is not revenue adequate, it is free to price discriminate against captive shippers under this pricing constraint. Once a railroad earns "excess" returns, the returns must be a long-run phenomenon and not a product of "business cycles producing years during which earnings exceed projections and years when they fall short of the target." *Id.* at 536. The policy rationale for supporting such a rate cap is that captive shippers should not face price discrimination when differential pricing is no longer necessary to ensure that a railroad is financially sound. *See* Ariz. Pub. Serv. Co. v. Atchison, Topeka & Santa Fe Ry., No. 41185, 1997 WL 420253 (S.T.B. July 21, 1997), at n.33 ("The revenue adequacy constraint ensures that a captive shipper will 'not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs.'" (quoting *Coal Rate Guidelines*, 1 I.C.C.2d at 535-36)).

95. The management efficiency constraint examines the operating efficiency of the railroad as well as the overall efficiency of the railroad's physical plant. *Coal Rate Guidelines*, 1 I.C.C.2d at 537. In discussing the policy supporting pricing constraints on operating inefficiencies the ICC has said, "[c]aptive shippers should not be responsible for eliminating any portion of the revenue need shortfall associated with demonstrated operating inefficiencies. The railroad company's stockholders properly should bear the cost of such management errors." *Id.* With respect to the efficient use of railroad plant, the ICC has observed: "If the market cannot support a rate level which, over time, yields a return on investment sufficient to replace the assets attributable to that service, then their replacement would not be economically justified. Captive shippers should not be asked to pay rates which assume that these assets will be replaced and thus provide funds which may not in fact ever be needed." *Id.* (citation

STB has established a simplified method of determining pricing constraints that is available under very limited circumstances.[98] A shipper is required to show that rates exceed one constraint in order to prevail and obtain a lower rate. However, as a general matter, shippers have not successfully employed the first three pricing constraints as each of

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omitted). In order to account for management efficiency, a shipper must estimate long-term costs attributable to providing service and estimate unattributable joint and common costs, weeding out purported inefficiencies. *Id.* at 537-39.

Under the management efficiency theory, when a railroad is revenue inadequate, a railroad has three basic options to cope with the shortfall: 1) raise rates of traffic, 2) reduce the assets employed to provide service, or 3) discontinue service when assets become obsolete. *Id.* at 538. When a railroad has a revenue shortfall of attributable costs and elects to raise rates on traffic, federal regulators will balance the equities to determine whether captive shippers are shouldering a greater burden from these inefficiencies. On this point, the ICC has only stated that "captive coal traffic should not . . . be held solely responsible for eliminating such avoidable shortfall." *Id.* at 538. With respect to these unattributable costs which are shared among all shippers, federal regulators similarly balance the equities to ensure that a railroad only "differentially price its services [to captive shippers] to the extent necessary to eliminate this portion of the revenue need shortfall." *Id.* at 539.

96. Phasing is a very limited form of relief designed to limit significant increases in rates where the "otherwise justified rate increases could cause significant economic dislocations which must be mitigated for the greater public good." *Coal Rate Guidelines*, 1 I.C.C.2d at 546. The STB has described the phasing constraint as one that "can be used to limit the introduction of otherwise-permissible rate increases if they would lead to undue inflation and dislocation of important economic resources." *Ariz. Pub. Serv. Co.*, 1997 WL 420253, at n.36.

Like the management efficiency constraint, the regulator balances the equities, considering a number of factors. Discussing this point with respect to captive coal shippers, the ICC states:

> In balancing the equities . . . , we will consider such factors as the short-term revenue requirements of the railroads, the magnitude of the proposed increase, the magnitude of past increases, the impact of the rate increa[s]e on kilowat-hour [*sic*] charges, the dependence of the utility on coal (as opposed to other fuels), the economic conditions in the final destination market (and the impact of the rate change on that market), the economic conditions in the coal supply area (and the impact of the rate increase on that region), and any supply contracts involved.

Coal Rate Guidelines, 1 I.C.C.2d at 547.

97. The stand-alone cost method (SAC) is discussed in more detail *infra* notes 102-122 and accompanying text.

98. *See* Rate Guidelines—Non-Coal Proceedings, 1 S.T.B. 1004 (1996), 1996 STB LEXIS 360, at *94. The simplified procedures use three statistical benchmarks to determine rate reasonableness through an expedited review procedure. The three benchmarks are calculated by the STB for each railroad. According to the STB, these benchmarks are a proxy for "revenue adequacy and managerial efficiency," "demand-based differential pricing," and "fairness." *Id.* at 1020, *30.

The agency considers the appropriateness of this remedy on a case-by-case basis. A shipper petitioning for relief must address four factors: 1) feasibility and cost of establishing a claim under the SAC method; 2) an estimate of costs incurred to pursue the claim; 3) the full relief claimed; and 4) the present value of the relief. *Id.* at 1049, *85-86.

these methods has significant deficiencies.[99] Similarly, shippers have not used the simplified process, which also has significant limitations.[100] The only case that has relied on one component of the simplified process was reversed in a federal appellate court.[101]

The stand-alone cost method (SAC) is the single most important method by which shippers obtain rate relief. While developing a SAC model is a complicated, data-intensive process,[102] aggrieved shippers have used this constraint most often to successfully obtain rate re-

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99. Shippers have not employed the revenue adequacy constraint in rate cases because federal regulators have rarely estimated railroad firm financial performance as revenue adequate. *See, e.g.*, Railroad Revenue Adequacy—1998 Determination, No. 552 (Sub-No. 3), slip op. (S.T.B. Sept. 1, 1999) (finding only one carrier to be revenue adequate in 1998); Railroad Revenue Adequacy—1997 Determination, No. 552 (Sub-No. 2), slip op. (S.T.B. Aug. 24, 1998) (finding only three carriers to be revenue adequate in 1997); Railroad Revenue Adequacy—1996 Determination, No. 552 (Sub-No. 1) (S.T.B. Aug. 14, 1997) (finding only three carriers to be revenue adequate in 1996); Railroad Revenue Adequacy—1995 Determination, 1 S.T.B. 167 (1996) (finding only three carriers to be revenue adequate in 1995); Railroad Revenue Adequacy—1994 Determination, 10 I.C.C.2d 657 (1995) (finding only one carrier to be revenue adequate in 1994). Invariably, only a small minority of railroads ever achieve revenue adequacy. The recent wave of railroad mergers, and the premiums paid for control, seem to belie the notion that the railroad industry is revenue inadequate. *See, e.g.*, Daniel Machalaba, *Conrail's Breakup Plan Is Released by Norfolk Southern, CSX Corp.*, WALL ST. J., Apr. 9, 1997, at B4.

As the earlier discussion of the management efficiency constraint, *supra* note 95, suggests, this measure of pricing is complex and raises significant difficulties for shippers to show that a particular rate violates the constraint, especially when a railroad is deemed revenue inadequate. Federal regulators have the discretion to determine whether a captive shipper is paying more than its "fair share" of the revenue shortfall. With respect to the phasing constraint, it similarly involves a weighing of the equities test that makes bringing a shipper case difficult. *See supra* note 96. And, because the rate effects envisioned to meet the constraint are so extreme, a shipper has never sought relief through this method.

100. For example, the STB has observed that cases decided under the simplified process have no precedential value. *Rate Guidelines—Non-Coal Proceedings*, 1 S.T.B. at 1053-54, 1996 STB LEXIS 360, *94.

101. Burlington N. R.R. v. I.C.C., 985 F.2d 589 (D.C. Cir. 1993), *remanding* McCarty Farms v. Burlington N. Inc., 4 I.C.C.2d 262 (1988).

102. The STB has described SAC cases as very complex, often requiring the agency to subsequently correct errors in the process:

> SAC cases involve the resolution of myriad technical, fact-based issues regarding the construction and operation of a railroad, a multitude of complex computer calculations, and the review of thousands of pages of evidence. While we make every effort to ensure that our final decisions accurately reflect all of the relevant evidence, some inadvertent errors do occur.

McCarty Farms, Inc. v. Burlington N., Inc., No. 37809, slip op. at 2 (S.T.B. May 8, 1998).

lief.[103] SAC examines the costs required to develop a hypothetical railroad tailored to the shipper seeking rate relief.[104]

As the ICC states, "[t]he purpose of a SAC analysis is to determine the *least* cost at which an efficient competitor could provide the service, because by so doing [regulators] are simulating the competitive price for the market."[105] The STB has described SAC as:

> [A] bottom-up approach for testing for the presence of inefficiencies and cross-subsidies. It allows the complaining shipper to hypothesize a completely new and optimally efficient transportation system. If that hypothetical system could provide the needed service to the complaining shipper at a lower rate, while fully covering all costs (including a reasonable return), then the shipper is entitled to have the challenged rate reduced to the level that such a hypothetical fully efficient carrier would charge.[106]

The STB has observed that the SAC constraint is a measure of efficiency and "ensures that the captive shipper does not cross-subsidize other traffic, and protects the shipper from having to pay more than the revenue needed to replicate rail service in the absence of barriers to entry and exit."[107] As Larson and Meitzen observe:

> The concept of SAC . . . serves as a theoretical basis for price ceilings. . . . [T]he level of SAC essentially sets a price ceiling: "[A] common notion is that no customer group should pay more as

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103. *See Rate Guidelines—Non-Coal Proceedings*, 1 S.T.B. at 1008, 1996 STB LEXIS 360, at *5. It is the shipper's burden to design a stand-alone railroad. The shipper also bears "the initial burden of supporting the feasibility of all components of its design and cost estimates." FMC Wyo. Corp. v. Union Pac. R.R., No. 42022, slip op. at 25 (S.T.B. May 10, 2000).

104. The STB has described the management efficiency and revenue adequacy constraints as "top-down" approaches. In contrast, the SAC method is a "bottom-up" or "engineering" approach that calculates "the revenue requirements for providing the rail service needed by the complaining shipper, free from costs associated with inefficiencies and free from cross-subsidies of other traffic." W. Tex. Utils. Co. v. Burlington N. R.R., 1 S.T.B. 638, 655 (1996). The STB has also explained that the hypothetical stand-alone railroad "must either be designed to provide complete service to all the traffic at issue or include the costs of providing any additional substitute service that would be needed to complete the transportation covered by the challenged rate." *FMC Wyo. Corp.*, No. 42022, slip op. at 26-27.

105. Coal Rate Guidelines, Nationwide, 1 I.C.C.2d 520, 542 (1985). *See also FMC Wyo. Corp.*, No. 42022, slip op. at 24 ("A SAC analysis seeks to determine the lowest cost at which a hypothetical, optimally efficient carrier could provide the service at issue free from any costs associated with inefficiencies or cross-subsidization of other traffic.").

106. *Rate Guidelines—Non-Coal Proceedings*, 1 S.T.B. at 1008, 1996 STB LEXIS 360, at *6 n.8.

107. *FMC Wyo. Corp.*, No. 42022, slip op. at 23 n.50; Ariz. Pub. Serv. Co. v. Atchison, Topeka & Santa Fe Ry., No. 41185, 1997 WL 420253 (S.T.B. July 21, 1997), at n.35.

> part of a multi-product firm than it would pay on a stand-alone basis." When a multiproduct firm faces a regulatory constraint that prohibits economic profits, and if the price of a service (or group of services) exceeds the relevant stand-alone cost level, then the service (or group of services) is the source of a subsidy. As a result, customers pay more for this product (as a subset of the offerings of a multiproduct firm) than they would if the service were provided on a stand-alone basis, in isolation, by some other supplier. With this "excess" revenue over SAC, the firm can then afford to price other services below their incremental cost; in other words, the firm can cross-subsidize these other services and still earn a normal return.[108]

The constraint requires a railroad to price at or below the rates that the hypothetical stand-alone railroad would have to charge to recover the costs of building a railroad network that could carry the complaining shipper's freight, including a reasonable return.[109] Recognizing that the stand-alone railroad would be in existence for some time, federal regulators have calculated revenue and cost streams of the hypothetical railroad—discounted for the present value of money—over a fixed period of time, such as twenty years, to assess rate reasonableness.[110] If the revenues over this period exceed the costs of the hypothetical railroad, the shipper is incurring excessive rates and the agency would then prescribe a lower rate.[111] However, the rate relief provided never mandates a rate below the 1.8 benchmark discussed earlier even when SAC yields such a result.[112]

A central tenet of SAC is that the hypothetical railroad should not incur costs that reflect barriers to entry. The STB has described barriers to entry as "'costs that a new entrant must incur that were not

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108. Alexander C. Larson & Mark E. Meitzen, *Recent State Legislation for Telecommunications: Brave New World, or Bad Public Utility Law?*, 14 GEO. MASON L. REV. 99, 123 (1991) (second alteration in original) (citation omitted).

109. *FMC Wyo. Corp.*, No. 42022, slip op. at 24; Burlington N. R.R. v. S.T.B., 114 F.3d 206, 212 (D.C. Cir. 1997).

110. *FMC Wyo. Corp.*, No. 42022, slip op. at 24; *Ariz. Pub. Serv. Co.*, 1997 WL 420253. A discounted cash flow analysis is used that takes into account the effects of inflation on the nominal value of money. *FMC Wyo. Corp.*, No. 42022, slip op. at 24; *see also* Bituminous Coal—Hiawatha, Utah, to Moapa, Nevada, 10 I.C.C.2d 259, 274 (1994).

111. *Ariz. Pub. Serv. Co.*, 1997 WL 420253. The rate reductions are distributed among the hypothetical shippers on the railroad. *See FMC Wyo. Corp.*, No. 42022, slip op. at 25 ("Absent better evidence, we assume that any over-recovery should be distributed among the traffic in the group using an identical percentage reduction to all rates.").

112. *FMC Wyo. Corp.*, No. 42022, slip op. at 189; W. Tex. Utils. Co. v. Burlington N. R.R., 1 S.T.B. 638, 657 (1996).

incurred by the incumbent.'"[113] The exclusion of such costs "would preclude the incumbent from earning monopoly rents in the form of a return on investments it never actually made, but would permit the incumbent a competitive return on the current replacement cost of all investment that it did incur."[114] While this understanding of SAC would suggest that railroad subsidies enjoyed by incumbent railroads should be excluded from a hypothetical stand-alone railroad, only those sunk costs—costs necessary for entry, but unrecoverable upon exit—that are derived from a subsidy are excluded from the SAC analysis.[115]

For example, in the absence of a government subsidy, a hypothetical railroad would purchase parcels of land for a right-of-way. Because the hypothetical railroad is obtaining land along a corridor, it is likely to pay a premium over non-contiguous land since some holdout landowners will seek higher payments.[116] This premium is known as an "assemblage factor."[117] If the incumbent acquired the right-of-way through a land grant and is now fee simple owner of land, the land is currently a fungible asset that could be sold for other uses. Thus, continuing to use the land for railroad operations bears with it an opportunity cost—a cost for using the land for railroad operations instead of using the land for something else.

As a result, the cost of this land has been traditionally included in SAC even though the incumbent railroad may never have incurred these costs.[118] In contrast, the assemblage factor to create a rail corridor is excluded from the SAC analysis because it is a sunk cost that the railroad never had to bear. The incumbent's or hypothetical carrier's exit from the railroad industry would not allow recovery of the assemblage factor of the land because non-railroad buyers will seek only pieces of the corridor.[119] Furthermore, the incumbent did not

113. *Burlington Northern R.R.*, 114 F.3d at 214.
114. *W. Tex. Utils. Co.*, 1 S.T.B. at 670.
115. The ICC defined sunk costs as "costs that cannot be eliminated or recouped, even by the total cessation of operations and liquidation of investment." Ark. Power & Light Co. v. Burlington N. R.R., 3 I.C.C.2d 757, 771 n.32 (1987); *see also Bituminous Coal*, 10 I.C.C.2d at 266 n.16.
116. *See W. Tex. Utils. Co.*, 1 S.T.B. at 670-71.
117. *Id.*
118. FMC Wyo. Corp. v. Union Pac. R.R., No. 42022, slip op. at 113-14 (S.T.B. May 10, 2000); *Ariz. Pub. Serv. Co.*, 1997 WL 420253, at n.53 ("The value of the underlying land is properly included in the SAC computation, because it is not a sunk (i.e., irretrievable) cost."); Westmoreland Coal Sales Co. v. Denver & Rio Grande W. R.R., 5 I.C.C.2d 1067, 1105 (1988).
119. *See W. Tex. Utils. Co.*, 1 S.T.B. at 671. Such expenses can be onerous. The Dakota, Minnesota & Eastern Railroad has experienced great difficulty with simply

incur this sunk cost because it received the parcels through land grants.[120] Similarly, regulators have excluded costs associated with obtaining easements for railroad use[121] as well as environmental costs that the incumbent never incurred in a SAC analysis.[122]

D. Accounting for Embedded Historical Subsidies

While Part I.C. demonstrated that the current approach to railroad rate regulation attempts to estimate hypothetical competitive rates when market forces are unable to constrain actual rates, this regulatory approach does not necessarily comport with the reality of the significant subsidies that railroads enjoyed in the past. Under the SAC constraint, an incumbent railroad can fully enjoy government subsidies when they are not considered a sunk cost, including any returns gained from the asset that a hypothetical new entrant cannot obtain. By claiming this benefit, the incumbent railroad can justify supracompetitive rates under regulation because SAC will allow the incumbent to justify returns on these "free" assets. Thus, failure to fully consider these embedded subsidies adversely affects shipper claims of unreasonable rates and distorts the results of the SAC estimates of costs for the hypothetical railroad.

As Part I.A. demonstrated, railroads received numerous subsidies that supported the construction of their track networks, especially in the western United States. The western railroads received grants of

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trying to assemble 280 miles of new track through sparsely populated South Dakota and Wyoming. *See* Mathews, *supra* note 77, at B1.

120. *FMC Wyo. Corp.*, No. 42022, slip op. at 117 n.160 & 118. Of course, had the railroad incurred the cost of an assemblage factor because no land grant was available to it, then the hypothetical railroad would also incur such costs. *Id.* at 119.

121. *Id*. at 117 n.160; McCarty Farms, Inc. v. Burlington N., Inc., No. 37809, 1997 WL 472908, at n.81 (S.T.B. Aug. 14, 1997). A railroad has no opportunity costs for an easement that is available for only rail operations. For example, a railroad could not sell its easement rights to telecommunications firms interested in laying cable along a right-of-way. Instead, the telecommunications firms must pay landowners who own the land. *See* Frank N. Wilner, *Selling the Brooklyn Bridge: Do Railroads Own the Land They're Leasing to Telecommunications Firms and Others?*, TRAFFIC WORLD, Aug. 30, 1999, at 28.

Railroads received a number of easements for rights-of-way, rather than obtaining ownership of land outright. Such easements were especially common after disenchantment with the Pacific Railroad Laws grew. *See* Great N. Ry. v. United States, 315 U.S. 262, 273 (1942). The Supreme Court noted that between 1871 and 1875, Congress passed at least fifteen laws granting easements to specific routes. *Id.* at 274 & n.9. Congress later enacted a general statute granting right-of-way easements to railroads. *See* Act of Mar. 3, 1875, ch. 152, 18 Stat. 482.

122. *Ariz. Pub. Serv. Co.*, 1997 WL 420253; *see also FMC Wyo. Corp.*, No. 42022, 2000 STB LEXIS 269, *205 (discussing road resurfacing and utility relocation as other costs that are excluded from SAC analysis).

land for their rights-of-way. The grants provided railroad firms with land to obtain resources necessary to construct the railroad and land to sell to gain additional capital. Under the Union Pacific land grant, for each mile of line the railroad constructed, the government provided twenty square miles of land in a state that could be used for any purpose, and forty square miles in a federal territory.[123] These grants were far from trivial, constituting "an astonishing 9.5 percent of all the land in the country."[124] Individual states also provided significant land grants.[125] Both eastern and western railroad firms also received other subsidies, such as free surveying and other financial supports from the federal, state, and local governments.[126] In addition to these subsidies, railroads benefited from pricing regulations implemented by the ICC prior to the advent of the trucking industry.

Without question, a new entrant would not enjoy such benefits today. If anything, a new entrant would face new regulatory burdens, such as environmental regulations, that incumbents never faced during the construction of their networks.[127] While the burden of these new regulatory hurdles is lifted for a hypothetical entrant under the SAC method employed by federal regulators, the vast subsidies enjoyed by incumbent railroads to forge their networks are not considered because the assets from these grants, parcels of land owned in fee simple, are viewed as fungible and require an assessment of the opportunity cost of preserving the land's use for railroad operations.

The rationale supporting the exclusion of these construction subsidies from the hypothetical railroad is that, in the long run, the incumbent and hypothetical railroad will factor the opportunity cost of such lands for purposes other than for railroad operations.[128] If more profitable non-railroad uses exist, allocative efficiency dictates that the

123. *See supra* notes 30-31 and accompanying text.

124. Seely, *supra* note 8, at 25.

125. STOVER, *supra* note 8, at 89.

126. Local governments are often empowered to continue to offer subsidies and supports to railroads. *See, e.g.*, N.C. GEN. STAT. ANN. § 158-7.1(a) (2000).

127. For example, the Dakota, Minnesota & Eastern's efforts to build a 280-mile line extension, discussed *supra* note 119, have been subject to regulatory review and public participation. The STB has reviewed the railroad's financial state, demand for the line, the public need for such a line, and the potential harm to other railroad service. *See generally* Dakota, Minn. & E. R.R.—Constr. into the Powder River Basin, No. 33407, 1998 WL 869567 (S.T.B. Dec. 9, 1998). Regulators are also assessing the environmental impact of the proposed construction project. *See* Dakota, Minn. & E. R.R.—Constr. into the Powder River Basin, No. 33407, 1999 WL 124430 (S.T.B. Mar. 5, 1999).

128. *See* McCarty Farms, Inc. v. Burlington N., Inc., No. 37809, 1997 WL 472908, at n.81 (S.T.B. Aug. 14, 1997); Westmoreland Coal Sales Co. v. Denver & Rio Grande W. R.R., 5 I.C.C.2d 1067, 1105 (1988).

lands should be put to those uses and that the railroad should cease operations or, in the case of the hypothetical entrant, never be built.[129] Under this rationale, the incumbent would be just as well off selling the property that it now owns in fee simple and exiting the railroad business. If the government provided subsidies on the scale that the present incumbents received for an actual railroad entrant, it may induce entry when it is not efficient—or socially desirable—in a free, unsubsidized market.[130]

However, the regulator's rationale would only apply to the subsidization of new entrants into the railroad industry. In the context of setting reasonable rates for incumbent railroads, this approach permits an incumbent firm to earn returns on assets it never paid to acquire. The returns from subsidized assets in an SAC analysis permit the incumbent to set rates above efficient levels, collecting windfall returns on free assets that it presently owns or previously owned. This approach to SAC misconceives the impact of subsidies on an incumbent. While it is true that the incumbent railroad may now sell its right-of-way or any other remaining land grant parcels, it had to *construct* the line in the first place before it could do so. The two items, land and railroad operations, were bundled together.

The *quid pro quo* of obtaining the land was that the railroad had to construct a line. Indeed, the adjacent lands along the right-of-way and rights to collect timber, stone, iron ore, and coal were granted to railroads explicitly to subsidize construction.[131] If the railroad failed to construct the line, it lost all rights to the land. For example, the Illinois Central Land Grant required that the construction of a railroad be completed within ten years or the land reverted back to the federal government.[132] Unsurprisingly, many of those adjacent parcels were often mortgaged quickly to offset construction costs of the new railroad line.[133] The proceeds from the mortgages were then funneled to

129. *See Westmoreland Coal Sales Co.*, 5 I.C.C.2d at 1105.

130. This rationale comports with von Weizsäcker's understanding of an entry barrier. His definition has been characterized as "a production cost borne by entrants but not incumbents, which results in social welfare losses, i.e., socially inefficient outcomes." Alexander C. Larson, *An Economic Guide to Competitive Standards in Telecommunication Regulation*, 1 COMMLAW CONSPECTUS: J. COMM. L & POL'Y 31, 51 (1993).

131. *See supra* notes 27, 32-34 and accompanying text.

132. Act of Sept. 20, 1850, ch. 61, 9 Stat. 466. In addition, Congress passed a law in 1890 that required that a railroad "forfeit certain lands heretofore granted for the purpose of aiding in the construction of railroads" if the railroad was not completed. Act of Sept. 29, 1890, ch. 1040, 26 Stat. 496.

133. SANBORN, *supra* note 21, at 83-84. Sanborn observes that many unaided railroads were constructed with at least as much speed as railroads that received federal

the required capital investments that facilitated railroad operations, including many of the sunk costs necessary to enter the railroad business, like construction of tunnels and bridges. Therefore, while such adjacent lands could be viewed as fungible in themselves, their value was often converted into uses for many of the required sunk investments the incumbent had to incur.

And, precisely because barriers to exit from the railroad industry historically existed—and presently continue to exist—the opportunity costs for alternative uses of the land are not always available to a railroad firm.[134] This reality would suggest that alternative uses of the right-of-way, or any other land grant parcel, may not represent an opportunity cost at all. Even if no restrictions on exit existed, opportunity cost is only forward-looking: The railroad firm that collected the subsidy can only consider the opportunity cost of the subsidized assets once the railroad network is already built.

Under the SAC constraint, a shipper is not seeking entry, but rather, is seeking to ensure that the incumbent is charging a rate that earns a reasonable return on its *actual* investment.[135] Giving the SAC entrant the benefits of the subsidy places it on an equal footing with the incumbent. Some might argue that such an approach would create entry below what the market would otherwise bear. However, this critique misses the rationale for the inclusion of such subsidies.

If an incumbent has acquired certain inputs for free, or for some reduced value, due to the timing of the incumbent's entry into the

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aid. However, he also states that "[t]he great transcontinental roads . . . probably needed the assistance of aid in the shape of land or bonds to secure their construction at the time they were built." *Id.* at 84; *see also* STOVER, *supra* note 8, at 89-91. Stover states:

> The major contribution of the land grants to western railroads was their furnishing a basis of credit so that building could be started. Most railroads obtaining grants mortgaged their land long before they completed final certification with the government, obtained the patents to the land, or sold it on long-term credit to settlers. The typical railroad was still selling its land years after the line itself had been completed.

Id. at 91.

134. Even under this current era of deregulation, the STB still possesses jurisdiction over railroad abandonments. *See* 49 U.S.C. § 10903(a) (1994). In fact, it recently rejected the Burlington Northern Santa Fe Company's petition for abandonment of trackage in the Chicago area. *See* Burlington N. & Santa Fe Ry.—Abandonment of Chicago Area Trackage, No. AB-6 (Sub-No. 382X) (S.T.B. Sept. 17, 1999).

135. As Sidak and Spulber observe in their discussion of telecommunications reforms and regulation: "Regulation allows firms the opportunity to earn a fair return on their *invested capital.*" J. Gregory Sidak & Daniel F. Spulber, *The Tragedy of the Telecommons: Government Pricing of Unbundled Network Elements Under the Telecommunications Act of 1996*, 97 COLUM. L. REV. 1081, 1092 (1997) (emphasis added).

market, those inputs constitute an entry barrier if a new entrant cannot also acquire them on the same terms. The current application of SAC allows the incumbent railroad firm to earn revenues on a subsidy that it received to spur the development of the nation, effectively permitting it to double-dip into the public trough. However, by fully accounting for such subsidies through SAC, the benefits of these government programs would be transferred from the railroads to the shippers who rely on rail service. This outcome is more consistent with the statutory intent of the Pacific Railroad Laws which sought the development and settlement of the western United States, not the enrichment of railroad companies.[136] The land grants afforded shippers a cheap transportation alternative that provided access to a broader regional or national market. This access spurred the development of the West.

If genuine concern exists that inclusion of such subsidies in SAC would undermine the incumbent railroad's ability to earn a fair return on its operations, other safeguards exist. The congressional benchmark that limits rate reasonableness remedies to no lower than a value of 1.8 of the ratio of freight revenues to variable costs provides a constraint on SAC when the value of construction subsidies would suggest a stand-alone rate below this benchmark.[137] According to an ICC survey of 1993 rail traffic and revenue data, only thirty-three percent of traffic exceeds this benchmark.[138] Other jurisdictional restrictions further limit rates that are exposed to regulatory review.[139]

Undeniably, accounting for these subsidies to determine a reasonable rail rate does not reflect an estimate of a competitive rate in its purest sense. Such subsidies probably never reflected efficient resource allocation.[140] Some might argue that the government policy

136. *See supra* note 24 and accompanying text.

137. *See* 49 U.S.C. § 10707(d)(1)(A) (1994).

138. Rate Guidelines—Non-Coal Proceedings, 1 S.T.B. 1004, 1009 (1996), 1996 STB LEXIS 360, at *8 n.11.

139. The ICC has observed that of the 33% of traffic exceeding the 1.8 ratio, 28% of rates are exempted from review because the rates were set by contract. *Id.* at 1009, at *8 n.12. Another 17% of this traffic is exempted because of its commodity classification. *Id.* at 1009, at *9 n.13; *see also* 49 C.F.R. § 1039 (1999). Only the remaining 55%—representing approximately 18% of all rail revenues—are subject to challenge. *See also* TESKE ET AL., *supra* note 2, at 48. Furthermore, other legal requirements reduce the number of cases available for rate reasonableness review, such as the qualitative "market dominance" test discussed in *supra* notes 84-88 and accompanying text.

140. Politics, of course, prevented such allocation. For example, Seely notes that a fierce political struggle took place in the 1850s over the routing and eastern terminus of a transcontinental railroad. Seely, *supra* note 8, at 22; *see also* SANBORN, supra note 21, at 64-66; STOVER, *supra* note 8, at 67. The political maneuvering may not be

fostering subsidies in the land grant era may have been socially undesirable because market forces would have better allocated resources to railroad construction. Railroads also undoubtedly "overbuilt" their networks—no doubt partially as a result of subsidies encouraging railroad construction.[141] Thus, accounting for historical subsidies in a SAC analysis would estimate efficient operations in light of potentially inefficient embedded subsidies.

For shippers petitioning for rate relief, accounting for these subsidies under the SAC model will be difficult and may yield disparate results.[142] First, it is important to realize that in some instances, railroad construction was relatively unsubsidized. For example, the Burlington Northern railroad constructed a line extension to reach coal mines located in the Powder River Basin in Wyoming during the early 1980s when no land grant subsidies existed.[143] Second, even conceding a subsidy for the right-of-way, the value of the real estate on which the right-of-way will run is a relatively minor cost in a SAC model. In one recent case, the cost of the land required for a hypothetical railroad was approximately $65 million of a total cost of approximately $1.9 billion to construct the railroad.[144]

Adjacent land grant parcels would play a more significant factor in the SAC analysis because of their sheer size. Still, practical hurdles would exist in calculating the value of such subsidies. An evaluation of these lands would require historical research of the area where the incumbent ran and what parcels were available. Furthermore, such an analysis would require an assessment of the pecuniary contribution those particular parcels could have for sunk costs that supported construction of the railroad, such as roadbed, tracks, tunnels, or bridges. Similar valuations would be made for other raw materials available on these lands for the railroad's construction.

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dissimilar to the lobbying efforts over road construction projects, discussed *infra* notes 212-22 and accompanying text.

141. *See* VISCUSI ET AL., *supra* note 3, at 544; *see also* Peltzman, *supra* note 49, at 22.

142. Furthermore, because SAC inherently reflects a case-by-case examination of a specific portion of the incumbent's network, the impact of historic subsidies will be disparate. Shippers in the eastern United States, using an SAC analysis for an eastern hypothetical railroad would enjoy fewer benefits from inclusion of historical subsidies because the scope of subsidies in the east is significantly less than in the western United States.

143. *See supra* note 79.

144. *See* W. Tex. Utils. Co. v. Burlington N. R.R., 1 S.T.B. 638, 700 (1996). In another more recent case the cost component of land was $352 million for a SAC railroad that required nearly $8.4 billion to construct. FMC Wyo. Corp. v. Union Pac. R.R., No. 42022, slip op. at 112 (S.T.B. May 10, 2000).

In sum, this analysis and critique of SAC demonstrates the immense complexity of rate regulation. While not the focus of this section of the Article, an alternative form of regulatory intervention may more easily avoid the problems inherent in an SAC analysis. Since rate regulation is premised on the inability of rivals to provide service to captive shippers, creating competitive access for other railroad operators could potentially eliminate the need for such oversight entirely *if* a party that does not operate trains controls the underlying track structure.[145] Under such a competitive access system, any firm can operate trains over a track segment to serve a shipper, paying the same amount for track usage. Captive shippers would benefit from actual competition and incumbents would no longer face the advantage of historical subsidies, since all train operators would pay the same for usage.[146] Thus, rate regulation in the railroad industry—even when rates are calculated properly—may be an undesirable option compared to alternatives that enhance competition.

II
SUBSIDIES AFFECTING RAIL-TRUCK COMPETITION

As part of the shift away from regulation, federal policymakers advocated market-based competition between competing modes of surface transportation, particularly between trucks and railroads.[147] However, these two modes have historically competed well beyond the bounds of the market and into the political realm, seeking subsidies and restrictions on their rivals' abilities to offer innovative service.[148] Thus, below the veneer of the rhetoric supporting market-

145. For a discussion of such a configuration, see Salvatore Massa, *Injecting Competition in the Railroad Industry Through Access*, 27 TRANSP. L.J. 1, 38-39 (2000).

146. *Id.* at 36 ("[O]pen access injects actual competition onto every track segment through easier firm entry and exit.").

147. To some extent, trucks and railroads compete with other modes of transportation, such as air cargo carriers, pipelines and barges. Air cargo may not be economically viable for larger loads more suitable to a truck trailer or railroad car. Barges and pipelines may also have limited networks and may be constrained in types of commodities they can transport. Railroads and trucks often compete more directly than these other modes. Railroads have been characterized as the "most dominant economic force that will affect the trucking industry for the foreseeable future." Charles R. Enis & Edward A. Morash, *Infrastructure Taxes, Investment Policy, and Intermodal Competition for the Transportation Industries*, 45 J. ECON. & BUS. 69, 71 (1993).

148. Historically, railroads and trucking concerns have lobbied the government to hobble their modal rivals. For example, many economists conclude that while some firms in the trucking industry supported regulation in the 1930s, the railroad industry also supported trucking regulation to place it in a similar competitive position. *See supra* note 49. Indeed, the facts of a significant antitrust case on the ability of a

oriented competition in the transportation industry, significant, continuing transportation subsidies exist that may skew the competitive playing field in favor of one mode of transportation over the other.[149] Perhaps the most obvious continuing subsidy is government funding and taxation for road improvements and maintenance that may advantage the trucking industry relative to the railroad industry.[150] While other subsidies or government restrictions may counter-

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competitor to petition government in pursuit of anti-competitive aims dealt with a lobbying effort of the railroad industry against the trucking industry. *See* E. R.R. Presidents Conference v. Noerr Motor Freight, Inc., 365 U.S. 127 (1961).

This competition continues today. For example, trucking interests threatened to support captive rail shippers for competitive access reform if railroad interests continued to support federal restrictions on truck sizes. *See* Frank N. Wilner, *Truck-Rail War Looms: ATA Threatens to Join Forces with Captive Rail Shippers if Railroads Don't Back Off Truck Size Campaign*, TRAFFIC WORLD, Feb. 22, 1999, at 12-13. The railroad industry has consistently opposed increases in truck sizes. For the railroad industry trade group's official statement on truck size restrictions, see Association of American Railroads, *Rail Industry's Position on Bigger Trucks*, *at* http://www.aar.org/comm/position.nsf/5406ac733125e6c7852564d000737b60/9f6859040ec7d794852568800073b110?OpenDocument (last visited Feb. 18, 2001).

The trucking industry has attacked the railroad industry's safety record. *See* Frank N. Wilner, *Trucks Target Rail Safety: ATA Considers Requiring Reflectors, Under-Ride Protections on Freight Cars, Strobes on Locomotives*, TRAFFIC WORLD, Apr. 19, 1999, at 20. The trucking industry has also supported federal efforts to increase railroad car visibility, purportedly to encourage safety. *See* Frank N. Wilner, *Rail Car Visibility: FRA Asks for Public Comment on Ways to Improve Visibility at Grade Crossings*, TRAFFIC WORLD, Jan. 31, 2000, at 19. Trucking interests may also lobby for equal application of federal ergonomics rules to railroads as they are currently applied to trucks. *See* Frank N. Wilner, *The $1 Billion Exemption: Rail Labor Unions Demand End to Railroad Exception to OSHA Ergonomics Rule Discovered by Truckers*, TRAFFIC WORLD, Feb. 21, 2000, at 14-15.

149. There is no doubt that a similar tug of war exists between railroads, railroad shippers and labor with respect to rate relief and other railroad regulations. *See* Massa, *supra* note 145, at 23-24. For example, labor unions from both respective industries and shippers will affect the outcome of competition policy. *See, e.g.*, Frank N. Wilner, *Delivering Votes: AFL-CIO's Transportation Trades Division Forges Strong Bonds with Democrats and Republicans*, TRAFFIC WORLD, June 14, 1999, at 15.

150. Other policies may augment the trucking industry's competitive advantage. For example, the Association of American Railroads, the railroad industry's trade group, has alleged that it suffers from a discriminatory fuel tax relative to the trucking industry. According to the group:

> The most immediate tax inequity facing our industry is the discriminatory deficit reduction fuel tax that continues to be imposed on railroads. AAR urges Congress to promptly repeal this tax that adds to other tax burdens already imposed on the railroads—burdens that extend well beyond those imposed on our chief competitors. The transportation industry was singled out to pay this deficit reduction tax because it is based on fuel consumption. Moreover, within the transportation industry, *today only railroad and barge companies continue to pay such a tax.* The deficit reduction fuel tax rate has varied over time, and currently stands at 4.3

balance highway subsidies, this Article focuses exclusively on the road subsidy for purposes of illustrating how it alone may tip the balance of the competitive scale.[151]

This Part is divided into four subparts. The first subpart surveys the history and growth of government subsidization for road projects in the United States. This subpart also estimates the scope of the subsidy from 1975 to 1996. The second subpart provides a summary of the stated federal goals for the national transportation network, particularly with respect to surface transportation. This subpart reveals that the federal government ostensibly supports market competition between different modes of transportation. The third subpart discusses the present impact of the continuing subsidy in light of this federal policy goal. The final subpart examines the structural impact of both railroad and trucking subsidies on each mode's respective firm structure and the implications for competition.

A. On the Road to Subsidies

Like the dawning of the railroad industry, the development of the trucking industry owed much to government subsidies for road construction and maintenance. Just as the government transferred land to private railroad corporations, it constructed public roadways for the trucking industry.

Through its constitutional powers to create post roads and regulate interstate commerce, Congress has played a role in financing

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> cents per gallon on diesel fuel consumed. Since inception of the tax in 1990, freight railroads have paid nearly $1.6 billion in deficit reduction fuel taxes. The inequities of the current tax structure affects railroads directly, but also unnecessarily burden our customers and hamper their international competitiveness.
>
> The deficit reduction fuel tax places the railroad industry at a significant economic disadvantage compared to its chief competitor, the trucking industry.

Testimony Before the Subcommittee on Oversight of the House Committee on Ways and Means, Hearing on Tax Treatment for Infrastructure, July 25, 2000 (statement of Bernard R. Gutschewski on behalf of Association of American Railroads), *available at* http://waysandmeans.house.gov/oversite/106cong/7-25-00/7-25guts.htm. Under current law, railroad fuel usage is taxed at a rate of 4.3 cents per gallon of fuel. 26 U.S.C. § 4041(a)(1)(C)(ii)(III) (1994).

151. In addition to the railroad subsidies listed *supra* note 64, Congress has considered funding an entirely new railroad line that links Alaska with the lower forty-eight states through Canada. *See* Rails to Resources Act of 2000, S. 2253, 106th Cong. (2000). Another recent infrastructure project that was funded in part by the federal government was the construction of the Alameda Corridor, a twenty-mile rail corridor constructed to move freight from a California port through Los Angeles. *See* Bill Mongelluzzo, *Breaking New Ground: Corridor's Public-Private Funding Mix Will Be a Model for Future Projects*, JOC WEEK, Jan. 22-28, 2001, at 11.

roadways since the beginning of the Nineteenth Century.[152] However, it was not until 1905 that the federal government finally created an agency to oversee state highway construction projects.[153] Generally, federal assistance for road construction and maintenance projects consisted of appropriations to the states which in turn implemented the projects.[154] The government also created indirect subsidies, such as authorization for municipalities to issue tax-exempt bonds for programs supporting urban infrastructure.[155] These bonds permitted municipalities "to raise revenues for infrastructure and capital improvements by exempting the interest earned on the bonds from taxation."[156] In 1916, the federal government began appropriating moneys to "rural post roads" that were free from tolls of all kinds.[157] However, by 1919, the interstate road network was still very underdeveloped; a military convoy celebrating the Allied victory in World War I expended sixty-two days travelling from Washington, D.C. to San Francisco.[158]

The federal role in encouraging road construction projects continued to grow, especially during the 1930s.[159] Until 1944, the focus of construction was in rural areas and the urban fringe of cities.[160] In

152. CONG. BUDGET OFFICE, THE INTERSTATE HIGHWAY SYSTEM: ISSUES AND OPTIONS 7 (1982) [hereinafter INTERSTATE HIGHWAY SYSTEM].

153. Shelby D. Green, *The Search for a National Land Use Policy: For the Cities' Sake*, 26 FORDHAM URB. L.J. 69, 82 (1998) (noting creation of Office, later Bureau, of Public Roads).

154. INTERSTATE HIGHWAY SYSTEM, *supra* note 152, at 7; Seely, *supra* note 8, at 30.

155. *See, e.g.*, Income Tax Law of 1913, ch. 16, §2(B), 38 Stat. 114, 167-68 (codified and amended as I.R.C. § (103)(b)(1)).

156. Green, *supra* note 153, at 83-84.

157. Federal-Aid Road Act, ch. 241, § 1, 39 Stat. 355 (1916). This act provided an escalating amount of funding from 1917 to 1921 for highway construction. The states received the funding after review of the state's proposal from the Department of Agriculture. *Id.* § 6.

158. *See* Sallie Gaines, *The Roads that Changed America: Our Tale of the Interstates Is One of Vision, Politics, and $116 Billion*, CHI. TRIB., Oct. 20, 1991, Transportation, at 1. It is probably no coincidence that Dwight D. Eisenhower, who organized the convoy, would later develop a comprehensive system of interstate roads during his presidency. *See* Janet Ward, *100 Years of Public Works: 1894–1994*, AM. CITY & COUNTY, Sept. 1994, at 74, 89.

159. Green notes that, during the 1930s, the government initiated several new programs that improved road infrastructure. Between 35% and 45% of all workers on federal relief participated in federal highway projects. Through 1938, the Public Works Commission spent in excess of $1 billion for over 11,000 road projects, and the Works Progress Administration expended $3.69 billion on roads during its existence (1935-43). Green, *supra* note 153, at 82-83. Government leaders "viewed [such] big public-works projects as an important tool in combating massive unemployment." Seely, *supra* note 8, at 31-32.

160. Green, *supra* note 153, at 82.

1944, however, the government conceived an ambitious program to create a national network of high quality roads to connect all metropolitan and industrial centers of the country.[161] This program created the impetus for the modern interstate highway system.[162] By 1982, ninety-five percent of the interstate system had been completed.[163]

However, shortly after large government road projects began, user fees—initially in the form of a gasoline tax—developed to partially offset the subsidy for road construction.[164] In 1956, the federal government established a consistent source of funding, the Highway Trust Fund, to fully implement construction projects for the interstate highway system.[165] The trust fund represented the first formal linkage of construction funding and user fees—the most common of which is the federal gasoline tax, but which also include a system of taxes on tires and other necessary adjuncts to driving.[166] Similarly, most states have implemented a system of taxes on gasoline and other complementary products that finance the road system.[167] Some argue that the existence of these user fees demonstrates efficient resource allocation between competing modes of transportation.[168]

While the government has earmarked proceeds from user fees for highway construction and maintenance, user fees have consistently fallen short of highway expenditures. Thus, the government has sub-

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161. Federal-Aid Highway Act of 1944, ch. 626, § 7, 58 Stat. 838, 842. This Act provided:

> There shall be designated within the continental United States a National System of Interstate Highways not exceeding forty thousand miles in total extent so located as to connect by routes, as direct as practicable, the principal metropolitan areas, cities, and industrial centers, to serve the national defense, and to connect at suitable border points with routes of continental importance in the Dominion of Canada and the Republic of Mexico.

Id.

162. Federal-Aid Highway Act of 1956, Pub. L. No. 627, ch. 462, 70 Stat. 374.

163. INTERSTATE HIGHWAY SYSTEM, *supra* note 152, at 2.

164. Colorado, New Mexico, and Oregon began to charge gasoline taxes in 1919. By 1929, every state imposed a gasoline tax. TESKE ET AL., *supra* note 2, at 28. This system of user fees has been described as a "pay-as-you-go" system of taxation. Enis & Morash, *supra* note 147, at 69-70.

165. Federal-Aid Highway Act § 209, 70 Stat. at 397. Congress initially authorized approximately twenty-five billion dollars over twelve years for the interstate system. *Id.* § 108(b), 70 Stat. at 378.

166. INTERSTATE HIGHWAY SYSTEM, *supra* note 152, at 3; KEELER, *supra* note 2, at 116.

167. KEELER, *supra* note 2, at 116. For examples of state fuel taxes, see COLO. REV. STAT. ANN. § 39-27-102 (West 2000); 35 ILL. COMP. STAT. ANN. § 505/2 (West 1996 & Supp. 2000); IOWA CODE ANN. § 452A.3 (West 1999); MINN. STAT. ANN. § 296A.07 (WEST 1999); WIS. STAT. ANN. § 78.01 (West 1999 & Supp. 2000).

168. *See* KEELER, *supra* note 2, at 116.

sidized the nation's system of roads.[169] Table 1 bears out the extent of this subsidy from 1975 to 1996:[170]

TABLE 1
THE HIGHWAY SUBSIDY
(millions of dollars)[171]

Year	Federal User Fees[172]	State User Fees	Total	Highway Expenditures[173]	Net Subsidy
1975	$ 5,580	$12,388	$17,968	$ 27,207	$ 9,239
1976	6,004	13,782	19,786	28,248	8,462
1977	6,501	14,161	20,662	28,095	7,433
1978	6,948	14,914	21,862	30,831	8,969
1979	7,050	15,245	22,295	33,985	11,690
1980	6,419	15,218	21,637	39,188	17,551
1981	6,247	16,043	22,290	38,861	16,571
1982	6,744	17,093	23,837	41,281	17,444
1983	7,777	18,645	26,422	43,977	17,555
1984	10,546	20,660	31,206	47,852	16,646
1985	11,810	22,745	34,555	55,715	21,160
1986	12,251	24,226	36,477	60,907	24,430
1987	11,794	26,223	38,017	64,540	26,523
1988	12,839	28,142	40,981	67,016	26,035
1989	13,513	29,853	43,366	68,726	25,360
1990	13,318	31,119	44,437	72,319	27,882
1991	14,358	33,021	47,379	75,182	27,803
1992	15,652	36,844	52,496	80,736	28,240
1993	15,777	38,300	54,077	86,490	32,413
1994	16,271	38,370	54,641	75,182	20,541
1995	18,828	40,213	59,041	112,478	53,437
1996	22,034	42,214	64,248	113,441	49,193

As the earlier discussion in this Part demonstrates, the subsidization of roads likely extends much further than the era Table 1 covers. An ICC report in 1959, for example, noted that less than half of the

169. *Id*.

170. This data is derived from the Eno Transportation Foundation which collects transportation statistics, including government expenditures and receipts of user fees for highways. *See* ROSALYN A. WILSON, TRANSPORTATION IN AMERICA: HISTORICAL COMPENDIUM 1939-1995 58-63 (1997) [hereinafter WILSON, COMPENDIUM]; ROSALYN A. WILSON, TRANSPORTATION IN AMERICA 72-73 (16th ed. 1998) [hereinafter WILSON, TRANSPORTATION].

171. Figures are not adjusted for inflation.

172. Receipts from highway user fees that are earmarked for mass transit projects have been omitted. Inclusion of this funding would not significantly reduce the level of the subsidy.

173. This column includes both federal and state expenditures.

$140 billion expended on road improvements during the period between 1921 and 1965 came from user taxes.[174]

B. Stated Federal Policy Goals Supporting Market Competition

Federal policy in the transportation sector has ostensibly emphasized economic efficiency and productivity in spite of the continuing subsidization of the road network. Congress has sought to develop a transportation system that "is *economically efficient* and environmentally sound, provides the foundation . . . to compete in the global economy, and will move individuals and property in an energy efficient way."[175] The stated national objective is to develop "innovation, *competition*, energy efficiency, productivity, growth, and accountability" in the national transportation infrastructure.[176] Furthermore, federal policy envisions a "national intermodal transportation system" that will move commodities in an "energy-efficient manner, provide the foundation for improved productivity growth, strengthen the Nation's ability to compete in the global economy, and obtain the optimum yield from the Nation's transportation resources."[177]

In addition to these economic goals, federal policy has supported environmental and other social goals in the transportation sector.[178] To some extent, these differing goals may conflict with the goal of economic efficiency and productivity.[179] However, the new paradigm

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174. STOVER, *supra* note 8, at 217.

175. 49 U.S.C. § 5501(a) (1994) (emphasis added); *see also* Kearney, *supra* note 60, at 1156-69.

176. 49 U.S.C. § 5501(b)(6) (emphasis added).

177. 49 U.S.C. § 302(e) (1994).

178. In addition to economic efficiency, "mobility for elderly individuals, individuals with disabilities, and economically disadvantaged individuals in urban and rural areas" as well as "reduced air pollution, reduced traffic congestion, and other aspects of the quality of life" are to be accounted for in developing national transportation policy. 49 U.S.C. § 5501(b)(3), (5). Other policy considerations, such as national defense and safety, must also be considered. 49 U.S.C. § 302(c) (outlining policy considerations for Secretary of Department of Transportation).

179. For a discussion of the potential conflicting goals in national transportation policy, see Joseph P. Thompson, *ISTEA Reauthorization and the National Transportation Policy*, 25 TRANSP. L.J. 87 (1997). Thompson essentially argues that there is no coherent national transportation policy:

> The Transportation Act of 1940 was the first express transportation policy by Congress. However, almost each session of Congress since has added to or altered transportation policy, yielding a result that one should expect when political decision-making seeks solutions attempting to please every transportation need of a diverse, growing population. Consequently, the [National Transportation Policy] is taught to transportation students as "somewhat vague" and containing "numerous conflicting provisions."

Id. at 90. Similarly, others have suggested that: "The federal government's policy toward transportation is a composite of . . . federal laws, rules, funding programs, and

guiding surface freight transportation policy suggests that market-oriented competition should be the touchstone of this policy. In both the trucking and railroad industries, Congress pursued a policy of deregulation after a period of extensive regulation over pricing, entry and other matters. For example, two of the stated goals of the Railroad Revitalization and Regulatory Reform Act of 1976 were to "foster competition among all carriers by railroad and *other modes of transportation*" and "to promote more adequate and efficient transportation services."[180] The present codified national rail transportation policy seeks to, among other things, "foster sound economic conditions in transportation and to ensure effective competition and coordination between rail carriers and other modes."[181]

Competition between the two modes of transportation has become increasingly significant in policy decisions related to the railroad industry. For example, when considering the competitive effects of a proposed railroad merger, the STB has recognized that railroad firms face "intermodal competition from motor and water carriers" and that sometimes "the preservation of effective intermodal competition" may adequately prevent any anticompetitive effects from a proposed merger.[182] Railroads have apprised regulators of intermodal competition to justify otherwise anticompetitive effects of proposed mergers.[183] The STB has also considered the existence of intermodal

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regulatory agencies; however, there is no unified federal transportation policy statement or goal that guides the federal government's actions." JOHN J. COYLE ET AL., TRANSPORTATION 104, 108 (4th ed. 1994).

180. 45 U.S.C. § 801(b)(2) (1976) (codifying Railroad Revitalization and Regulatory Reform Act of 1976, Pub. L. No. 94-210, tit. I, 90 Stat. 31, 33) (emphasis added).

181. 49 U.S.C. § 10101(5) (Supp. I 1996). The policy goals listed in the statute related to competition include encouraging "honest and efficient management of railroads," stopping "predatory pricing" practices, preventing "undue concentrations of market power," and ensuring for "a sound rail transportation system with effective competition among rail carriers and with other modes." 49 U.S.C. § 10101(4), (9), (12). Other stated policy goals include safety, fair wages for railroad employees, reasonable freight rates, and energy conservation. 49 U.S.C. § 10101(3), (6), (11), (14).

182. 49 C.F.R. § 1180.1(c)(2)(i) (1999); *see also* 49 U.S.C. § 11324 (Supp. I 1996); Cent. Vt. Ry. v. I.C.C., 711 F.2d 331 (D.C. Cir. 1983). Others testifying before Congress have also put emphasis on the competitive marketplace in which railroads provide their services. *See, e.g.*, *Disposition of the Railroad Authority of the Interstate Commerce Commission: Hearings Before the House Subcomm. on Railroads of the Comm. on Transp. and Infrastructure*, 104th Cong. 137 (1995) (testimony of Edwin L. Harper, President and CEO, Association of American Railroads); *id.* at 29 (testimony of Gail McDonald, Chairman, I.C.C.). Economists note that "measures of intermodal competition are important inputs to government decisions on proposed mergers." Patricia Buckley & M. Daniel Westbrook, *Market Definition and Assessing the Competitive Relationship Between Rail and Truck Transportation*, 31 J. REGIONAL SCI. 329 (1991).

183. *See, e.g.*, Santa Fe S. Pac. Corp.—Control, 2 I.C.C.2d 709, 728-30 (1986).

competition to exempt certain types of shipments from rate reasonableness review entirely.[184] Similarly, when rail shippers seek rate relief, the agency has previously considered the existence of intermodal competition from the trucking industry as a potential bar to such relief.[185]

With respect to trucking legislation, the laws emphasize free markets that permit rivalry in the transportation market. The Motor Carrier Act of 1980, which was part of "the continuing effort by Congress to reduce unnecessary regulation by the Federal Government," emphasized a policy intended to "promote competitive and efficient transportation services in order to . . . meet the needs of shippers, receivers, and consumers."[186] A later description of one of the provisions of the Motor Carrier Act emphasized the promotion of "competitive and efficient transportation services" in order to "improve and maintain a sound, safe, and competitive privately owned motor carrier system."[187]

The Motor Carrier Act sought to deregulate the industry, which faced regulatory burdens similar to those encountered by the railroad industry.[188] In signing the Act, President Carter stated that Congress's action would "bring the trucking industry into the free-market system where it belongs."[189] The Act notes that "[f]ederal regulation of the motor carrier industry [was] outdated" and "resulted in some operating inefficiencies and some anticompetitive pricing."[190] Further, it sought to encourage, among other things, "carrier growth, [and] maximum utilization of equipment and energy resources."[191] The law phased out practices that discouraged competition, such as rate bureaus that

184. 49 C.F.R. § 1039 (1999); *see also supra* note 91. The board is authorized to do so under 49 U.S.C. § 10502 (1994). *See* Am. Trucking Ass'ns v. I.C.C., 656 F.2d 1115, 1118-20 (5th Cir. 1981).

185. *See* Market Dominance Determinations, 365 I.C.C. 118, 131 (1981); *see also* Gen. Chem. Corp. v. United States, 817 F.2d 844, 847 (D.C. Cir. 1987).

186. Motor Carrier Act of 1980, Pub. L. No. 96-296, § 4, 94 Stat. 793, 793-94.

187. 49 U.S.C. § 10101(a)(2) (1992). The national policy for trucking also contained several provisions beyond the goal of competition, including the encouragement of minority participation in the motor carrier system, preservation of service to small communities, energy conservation, safety, and fair wages for trucking employees. *Id*.

188. TESKE ET AL., *supra* note 2, at 60-69. The authors note that: "It became increasingly obvious through the 1970s that interstate trucking regulation was forcing carriers to operate in ways that raised costs, wasted fuel, and reduced the quality of trucking services." *Id.* at 68; *see also* Nicole Fradette et al., *The Impact of Deregulation on the Trucking Industry*, 47 ADMIN. L. REV. 527, 531-32 (1995).

189. DOROTHY ROBYN, BRAKING THE SPECIAL INTERESTS: TRUCKING DEREGULATION AND THE POLITICS OF POLICY REFORM 56 (1987).

190. Motor Carrier Act of 1980, § 3, 94 Stat. at 793.

191. *Id.*

allowed horizontal competitors to fix prices and regulatory barriers to entry.[192] Thus, the ostensible goal of promoting competition has been a central theme in federal legislation affecting the trucking industry and other modes of transportation, such as railroads.[193]

C. Possible Impact of the Highway Subsidy on Rail-Truck Competition

The first two subparts of this Part examined the existence of road subsidies and a national transportation policy that advocates market competition between railroads and trucks. Assuming the railroad industry is receiving no countervailing subsidies, one obvious effect of the road subsidy is that trucks may have a competitive advantage over railroads.[194] Such a result is at odds with a federal policy supporting intermodal competition. This subpart explores the possible competitive impacts of the road subsidy.

As subpart A demonstrated, federal and state governments have provided financially-supported highway construction and maintenance in excess of user fees collected from drivers. The additional financial support has accelerated the expansion of the highway network beyond what user fees would have supported. The trucking industry has benefited greatly from a comprehensive road system. Thus, "[w]ith more roads, trucking began to emerge as a viable industry and a potential

192. *Id.* § 14, 94 Stat. at 803; *see also* TESKE ET AL., *supra* note 2, at 70, 72-73 (discussing removal of entry barriers and rate bureaus); Kearney, *supra* note 60, at 1158; *The Impact of Deregulation on the Trucking Industry*, *supra* note 188, at 531-33.

193. During the period of joint railroad and trucking regulation (1935-1980), federal regulation "favored the growth of the trucking industry at the expense of the railroads." TESKE ET AL., *supra* note 2, at 67; *see also* Peltzman, *supra* note 49, at 25-26 (noting great resistance to deregulation from trucking interests); *The Impact of Deregulation on the Trucking Industry*, *supra* note 188, 531-32 (noting expected price reductions and increased efficiency). Ironically, as previously noted, the railroad industry initially supported trucking regulation. *See supra* note 148.

194. Seely suggests that road subsidies as well as several other laws had the effect of nearly destroying the viability of the railroad industry. He opines:

> The near demise of the nation's railroads is the classic case of narrow planning gone awry. After the turn of the century, Washington subjected the railroad companies to increasingly onerous and sometimes ill-advised regulation, preventing them, for example, from abandoning unprofitable rail lines without approval and from operating their own bus lines. It also began pouring money into the road system and aiding civil aviation with barely a thought to the consequences for railroads. Nor was the federal government alone in its shortsightedness. Beginning in the 1920s, most state and local governments made costly efforts to accommodate the automobile even as they piled new restrictions on existing street rail companies.

Seely, *supra* note 8, at 36.

competitor for other modes of freight transport, although a competitor with many small firms rather than a national giant like the railroads."[195] One writer notes that "[t]he growth in the trucking industry mirrors the development of the nation's interstate system. From 1940 to 1965, when the highway system nearly doubled in size, truck tonnage increased from less than 20 percent of the freight moved to almost 40 percent."[196] Indeed, prior to the growth in the interstate system, railroads carried almost 60 percent of the nation's freight.[197]

As Table 2 indicates, an apparent correlation exists between the expansion of the road network and the share of revenues that trucks maintain.

TABLE 2
THE ROAD AND RAIL NETWORKS AND MODAL SHARES OF FREIGHT REVENUE

Year	Rail Market Share[198]	Miles of Rail Network[199]	Truck Market Share[200]	Miles of Road[201]
1960	21.85%	207,334	78.15%	3,545,693
1970	15.96%	196,479	84.04%	3,730,082
1980	15.21%	164,822	84.79%	3,859,837
1990	9.99%	119,758	90.01%	3,866,926
1995	8.98%	108,264	91.02%	3,912,226

Table 2 suggests that railroad freight revenues have declined relative to trucking revenues during this period. At the same time, the rail network has contracted significantly while the network of roads has expanded. Even after the implementation of transportation deregulation in 1980, the significance of railroad market share relative to trucks continued to decline. The trucking industry now dominates the rail industry, obtaining over ninety percent of combined truck-rail revenues. Thus, while rail financial performance has improved in the af-

195. TESKE ET AL., *supra* note 2, at 28.
196. WILSON, COMPENDIUM, *supra* note 170, at 7.
197. *Id.*
198. *Id.* at 10-13. The railroad shares are calculated as a percentage of total rail-truck freight revenues. Surface freight revenues from other modes, such as pipelines and inland water, are excluded.
199. BUREAU OF TRANS., NATIONAL TRANSPORTATION STATISTICS 1998 Table 1-1 (1998), *available at* http://www.bts.gov/btsprod/nts/chp1/tbl1x1.html.
200. WILSON, COMPENDIUM, *supra* note 170, at 10-13. The trucking shares are calculated as a percentage of total rail-truck freight revenues. Surface freight revenues from other modes, such as pipelines and inland water, are excluded.
201. BUREAU OF TRANS., *supra* note 199, at Table 1-1.

termath of deregulation, the new policies have not reversed the erosion of market share.[202]

Furthermore, federal and state road subsidies represent a significant component of trucking industry revenues. Table 3 illustrates the significance of these subsidies from 1975 to 1996.

TABLE 3
SIZE OF HIGHWAY SUBSIDY COMPARED TO TRUCKING REVENUES[203]
(millions of dollars)

Year	Trucking Revenues	Government Road Subsidy	Percentage of Subsidy Relative to Revenues
1975	$ 84,843	$ 9,239	10.89%
1976	$ 98,045	$ 8,462	8.63%
1977	$111,439	$ 7,433	6.67%
1978	$127,173	$ 8,969	7.05%
1979	$142,432	$11,690	8.21%
1980	$155,331	$17,551	11.30%
1981	$165,152	$16,571	10.03%
1982	$162,656	$17,444	10.72%
1983	$182,044	$17,555	9.64%
1984	$199,645	$16,646	8.34%
1985	$205,645	$21,160	10.29%
1986	$213,226	$24,430	11.46%
1987	$224,585	$26,523	11.81%
1988	$239,066	$26,035	10.89%
1989	$253,916	$25,360	9.99%
1990	$270,776	$27,882	10.30%
1991	$274,381	$27,803	10.13%
1992	$292,930	$28,240	9.64%
1993	$311,878	$32,413	10.39%
1994	$330,716	$20,541	6.21%
1995	$348,109	$53,437	15.35%
1996	$368,545	$49,193	13.35%

As Table 3 demonstrates, the significance of government subsidies relative to trucking industry revenues varies year-to-year, fluctuating from as low as 6% to as high as 15% in any given year. Thus, if the trucking industry fully enjoyed this road subsidy, it could, to some

202. On the financial health of the industry, see *supra* note 67. Since deregulation, the share of volume railroads shipped relative to trucks has declined less dramatically from 62.7% in 1980 to 59.9% in 1995. WILSON, COMPENDIUM, *supra* note 170, at 18-19. In the deregulated world, railroads have failed to price their services in the same fashion as the trucking industry. *See infra* note 233.

203. The data for the trucking subsidy is from Table 1. *See supra* note 171. The trucking industry revenue figures include intercity bus movements of freight. *See* WILSON, COMPENDIUM, *supra* note 170, at 10-13; WILSON, TRANSPORTATION, *supra* note 170, at 42.

extent, undercut other unsubsidized modal competitors even when shipping *via* truck would be inefficient.

The extent of this continuing subsidy, however, is complicated by the multipurpose use of the road system as well as direct government control of the road system. Three mitigating factors could affect whether the trucking industry enjoys any competitive advantage from this subsidy. Those factors are: 1) the trucking industry could pay taxes that reflect or exceed the industry's usage, thus leaving other motorists to enjoy the subsidy; 2) the political nature of government road projects could diminish the value of the subsidy because the road network is not constructed in an efficient manner; and 3) the subsidy could induce other motorists to use the road network, creating congestion and thus reducing the benefits that the trucking industry would otherwise enjoy.

First, while the government subsidizes road maintenance and expansion, the burden of user fees could be structured in a manner that makes the trucking industry pay its full share of usage, leaving other motorists to reap the entire subsidy. As one study observes, the user fees levied on various groups of motorists only roughly correlate to their costs on the highway system:

> [A]n automobile driven at rush hour in a major city incurs the same federal fuel tax as one driven on an uncongested rural highway (assuming they use the same amount of fuel per mile). But the automobile driven in heavy traffic imposes congestion costs on other motorists and may—depending on the ambient air quality—add significantly to environmental pollution.[204]

The tax treatment of heavy vehicles provides another illustration of the present user fee system for trucking. Recognizing that heavy vehicles create greater stress on pavement, Congress imposed a heavy vehicle use tax that is based on vehicle weight.[205] However, this tax does not reflect actual usage, which is reflected more accurately by miles driven and actual payload.[206] Other usage taxes, such as the fuel tax, may fall more heavily on trucks. For example, the federal fuel tax

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204. PAYING FOR HIGHWAYS, *supra* note 6, at 11.

205. 26 U.S.C. § 4481 (1994). The current tax will be phased out by October 1, 2005. *Id.* at § 4481(e) (1994 & Supp. IV 1999).

206. The tax burden does not reflect usage at all. The tax is instead levied on an annual basis by the gross weight of any vehicle that exceeds 55,000 pounds. *Id.* at § 4481(a); *see also* PAYING FOR HIGHWAYS, *supra* note 6, at 16. One study has observed that charging fees based on actual use and actual wear and tear on roadways may be infeasible to implement. *See generally* GEN. ACCOUNTING OFFICE, HIGHWAY USER FEES 18 (1994), *available at* http://frwebgate.access.gpo.gov/cgi-bin/useftp.cgi?IPaddress=162.140.64.88&filename=rc94181.txt&directory=/Diskb/wais/data/gao.

for diesel, a fuel used mainly by trucks, is higher than the gasoline tax.[207] Because trucks consume more fuel than automobiles on an incremental basis, the trucking industry pays more fuel taxes than individual motorists.[208]

Although the precise level of the subsidy may vary between passenger vehicles and trucks, studies examining whether trucks pay user fees that cover the costs of pavement wear and tear suggest that heavier trucks receive a subsidy.[209] These heavier trucks may provide the most serious competition against railroads, which tend to be better suited to transport bulk commodities.[210] In contrast, passenger vehicles may pay in excess of the highway costs they impose on the road system.[211] Thus, it appears that at least some segments of the trucking industry may be the prime beneficiaries of the road subsidy.

Second, since the subsidization of roads occurs in a political process that balances the interests of the trucking industry with other groups, the subsidies that the trucking industry enjoys may not always reflect the most desirable network to move freight traffic, diminishing the overall value of the subsidy to the trucking industry.[212] Indeed,

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207. The tax for gasoline is set at 18.3 cents per gallon while diesel, a fuel more commonly consumed by trucks, is taxed at 24.3 cents per gallon. *See* 26 U.S.C. § 4081(a)(2)(A) (1994).

208. PAYING FOR HIGHWAYS, *supra* note 6, at 15 (noting simply that "heavier trucks consume more fuel and therefore incur more fuel tax"). However, it is doubtful that this additional tax covers the added burden such heavier trucks place on the roadway. *See supra* note 206.

209. PAYING FOR HIGHWAYS, *supra* note 6, at 19-21 (noting that many classes of trucks underpay user fees); GEN. ACCOUNTING OFFICE, *supra* note 206, at 26 (noting that combination trucks consistently underpay for their road usage). One study from the early 1980s suggested that the heaviest trucks pay only sixty percent of the wear and tear they cause on pavement. FED. HIGHWAY ADMIN., 1997 FEDERAL HIGHWAY COST ALLOCATION STUDY (citing its FINAL REPORT ON THE FEDERAL HIGHWAY COST ALLOCATION STUDY (1982)), *available at* http://www.ota.fhwa.dot.gov/hcas/final/execsum.htm; *see also* KENNETH A. SMALL ET AL., ROAD WORK: A NEW HIGHWAY PRICING AND INVESTMENT POLICY 42-46 (1989).

The costs associated with pavement wear and tear varies greatly among truck types and the road surface: a nine-axle tractor-semitrailer with a 105,000 pound gross weight driving over the federal interstate system causes wear and tear costs of five cents per mile. PAYING FOR HIGHWAYS, *supra* note 6, at 20-21. On the other extreme, a four-axle truck with a 100,000 pound gross weight driving over a road built for light traffic causes wear and tear costs of $4.08 per mile. *Id.* at 21.

210. VISCUSI ET AL., *supra* note 3, at 542; Buckley & Westbrook, *supra* note 182, at 339.

211. GEN. ACCOUNTING OFFICE, *supra* note 206, at 26.

212. Apparently, even Congress has suggested that funding allocations for the interstate highway system were not always particularly cost effective. *See* 49 U.S.C. § 5501(b)(6) (1994) ("Practices that resulted in the lengthy and overly costly construction of the Dwight D. Eisenhower System of Interstate and Defense Highways must be confronted and stopped.").

the interstate system of roads was also designed to serve the national defense.[213] Because federal funding for the interstate system historically covered ninety percent of the construction costs the states would incur for the project,[214] states had a "substantial incentive . . . to expand their participation [beyond] their actual transportation needs."[215] The construction activities themselves generated jobs that in turn engendered greater retail and other economic activity, stimulating regional economies.[216] Thus, states, local governments, local businesses, and construction contractors all vied for the location of the interstate system routings.

One example of the political battle over highway funds is the case of I-69, a route linking Mexico and Canada through the midwestern United States.[217] The routing obtained through the political process is lengthier than planners originally envisioned and was shifted to go through Arkansas and Mississippi.[218] Local political influence in routing selection of federally funded road projects is also very significant,[219] and, unsurprisingly, the interstate system runs through most congressional districts, through every state, and near most cities.[220] In

213. It is unsurprising, for example, to observe that the interstate system was first conceived during World War II. See *supra* note 161. The law ultimately passed to fund the interstate system emphasized national defense. Congress renamed the interstate system the "National System of Interstate and Defense Highways" "[b]ecause of its primary importance to the national defense." Federal-Aid Highway Act of 1956, Pub. L. No. 627, § 108(a), 70 Stat. 374, 378. Furthermore, interstate roadways originally were designed to accommodate a plane's landing. *See* Gaines, *supra* note 158.

214. Federal-Aid Highway Act of 1956, § 108(e), 70 Stat. at 379.

215. INTERSTATE HIGHWAY SYSTEM, *supra* note 152, at 11.

216. *Id.*; Green, *supra* note 153, at 84.

217. David Rogers, *Driving Forces: Route of the New I-69 Follows a Trail Marked by Politics and Money*, WALL ST. J., May 22, 1998, at A1.

218. *Id.* The debate over I-69 included, among other things, an emotional speech in which Trent Lott, present majority leader of the Senate, "invoked his father's death in an accident on a Mississippi road . . . [and] stubbornly resisted efforts by Arkansas to claim more of a new interstate highway, I-69, slated to run through Mississippi Delta lands shared by the two states." David Rogers, *Farm, Highway Bills Erode GOP Unity: Clinton Backs Road Measure Despite 'Pork' Ingredients*, WALL ST. J., May 26, 1998, at A2.

219. *See, e.g.*, Peter L. Strauss, *Revisiting Overton Park: Political and Judicial Controls Over Administrative Actions Affecting the Community*, 39 UCLA L. REV. 1251, 1269 (1992). Such local involvement is unsurprising given the impact that a major road project may have in an urban community, possibly altering the character of the region. *See* Green, *supra* note 153, at 114-15. These new regulations, such as requiring the consideration of the environmental impact of a project, slow construction in many cases. *See, e.g.*, 23 U.S.C. §§ 101–140 (1994); 23 C.F.R. § 450 (2000).

220. *See* Gaines, *supra* note 158, at 44. Seely has suggested that the interstate system was "built not only to provide transportation and irrigation but to create jobs in bad economic times, to return political favors, and to serve a variety of other purposes." Seely, *supra* note 8, at 36.

another example of the politics of interstates, a major construction project has remained blocked because certain local communities enjoy business from traffic bottlenecks that induce travelers, including truckers, to stop in those communities.[221] Such examples only reinforce the economic literature on the impact of the political process on efficient resource allocation.[222]

Furthermore, many road projects have catered to the needs of suburban commuters who travel from residential areas.[223] These road projects are unlikely to benefit trucking interests because freight shipments would not originate or terminate in residential areas. Thus, the trucking industry would derive little, if any, direct benefit from the creation of such roads.[224] Indeed, because of the potential spillover effects of road congestion from such projects, the trucking industry may incur additional costs.

These examples suggest that at least some of the road subsidies result in less efficient routings for freight movements and that allocation of the subsidies may bypass projects desirable to the trucking industry. Longer routings and unimproved roadways may increase costs to truckers through higher fuel and labor costs, diminishing their ability to effectively use the subsidy to undercut railroad competitors. However, quantifying the diminishment of the subsidy to the trucking industry from these inefficient routings and funding allocations is a task that has not been undertaken. It is not clear whether these inefficiencies would completely eliminate the positive effects of the subsidy that the trucking industry may obtain.

Third, the subsidy may spur increased passenger car usage and offset the benefits of a more comprehensive road system to the trucking industry. Because roads are generally multipurpose, an improved road system may create greater demand for passenger vehicles.[225]

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221. Bruce Ingersoll, *Smelling the Roses Is Almost Required Along This Highway*, WALL ST. J., July 26, 1999, at A1 (discussing interchange between I-70 and Pennsylvania turnpike at Breezewood, Pennsylvania, where there are several traffic lights and congestion problems that have not been alleviated because of pressure from local business groups who benefit from this bottleneck).

222. NEIL K. KOMESAR, IMPERFECT ALTERNATIVES: CHOOSING INSTITUTIONS IN LAW, ECONOMICS, AND PUBLIC POLICY 53-97 (1994) (examining interest group theory of politics); Peltzman, *supra* note 49, at 4-13 (applying historical perspective to economic theory).

223. *See* INTERSTATE HIGHWAY SYSTEM, *supra* note 152, at 18-19.

224. Trucking firms may derive indirect benefits from the creation of such roads, however, if they have the effect of diverting traffic from other roads that are more desirable for freight traffic. *See infra* note 230.

225. *See* Robert J. Samuelson, *The Endless Road 'Crisis': Americans Can't Seem to Decide Whether We Have Too Many Highways—Or Too Few*, WASH. POST, June 26, 1996, at A21 (noting that share of households without automobiles has decreased

Even in the development of the federal interstate system, several government-subsidized road projects have catered to local arterial roads which benefited commuters and encouraged suburban growth.[226] These new local road systems have allowed individuals to live in more remote communities while commuting to nearby metropolitan areas.[227]

The traffic from new suburban development has created congestion in many urban areas, especially during peak use periods like rush hour.[228] Some urban planners have argued that expanding existing road systems only exacerbates congestion problems, because construction creates an "if you build it, they will come" phenomenon.[229] Similarly, the expanded road network has encouraged greater regional and national travel by car through the cross-country "road trip" and created greater congestion in more remote regions, especially during peak travel times such as summer.[230]

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from 21% to 9% while percentage of households with two or more cars rose from 31% to 58%).

226. *See* INTERSTATE HIGHWAY SYSTEM, *supra* note 152, at 18-19.

227. Green, *supra* note 153, at 84; Ward, *supra* note 158, at 88; *cf.* JANE HOLTZ KAY, ASPHALT NATION: HOW THE AUTOMOBILE TOOK OVER AMERICA, AND HOW WE CAN TAKE IT BACK 18-19 (1997) (noting that time spent conducting errands and vacationing consume more driving time than commuting to work).

228. News articles on the costs and effects of rush hour traffic and other congestion abound in the press. *See, e.g.*, Robert O'Harrow Jr., *High Cost of Idling: Study Says Area Drivers to Lose 100 Hours, $2,115 a Year*, WASH. POST, Apr. 24, 1997, at D1 (discussing study on congestion in Washington, D.C. metropolitan area); *Jams To Cost New York £4bn*, TIMES OF LONDON, June 24, 1998, at 14; *No Room, No Room*, ECONOMIST, Dec. 6, 1997, at 21 (discussing estimates of increased congestion on U.S. roadways that will cost economy estimated additional forty-one billion dollars in 2010).

Another culprit may contribute to such increased demand for road usage. Traditional zoning techniques that separate commercial enterprises and residential housing create greater demand for road usage and expansion. Thus, zoning "may actually cause greater traffic congestion—resulting in energy inefficiency and pollution production—by allowing large retail developments that make public transportation impractical, and by increasing the distance between residences and commercial structures." David Ackerly, Note, *Exactions for Transportation Corridors After Dolan v. City of Tigard*, 29 LOY. L.A. L. REV. 247, 248 (1995).

229. KAY, *supra* note 227, at 15. Urban planners have observed that as congestion has decreased through road capacity improvement projects, fuel use has increased because individuals have become more prone to make greater and longer trips in their cars. *See* William P. Anderson et al., *Urban Form, Energy and the Environment: A Review of Issues, Evidence and Policy*, 33 URBAN STUD. 7, 30 (1996).

230. On the topic of the road trip, several books romanticize highway travel. *See, e.g.*, MIKE BRYAN, UNEASY RIDER: THE INTERSTATE WAY OF KNOWLEDGE (1997); PETER GENOVESE, THE GREAT AMERICAN ROAD TRIP: U.S. 1, MAINE TO FLORIDA (1999).

Congested metropolitan areas create bottlenecks for trucks and perhaps create more circuitous freight routes in the process. This greater congestion lowers the productivity of trucks through slower speeds, greater fuel use, longer truck operation and maintenance, and higher labor costs.[231] Like the inefficient allocation of road construction projects discussed above, the costs associated with increased passenger traffic congestion may reduce the ultimate benefit of road subsidies to the trucking industry. The overall effect, however, is difficult to estimate.

To the extent that such a subsidy is not "netted out" by these factors, the subsidy's direct market effect may be limited to only certain sectors of the surface freight transportation market. Even with subsidies, trucking service commands a premium over rail.[232] Trucks can provide more direct transportation to shippers through door-to-door service, and can offer faster and more consistent transit times.[233] In contrast, rail service often lacks these service attributes.[234] As a

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231. *See, e.g.*, Roehl Transp., Inc. v. Wis. Div. of Hearings & Appeals, 570 N.W.2d 864 (Wis. Ct. App. 1997) (regarding trucking company's attempt to exempt itself from state fuel taxes incurred by its trucks idling eight minutes or more on highways).

232. Klein, *supra* note 67, at 19 ("Railroad's competitive edge is its cost structure, which lets it charge rates well below motor carriers for long-haul bulk movements."). Klein notes that railroads typically charge less than one-tenth what less-than-truckload carriers charge to move a ton of freight and less than one-half what truckload carriers charge. *Id.* at 19-20.

233. As Keeler observes:

> Trucking proved to be a much more formidable competitor, especially in carrying high-value manufactured commodities, than many had imagined possible. In retrospect, this is not surprising. Because rail shipments must go through yards between trains, door-to-door delivery times tend to be slow and schedule unreliability is a serious problem (trains may run on time, but it is much more difficult to get cars through yards on time). Furthermore, the jostling that cars take in yards and from trains taking up "slack" when they start, plus the difficulty of policing rail operations against vandalism, make freight transported by rail much more subject to loss and damage than freight transported by truck. Slow, unreliable, and damage—prone transportation is most costly for high-value manufactured goods.

KEELER, *supra* note 2, at 28; *see also* STOVER, *supra* note 8, at 213; Klein, *supra* note 67, at 16.

234. Stover argues that the trucking industry offers "a flexibility of service that trains could never hope to equal." STOVER, *supra* note 8, at 213; *see also* Klein, *supra* note 67, at 19.

Customer reviews of recent railroad service suggest that railroads have considerable room for improvement. Complaints have centered on several botched railroad integrations. *See, e.g.*, John Gallagher, *Are You Being Served? Nearly Three Years Later, UP Still Trying to Get Back to Pre-Merger Service Levels*, TRAFFIC WORLD, Oct. 19, 1998, at 14-15 (discussing Union Pacific's inability to effectively integrate Southern Pacific after three years); John Gallagher, *Troubled Stallion*, TRAFFIC WORLD, June 28, 1999, at 40-41 (discussing shipper dissatisfaction with Norfolk

result, commodities that require greater service quality and have a high value relative to their overall transportation costs may be better suited to the premium that truck service commands.[235] Lower value bulk commodities—where transportation costs are a significant component of the overall cost of the commodity—may be better suited to the rail service discount.[236] Thus, many shippers are in different transportation markets—considering only rail or only trucking for their transportation needs.

Furthermore, railroads have become linked with trucking firms through cooperative arrangements and outright ownership.[237] Railroad firms have significantly increased business by providing intermodal service—service that involves containers that can be loaded and unloaded on railroad flat cars, trucks, or ships.[238] Such service offers shippers the advantages of door-to-door service and the lower

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Southern's operation of former Conrail lines); Daniel Machalaba, *Big Rail Merger Plan Could Lead to More*, WALL ST. J., Mar. 7, 2000, at A2 (discussing problems stemming from mergers involving Union Pacific, Norfolk Southern, and CSX); Daniel Machalaba, *Burlington Northern Struggles to Get Merger on Track: Locomotive Shortage, Culture Clash Cause Problems in Forming Rail Giant*, WALL ST. J., Apr. 22, 1997, at B4; Daniel Machalaba, *Union Pacific Struggles to Clear Up Delayed Shipments: Carrier Scrambles as It Seeks ICC Approval for Southern Pacific Merger*, WALL ST. J., Nov. 30, 1995, at B4 (also discussing Union Pacific merger with Chicago & Northwestern); Brian O'Reilly, *The Wreck of the Union Pacific*, FORTUNE, Mar. 30, 1998, at 94, 95 (discussing Union Pacific integration with Southern Pacific); Rip Watson, *Rail Shippers' Survey Flunks CSX Corp., Norfolk Southern*, J. COM., Sept. 27, 1999, at 8 (discussing shipper dissatisfaction with service after Conrail was carved out and merged with CSX and Norfolk Southern); Gus Welty, *For Union Pacific, "Unprecedented Problems with Service,"* RAILWAY AGE, Dec. 1995, at 20 (discussing integration difficulties with Union Pacific acquisition of Chicago & Northwestern). Indeed, rail service has likely declined, or at least not kept up with the service offered in the trucking industry. *See, e.g.*, Daniel Machalaba, *A Long Haul: America's Railroads Struggle to Recapture Their Former Glory*, WALL ST. J., Dec. 5, 1997, at A1 (noting mergers have not increased carriers' ability to compete with truckers).

235. *See* Enis & Morash, *supra* note 147, at 72.

236. *See id.*; Buckley & Westbrook, *supra* note 182, at 339; Robert D. Rosenberg, *Who Wins in a Competitive Power Market: Gas? Coal? Or Rail and Mining Interests?*, PUB. UTIL. FORTNIGHTLY, Apr. 1, 1997, at 41. Trucking companies that specialize in servicing less-than-truckload movements have virtually no competition from the railroad industry which has specialized in moving large-lot shipments. *See* ANN F. FRIEDLAENDER & RICHARD H. SPADY, FREIGHT TRANSPORT REGULATION: EQUITY, EFFICIENCY, AND COMPETITION IN THE RAIL AND TRUCKING INDUSTRIES 15-16 (1981).

237. TESKE ET AL., *supra* note 2, at 72.

238. Klein notes that between 1980 and 1998 intermodal traffic grew 187%, at a compound rate of 6% per annum. In contrast, all other rail traffic grew at a rate of only 2.3% annually. Klein, *supra* note 67, at 14-15; *see also* TESKE ET AL., *supra* note 2, at 50-51 (noting that intermodal traffic "more than doubled from 3.1 million [units] in 1980 to 6.7 million in 1992").

cost of long-haul transportation.[239] Because this service involves truck and rail service, a user tax that adversely affects trucks also harms the railroad industry's ability to provide intermodal service.[240] Thus, the effects of the tax may harm the competitive position of both modes of transportation.[241]

However, intermodal competition exists at the margins for certain shippers who may be able to use either rail or truck. At those margins, the impact of the subsidy may be significant.[242] One economic study of the effects of an increased road-use tax and infrastructure improvement program implemented in 1983 found that trucking firms that offered services competitive with railroads lost competitive ground.[243]

For commodities on which the trucking industry could command premiums because of service quality attributes that railroads lack, the impact of the new user tax was neutral and did not change the market.[244] Moreover, trucking companies could derive productivity gains

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239. *See* TESKE ET AL., *supra* note 2, at 50-51. Such service, however, involves greater coordination between different modes of transportation. Often, brokers are used to coordinate among the various modes to insure that shipments arrive on time at their appropriate destinations.

240. *See* Enis & Morash, *supra* note 147, at 87 (noting that "what adversely affects one mode may adversely affect the other. Certainly, after deregulation, intermodalism (e.g., rail piggyback) has grown significantly, and the 'megacarrier' phenomenon where one mode owns another mode has become much more common").

241. The effects on freight transportation demand may vary. In the short-run, demand may be quite inelastic. The recent supply cuts in oil output by the Organization of Petroleum Exporting Countries (OPEC) provides an illustration: While OPEC cut production by 6.5%, crude oil prices tripled. *See* Steve Liesman & John J. Fialka, *Barrel Roll: Why Oil Price Tripled Even as Nations Strove to Limit Its Gyrations*, WALL ST. J., Mar. 27, 2000, at A1.

242. In a study examining the movement of produce, for example, Buckley and Westbrook conclude that rail and truck were competitive with each other in many instances. *See* Buckley & Westbrook, *supra* note 182, at 341-42. Furthermore, federal regulators have exempted certain forms of rail traffic from rate reasonableness review on the presumption that such traffic competes with trucks. *See* 49 C.F.R. § 1039 (1999); *see also supra* note 91.

243. Enis & Morash, *supra* note 147, at 83. Enis and Morash studied the effect of capital markets during the passage of an augmented fuel and user tax in Congress—a part of the Surface Transportation Assistance Act of 1982. Surface Transportation Assistance Act of 1982, Pub. L. 97-424, §§ 511 *et seq.*, 96 Stat. 2097, 2169. They hypothesized that trucking firms that were price competitive with railroads would experience a decline in their stock valuations as a result of the new tax. Enis & Morash, *supra* note 147, at 76 (such a study has one important *caveat*: "A basic premise of such studies is that relative share price performance accurately reflects competitive conditions in an industry"). The authors used a period of time prior to the passage of the tax and immediately afterward to measure the impact on the market. Enis and Morash found that trucking firms that relied on owner-operator drivers and that provided service for "'specialized,' rail-competitive shipments" in the western states lost competitive position as a result of the tax. *Id.* at 86.

244. *See* Enis & Morash, *supra* note 147, at 85-86.

from the improved road infrastructure through "better highway operating times, greater vehicle capacity utilization, and less-commodity loss and damage from rough roads."[245] Thus, user taxes that go to road improvements rather than simply eliminating existing road subsidies may create competitive benefits for many trucking firms while disadvantaging those firms that compete most directly with railroad service.[246]

D. Impact of Subsidies on the Structure of the Rail and Trucking Industries

Beyond the potential impact of the road subsidy through direct market distortions, the form of the subsidies that both the trucking and railroad industries have received has had a marked impact on the transportation market. With respect to road subsidies, because the government builds the roads itself, trucking firms do not need to incur the significant capital expenses that railroad firms do in maintaining their existing track networks. When trucking firms do pay for capital costs for the road network, it is generally done on a pay-as-you-go basis that avoids substantial sunk costs for smaller start-up trucking firms.[247] Entry for new trucking firms is quite easy relative to the railroad industry. For the smallest trucking firm, the capital outlays include the ability to lease a truck, establish back-office and sales functions, and hire labor.[248] Exiting the market is not difficult, since the assets in trucking operations are quite fungible. In addition, the inherent mobility of trucks, which can operate throughout an extensive national road network, allows trucking firms to deploy them in any

245. *Id.* at 86.

246. As noted earlier, this benefit may be subsumed if cars create more congestion or road building becomes so politicized that routing is inefficient. *See supra* notes 212-22 and accompanying text. The trucking industry has opposed legislative attempts to impose the full social costs on road usage, suggesting that the trucking industry does benefit from the subsidies. *See* Rip Watson, *Study: Trucks' Value Outweighs Costs to Society*, J. COM., Jan. 12, 1998, at 11A.

247. Some exceptions exist to this general rule. For example, trucks exceeding certain weight restrictions pay an annual fee regardless of usage. See *supra* note 206 for a discussion of the heavy vehicle use tax. Purchasers of trucks and trailers also pay a federal excise tax of twelve percent. *See* 26 U.S.C. § 4051(a) (1994). Licensing and registration fees that state governments, such as Wisconsin, levy on vehicles are also annual assessments that do not account for road use. *See, e.g.*, WIS. STAT. ANN. §§ 95.71 (2000), 194.04 (1992), 341.25 (1999), 341.264 (1999). These assessments, however, are rather modest.

248. *The Impact of Deregulation on the Trucking Industry*, *supra* note 188, at 536-37 (discussing entry for truckload sector and less-than-truckload sectors).

region of the country to meet market demand.[249] This flexibility—to easily enter and exit the market and to deploy assets anywhere—has allowed robust competition within the trucking industry with numerous firms in the marketplace.[250] Trucking firms that offer less-than-truckload services over a network of locations are the only firms that have experienced any form of greater market concentration since deregulation.[251] However, even this particular segment of the trucking industry remains relatively unconcentrated, with several major competitors.[252]

In contrast, railroads received direct subsidies in the form of land grants that permitted them to maintain exclusive control over their networks. After obtaining these grants, railroad firms became burdened

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249. Judge Bork made this observation in discussing an antitrust claim in the household goods moving industry, noting that:

> In an industry in which the supply of the product, space in truck trailers, is among the most mobile factors of production imaginable, and the nature of the business causes these factors of production to be constantly moving throughout the country, it is inconceivable that any showing of submarkets could be made. Any attempt in one city to raise prices above competitive levels would be met by other van lines sending in trucks and trailers at a lower price.

Rothery Storage & Van Co. v. Atlas Van Lines, Inc., 792 F.2d 210, 219 n.6 (D.C. Cir. 1986).

250. The number of licensed interstate trucking companies has grown dramatically since deregulation. In 1980, 18,000 firms held licenses. By 1992, the number jumped to over 49,000. TESKE ET AL., *supra* note 2, at 71; *see also The Impact of Deregulation on the Trucking Industry*, *supra* note 188, at 538. And, in the household moving industry, as discussed in *Rothery*, approximately 1,100 to 1,300 interstate carriers competed in the mid-1980s. *Rothery*, 792 F.2d at 219.

251. As has been suggested:

> While few carriers specializing solely in LTL [less-than-truckload] trucking have been newly formed since 1980 and the top four LTL firms doubled their market share from 18 percent in 1977 to 37 percent by 1987, there has still been significant geographic expansion by existing LTL firms into other territories and entry by other carriers, including carriers from other modes. Among these more recent entrants are newly formed subsidiaries of existing LTL firms and the expanded operations of truckload, small-package, package express, and air cargo carriers. Even railroads, ocean carriers, and third parties, such as freight consolidators, forwarders, and brokers, have expanded into market segments of the traditional LTL carriers. Thus, since deregulation, many important innovations have occurred, which have blurred the old distinctions among modes that were largely the artificial results of the old regulatory regime.

TESKE ET AL., *supra* note 2, at 72 (citations omitted). *But see The Impact of Deregulation on the Trucking Industry*, *supra* note 188, at 537 (noting that because of industry's structure, "considerable potential for economic concentration" exists).

252. *See The Impact of Deregulation on the Trucking Industry*, *supra* note 188, at 540 (noting that major reduction in less than truckload carriers has occurred, from 500 such firms in 1973 to fewer than 150 in 1986—still significant number of competitors).

with the substantial costs of maintaining these expansive networks. As a result, the industry enjoys increasing returns to density: The more traffic the railroad is able to generate over the line, the lower its overall costs are on a per car basis.[253] Once the track network is constructed and maintained, the railroad firm's incentive is to fill the tracks to capacity with freight traffic in order to enjoy the best economic returns. As a general matter, trucking firms offering truckload service do not enjoy such returns to density.[254] The phenomenon of returns to density encourages rail operations on a larger scale than trucking firms.

The economics of the railroad industry require very large capital expenditures and entry on a relatively large scale. While many smaller short-line railroad operations have entered the marketplace since deregulation as a result of larger railroad firm efforts to trim lower density lines, no new major entry on a national scale has occurred.[255] Clearly, entry is difficult in the railroad industry.[256] The awareness of barriers to entry in the railroad industry is significant, as the federal agency responsible for railroad merger oversight has approved every railroad merger over the past twenty years, creating the potential for competitive abuses.[257] Exit from the railroad industry is

253. *See* Douglas W. Caves et al., *Network Effects and the Measurement of Returns to Scale and Density for U.S. Railroads*, *in* ANALYTICAL STUDIES IN TRANSPORT ECONOMICS 97-98 (Andrew F. Daughety ed., 1985); Douglas W. Caves et al., *Productivity Growth, Scale Economies, and Capacity Utilization in U.S. Railroads, 1955-74*, 71 AM. ECON. REV. 994 (1981).

254. Less-than-truckload service is typified by significant capital demands. As one article notes, a less than truckload carrier requires the following: "(1) cargo pick-up from the shippers; (2) sorting, loading, and dispatching the goods from the origination motor carrier terminal; (3) long-haul carriage; (4) sorting, loading, and dispatching the goods at a destination terminal; and (5) delivery to a final destination." *The Impact of Deregulation on the Trucking Industry*, *supra* note 188, at 537. A national carrier operating such a service may need to establish 200 to 500 network terminals, significant computer and telecommunications capabilities, and a skilled workforce. *Id.* As a result of the significant capital outlays required to develop the various aspects of this service, economies of scale or scope likely exist. *Id.* at 540.

255. *See* TESKE ET AL., *supra* note 2, at 49 (noting rise of small railroad firms from 212 in 1980 to 550 in 1994). On the lack of significant entry, see *supra* notes 71-82 and accompanying text.

256. *See supra* notes 78-82, 119 and accompanying text.

257. Since 1980, the following major railroad mergers have been approved: Can. Nat'l Ry.—Control—Ill. Cent. Corp., No. 33556, 1999 WL 336285 (S.T.B. May 21, 1999); CSX Corp.—Control & Operating Leases/Agreements—Conrail Inc., No. 33388, 1997 WL 314386 (I.C.C.) (S.T.B. June 11, 1997); Union Pac. Corp.—Control & Merger, 1 S.T.B. 233 (1996); Union Pac. Corp.—Control—Chicago & Northwestern Transp. Co., No. 32133, 1995 WL 141757 (I.C.C.) (I.C.C. Feb. 21, 1995); Burlington N. Inc.—Control & Merger—Santa Fe Pac. Corp., 10 I.C.C.2d 661 (1995); Rio Grande Indus., Inc.—Control, 4 I.C.C.2d 834 (1988); Union Pac. R.R.—Con-

also problematic. Once a right-of-way is constructed, exit is difficult because of the sunk costs involved in railroad construction.[258]

In addition to the difficulty of entry and exit, the railroad industry's service is less flexible. Because the railroad rights-of-way are privately controlled, access for existing railroad firms who wish to expand their presence by using a portion of another railroad's network has rarely occurred. The more expansive road network also makes railroad operations dependent on the trucking industry for certain types of freight, like intermodal, to provide door-to-door service to shippers.[259]

In many respects, the form of the subsidies supporting road and railroad construction has had a substantial impact on industry characteristics. The government's choice of subsidies given to each mode of transportation influenced the structure of each industry. For example, federal and state governments could have elected to fund railroad construction by creating public access railroad tracks controlled and maintained by various government agencies.[260] Public access would have

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trol—Mo.-Kan.-Tex. R.R., 4 I.C.C.2d 409 (1988); Chicago, Milwaukee, St. Paul & Pac. R.R. Co.—Reorganization., 2 I.C.C.2d 161 (1984); Union Pac. Corp.—Control, 366 I.C.C. 462 (1982); Norfolk S. Corp.—Control, 366 I.C.C. 173 (1982); CSX Corp.—Control, 363 I.C.C 521 (1980); Burlington N., Inc.—Control & Merger—St. Louis - San Francisco Ry., 360 I.C.C. 788 (1980). During this period, other regional mergers were approved by federal regulators as well. *See* Christopher A. Vellturo et al., *Deregulation, Mergers, and Cost Savings in Class I U.S. Railroads, 1974-1986*, 1 J. ECON. & MGMT. STRATEGY 339, 342-43 (1992) (noting some of these smaller mergers).

The sole merger that has been rejected by federal regulators was Santa Fe S. Pac. Corp.—Control, 2 I.C.C.2d 709 (1986), *reh'g denied*, 3 I.C.C.2d 926 (1987). A second merger proposal involving Canadian National and Burlington Northern Santa Fe has been sidetracked by a fifteen month merger moratorium. *See* Public Views on Major Rail Consolidations, 65 Fed. Reg. 192 (Oct. 3, 2000) (to be codified at 49 C.F.R. pt. 1180). The agency overseeing railroad mergers has now indicated that it may more critically review future railroad mergers. *See* Major Rail Consolidation Procedures, Ex Parte No. 582 (Sub-No. 1), (S.T.B. Oct. 3, 2000). Of course, the proverbial cows may be out of the barn with respect to competitive problems from high market concentration in the industry.

258. *See supra* notes 75-77 and accompanying text.

259. Figures from the Bureau of Transportation Statistics show that while the national railroad network has declined over time, the road network has increased. In fact, the road system is thirty-nine times larger than the rail system. *See* Table 2 *supra*. This larger scope may help explain the growth of intermodal service which can combine truck service with rail service in order to provide door-to-door shipments. *See supra* note 239 (discussing growth of intermodal traffic on railroads).

260. Government control of railroad tracks is not unprecedented. The state of North Carolina, for example, is a seventy-five percent shareholder in the North Carolina Railroad Company, a 317 mile line in the state. The state leases the tracks to one railroad—Norfolk Southern. For some discussion of the North Carolina Railroad Company, see Werner v. Alexander, 502 S.E.2d 897 (N.C. App. 1998).

reshaped the railroad industry to resemble more closely the trucking industry. Entry and exit could have been facilitated more easily through the simple leasing of locomotives, labor, and freight cars. Like the trucking and airline industries, entrants would have paid their share of infrastructure taxes on a pay-as-you-go basis. Because of the resulting ease of entry or exit from the industry, railroad consolidations would not have had the same competitive impacts that they have in the current environment.

Alternatively, the government could have subsidized the road system by transferring funds or capital directly to trucking concerns to construct their own private roadways. Such a policy could have reshaped the trucking industry into something more akin to the present state of the railroad industry. Competing trucking concerns would have exclusive control of road networks, blocking the access of others onto that network. Once the immense capital outlays for road construction were completed by a trucking firm, the firm would have similar returns to density that the railroad industry enjoys. Thus, the trucking firm would have an interest in filling its new road system to capacity with freight. With such high barriers to entry, the trucking industry would likely be much more concentrated, like the present-day railroad industry. The same competitive concerns in the railroad industry would exist for the trucking industry, assuming that regulatory policy would take the same course.[261]

While these observations reflect a great deal of speculative "what if" scenarios, they emphasize that the form transportation subsidies have taken has had a significant and lasting impact on the competitive position and firm structure of each mode of transportation.[262] In craft-

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Other nations have sought to encourage railroad systems which allow open access of other operators. The European Union has endorsed the concept of developing high density railroad lines as "freeways." *See* Commissioner Neil Kinnock, *Trans-European Rail Freight Freeways*, Speech at the Economist Conferences, *at* http://europa.eu.int/comm/transport/global/speeches/sp983.htm (Jan. 16, 1998). The United Kingdom has developed an open access system where train operations and track ownership are separately controlled. Mel Holley & Nigel Harris, *Britain's Rail Freight Revolution*, TRAINS, July 1998, at 54.

261. While the subsidy has affected the structure of the railroad industry, regulatory policy has also had a significant effect on the concentration of the industry. As early as 1920, Congress mandated that federal regulators "adopt a plan for the consolidation of the railway properties of the continental United States into a limited number of systems." Transportation Act of 1920, ch. 91, § 407, 41 Stat. 456, 481. The policy pursued after deregulation likewise continued the favorable review of merger applications. *See supra* note 257.

262. Along this line of speculation, one may wish to consider how the industries may have structured themselves in the absence of any subsidies. One could imagine a hub-and-spoke system of light density roads connecting to important rail terminals which

ing policies favoring market-based allocation of resources and deregulation, policymakers should be aware of the imprint of these subsidy decisions. They should also be aware that while these subsidization decisions have a lasting effect, government policy can play a role in reshaping the industries to address fundamental competitive issues that simple non-regulation cannot address. For example, the government can encourage greater access to railroad networks for new entrants to ameliorate the effects of industry concentration, perhaps forging a new competitive playing field.

CONCLUSION

While federal policy has espoused competition in the surface freight sector, both historical and existing subsidies may distort the results that would have otherwise occurred in free markets. Regulators must recognize that these subsidies have an impact on policies promoting competition and an effect on whether the marketplace is truly free.[263] In the simplest case, taxing one mode of transportation over another, *ceteris paribus*, will distort the competitive position of the modes and may result in market inefficiency. However, the ultimate distortion such policies create may be less obvious. This Article has discussed two examples of transportation subsidies that may distort the marketplace: 1) the historical land grant subsidies railroads received that are not considered in the regulation of railroad rates to captive shippers; and 2) federal and state road subsidies that may benefit the trucking industry.

Regulation of the railroad industry designed to curb anticompetitive behavior toward captive shippers fails to account for the widespread historic land grants that many western railroads received. While the stand-alone cost approach is an elegant theory driven by a market-based analysis, it ignores the reality of historic subsidies that shaped the railroad marketplace. Long after railroad firms received such subsidies, their successors continue to reap the benefits through free land that their rights-of-way operate over and the long lasting capital investments, such as tunnels, that the land grants subsidized.

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then provide high density freight service. Under this model, the two modes might complement each other rather than compete along parallel networks. Such a structure would be similar to that of the airline industry. *See* VISCUSI ET AL., *supra* note 3, at 584-86.

263. Of course, adhering to a policy of free markets need not entail following an abstract model of competition too literally. As Bork has observed, "[a] determined attempt to remake the American economy into a replica of the textbook model of competition would have roughly the same effect on national wealth as several dozen strategically placed nuclear explosions." BORK, *supra* note 40, at 92.

Unfortunately, this regulatory omission allows incumbent railroads to earn returns on essentially free capital that other potential new entrants cannot now enjoy. Railroads benefit from this regulatory approach at the expense of shippers. The stand-alone cost method of rate regulation has failed to provide complaining shippers other cost savings that incumbents enjoyed through cheaper labor and less restrictive labor laws at the time their networks were constructed. Reforms accounting for these subsidies and historic cost savings would more accurately reflect the real costs of a stand-alone operation similar to the incumbent's railroad. An alternative regulatory framework through competitive access may be even more desirable to fully exploit the benefits of the market paradigm. Access will inject actual competition for captive shippers, and, if regulations prevent vertical control of track ownership and operations, historic subsidies will no longer be a competitive advantage for incumbent train operators.[264]

The second illustration of the effects of historic and continuing subsidies provided in this Article—government road subsidies—shows that such subsidies may have a continuing impact on the competitive position of those trucking firms that most directly compete with railroad service. Empirical evidence demonstrates that user taxes collected for road construction and maintenance have not consistently covered the government expenditures on such projects. However, it is difficult to quantify the effects such a subsidy ultimately has on the marketplace. The difficulty in assessing the competitive effect of road subsidies is in part due to the multipurpose use of roads, the differing tax burdens on trucks and passenger vehicles, and political influence in the selection and routing of road projects. The elimination of road subsidies through more stringent forms of user taxes may affect only certain segments of the trucking industry.

More fundamentally, the goal of promoting free markets while subsidizing certain transportation modes creates an inherent conflict in policy goals that needs to be addressed even if its impact is *de minimis*. Under the free market paradigm, policies should be tax neutral, allowing market forces to determine the demand for each respective mode of transportation.[265] As an alternative, the government

264. Regulators are implementing such competitive access reforms in other industries, such as telecommunications. *See* 47 U.S.C. § 251(c)(2), (3) (1994 & Supp. IV 1999).

265. "A neutral tax is one that imposes the same tax burden on like transactions." Barry Bracewell-Milnes, *Introduction* to PHILIP CHAPPELL ET AL., WHICH ROAD TO FISCAL NEUTRALITY? 1, 2 (1990). Neutral taxes minimize the distortion of behavior from government intervention. A non-neutral tax imposes a distortion of economic behavior in addition to a cost that it imposes through collecting the tax itself. *Id.* at 2.

could pursue a policy of creating offsetting taxes or subsidies to level the competitive playing field.[266] The justifications for subsidizing significant road construction projects, however, seem dubious[267] and may simply create "excess facilities and inefficient transport."[268] Tax neutral policies leave market forces to determine the competitive equilibrium of modal competition.

One interesting case study is Sweden. In Sweden, the government has pursued a policy of equal funding for railroad and roadway development "to put railways on an equal footing with road operators."[269] The new government policy, instituted through the late

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266. Ann F. Friedlaender & Subodh C. Mathur, *Price Distortions, Financing Constraints and Second-Best Investment Rules in the Transportation Industries*, 18 J. PUB. ECON. 195, 197 (1982) ("Since each mode [of transportation] typically carries a wide range of freight, there is a high degree of substitutability among the demands for the various modes. Thus, price distortions or financing constraints in one mode will imply that offsetting distortions should be made in other modes . . . .").

267. As one author notes:

> [L]ooking objectively at the justification for continuing subsidies to domestic transport, it seems clear that most historical reasons for subsidies have disappeared long ago. There is . . . no present need for land grants to stimulate initial development of railways. Also, motor transport is now a mature and thriving industry, operating over highways . . . throughout the land. Although expanding traffic and urban congestion obviously require highway expansion, plainly there is no longer any need for public subsidies to introduce the advantages of motor transport to the American economy!

Thompson, *supra* note 179, at 95. However, there is no doubt that infrastructure improvements do affect regional economies. *See* Wayne Talley, *Linkages Between Transportation Infrastructure Investment and Economic Production*, 32 LOGISTICS & TRANSP. REV. 145 (1996).

268. Thompson, *supra* note 179, at 95.

269. Jan-Eric Nilsson, *Swedish Railways Case Study*, *in* BEST METHODS OF RAILWAY RESTRUCTURING AND PRIVATIZATION 169 (Ron Kopicki & Louis Thompson eds., 1995). The author further elaborates on the Swedish law, stating that:

> The Swedish restructuring experiment was designed, at the same time, to re-balance competitive equities among competing modes of transportation and to revitalize the commercial and market development capabilities of the state-owned railway. The preamble to the legislation that separated Swedish railways into two interdependent functional units, one responsible for infrastructure maintenance and one for marketing and train operations, cited four major objectives: (1) to put an end to deficit railway operations; (2) to put railways on an equal footing with other modes of transport with respect to infrastructure costs; (3) to acknowledge the safety and environmental qualities of the mode; and (4) to safeguard various aspects of regional income distribution.

Id. at 200. The deteriorating state of the state-controlled railroad was also a very significant factor in the reform movement. *Id.* at 183; *see also* Gunnar Alexandersson & Staffan Hultén, *Sweden*, *in* CHANGING TRAINS: RAILWAY REFORM AND THE ROLE OF COMPETITION: THE EXPERIENCE OF SIX COUNTRIES 79 (D.M. Van de Velde ed., 1999).

1980s and 1990s, sought to counteract the government's historic assumption of all responsibility for the roadway infrastructure. As in the United States, user fees for roadways were imposed, but there was some doubt as to whether they fully paid for the true social cost of road use.[270] Moreover, this cost structure, which allowed road operators to pay-as-you-go, was fundamentally different from a railroad's obligation to pay significant fixed costs before operations could commence. While the Swedish state railway received some state support, the burden of infrastructure improvements generally fell on its own ability to generate revenue. Swedish legislators also recognized other policy issues, such as the safety and environmental advantages that rail had over the trucking industry that may not have been accounted for in an unregulated market.[271]

The form of government subsidies directed toward the railroad and trucking industries decisively shaped these industries in the United States. Because railroads once enjoyed significant direct wealth transfers, they now control and maintain their own track networks, precluding others from entering the business without incurring significant costs to enter. The open access of the road system provides greater ease of entry for trucking firms, which need only lease trucks and equipment and pay for labor and other administrative costs. Access to the road network is only constrained by the modest user fees imposed on trucks. In comparing these two industrial organizations, the railroad industry's structure poses significant competitive problems that are not evident in the trucking industry.

In recognizing the effects of these subsidies, policymakers should critically assess the impacts of deregulation and pinpoint areas in which competition may be distorted as a result of such subsidies. In this manner, policymakers could level the playing field of rail-truck competition through a tax neutral regime or provide equal regulatory treatment as Swedish legislators have done. Other policies could counterbalance the effects of historical or existing subsidies. Policymakers could encourage open access on rail lines to better mirror the more competitive environment in the trucking industry. While crafting such policies is complicated, becoming aware of the subsidies will provide new opportunities to enhance competition in the transportation sector.

270. Nilsson, *supra* note 269, at 176.
271. *Id.* at 169, 183, 200.