THE “HUB-AND-SPOKE” CONSPIRACY THAT CREATED THE STANDARD OIL MONOPOLY

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I. INTRODUCTION

The government’s challenge to Standard Oil’s monopoly of refining and the resulting court-ordered break up of Standard Oil one hundred years ago,[1] was motivated to a large extent by the now discredited idea of protecting competitors rather than preserving competition.[2] Consistent with a principal concern of the framers of the Sherman Act that large corporations often received discriminatory discounts which placed small companies at an unfair disadvantage, the government focused its case on Standard Oil’s use of its dominant position to obtain preferential railroad rebates that forced rival refiners to either agree to be acquired by Standard Oil or to go out of business.

While it is now nearly universally accepted that Standard Oil’s preferential railroad rates were a crucial factor in Standard Oil’s growth and dominance of refining in the 1870s, Michael Reksulak and William Shughart have recently advocated a procompetitive view of Standard Oil’s rate discounts.[3] Relying on Ron Chernow’s conclusion that the railroads

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1. Standard Oil Co. v. United States, 221 U.S. 1 (1911).

2. *See* Christopher R. Leslie, *Revisiting the History of* Standard Oil, 85 S. CAL. L. REV. 573 (2012); Barak Orbach & Grace E. Campbell, *The Antitrust Curse of Bigness*, 85 S. CAL. L. REV. 605 (2012); D. Daniel Sokol, *The Strategic Use of Public and Private Litigation in Antitrust as Business Strategy*, 85 S. CAL. L. REV. 689 (2012) (examining the strategic use of antitrust as a tool to protect competitors).

3. Michael Reksulak & William F. Shughart, *Of Rebates and Drawbacks: The Standard Oil (N.J.) Company and the Railroads*, 38 REV. IND. ORGAN. 267, 296–70 (2011).

achieved significant cost savings by transporting Standard Oil's large shipments,[4] Reksulak and Shughart argue that Standard Oil's rate rebates were merely the way the railroads shared with Standard Oil the transportation efficiencies associated with handling Standard Oil shipments as part of the normal competitive process.[5]

It is certainly appropriate to be skeptical of the use of antitrust to protect small businesses by preventing large firms from negotiating price discounts. However, Elizabeth Granitz and I have documented that Standard Oil did more than negotiate competitive rebates for its larger, lower cost shipments.[6] We show that Standard Oil received preferential rebates as part of a joint collusive scheme with the railroads that set monopoly list rail rates on rival refiner shipments, and that Standard prevented the railroads from offering discounts from these collusive rates to rival refiners by shifting its petroleum shipments to maintain agreed upon individual railroad market shares.[7] I now also emphasize the essential economic role of the drawback payments made by the railroads to Standard Oil on rival refiner shipments in stabilizing the collusive arrangement. Rather than being part of the normal competitive process, Standard Oil's preferential rail rates and drawbacks were crucial elements of a joint collusive arrangement with the railroads that permitted Standard Oil to achieve and maintain refining dominance during the 1870s.

George Priest, in a thoughtful article presented at this symposium conference, agrees that the creation of the Standard Oil refining monopoly during the 1870s with the use of preferential rail rates was not part of the normal competitive process.[8] However, Priest questions whether the growth in the dominance of Standard Oil can be explained as a consequence of a joint conspiracy with the railroads.[9] He argues that it was not in the interests of the railroads to facilitate the creation of the Standard Oil refining monopoly because Standard Oil consequently became a monopsonist purchaser of petroleum transportation services from the railroads.[10] Priest claims that the available evidence suggests an alternative

4. RON CHERNOW, TITAN: THE LIFE OF JOHN D. ROCKEFELLER, SR. 116 (1998).

5. Reksulak & Shughart, *supra* note 3, at 267, 280.

6. Elizabeth Granitz & Benjamin Klein, *Monopolization By "Raising Rivals' Costs": The Standard Oil Case*, 39 J.L. & ECON. 1, 2 (1996). *See also* Daniel A. Crane, *Were Standard Oil's Rebates and Drawbacks Cost Justified?*, 85 S. CAL. L. REV. 559 (2012).

7. *Id.* at 19.

8. George L. Priest, *Rethinking the Economic Basis of the Standard Oil Refining Monopoly: Dominance Against Competing Cartels*, 85 S. CAL. L. REV. 499 (2012).

9. *Id.* at 505–06.

10. *Id.* at 521.

view that, rather than a joint conspiracy, Standard Oil unilaterally monopolized refining and the railroads became victims of a Standard Oil monopsony.[11]

In response to Priest, this article expands upon the Granitz and Klein analysis by more explicitly clarifying the economic relationship between Standard Oil and the railroads during the 1870s. In addition to summarizing the available evidence, I more explicitly consider the likely costs and benefits facing both Standard Oil and the railroads as they made their strategic decisions that led to the Standard Oil refining monopoly. It is useful to break this analysis up into two distinct time periods: (1) Standard Oil's consolidation of refining in Cleveland during late 1871 and early 1872; and (2) Standard Oil's consolidation of the remainder of U.S. refining during 1874–1879.

With regard to the first period, it is unambiguous that in 1871 the railroads proposed a railroad conspiracy, the South Improvement Company ("the Company"), and intended to share the resulting industry monopoly profits with cooperating "evening refiners," including Standard Oil. It also is clear that the railroads facilitated Standard Oil's use of this proposed conspiracy to acquire almost all Cleveland refiners.[12] Priest describes the railroad cooperation with Standard Oil in its Cleveland acquisitions as something that "backfired badly on the railroads."[13] However, I show that the railroads' support of Standard Oil's refinery acquisitions in Cleveland made economic sense for the railroads, both in a prospective sense and in how Standard Oil actually behaved with regard to the railroads after its Cleveland acquisitions during 1872–1874.

Railroad cooperation with Standard Oil's second series of refinery acquisitions throughout the United States outside Cleveland during 1874–1879 served the same economic purpose as the railroad cooperation with regard to Standard Oil's earlier refinery acquisitions. Standard Oil would not have been able to acquire and maintain its refining monopoly during 1874–1879 without the railroads' treatment of independent refiners exactly as envisioned under the South Improvement Company. However, in contrast to the South Improvement Company, it was Standard Oil and not the railroads that initiated the conspiracy during this period. Priest uses this fact and Standard Oil's enforcement of the railroads conspiratorial behavior to claim that the railroads did not enter a collusive agreement but were

11. *Id.* at 527.
12. Granitz & Klein, *supra* note 6, at 9–17.
13. Priest, *supra* note 8, at 523.

coerced by Standard Oil, acting as a monopsonist, to facilitate Standard's monopolization of refining.[14] I show that the railroads, in fact, actively conspired with Standard Oil during this period to effectively foreclose independent refiners and shared in the resulting petroleum industry monopoly profits.

The Granitz and Klein decision to label Standard Oil's conduct in monopolizing refining during the 1870s as that of a "cartel ringmaster" may have confusingly suggested that Standard Oil throughout the period was just policing a transportation cartel initiated by the railroads.[15] The economic framework we presented, however, was that of a joint conspiracy, with Standard Oil and the railroads jointly colluding to establish a petroleum industry monopoly that neither of them could establish on their own. I therefore now more appropriately describe the relationship between Standard Oil and the railroads during the 1870s in terms of their joint participation in a "hub-and-spoke" conspiracy. This label more clearly describes the fundamental economic forces at work in the creation of the Standard Oil monopoly and also suggests a more useful way to analyze the antitrust issues. Whether Standard Oil and the railroads both would be judged under current antitrust standards to have entered a joint conspiracy in violation of Section 1, or whether Standard Oil alone would be judged under current antitrust law standards to have only violated Section 2 by acting unilaterally to monopolize refining, hinges on whether the evidence permits an inference that a collusive agreement was reached between the railroads and Standard Oil. The available evidence in fact convincingly demonstrates the participation of the railroads with Standard Oil in a "hub-and-spoke" conspiracy.

II. STANDARD OIL USES THE RAILROADS TO MONOPOLIZE REFINING

A. STANDARD OIL ACHIEVES REFINING DOMINANCE IN CLEVELAND

1. Rockefeller Serves as the Negotiating Agent for Cleveland Refiners, 1868–1871

To place Standard Oil's Cleveland refinery acquisitions during 1871–1872 in perspective, it is necessary to consider Rockefeller's pre-existing position in Cleveland. Rockefeller established his refinery in Cleveland in

14. *Id.* at 546–50.
15. Granitz & Klein, *supra* note 6, at 26 n.64.

1863.[16] Four years earlier, in 1859, crude oil was discovered in Western Pennsylvania in an area that later became known as the Oil Regions.[17] The crude oil was then shipped to hundreds of small refineries located in the refining centers of Pittsburgh, Philadelphia, New York, and Cleveland, where it was refined into kerosene, a new, low-cost, high-quality illuminating oil.[18] Because the Oil Regions were at the time the only major source of crude oil in the world, most refined product was exported, primarily to Europe.[19] Locating a refinery in Cleveland therefore would appear not to make economic sense because it involved transportation of crude away from the final export point and hence added transportation costs.[20] Rockefeller, as well as numerous other refiners, established refineries in Cleveland, however, because of Cleveland's transportation advantages.[21]

Three railroads, the Pennsylvania, Erie, and New York Central ("the Central"), actively competed for the petroleum traffic, both for shipping crude from the Oil Regions to the refineries and for shipping refined product from Pittsburgh and Cleveland to the East Coast, primarily New York and Philadelphia, for export.[22] All three railroads had connections to the Oil Regions, with the Pennsylvania initially shipping crude primarily to refineries in Pittsburgh and the Erie and Central Railroads shipping crude primarily to refineries in Cleveland.[23] Therefore, though refining in Cleveland involved a longer total shipping distance for crude and refined product, the location possessed the advantage of being served by two of the three railroads, the Erie and Central, and by a third transportation alternative of Lake Erie during the summer.[24]

Competition between the railroads led to significant rebates from "open" (or list) rates, and periodically led to intensive rate wars between the railroads. Because railroads had large sunk fixed costs (primarily associated with the creation of the road bed) and relatively low variable costs, railroad competition frequently led to what was described as "ruinous" competition, with competitive railroad rates for large shipments of crude and refined product frequently falling significantly below average

16. *Id.* at 6.
17. *Id.* at 3–6.
18. *Id.* at 3–9 (providing a more thorough description of the early oil industry).
19. *Id.* at 6.
20. *Id.* at 6 n.18.
21. *Id.*
22. *Id.* at 8–9.
23. *Id.*
24. *Id.* at 4 (map showing petroleum transportation routes in 1870).

railroad costs.[25] This was an example of what was described at the time as "the railroad problem."[26] The discriminatory rail rates that resulted from this competitive process was especially troublesome for the railroads, but remained pervasive and uncontrolled until the Interstate Commerce Commission was established in 1887.[27]

In 1868 Rockefeller took advantage of the competition that existed between the rail systems serving Cleveland to coordinate with other Cleveland refiners to negotiate his first rebates.[28] In return for the guarantee of sixty carloads of refined oil shipments daily on a year-round basis (a quantity commitment which Rockefeller could not have met on his own), the Central Railroad substantially decreased rail rates to the Cleveland refiners represented by Rockefeller.[29] The rate for shipping refined product from Cleveland to New York, for example, fell for the group of Cleveland refiners organized by Rockefeller from the list rate of $2.00 per barrel to a negotiated rebated rate of $1.30 per barrel.[30]

While this was a major decrease in rates, Rockefeller "didn't simply try to squeeze the railroads."[31] The Central received significant benefits from the guarantee of substantial shipments at rates that were above "ruinous" levels and the continuous quantity commitment substantially reduced the Central's costs of operation. Specifically, the daily sixty carload commitment permitted the Central to operate trains consisting solely of oil tank cars and to reduce the average round-trip shipment time to New York from thirty days to ten days, resulting in a decrease in the Central's required tank car fleet from 1800 to 600 cars.[32]

The reduced transportation rates for Cleveland refiners that Rockefeller negotiated with the Central, as well as similarly reduced rates he negotiated with the Erie, "sharply boosted Cleveland's share of shipments at the expense of shipments to Pittsburgh and other refining

25. *Id.* at 9.

26. *See id*. at 8 n.23 (providing references to some of the extensive contemporary literature dealing with "the railroad problem").

27. Although the federal government did not attempt to control railroad rates until 1887, a committee of the Ohio legislature in 1867 concluded that railroads, as common carriers, should charge nondiscriminatory rates. A bill to this effect, however, was defeated. The following year a Pennsylvania senate committee reached a similar conclusion, but once again no legislation was passed. CHERNOW, *supra* note 4, at 117.

28. *Id.* at 113–15. *See also* Granitz & Klein, *supra* note 6, at 6–7.

29. CHERNOW, *supra* note 4, at 114.

30. Granitz & Klein, *supra* note 6, at 6 n.19.

31. Chernow, *supra* note 4, at 113.

32. *Id.* The Cleveland refiners also agreed as part of the arrangement to jointly assume legal liability for fire and other accidents. *Id.*

centers."[33] Cleveland's share of total crude shipments increased from 24 percent in 1867 to nearly 36 percent by 1870.[34] In response, in 1871 the Empire Transportation Company, the affiliated company that managed rail traffic for the Pennsylvania Railroad, cut the list rate on crude shipped to New York from the Oil Regions from $1.90 per barrel to $1.50 per barrel.[35] This competition by the Pennsylvania resulted in an increase in the New York (and Oil Regions') share of the market from 19 percent to 30 percent, and a decrease in Cleveland's share from 36 percent back down to 26 percent.[36] The fluctuation in refining center and corresponding railroad market shares in response to rail rate changes clearly indicates the intense competition that existed between all three railroads for petroleum shipments.

The railroads continually attempted to reduce inter-railroad competition by establishing rate setting and pooling (market sharing) agreements. This was before the Sherman Act was passed, so these types of arrangements were not illegal, but such explicit collusive agreements were generally not enforceable.[37] The collusive arrangements therefore always broke down. The two most common cartel "cheating" mechanisms were "secret rebates given to large shippers in exchange for their business . . . and intentional misclassification of freight."[38] As Herbert Hovenkamp describes, "In no other industry have attempts at both legal and illegal cartelization been so persistent, widespread, systematic, or ultimately doomed to failure."[39]

2. Standard Oil is Chosen as One of the "Evening Refiners" for the South Improvement Company, 1871

In 1871, the railroads organized a more systematic attempt to

33. Granitz & Klein, *supra* note 6, at 6.

34. *Id.* at 6–7 tbl.1.

35. *Id.* at 7.

36. *Id.* at 6–7.

37. While the English Common Law tradition, adopted by many American State courts, considered collusive agreements torts if they were not ancillary to some other business purpose, the English courts exempted collusive behavior by railways because of their alleged natural monopoly status. American courts, however, never definitively decided whether they followed the English courts in that exemption. As a result, although the railroads periodically established explicit collusive agreements, they generally did not attempt to enforce these agreements in court. *See* George W. Hilton, *The Consistency of the Interstate Commerce Act*, 9 J.L. & ECON. 87, 90–92 (1966) (describing the "legal limbo" in which American railroad cartels operated).

38. Herbert Hovenkamp, *Regulatory Conflict in the Gilded Age: Federalism and the Railroad Problem*, 97 YALE L.J. 1017, 1042 (1988).

39. *Id.* at 1039.

eliminate competitive rate wars by establishing the South Improvement Company.[40] Similar to previous rate-setting pooling arrangements, the South Improvement Company set railroad rates for shipments of crude and refined product between cities and also set market shares for each railroad. The contractually specified petroleum shipment market shares were set at 45 percent for the Pennsylvania and 27.5 percent each for the Erie and Central Railroads.[41] However, contrary to previous failed collusive arrangements, the South Improvement Company brought into the arrangement the four largest refiners, one in each of the four major refining centers—including Standard Oil in Cleveland—which were designated to enforce the collusive agreement. The four refiners were together given 95 percent of the South Improvement Company's stock, with Peter H. Watson, a railroad executive chosen by the railroads as the president of the South Improvement Company, given the remaining five percent.[42]

Each of the designated South Improvement Company refiners was to serve as what was referred to in the contract as an "evener," shifting its purchases of crude and its shipments of refined kerosene between the three railroads to maintain the contractually specified individual railroad market shares.[43] In return for this cartel-stabilizing service, the designated refiners received a per barrel rebate from the agreed upon rail rates set by the South Improvement Company on their shipments.[44] While all four refiners, including Standard Oil, had previously negotiated rebates with individual railroads, this was a new type of arrangement jointly entered into between the three railroads and the four designated South Improvement Company refiners.

In addition to rebates, the South Improvement Company also would receive a per barrel drawback payment (equal to their per barrel rebate) on the petroleum shipments by independent refiners who were not members of the South Improvement Company. The South Improvement Company was authorized to inspect the books of the three railroads, collect railroad shipment data, inform the South Improvement Company refiners of their required "evening" shipments, and receive the drawback revenue from each

40. The idea for the Company is generally attributed to Thomas Scott of the Pennsylvania Railroad. 1 ALLAN NEVINS, STUDY IN POWER: JOHN D. ROCKEFELLER, INDUSTRIALIST AND PHILANTHROPIST 318–19 (1953).

41. The contracts were signed on January 18, 1872 and are reproduced in PETROLEUM PRODUCERS UNION, A HISTORY OF THE RISE AND FALL OF THE SOUTH IMPROVEMENT COMPANY 97–120 (1872).

42. *Id.* at 30–31 (testimony of W.G. Warden, Petroleum Producers Union).

43. *Id.* at 97–120.

44. *Id.* at 97–98.

railroad based on the railroad's independent refiner shipments, which was then distributed to the South Improvement Company shareholders.[45]

To get some idea of the increase in rail rates envisioned under the South Improvement Company arrangement, "open" (or list) rates on shipments of refined product from Cleveland to New York, for example, were collusively set at $2.00 per barrel, with Standard Oil, the evening refiner in Cleveland, receiving a $0.50 per barrel rebate from the $2.00 list rate on its shipments.[46] This represented a huge increase over the previous actual shipping rates paid by refiners. As described above, the group of Cleveland refiners organized by Rockefeller in 1868 paid $1.30 per barrel under its negotiated rebate agreement, a rate that, as noted, did not "squeeze" the railroads but was significantly above rates paid during competitive railroad "rate wars." Standard Oil would now pay a net rate of $1.50 per barrel, or $0.20 per barrel "extra" compared to the previous rate it jointly negotiated for Cleveland refiners.

However, although Standard Oil paid $0.20 per barrel higher net rail rates than it had before, Standard would be substantially better off. Standard Oil would now earn $0.50 per barrel profit on its refined product sales because the $2.00 per barrel transportation rate set by the railroad conspiracy (on which Standard received a $0.50 per barrel rebate) would be reflected in final product prices received by Standard on its refined product shipments. In addition, Standard Oil collected a $0.50 per barrel drawback on all rival Cleveland refiner shipments from Cleveland to New York. Standard Oil therefore received an extra $0.50 per barrel on all Cleveland shipments, its own as well as those of other Cleveland refiners. Because Standard Oil accounted for about 15 percent of refining in Cleveland, this extra $0.50 per barrel profit received by Standard Oil on all Cleveland shipments would be significantly greater than the $0.20 per barrel increase over previous rates Standard Oil would pay the railroads on its own shipments.[47]

The intended effect of the South Improvement Company agreement

45. *Id.*

46. Granitz & Klein, *supra* note 6, at 11 tbl.2. Rail list rate increases and evening refiner rebates were even greater on the Oil Regions to New York route. Crude shipping rates increased from the "ruinously" competitive rate of $0.87 per barrel to the South Improvement Company set rate of $2.56 per barrel, with J.A. Bostwick, the New York evening refiner, receiving a 40 percent rebate of $1.06 per barrel. *Id.* at 11 tbl.2, 14–15.

47. *Id.* at 10–11. In 1871, Standard Oil accounted for about 4 percent of total U.S. refining capacity and Cleveland refineries accounted for about 25 percent of the U.S. capacity. Standard Oil, the largest refiner in Cleveland, therefore accounted for about 15 percent of Cleveland refining capacity. *See id*. at 1–2.

was to set collusive railroad rates that would maximize industry profits and to share the resulting monopoly profits between the railroads and the evening refiners. For purposes of making a rough calculation of the proposed distribution of monopoly profits between Standard Oil and the railroads implied by the South Improvement Company, we can assume a "ruinously" competitive rate on refined product shipments from Cleveland to New York of, say, $1.00 per barrel.[48] The railroads therefore would make an extra $0.50 per barrel monopoly profits under the South Improvement Company agreement relative to this competitive benchmark because they received a rail rate net of rebates and drawbacks of $1.50 per barrel. Standard Oil also would earn $0.50 per barrel monopoly profits on all Cleveland shipments, a $0.50 per barrel rebate on its own shipments and $0.50 per barrel drawback on other Cleveland refiner shipments. Therefore, under the assumption of a $1.00 per barrel competitive rate, there would be an equal sharing of the planned monopoly profits between the railroads and Standard Oil.

It is clear that, under whatever reasonable assumption is made for the competitive rates that would exist absent the South Improvement Company, the railroads were offering the evening refiners a large share of the profit from the substantial increase in rail rates earned under the South Improvement Company contract. This made economic sense because the railroads knew very well from past experience that their collusive arrangement would not survive without the enforcement of the railroad cartel by the relatively large evening refiners located in each refining center.

3. The Role of Drawbacks in Stabilizing the Proposed South Improvement Company Railroad Cartel

In addition to sharing total monopoly profits between the railroads and the evening refiners, drawbacks served the economic role of stabilizing the railroad cartel organized by the South Improvement Company. The setting of collusive rail rates and the use of evening refiners to enforce agreed upon railroad market shares would have been unlikely, by themselves, to prevent railroads from offering discounts to independent refiners. Independent refiners under the South Improvement contract paid the railroads substantially more than they received from the evening refiners. For example, as described above, on shipments from Cleveland to New

48. This is a reasonable rough estimate since Standard Oil had not "squeezed" the railroads in 1868 when it negotiated its $1.30 per barrel rate and the competitive rate at the time for shipping crude from the Oil Regions to New York, a shorter distance, was $0.87 per barrel. *See supra* note 46.

York independent refiners paid $2.00 per barrel compared to Standard Oil's rate of only $1.50 per barrel.[49] The potential railroad cost savings associated with transporting Standard Oil's shipments rather than independent refiner shipments were highly unlikely to be as much as this $0.50 per barrel difference.[50] Therefore, in the absence of drawbacks, railroads would make more profit on the margin from increased independent refiner shipments and have found it in their interests to increase their independent refiner shipments even if offset with a barrel-for-barrel reduction in shipments by Standard Oil. The competition by railroads for increased independent refiner shipments would have led to railroads "cheating" on the collusive arrangement with offers of secret rebates to independent refiners from the South Improvement Company list rates.

The South Improvement Company collusive arrangement was based on the reasonable assumption that secret discounts and side payments made by a railroad to independent refiners would be difficult to detect, but that a railroad's increased independent refiner shipments could much more easily be detected and offset.[51] However, offsetting a "cheating" railroad's increased independent refiner shipments with reduced evening refiner shipments would not be sufficient to eliminate the incentive for railroads to offer independent refiners discounts for increased traffic because railroads earned more profit on independent refiner shipments. If the railroads also had to pay drawbacks on their independent refiner shipments, this would create an extra cost for railroads on their independent refiner shipments and stabilize the railroad cartel. In fact, because per barrel rebates equaled per barrel drawbacks, there was absolutely no economic incentive for a railroad to deviate from agreed upon rail rates by offering discounts to independent refiners.[52] Consequently, drawbacks, combined with offsetting evening

49. Granitz & Klein, *supra* note 6, at 11 tbl.2.

50. The large economies of scale achieved by the Erie and Central Railroads under the previous arrangements negotiated by Standard Oil for most of the Cleveland refiners would no longer exist because Standard Oil's production accounted for only 15 percent of total Cleveland shipments. Moreover, the independent refiners that accounted for the remaining 85 percent of shipments could, in principle, have continued to jointly commit to offer large shipments to a railroad and therefore reduce effective transportation costs.

51. The South Improvement Company examined each railroad's shipping records and Standard Oil later hired agents to monitor actual railroad shipment flows. *See infra* note 69.

52. Priest incorrectly claims that drawbacks reduced, but did not completely eliminate, the incentive of railroads to offer discounts to independent refiners because the higher rail rate received on independent refiner shipments less the drawback the railroad paid would still exceed the railroads' marginal cost of transport. This, however, ignores the fact that under the arrangement the railroad would also experience a loss of South Improvement Company refiner shipments. *See* Priest, *supra* note 8, at 513 n.80.

shipments, effectively eliminated the ability of independent refiners to negotiate competitive rebates from the South Improvement Company collusively set list rail rates.

4. Standard Oil Uses the South Improvement Company to Acquire Cleveland Refineries, December 1871–March 1872

In late February 1872, the crude producers in the Oil Regions became aware of the new higher shipping rates they would shortly face under the South Improvement Company contract and began to protest. Because of the relatively inelastic supply of crude, much of the collusive increase in shipping rates would be expected to be reflected in lower crude prices in addition to higher refined product prices.[53] In what became known as the "Oil War," the crude producers established the Petroleum Producers Union, which organized an embargo on crude shipments to the designated South Improvement Company refiners.[54] Crude producers that shipped to South Improvement Company refiners were threatened with personal injury and property damage, and the embargo, while not complete, was highly effective.[55] Meanwhile, the Petroleum Producers Union actively lobbied the Pennsylvania legislature for relief.[56] The resulting economic and political pressure led the railroads on March 25, 1872 to cancel their contracts with the South Improvement Company and on April 1, 1872 to reach an agreement with the Petroleum Producers Union on a new schedule of reduced rates.[57] One day later, on April 2, 1982, the state of Pennsylvania revoked the South Improvement Company's charter and the Company went out of business.[58]

Although the South Improvement Company arrangement did not go into effect, in the three-month period between when the South Improvement Company was established in late December 1871 and the demise of the Company in late March 1872, Standard Oil acquired essentially all the refineries in Cleveland, many of them at distress prices.[59] However, even if, contrary to the testimonial evidence, Standard did not acquire the refineries at distress prices, these acquisitions would be highly

53. Industry profit-maximizing monopolistic railroad rates would take account of the rising marginal factor cost of crude supply as well as the negatively sloped demand for refined product. Granitz & Klein, *supra* note 6, at 12 fig.2.

54. *Id.* at 14.

55. *Id.*

56. *Id.* at 15.

57. *Id.* at 14–15.

58. *Id.* at 15.

59. *Id.* at 15–16.

profitable. Standard Oil would receive rebates and earn the corresponding profits on what would now be its own refined product shipments. Drawbacks paid by the railroads on independent Cleveland refiner shipments would be reduced a corresponding amount, but Standard Oil would now earn all the refining share of monopoly profits on these shipments and not have to share the profits, paid in the form of drawbacks, with other South Improvement Company members.[60]

Although it was in Standard Oil's interests to use the South Improvement Company to acquire refineries in Cleveland, Priest asks the perceptive question of why the other evening refiners were not similarly able to act quickly and acquire all the independent refiners in their respective cities.[61] Independent refiners in all cities presumably believed they would shortly face grossly disadvantageous rail rates. However, Standard Oil had important advantages not possessed by the other evening refiners that permitted Standard to rapidly consolidate its position in Cleveland.

First of all, as described above, the Cleveland refiners over the previous two years had become dependent on Standard Oil to negotiate low rail rates for them with the Central and Erie Railroads. Standard Oil now represented that it could no longer serve as their negotiating agent in obtaining rail discounts for them. Secondly, the previous experience of the railroads with Standard Oil's joint refiner negotiations made the railroads comfortable to facilitate Standard's acquisitions and reinforce Standard Oil's representations to the Cleveland refiners. In particular, Peter Watson, the railroad executive who was the South Improvement Company president, and James Devereux, vice president and general manager of the Lake Shore Railroad, both confirmed in communications with the Cleveland refiners that the substantially higher rail rates under the South Improvement Company would, in fact, shortly be the new state of affairs the refiners would be facing.[62] Both of these factors clearly motivated the independent refiners in Cleveland to sell out to Standard.

60. *Id.* at 16 n.39. Priest mistakenly argues that this Granitz and Klein footnote claims that the Cleveland acquisitions would have been profitable for Standard Oil only if the acquisition price was less than market price by the present discounted value of the expected drawbacks that would otherwise have been received by Standard Oil. *See* Priest, *supra* note 8, at 523. The Granitz and Klein footnote, while unfortunately somewhat confusing, says no such thing; it clearly describes the shift of profits to Standard Oil from other South Improvement Company shareholders as a result of the acquisitions.

61. Priest, *supra* note 8, at 523.

62. Granitz & Klein, *supra* note 6, at 15–16.

5. Standard Oil's Behavior Indicates the Railroads Were Correct to Have Supported Standard's Cleveland Refinery Acquisitions, 1872–1874

George Priest argues that the railroads' support of Standard Oil's Cleveland acquisitions seems contrary to what one might expect on economic grounds. He asks the fundamental question of why it was in the railroads' interests to facilitate Standard Oil's consolidation of refining in Cleveland, when doing so would create a monopsony purchaser of petroleum transportation services for the Erie and Central Railroads.[63] Given the collusion that existed among the railroads in the South Improvement Company, consolidation of refining in Cleveland therefore would appear unnecessary for the railroads to achieve their goal of monopolizing petroleum transportation and hence earning all petroleum industry profits. All that is necessary to earn all petroleum industry profits is a monopoly on one stage. However, the entire motivation of the railroads' establishment of the South Improvement Company was that the railroads could not assume, given their past unsuccessful experience, that their cartel would be stable. Standard Oil's consolidation of refining in Cleveland, and the resulting more effective cartel enforcement, would significantly increase the probability that the railroad cartel would survive.

On the other side of the scale in determining whether to support Standard Oil's Cleveland acquisitions, the railroads may have feared that Standard Oil's consolidation in Cleveland would increase Standard Oil's bargaining power and hence the share of industry monopoly profits Standard Oil would be able to negotiate. Specifically, after Standard Oil controlled all of Cleveland refining, the Erie and Central Railroads faced an increased risk that Standard would ask for and receive a significant increase in its rebates on Cleveland shipments.

The Erie and Central Railroads, in deciding whether to support Standard Oil's Cleveland acquisitions, would trade off (a) the advantage of an increased likelihood the overall industry monopoly would survive as a result of Standard Oil's consolidation against (b) the disadvantage of a possibly decreased monopoly profit share as a result of Standard Oil's increased bargaining power. In making this judgment, the Erie and Central had evidence that since 1868 Rockefeller recognized the importance of not unreasonably "squeezing" railroad profitability when it bargained for favorable rates for a similarly very large share of Cleveland refiner shipments. Standard Oil's acquisitions would not substantially increase the

63. Priest, *supra* note 8, at 506.

share of Cleveland petroleum shipments Standard would be negotiating over. The only change would be that Standard Oil would also now be negotiating for a share of industry monopoly profits under the South Improvement Company arrangement. Rockefeller appears to have fully recognized the increased importance of not destabilizing the proposed monopoly equilibrium at the expense of some additional short-term profit he might be able to obtain from the situation.[64]

In fact, the railroads' expectation that Standard Oil would not jeopardize the future industry monopoly by taking advantage of its bargaining power in Cleveland was fully consistent with Standard Oil's actions during the interim period, 1872–1874, after the demise of the South Improvement Company and before Standard Oil began its systematic refinery acquisitions throughout the United States. This period was unfortunately discussed too quickly in the Granitz and Klein article. Almost immediately after a discussion of the demise of the South Improvement Company in 1872, we moved to a description of Standard Oil's re-creation of the economic essence of the South Improvement Company arrangement with Standard Oil now serving as the sole evening refiner beginning in 1874. The interim two-year "competitive" period between 1872 and 1874 is important because it provides useful insights about Standard Oil's intentions and the likely expectations of the railroads regarding future Standard Oil actions when they facilitated Standard's Cleveland refinery acquisitions.

In 1872, along with the termination of the South Improvement Company, the Petroleum Producers Union reached agreement with the railroads to reduce list rail rates. For example, the new list railroad rate on refined product shipments from Cleveland to New York was set at $1.50 per barrel. Standard Oil, which now owned essentially all the refineries in Cleveland, negotiated agreements with the Central Railroad whereby, in exchange for guaranteed shipments of refined product from Cleveland to New York, Standard received rebated rates of $1.25 per barrel in the summer months and $1.40 per barrel in the winter months, or a weighted average rate of $1.31 per barrel.[65]

64. Rockefeller was apparently already envisioning use of Standard Oil's dominant Cleveland position as the first step to ultimately monopolizing refining in the entire United States. He boasts in his papers that "the idea was mine" to consolidate and organize the industry under the control of Standard Oil. CHERNOW, *supra* note 4, at 160. He cites the years 1869 and 1870 as "the start of his campaign to replace competition with cooperation in the industry." *Id.* at 130.

65. Granitz & Klein, *supra* note 6, at 17–20. Standard Oil negotiated a similar agreement with the Erie Railroad in 1874. *Id.*

These rates are clear evidence that Standard decided not to exercise the monopsony power it possessed as a consequence of its now dominant position in Cleveland when bargaining with the railroads. Although Standard owned essentially all Cleveland refineries, the rate paid by Standard to the railroads on its shipments in 1872 was actually somewhat above the rate negotiated by Rockefeller in 1868 and substantially above "ruinously competitive" railroad rates.[66] Standard Oil clearly appears to have decided that, rather than squeezing the railroads for a lower "ruinously competitive" rate over the short term, its preferred course was to cooperate with the railroads in the hope that it would be able to re-create over the longer term the industry monopoly envisioned by the South Improvement Company.

Assuming for illustrative purposes that the competitive rate was $1.00 per barrel, the $1.50 per barrel list rate combined with the approximately $1.30 per barrel rebated rate agreed upon between Standard Oil and the Central implied the elimination of about half of total industry monopoly profits with the remaining profits split 40 percent for Standard Oil and 60 percent for the railroads. The Central and the Erie certainly could not increase their rates, either individually or together, to the previous industry monopoly level of $2.00 per barrel. Not only would this have violated the Petroleum Producers Union agreement and been unacceptable politically, it would not have been profitable for the Central and Erie because they were not coordinating with the Pennsylvania Railroad and the higher Central and Erie rates would have diverted industry crude shipments to other refining centers at the expense of Cleveland. In order for an industry monopoly to be created, all three railroads would have to act together. A collusive monopoly therefore would require, at a minimum, the further cooperation of the previous evening refiners in all four refining centers.

B. STANDARD OIL ACHIEVES U.S. REFINING INDUSTRY DOMINANCE

1. Standard Oil Uses Favorable Rail Rates to Acquire Refineries Outside Cleveland, 1874–1879

In 1874 Standard began to create an arrangement that mirrored the fundamental economics of the South Improvement Company arrangement

66. Because there was price deflation during the 1870s, a rate of $1.31 per barrel in 1872 was equivalent to an inflation-adjusted 1870 rate of $1.36 per barrel. *Id.* at 18 n.43 (basing calculations in part on the U.S. price level taken from MILTON FRIEDMAN & ANNA J. SCHWARTZ, MONETARY TRENDS IN THE UNITED STATES AND THE UNITED KINGDOM: THEIR RELATION TO INCOME, PRICES, AND INTEREST RATES, 1865–1975, at 122 tbl.4.8 (1982)).

by acquiring the previously designated evening refiners in other cities. On January 1, 1872 (before the demise of the South Improvement Company), Standard Oil had already acquired J.A. Bostick, the designated South Improvement Company refiner in New York. In 1874, Standard Oil secretly merged with the previously designated South Improvement Company refiners in Pittsburgh and Philadelphia.[67] Standard Oil's ownership of the four refineries that were previously designated as evening refiners meant that Standard now controlled a significant refiner in each of the four major refining centers. Standard Oil therefore had the potential to enforce higher independent refiner railroad rates by shifting its shipments across railroads to punish any railroad that offered discounted rates to independent refiners. Standard Oil could now use the railroads to monopolize the petroleum industry.

The railroads supported these developments, and in 1874 substantially increased their list rail rates. List rates on refined product and crude oil shipments, which in 1872 were approximately 30 percent higher than grain shipments on a cents per ton mile basis, increased to an 80 percent premium in 1874 and ultimately to a more than 100 percent premium relative to both grain and coal by 1877.[68] In addition to setting very high list rail rates in 1874, Standard Oil received a significant rebate and set individual railroad market shares at the exact same levels earlier set by South Improvement Company agreement (45 percent for the Pennsylvania and 27.5 percent each for the Erie and Central) and committed to enforce these market shares with shifts in its shipments across the railroads.[69] Although the South Improvement Company was long dead, Standard Oil in 1874 had fully re-created the South Improvement Company arrangement.

As expected, when the news of increased rail rates surfaced on September 9, 1874 in the so-called Rutter Circular, crude producers were once again upset and called mass protest meetings in the Oil Regions.[70]

67. NEVINS, *supra* note 40 at 135, 209–10.

68. Granitz & Klein, *supra* note 6, at 22 tbl.3. Although Priest, *supra* note 8, at 522, correctly notes that rail rates across commodities on a cents per ton mile basis may not be entirely comparable, *changes* in the ratio of such rail rates across commodities provides useful information.

69. Granitz & Klein, *supra* note 6, at 19. Standard Oil not only examined the railroads' shipping records, as was contractually specified in the original South Improvement Company arrangement, but also used agents to monitor actual railroad shipment flows in order to detect deviations from agreed upon railroad market shares. *Id.* at n.72. "Rockefeller fostered an extensive intelligence network, assembling thick card catalogs with monthly reports from field agents, showing every barrel of oil sold by independent marketers in their territory—Standard Oil spies collected much of this information from grocers and railway-freight agents. One Cleveland refiner discovered that Standard paid his bookkeeper twenty-five dollars a month to provide information on his shipments." CHERNOW, *supra* note 4, at 256.

70. CHERNOW, *supra* note 4, at 170.

However, while the Petroleum Producers Union's was able to destroy the original South Improvement Company contract in the 1872 Oil War, conditions had changed significantly in the intervening two years so that the crude producers could no longer prevent the movement to petroleum industry monopolization. "Unlike the situation with the [South Improvement Company], the railroads didn't tremble at the uproar but reacted with cool intransigence, knowing the independent refiners were now doomed."[71]

Standard Oil, however, was not content merely to replicate the South Improvement Company. Employing the template it had used in making its Cleveland refinery acquisitions, Standard Oil now took advantage of the higher list railroad rates and its significant preferential rebates to acquire independent refineries throughout the United States at favorable prices. Once again, the railroads faced the same offsetting incentives with regard to this development as they faced in Cleveland—the Standard Oil/railroad conspiracy would become more stable, but the railroad share of monopoly profits could decrease. The railroads, in fact, continued to cooperate and facilitated Standard Oil's acquisitions by squeezing independent refiner profitability with high (greater than monopolistic) list railroad rates while offering Standard significant rebates.[72] As a result, by 1879 Standard Oil was able to achieve control over 90 percent of U.S. refining capacity.[73]

2. Refining Plus Transportation Profits Increase Dramatically

Once Standard Oil controlled a dominant share of refining in each of the major refining centers, petroleum industry profits rose dramatically. Priest claims that it is difficult, if not impossible, to measure the increase in petroleum industry profitability as a result of Standard Oil's monopsony on the purchase of crude and its monopoly on the sale of refined products because of the very large decline that occurred over this period in both crude and refined product prices, in part due to significant technological

71. CHERNOW, *supra* note 4, at 170. It is possible that Rockefeller had learned in the interim the important lesson of taking care of his political flank. There is evidence that Standard Oil later (in 1877) made secret payments to legislators to defuse regulatory efforts to prevent railroad and pipeline rate discrimination. *Id.* at 206–07.

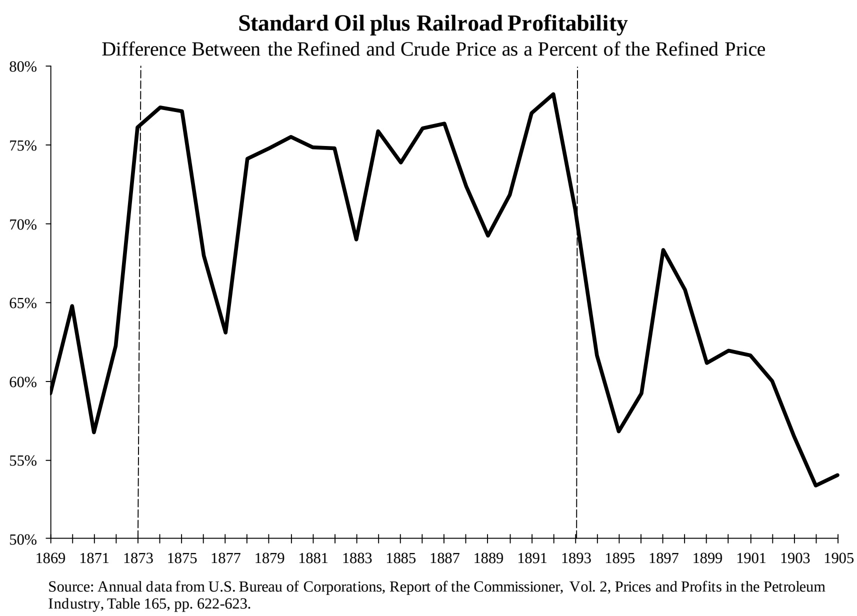
72. For example, in 1878, when the list railroad rate on crude shipments to New York was set at $1.70 per barrel, Standard Oil paid only $1.06 per barrel after its nearly 40 percent rebate of $.64 per barrel. This implied an approximate marginal refinery profit (excluding capital costs) earned by Standard Oil on its New York refining operations of $0.49 per barrel, while at the same time independent New York refiners, even if they had similar variable refining costs, earned an implied profit (excluding capital costs) of minus $0.15 per barrel. Granitz & Klein, *supra* note 6, at 20 n.53.

73. *Id.* at 21–23 (describing Standard Oil's acquisition of numerous refineries between 1873 and 1879); NEVINS, *supra* note 40, at 255.

improvements that decreased the costs of crude production and refining.[74] In fact, over the 1873–1879 period, crude prices decreased 46 percent and refined prices decreased 49 percent.[75] One therefore cannot look at the trend of prices as a measure of monopoly or specifically infer from the decline in refined product prices that the petroleum industry was performing competitively.

A reasonable economic measure of changes in petroleum industry monopoly profits over time is the gap between the refined price and the crude price as a percent of the refined price. This measures the sum of refining plus transportation margin as a percent of the refined price and hence is a measure of the combined profits earned by Standard Oil and the railroads over time, which is plotted in the figure below.

FIGURE. Standard Oil Plus Railroad Profitability



This measure of petroleum industry profitability takes account of major economic changes that affected the competitive level of crude and refined prices over time. For example, the measure takes account of the significant overall price deflation that was occurring in the economy during the 1870s, when the general level of prices fell more than 30 percent

74. Priest, *supra* note 8, at 549.

75. *See* U.S. BUREAU OF CORPORATIONS, REPORT OF THE COMMISSIONER, PART II: PRICES AND PROFITS IN THE PETROLEUM INDUSTRY, 622–23 tbl.165 (1907).

between 1869 and 1879.[76] Although this would be expected to decrease the level of both crude and refined prices, there would be no reason for it to affect the ratio of the refined minus crude price relative to the refined price. In addition, the measure takes account of the very substantial growth in the demand for and output of refined products that occurred during this period. If as demand shifted out over time demand elasticity remained relatively constant at alternative prices (a not unreasonable approximation), the ratio of the difference between refined and crude prices relative to the refined price would remain unchanged unless there was a change in the exercise of monopoly power at the refining and/or transportation level. Finally, the ratio of difference between the refined price and the crude price relative to the refined price would remain unchanged in response to technological change if crude production, refining, and transportation costs all decreased proportionally over time.[77]

As we can clearly see from the figure, the combined profits of Standard Oil and the railroads increase dramatically after 1873, when Standard Oil began its industry-wide monopolization, and generally remain at that higher level for two decades. Specifically, the combined Standard Oil and railroad profit margin, which averaged 61 percent in the 1869–1872 period, increases to an average of 74 percent in the 1873–1893 period. This is a highly statistically significant increase.[78]

3. Standard Oil Shares Petroleum Industry Monopoly Profits With The Railroads

Although it is clear that total petroleum industry profits increased dramatically after 1873, the relative shares of petroleum industry profits earned by Standard Oil and the railroads cannot be determined from the above analysis. However, as opposed to the implied Priest hypothesis that Standard Oil earned all of the industry monopoly profits because it acted as

76. Historical price level data is taken from FRIEDMAN & SCHWARTZ, *supra* note 66, at 122 tbl.4.8.

77. If the marginal costs of refining and of transportation decreased over time relative to the marginal costs of crude production, which may very well have been the case during the 1870s, this would decrease the ratio somewhat and therefore the figure may actually understate the increase in petroleum industry profitability that occurred after 1873.

78. The null hypothesis that the average ratios are equal in the 1869–1872 and 1873–1893 period is rejected at the 0.01 level. The average refining plus transportation margin falls back to 60 percent in the 1894–1905 period, after Standard Oil loses its control over petroleum transportation in 1893 with the entry of the United States Pipe Line and independent refiners. Numerous additional independent refiners also entered after the discovery of new oil fields, especially the important fields in Texas in 1901 and in Kansas and Oklahoma in 1905, areas over which Standard Oil had absolutely no control over transportation. Granitz & Klein, *supra* note 6, at 37–39.

a monopsonist purchaser of petroleum transportation services from the railroads, there is overwhelming evidence that the railroads received a share of the petroleum industry monopoly profits created after 1873. First of all, it was economically necessary for Standard Oil to share petroleum industry monopoly profits with the railroads if Standard was to achieve and maintain its refining monopoly. Only by doing so would the railroads agree (contrary to their narrow individual economic interests) to charge extremely high rail rates to independent refiners, which is what permitted Standard Oil both to acquire independent refiners on favorable terms and to prevent independent refiners from entering or expanding and thereby weakening Standard Oil's dominant refining position.

The importance for Standard Oil to share profits with the railroads to ensure their cooperation in establishing and maintaining Standard's refining monopoly is evidenced by the periodic threats to Standard Oil's refining dominance when the railroad conspiracy broke down. The first example of this occurred almost immediately, in 1875, when the B&O Railroad, in combination with the recently completed Columbia Conduit Pipeline, became a new effective transportation alternative for independent refiner shipments.[79] In competition with the three colluding railroads, the B&O offered independent refiners discounts from the established collusive rates. This led to more widespread rail rate discounts and to the entry and expansion of independent refiners at the expense of Standard Oil. As a result, the B&O was shortly brought into the railroad cartel, list rail rates were restored and the B&O allocated a market share of petroleum shipments, with the new agreed upon railroad market shares set at 52 percent for the Pennsylvania, 9 percent for the B&O, and the remaining 39 percent shared equally between the New York Central and Erie railroads.[80] If Standard Oil were actually setting monopsonistic rail rates, rather than sharing some petroleum industry monopoly profits with the railroads, it is unclear why the B&O would have joined the arrangement, or why any of the other railroads would have remained in the arrangement.

Evidence of the problem Standard Oil faced in keeping railroads within the collusive arrangement is illustrated by the much more disruptive breakdown of the railroad conspiracy that occured in 1876–1877, in an episode that is referred to in historical accounts as the Empire Rate War.[81]

79. The Conduit Pipeline connected the Oil Regions to Pittsburgh and the B&O then shipped the crude to independent refineries in Baltimore, from where refined product could be exported. Granitz & Klein, *supra* note 6, at 32.

80. *Id.* at 19, 31–32.

81. *Id.* at 28–31.

In 1876, the Pennsylvania Railroad used the Empire Transportation Company ("the Empire"), an affiliated company that coordinated the Pennsylvania's shipments, to vertically integrate into refining.[82] By using the Empire to open and rapidly expand refineries, the Pennsylvania could bypass the Standard Oil enforced market shipment and profit sharing collusive arrangement, in effect lowering the implicit effective rail rates on its own internal shipments to and from Empire refineries. In this way, the Pennsylvania earned the total monopoly profits (monopoly profits on refining as well as transportation) on Empire shipments.

Standard Oil responded to this challenge to its control of refining by withdrawing all its shipments from the Pennsylvania Railroad. This involved the significant cost of shutting down its Pittsburgh refineries and shifting its reduced production entirely to its Cleveland refineries. The Pennsylvania responded in turn with dramatic rail rate cuts in an attempt to obtain increased independent refiner shipments, and the resulting price war led to a large increase in crude prices and a decrease in refining and transportation profits, reflected in a sharp downward spike in the figure during 1876–1877 when the Empire Rate War was occurring.[83]

Ultimately, the railroad rate war led to a new collusive agreement, with new fixed list rates to independent refiners and a new market sharing agreement that involved market shares set at 47 percent for the Pennsylvania, 21 percent each for the Erie and the Central, and 11 percent for the B&O.[84] The restoration of the industry monopoly profits is illustrated by the increase in the ratio of the refining plus transportation margin relative to the refined price that occurs in 1878 along with the re-establishment of extremely high list railroad rates in late 1877.[85]

There is also direct evidence that Standard Oil shared industry monopoly profits with the railroads. Although list rail rates were at historically high levels, both in relationship to other commodities and

82. In October 1876 the Empire Transportation Company purchased two refineries, one in New York and one in Philadelphia, and in early 1877 took steps to enlarge its New York refinery and began construction of a new large refinery in Philadelphia. *See* COMM. ON MANUFACTURE, H.R. Rep. No. 50-3112, at 175, 178 (1888) (Cassatt testimony). The Empire's refineries originally had a capacity of 4,000 barrels per day, NEVINS, *supra* note 40, at 240, which amounted to approximately one-third of the Pennsylvania's allocated share of petroleum shipments.

83. *See supra* Figure.

84. Granitz & Klein, *supra* note 6, at 29. Although the Pennsylvania's share of industry shipments decreased as a result of the Empire Rate War, the share of industry profits Standard Oil provided to the Pennsylvania may have increased if Standard Oil reduced its rebates on Pennsylvania shipments. This is consistent with the fact that in 1878 Standard Oil received only a $0.20 per barrel rebate on Pennsylvania Railroad shipments. CHERNOW, *supra* note 4, at 203.

85. *See* Granitz & Klein, *supra* note 6, at 22 tbl.3.

absolutely, independent refiner shipments on which these rail rates were paid were significantly reduced after Standard Oil consolidated refining. The railroads therefore earned a relatively small and decreasing share of total industry monopoly profits from the collection of high list rail rates on independent refiner shipments after 1874. Consequently, Standard Oil had to pay the railroads a rate net of rebates on its own shipments sufficiently above competitive rates to compensate railroads for their facilitation and protection of its dominant refining position. All the available evidence on rail rates indicates that Standard Oil shared total industry monopoly profits with the railroads in exactly this way.

For example, in 1878, when the list rail rate on crude shipments from the Oil Regions to New York was collusively set at $1.70 per barrel (which implied a negative $0.15 per barrel gross refining margin for independent New York refiners), Standard Oil paid a rate net of rebates of $1.06 per barrel.[86] While this was a significant advantage for Standard Oil, the rail rate paid by Standard Oil was substantially above pre-conspiratorial crude shipment competitive rates, which were $0.87 per barrel in 1871.[87] Adjusting this 1871 rail rate for the overall price deflation between 1871 and 1878 would imply a "competitive" 1878 crude shipping rate to New York of only $0.67 per barrel.[88] If the maximum rail rate required for independent refiners to just "break-even" is $1.55 per barrel ($1.70 per barrel list rate minus $0.15 per barrel estimated independent refiner losses), then the $1.06 per barrel Standard Oil paid the railroads in 1878 implied that the railroads earned more than 40 percent of total monopoly profits.[89]

Contemporaneous testimonial evidence is also fully consistent with the fact that the railroads earned a significant share of industry monopoly profits on their petroleum shipments after 1873. For example, George R. Blanchard, an executive of the Erie Railroad, in describing the rates paid by Standard over the 1874–1878 period, stated that

> continuously from the first contract made by the Standard Company with us on the 17th of April, 1874, this business has averaged from two to five times as much per hundred pounds as the other through freight that we have carried, per ton per mile. . . . [I]t is clearly the most profitable

86. Granitz & Klein, *supra* note 6, at 22. *See also supra* text accompanying note 72.

87. Granitz & Klein, *supra* note 6, at 11, 14–15. *See also supra* text accompanying note 46.

88. *See* FRIEDMAN & SCHWARTZ, *supra* note 66, at 122 (annual data measuring price inflation and deflation for relevant years).

89. Dividing ($1.06 – $0.67) by ($1.55 – $0.67) equals 0.44. This is a conservative estimate of the railroads profit share because the $1.55 per barrel rate implies that an independent refiner "break-even" excluding capital costs. A lower than $1.55 rail rate to cover capital costs would result in a greater railroad profit share.

> business [that] the Erie Railway has done of all its through freight eastward.[90]

Rather than Standard Oil exercising monopsony power over the railroads, the evidence indicates that the railroads were not victims of Standard Oil but shared in the industry monopoly profits created by Standard Oil with the assistance of the railroads.

The Standard Oil collusive arrangement with the railroads was also later disturbed in 1879 by a technological change that led to the entry of the Tidewater long-distance petroleum pipeline. This pipeline, along with the Reading Railroad—a fifth railroad that was outside of the collusive arrangement—transported oil to Philadelphia and New York. Standard Oil recognized that a long-distance pipeline would circumvent its control over transportation and thereby permit the entry and expansion of independent refiners. In response, Standard Oil attempted to prevent construction of the Tidewater pipeline by acquiring a "deadline" that would block the right-of-way across the Tidewater's planned pipeline route.[91] The railroads understandably cooperated with Standard Oil in this ultimately unsuccessful effort to try to block the Tidewater by putting their rights-of-way at Standard's disposal.[92] After Standard Oil's attempt to block the Tidewater failed, a rate war commenced until the Tidewater-Reading combination was brought into the collusive transportation arrangement, after which Standard Oil began immediate construction of its own long-distance pipeline system.[93]

Standard Oil's reaction to the Tidewater is further convincing evidence that the crucial way Standard Oil achieved and maintained its dominance of refining was by colluding with the railroads to prevent independent refiner entry or expansion. Standard Oil's behavior was clearly contrary to the interests of a firm that possessed a stable refining monopoly, and hence a monopsony over petroleum transportation. Standard Oil as a monopsonist would want to see the entry of a low-cost transportation substitute and a fifth railroad to bargain with. Standard Oil's primary goal, however, was not to reduce its transportation costs but to preserve its control over petroleum transportation that served as the basis for its refining monopoly.

90. Testimony of George R. Blanchard, New York Assembly, Proceedings of the Special Committee on Railroads, Appointed Under a Resolution of the Assembly to Investigate Alleged Abuses in the Management of Railroads Chartered by the State of New York, at 3492 (8 vols. 1879–80).

91. *See* Granitz & Klein, *supra* note 6, at 32–33.

92. *Id.* at 33.

93. *Id.* at 32–36.

Not surprisingly, the ratio of the gap between the refined and crude price relative to the refined price remained high after the establishment and Standard Oil's control of long-distance pipelines in the early 1880s. However, while the profit earned on refining and transportation combined remained high and relatively unchanged, the share of total monopoly profits earned by the railroads very likely decreased because the railroads were now a much less important transportation alternative.[94] However, Standard Oil continued to share some industry monopoly profits with the railroads even at this point in time in the form of profit-sharing side payments.[95] Standard made these payments to the railroads because, given the existence of significant industry monopoly profits, the railroads still represented an economically viable transportation alternative for independent refiners.

4. Standard Oil and the Railroads Participated in a "Hub-and-Spoke" Conspiracy

George Priest correctly emphasizes that all that is needed to monopolize the petroleum industry is monopoly control of only one stage of production—either crude supply, refining, or petroleum transportation.[96] His discussion of the numerous attempts by transactors in each of the stages to monopolize the petroleum industry is both analytically and empirically instructive. His analysis suggests that refining was likely the easiest of the three stages to monopolize because of relatively higher marginal costs as a fraction of total costs.[97] However, as discussed further below, the evidence is unambiguous that refining could not be monopolized without the cooperation of the railroads. Priest, in fact, describes two attempts to cartelize refining without the railroads through refining Associations on which Rockefeller served as President: the attempt by the National Refiners Association in 1872 and by the Central Refiners Association in 1875, both of which were unsuccessful.[98]

As with the creation of all monopolies, the increased profit creates

94. For example, by 1887 the three railroads "together carried only 24 percent of the crude shipped to refining centers." *Id.* at 37.

95. The August 1884 Standard Oil agreement with the Pennsylvania Railroad "included a provision by which Standard agreed to pay the Pennsylvania for the likely shortfall between actual petroleum shipments and their guaranteed 26 percent' market share." *Id*. "In addition, in early 1884 Standard gave the Erie a direct subsidy of 2 7/8 cents per barrel on all crude that Standard shipped to its coastal refineries, whether by pipeline or rail." *Id.* These are not actions of a monopsonist.

96. *See* Priest, *supra* note 8, at 520.

97. *Id.* at 520–22.

98. *Id.* at 547–48.

economic incentives for individual refiners to remain outside the monopoly and expand their output and for new refiners to enter. These economic forces were present with regard to Standard Oil's attempts to create a refining monopoly through mergers. Specifically, individual refiners that remained outside the dominant monopoly created by Standard Oil had the incentive to expand their volume and Standard Oil's increased profitability. It also created an incentive for new refiner entry. That is why Standard Oil found it necessary to cooperate with the railroads to jointly monopolize the petroleum industry. Without the railroads squeezing independent refiners with unfavorable rail rates and preventing new refiner entry, Standard Oil's monopoly would not have been stable.

Part of the problem in considering the railroads as participating in a railroad conspiracy in cooperation with Standard Oil may be that, in contrast to the South Improvement Company, the railroads did not initiate the joint collusive arrangement in the post-1874 period. Standard Oil, and not the railroads, was the motivating force in monopolizing the petroleum industry during this period. The fact that the railroads did not initiate or enter into an explicit cartel agreement, as they earlier had done with the South Improvement Company, is the basis of the fundamental criticism made by George Priest of the Granitz and Klein analysis.

Priest also trenchantly asks why it would be in the railroads' interests during the post-1874 period to accommodate the massive Standard Oil consolidation which created a monopsonist in the purchase of petroleum transportation services. Priest's alternative theory is that the railroads were coerced by Standard Oil to act in a way that was contrary to their economic interests. The primary evidence Priest uses to support his hypothesis that the railroads were coerced to support Standard Oil's refining monopoly is Standard Oil's behavior toward the Pennsylvania Railroad during the Empire Rate War.[99]

99. The other evidence Priest refers to is the investments made by Standard Oil in transportation assets after 1874. *Id.* at 551. *See infra* text accompanying note 118. Priest claims that the railroads would not make petroleum-specific investments because they received only monopsony rail rates on petroleum shipments and therefore could not earn a normal rate of return on such investments. Priest, *supra* note 8, at 552. Standard Oil's position as the dominant petroleum shipper did create a potential "holdup problem" because railroad investments related to petroleum transportation became Standard Oil-specific. Economics suggests that in these circumstances both the railroads and Standard Oil would both wish to avoid this problem by Standard Oil making the investments. Benjamin Klein, Robert G. Crawford & Armen A. Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & ECON. 297, 310–13 (1978). The railroads' decision to reduce their Standard Oil-specific investments after Standard Oil became the dominant purchaser of petroleum transportation services in order to avoid a potential holdup, however, does not mean that Standard Oil was acting as a monopsony in the purchase of transportation services. It provides absolutely no

The Empire Rate War illustrates the types of economic pressures present in all conspiracies. While the railroads, including the Pennsylvania, were better off under the existing collusive arrangement—especially when compared to the previous "ruinous" rail rate competition—as with every collusive cartel, a profit incentive exists for individual railroads to improve their position by "cheating" on the arrangement. The Pennsylvania Railroad attempted to do this by integrating into refining and thereby trying to earn monopoly profits on both refining and transportation. The resulting Empire Rate War illustrates that Standard Oil had the ability to impose a crippling sanction on cheating railroads by shifting its business away from railroads that deviated from the conspiracy. However, this involved Standard Oil also bearing very large costs itself.

Whether Standard Oil's cartel policing actions during the Empire Rate War are considered unilateral coercion or the enforcement of a joint conspiracy is to some extent a legal question, discussed in Part IV. But it is clear, both before and after the Empire Rate War, that Standard Oil and the railroads jointly fixed greater than competitive disadvantageous list railroad rates to independent refiners, jointly agreed upon individual railroad market shares and, as we have seen, jointly shared in the monopoly profits created by the collusive arrangement. Standard Oil's enforcement of the railroad conspiracy in the context of the Empire Rate War reflects bargaining between Standard Oil and the Pennsylvania Railroad over the share of total industry monopoly profits each party would earn.

Part of Priest's problem with the Granitz and Klein conclusion that the petroleum industry equilibrium in the 1870s involved a joint conspiracy between Standard Oil and the railroads may be attributed to the Granitz and Klein description of the situation as Standard Oil serving as a railroad "cartel ringmaster." We used this colorful terminology to relate our analysis of Standard Oil's conduct to the highly influential "raising rivals' costs" antitrust analysis under active debate at the time.[100] I now believe it is more useful, both for describing the fundamental economics at work in the Standard Oil case and for categorizing the potential antitrust liability of Standard Oil's conduct, to refer to the relationship between Standard Oil and the railroads throughout the 1870s as an example of what is now called

evidence that Standard Oil was exercising monopsony power in negotiating rail rates. To the contrary, as discussed above, all available evidence indicates the exact opposite; Standard Oil paid relatively high rail rates.

100. The term "cartel ringmaster" was coined by Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion*: *Raising Rivals' Costs To Achieve Power over Price*, 96 YALE L.J. 209, 238 (1986), and our analysis of Standard Oil's monopoly illustrated the economics of the hypothetical case they described.

in antitrust case law a "hub-and-spoke" conspiracy.[101]

A hub-and-spoke conspiracy framework provides a useful way to describe the fundamental economic basis for Standard Oil's ability to achieve and maintain refining dominance. While Standard Oil was not a designated policing agent for an established railroad cartel during 1874–1879 (as it had been under the South Improvement Company), Standard Oil did serve as a cartel enforcer located at a hub and connected by spokes to a horizontal conspiracy among the railroads along the rim. Standard Oil's enforcement of rail rates that were collusively set above competitive levels is what placed independent refining rivals at a significant disadvantage and permitted Standard Oil both to make its refinery acquisitions and to maintain its refining dominance.

The economic importance of railroad collusion to Standard Oil's refining monopoly is illustrated by the examples discussed above of the temporary breakdowns in the railroad cartel during the 1870s. Although technological change increased the minimum efficient scale of refining over time, whenever the railroad cartel broke down and a competitive means of transportation existed outside of the cartel, independent refiners were always able to readily enter, operate profitably, and effectively compete by expanding their production at the expense of Standard Oil. This occurred with the entry of the Conduit Pipeline and the B&O Railroad in 1875,[102] the Empire Rate War of 1876–1877, and the Tidewater pipeline in 1879. In contrast, when the railroads functioned as desired by Standard Oil as a cartel setting high rail rates to independent refiners, there was no economic incentive for new independent refiners to enter because they could not expect competitive transportation to be available.

Priest correctly states that the hub-and-spoke theory is analytically equivalent to the cartel ringmaster theory used in Granitz and Klein.[103] He recognizes that the primary economic point emphasized in Granitz and Klein was that Standard Oil and the railroads acting together were able to accomplish "something jointly that neither of them could do separately."[104] However, Priest later loses this analytical focus on the equivalent economics of a hub-and-spoke and cartel ringmaster conspiracy and

101. The "hub-and-spoke" conspiracy terminology was used by the Federal Trade Commission ("FTC") in *In re Toys "R" Us, Inc.*, 126 F.T.C. 415, 574–82 (1998), which traced this type of conspiracy (although then unnamed) back to *Interstate Circuit, Inc. v. United States*, 306 U.S. 208 (1939).

102. Granitz & Klein *supra* note 6, at 28–35.

103. Priest, *supra* note 8, at 505 n.32.

104. *Id.* at 520(quoting Granitz & Klein, *supra* note 6, at 24).

concentrates on the particular details of how a conspiracy may be formed and enforced, claiming that the Granitz and Klein cartel ringmaster explanation does not apply to the Standard Oil experience during 1874–1879 because the railroads did not establish the conspiracy and did not coerce Standard Oil to enforce a railroad conspiracy. "One interpretation is that these [market share] allocations among the railroads result from the cartel of railroads coercing (somehow) the refiners to police the railroad cartel, the Granitz-Klein explanation. An alternative explanation of these allocations among railroads is that Standard Oil defined them, as a monopsonist of railroad transport services."[105] Priest does not tell us why a monopsonist would want to define individual supplier market shares.

Independent of the labels we use, the economics is clear: Standard Oil and the railroads required one another in order to monopolize the petroleum industry and they both shared in the resulting monopoly profits. Priest claims that, contrary to Granitz and Klein, Standard Oil was "the source of economic power"[106] that created the monopoly. But clearly this power crucially depended on the railroads— whenever the transportation cartel broke down, independent refiners readily entered. Whether we can say an explicit collusive agreement existed between the railroads and Standard Oil is fundamentally a legal question I address in Part IV, after first discussing in Part III the mistaken claim that Standard Oil's receipt of railroad rate rebates and drawbacks were related to efficiencies and therefore should be considered an aspect of the normal competitive process.

III. STANDARD OIL'S PREFERENTIAL REBATES AND DRAWBACKS WERE NOT COST JUSTIFIED

Rockefeller in his later years strenuously argued that railroad rebates were not the reason for his success in establishing dominance of refining during the 1870s, but that his success was due to superior Standard Oil efficiencies.[107] Reksulak and Shughart in a recent article fully adopt Rockefeller's argument, correctly observing that rebates were not "an uncommon practice before or after Standard Oil's founding in 1870"[108] and that "many refiners received rebates, not just the leading firms."[109] However, competing refiners received rebates primarily in the "ruinous

105. *Id*. at 543.
106. *Id.*
107. CHERNOW, *supra* note 4, at 115–17.
108. Reksulak & Shughart, *supra* note 3, at 280.
109. *Id.* at 276 (quoting CHERNOW, *supra* note 4, at 115).

railroad competition" period before Standard Oil achieved dominance;[110] after Standard Oil achieved dominance, independent refiners received rebates only sporadically during the temporary rate wars when the Standard Oil/railroad joint conspiracy broke down. In fact, the very next page of Chernow's *Titan*, the source Reksulak and Shughart cite for the proposition that many firms received rebates, states that, "no other firm received so many rebates so consistently over so many years or on such a colossal scale as Rockefeller's. It was therefore disingenuous of [Rockefeller] to suggest that rebates played only an incidental role in his success."[111]

It also makes absolutely no sense to conclude, as Reksulak and Shughart do, that Standard Oil's "[p]referential treatment by the railroads could not have played a part in Standard Oil's [later] explosive growth because the company already was the nation's largest refiner before it accepted its first rebate."[112] It is true that in 1868, "even before Rockefeller accepted his first rebate, he was the world's largest refiner, equal in size to the next three largest Cleveland refineries combined."[113] However, at this point in time, refining was highly unconcentrated and Standard Oil accounted for only about 4 percent of the U.S. refining industry.

Rockefeller's first rebate agreement in 1868, negotiated with the Central and Erie railroads on behalf of a group of Cleveland refiners, illustrates that rebates were an important element of the normal competitive process. Rebates were a natural consequence of the competition that existed between the railroads for large incremental shipments that could be guaranteed by a refiner or a group of refiners because railroads had high fixed costs and low variable costs. Moreover, large guaranteed shipments had the potential to produce significant railroad cost savings.[114] However, the favorable railroad rebates Standard Oil later received cannot be fully explained, as claimed by Reksulak and Shughart, as a competitive discount in return for Standard's guarantee of profitable incremental shipments and the associated cost savings Standard thereby created for railroads.

The Reksulak and Shughart conclusion, that the railroads simply used rebates and drawbacks as a way to share with Standard Oil the transportation cost savings the railroads achieved in handling Standard's

110. *See supra* text accompanying notes 24–25.

111. CHERNOW, *supra* note 4, at 116.

112. Reksulak & Shughart, *supra* note 3, at 280.

113. CHERNOW, *supra* note 4, at 114.

114. *Id.* at 113 (describing the Central's cost savings from the original 1868 guaranteed shipment arrangement Rockefeller negotiated for Cleveland refiners).

shipments as part of the normal competitive process,[115] ignores the fact that Standard Oil actively policed the railroads to prevent them from offering rival refiners any rebates from established list rates. If Standard Oil's preferential rebates were due to lower railroad costs of dealing with Standard Oil, Standard would not have had to actively prevent the railroads from offering discounts from agreed upon list rates to independent refiners. Standard Oil's railroad cartel policing behavior is evidence that, in spite of claimed railroad cost savings associated with Standard's shipments, a profit incentive existed for railroads to offer discounts and expand their independent refiner shipments.

Standard Oil's collection of drawbacks on rival refiner shipments, which did not exist in the 1868 rebate agreement Rockefeller negotiated for Cleveland refiners or in other competitively negotiated rebates, is further convincing evidence that Standard Oil's preferential rates involved more than competitively negotiated discounts. Instead, drawbacks were a crucial part of Standard Oil's policy of preventing railroads from offering discounts to independent refiners. As described above, drawbacks were not only the way the railroads initially shared collusive industry monopoly profits with Standard Oil but were also the way the railroad cartel was stabilized by substantially decreasing the incentive of railroads to offer discounts to independent refiners.

Reksulak and Shughart attempt to economically rationalize the existence of drawbacks, which they acknowledge "seem to be a different story" from rebates, by claiming that the railroad cost savings generated by Standard Oil's large guaranteed shipments and railroad investments produced a positive externality that lowered the costs of rail transportation for all refiners, including independent refiners.[116] However, Standard Oil's guaranteed shipments resulted in transportation cost savings primarily because of a reduction in railroad trip times (since the railroad did not have to stop frequently to pick up small shipments) and because the railroad was able to operate a smaller dedicated fleet of tank cars.[117] This was a saving for the railroads on Standard Oil's shipments, not a saving for the railroads on other refiners' shipments.

The investments Standard Oil began to make after 1874 in petroleum tank cars, "warehouses, terminals, loading platforms, and other railroad

115. Reksulak & Shughart, *supra* note 3, at 281.
116. *Id.* at 280.
117. CHERNOW, *supra* note 4, at 113. *See also supra* text accompanying note 31.

facilities"[118] likely made economic sense because Standard Oil had begun to achieve refining industry dominance. As a consequence, these investments associated with petroleum shipments were largely Standard Oil specific. Standard Oil's decision to make the investments, a common occurrence in such circumstances, avoided a significant potential for Standard Oil to "holdup" the railroads that otherwise would have been created.[119] However, whatever the reason for Standard Oil's transportation investments, such investments cannot justify the payment of drawbacks by the railroads to Standard Oil on independent refiner shipments.

The railroads initially jointly obligated themselves to make drawback payments as part of the South Improvement Company contract in 1871, before Standard Oil had made any transportation investments. Furthermore, the tank cars manufactured by Standard Oil and supplied to the railroads did not produce a benefit for the railroads on non-Standard refiner shipments because the cars were leased by Standard Oil to the railroads for such shipments at a mileage rate.[120] The other railroad assets provided by Standard Oil similarly could have been separately charged for. Standard Oil attempted to justify drawbacks in its *Standard Oil* briefs as a substitute for separate Standard Oil usage charges on its provision of railroad assets, specifically the warehousing services Standard Oil supplied on independent refiner shipments. This makes no economic sense, however, because the magnitude of the potential for uncharged benefits received by independent refiners associated with the use of Standard Oil's assets was substantially less than the drawback payments received by Standard Oil.[121]

There is no doubt that Standard Oil operated its refineries efficiently and that these efficiencies existed independently of any transportation cost advantages Standard received as a consequence of the railroad rebates and drawbacks it received. However, it would be incredible to attribute Standard Oil's rapid consolidation of refinery ownership in Cleveland during three months in late 1871 and early 1872 to Standard's production efficiencies rather than the proposed transportation advantages Standard

118. CHERNOW, *supra* note 4, at 116.

119. *See supra* text accompanying note 99.

120. CHERNOW, *supra* note 4, at 170.

121. Daniel A. Crane, *Were Standard Oil's Rebates and Drawbacks Cost Justified?* S. CAL. L. REV. 567–68 (perceptively arguing that there was no reason Standard Oil could not have charged for such warehousing services, with the railroads separately collecting and passing on to Standard the fees paid by independent refiners, as was done by the Erie Railroad). Furthermore, Crane notes that the Erie charged only a five cent per barrel surcharge for warehousing services, much less than the per barrel drawback charges paid by the Erie and Central to Standard Oil, which were set to equal Standard Oil rebates. *Id.* at 569.

obtained under the South Improvement Company contract. There is absolutely no evidence that Standard Oil achieved some new dramatic production efficiency at that particular point in time, and there is substantial evidence that Standard Oil used the favorable proposed rail rates in the South Improvement Company contract in its acquisition negotiations with the Cleveland refiners.

Standard Oil's establishment of its dominant position in U.S. refining during 1874–1879 also cannot be explained by refining efficiencies.[122] If that were the case, new independent refiners would not have been able to freely enter and compete with Standard during the successive, brief periods when the railroad cartel broke down. Furthermore, Standard Oil would not have ultimately lost its monopoly over refining when new oil fields were discovered in areas where it did not have control of transportation. The evidence is overwhelming that Standard Oil's monopoly was fundamentally based on its collusive arrangement with the railroads.

IV. ANTITRUST ANALYSIS OF STANDARD OIL'S CONDUCT

Standard Oil's consolidation of control over refining during the 1870s certainly would be considered illegal today independent of how it was accomplished or what legal organizational form Standard Oil's consolidation took. The Sherman Act, however, was not passed until 1890 and by the time the case was brought in 1906, the actions taken by Standard Oil to establish its refining monopoly during the 1870s were more than twenty-five years in the past. While Standard Oil's alleged anticompetitive acts during the 1870s that led to its monopoly therefore "were put aside, in so far as they were alleged to have been committed prior to the passage of the anti-trust act,"[123] the Supreme Court accepted the appellate court's conclusion that Standard Oil's conduct before passage of the Sherman Act could be considered relevant "as evidence of their (the defendants') purpose, of their continuing conduct, and of its effect."[124]

122. NEVINS, *supra* note 40, attributes the success of Standard Oil to Rockefeller's particular expertise in management, while ALFRED D. CHANDLER, JR., SCALE AND SCOPE: THE DYNAMICS OF INDUSTRIAL CAPITALISM 24–26 (1990) attributes the success to Rockefeller's exploitation of economies of scale.

123. Standard Oil Co. v. United States, 221 U.S. 1, 45 (1911).

124. *Id.* (citing United States v. Standard Oil Co., 173 F. 177, 184 (C.C.E.D. Mo. 1909)). The *Standard Oil* decision breaks Standard's alleged anticompetitive behavior into three distinct periods based on Standard Oil's varying organizational structure over time: (1) 1870 (when the Standard Oil Company of Ohio was formed) through 1882; (2) 1882 (when the Standard Oil Trust among forty separate corporations was formed) through 1899; and (3) 1899 (when the Trust was converted to the Standard Oil Company of New Jersey's holding company) through 1906 (when the complaint was

The Court's discussion of Standard Oil's conduct in creating its dominant position in refining during the 1870s for purposes of establishing Standard Oil's anticompetitive intent, however, does not consider the possibility that Standard Oil operated a collusive relationship with the railroads during this period. Incredibly, the Court's discussion of Standard Oil's initial consolidation of refining in Cleveland during late 1871 and early 1872 makes no mention whatsoever of the South Improvement Company or of any railroad coordination with Standard Oil.[125] Perhaps this obvious oversight is due to the fact that the South Improvement Company never went into effect. But the contemporaneous evidence clearly indicates, as we have seen, the importance of the preferential rail rates provided to Standard Oil in the South Improvement Company agreement in facilitating Standard Oil's successful acquisitions of most Cleveland refineries.

The Court does make clear that Standard Oil's later refinery acquisitions throughout the United States during 1874–79 did crucially depend upon Standard Oil's receipt of "large preferential rates and rebates" and that "by means of the advantage thus obtained many, if not virtually all, competitors were forced either to become members of the combination or were driven out of business."[126] However, the Court ignores the active role of the railroads in this process, including the railroads' payment of drawbacks to Standard Oil on independent refiner shipments, and Standard Oil's commitment to enforce railroad petroleum shipment shares, and to punish railroads that offered rival refiners rate discounts.

The Court mistakenly attributes Standard Oil's ability to obtain preferential railroad rebates during this later period entirely to Standard Oil's previous consolidation in Cleveland. The Court states that as a consequence of "the power thus obtained," Standard Oil was able to negotiate rebates.[127] How Standard Oil's position in Cleveland provided leverage over the Pennsylvania Railroad is unclear. Moreover, the Court does not even mention the railroad market sharing agreements reached during this period and enforced by Standard Oil. While the Court correctly emphasizes and condemns Standard Oil's anticompetitive use of rebates during the 1870s designed to place refining rivals at a disadvantage, the Court's failure to recognize the essential role played by the railroads in this

filed). *Id.* at 31–42. The focus of the case is Standard's conduct after its organizational change from the Trust to a holding company in 1899, which the Court concludes was motivated by Standard Oil's attempt to circumvent an 1892 decree of the Supreme Court of Ohio directed against the Standard Oil Trust as an unlawful monopoly and restraint of trade. *Id.* at 74–77.

125. *Id.* at 32.

126. *Id.* at 33.

127. *Id.* at 32–33.

anticompetitive process presents an incomplete view of the economic forces that facilitated Standard Oil's refining consolidation.

The crucial role of the railroads in permitting Standard Oil to achieve dominance of refining may have been ignored by the Court because railroad petroleum transportation was no longer economically relevant at the time the case was brought. While railroad pooling arrangements were considered illegal price-fixing agreements shortly after passage of the Sherman Act,[128] by the time the Standard Oil organizational change at issue in the litigation occurred in 1899, Standard Oil's long-distance pipelines had essentially become the exclusive means of transportation for crude and refined products from the Oil Regions. However, it would have been important to consider how Standard Oil coordinated its actions with the railroads during the 1870s to more clearly establish Standard Oil's original anticompetitive intent and to explain how the preferential rebates received by Standard Oil that led to its dominance were not part of the normal competitive process.

While Standard Oil's essential relationship with the railroads during the 1870s was largely ignored in the *Standard Oil* decision, it would not be ignored today. However, exactly how Standard Oil's use of its relationship with the railroads to establish and maintain its refining monopoly during the 1870s would be analyzed today is somewhat uncertain. It would fundamentally depend on whether the railroads are considered to be co-conspirators with Standard Oil, with Standard Oil's conduct in establishing its refining monopoly considered to be the enforcement of a hub-and-spoke Standard Oil/railroad joint conspiracy analyzed under Section 1 of the Sherman Act, or whether Standard Oil is considered to have acted unilaterally and merely used the railroads to achieve its refining monopoly, with Standard Oil's conduct in establishing its refining monopoly analyzed under Section 2 of the Sherman Act.

Recent Section 1 case law with regard to the existence of a hub-and-spoke conspiracy requires that evidence be presented sufficient to infer an agreement among the firms that constitute the rim of the claimed conspiracy—in this case the railroads. For example, in 2006 the Seventh Circuit upheld summary judgment for defendants with regard to a claim that a cigarette manufacturer conspired with cigarette retailers in a hub-

128. *See generally* United States v. Trans-Missouri Freight Ass'n, 166 U.S. 290 (1897) (establishing the principle that cartels and other price fixing agreements are illegal regardless of the "reasonableness" of the price that is fixed); United States v. Joint Traffic Ass'n, 171 U.S. 505 (1898) (same).

and-spoke conspiracy to exclude cheaper cigarette brands on the grounds that there was no evidence of an agreement among the retailers.[129] Evidence of an agreement obviously does not require an explicit agreement among the railroads as existed with the proposed South Improvement Company agreement. In addition, as discussed above, evidence of an agreement among the railroads does not require that the railroads initiated the agreement, as also occurred in the South Improvement Company agreement. While railroad initiation of a hub-and-spoke conspiracy is likely a sufficient condition for demonstrating the existence of a horizontal collusive agreement among the railroads, it certainly is not a necessary condition.

The legal standard for finding an agreement among the railroads in a hub-and-spoke conspiracy was set out clearly in the Seventh Circuit's affirmation in 2000 of the Federal Trade Commission ("FTC") decision against Toys "R" Us.[130] Evidence of a hub-and-spoke collusive agreement among seven leading toy manufacturers (the rim) enforced by Toys "R" Us (the hub) was found to exist despite the fact that there was no explicit written agreement among the manufacturers and although the conspiracy was alleged to have been initiated by Toys "R" Us, not the manufacturers.[131] Toys "R" Us was alleged to have separately agreed with each of the toy manufacturers that they would not offer their products to warehouse clubs in the same packages in which they offered their products to toy retailers.[132] The court inferred the existence of an agreement among the manufacturers by relying in part on the FTC finding that the individual toy manufacturers had accepted this limitation on their product offerings to warehouse clubs only "*on the condition that their competitors would do the same*."[133] Analogously, in the Standard Oil case each railroad—including the Pennsylvania Railroad after it reached an agreement with Standard Oil in 1877 at the conclusion of the Empire Rate War—increased its rates to independent refiners only because it knew the other railroads had agreed to do likewise.

A key question implied by Priest's discussion of Standard Oil is whether we can infer the existence of a railroad conspiracy when the railroads appear to have been forced by Standard Oil at various points in

129. R.J. Reynolds Tobacco Co. v. Cigarettes Cheaper!, 462 F.3d 690, 696–98 (7th Cir. 2006). The Seventh Circuit did not use the term hub-and-spoke conspiracy, but did address that form of conspiracy in upholding summary judgment.

130. *See* Toys "R" Us, Inc. v. FTC, 221 F.3d 928, 932–35 (7th Cir. 2000).

131. *Id.* at 935–36.

132. *Id.* at 931–33.

133. *Id.* at 932 (quoting *In re* Toys "R" Us, Inc., 126 F.T.C. 415, 552 (1998)).

time to participate in the conspiracy. For example, the Pennsylvania Railroad was economically forced to re-enter the collusive arrangement as a result of Standard Oil’s actions during the Empire Rate War. The fact that one party is “coerced” to return to the agreed terms of a collusive agreement, however, does not imply the absence of a collusive agreement for Section 1 purposes. Such policing often occurs with horizontal collusive agreements; it is what keeps the collusion working. Legally, all that is necessary for the existence of a hub-and-spoke conspiracy is that Standard was acting contrary to its independent interests in enforcing a railroad conspiracy. The existence of an express market sharing agreement between the railroads, both before the Pennsylvania Railroad decided to temporarily drop out of the agreement and after the Empire Rate War was resolved, makes it obvious that Standard Oil was policing a horizontal railroad cartel. The Pennsylvania Railroad, as discussed above, was essentially bargaining with Standard Oil over its share of petroleum industry monopoly profits. Furthermore, the resulting new explicit market sharing agreement reached by the parties is clear evidence that Standard Oil and the railroads shared “a conscious commitment to a common scheme designed to achieve an unlawful objective.”[134]

In addition, in the *Standard Oil* case there is direct evidence of railroad negotiations with Standard Oil on the explicit setting of collusive list rail rates to be charged to independent refiners as well as on individual railroad market shares. There also is substantial evidence that the railroads obtained collusive benefits in the form of greater than competitive rail rates. Moreover, the arrangement between Standard Oil and the railroads during the 1874–1879 period also meets the two *Matsushita* conditions necessary to infer the existence of a collusive agreement among the railroads.[135] First, there was a rational motive for the railroads to conspire—a motive reinforced by the fear of a return to the ruinously competitive conditions that previously existed. Second, there was no plausible independent procompetitive justification for the railroads to refuse to offer rebates to independent refiners and agree to pay drawbacks to Standard Oil on independent refiner shipments.[136] All of this indicates that the railroads likely would be considered co-conspirators with Standard Oil in a joint collusive arrangement under current Section 1 antitrust standards.

Standard Oil’s actions in consolidating its dominance over U.S.

134. Monsanto Co. v. Spray-Rite Serv. Corp., 465 U.S. 752, 768 (1984).

135. Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 587 (1986).

136. *Id.*

refining during 1874–1879 also would be considered illegal unitary monopolization behavior under Section 2. As the Supreme Court concludes in describing Standard Oil's use of its large size to obtain preferential rail rates during the 1870s which were then used to acquire or drive out of business rival refiners,

> no disinterested mind can survey the period in question without being irresistibly driven to the conclusion that . . .[Standard Oil had] an intent and purpose to exclude others which was frequently manifested by acts and dealings wholly inconsistent with the theory that they were made with the single conception of advancing the development of business power by usual methods, but which on the contrary necessarily involved the intent to drive others from the field and to exclude them from their right to trade and thus accomplish the mastery which was the end in view.[137]

However, it is unlikely that Standard Oil's preferred rail rates alone could be successfully challenged today under the antitrust laws. As described above, the magnitude of the favorable rebates received by Standard Oil from the railroads did not correspond with lower railroad costs of handling Standard Oil's shipments. The fact that independent refiners were able to enter and expand in competition with Standard Oil whenever the railroad cartel temporarily broke down is convincing evidence that Standard's rebates were not cost justified. But Standard Oil's rebates would not today be considered a case of secondary line price discrimination because the Robinson-Patman Act now clearly applies solely to tangible products or commodities, and not to rail services.[138]

Although Standard's rebates might be difficult to challenge under today's antitrust laws, Standard Oil's negotiation of drawbacks may very well be considered a form of exclusionary behavior. Drawbacks effectively prevented rival refiners from competing because they prevented refiners from obtaining rebates from list rates. Accordingly, although there is extensive discussion of the anticompetitive effects of the preferential

137. Standard Oil Co. v. United States, 221 U.S. 1, 76 (1911). In addition to preferential rebates, the Court's description of Standard Oil's anticompetitive monopolization conduct during the Court's designated first period of analysis, 1870–1882, included Standard Oil's control of petroleum pipelines. However, this behavior occurred after 1879, when Standard Oil had already achieved its dominant position in refining. Granitz & Klein, *supra* note 6, at 32–36. The Court also refers to Standard Oil's predatory pricing as monopolization conduct, but this conduct is claimed by the Court to have occurred in the later two designated periods, not during the 1870s. *Standard Oil*, 221 U.S. at 43. *See generally* Christopher R. Leslie, *Revisiting the History of* Standard Oil, 85 S. CAL. L. REV. 573 (2012).

138. Rochelle R.R. v. City of Rochelle, No. 97 C 50415, 1998 U.S. Dist. LEXIS 13043, at *9 (N.D. Ill. 1998); Alliance Shippers, Inc. v. S. Pac. Transp. Co., 673 F. Supp. 1005, 1008 (C.D. Cal. 1986), *aff'd*, 858 F.2d 567 (9th Cir. 1988).

rebates received by Standard Oil during the 1870s, the decision's major shortcoming is that it makes absolutely no mention of drawbacks as an important element of Standard's anticompetitive conduct.

The drawback payments made by the railroads on rival refiner shipments to Standard Oil, combined with Standard Oil's reduced shipments to a railroad that increased independent refiner shipments, are what eliminated the incentive for a railroad to offer any discount from fixed rail rates to independent refiners. Because independent refiners faced negative profit margins at the fixed list rail rates,[139] drawbacks made it essentially impossible for a rival refiner with refining costs equal to or lower than Standard Oil's refining costs to compete for incremental railroad capacity and survive in competition with Standard Oil. Standard Oil therefore may be described as using its monopoly power "to exclude from . . . [its] market an equally or more efficient competitor."[140] In addition to anticompetitively foreclosing refining rivals, drawbacks are particularly troublesome because there are no obvious procompetitive rationales for such payments, or for the other Standard Oil actions—including the shifting of its shipments away from railroads that increased independent refiner shipments—that prevented railroads from offering discounts from fixed list rail rates to rival refiners.

V. CONCLUSION

The control of exclusionary practices by dominant firms has been the cutting edge of antitrust doctrine since the *Standard Oil* decision. A review of the Court's discussion of how Standard Oil anticompetitively created its refining monopoly during the 1870s serves as a clear reminder of how far we have come over the last century in the antitrust analysis of such practices. The Court's emphasis on Standard Oil's anticompetitive conduct in obtaining advantageous railroad rebates, which it then used to acquire or drive out refining rivals, is a useful first step of the analysis. Yet Standard's preferential rail rates would be unlikely, in itself, to provide sufficient grounds for antitrust liability today. Standard Oil's behavior in enforcing a hub-and-spoke railroad conspiracy, by which railroads set rail rates above competitive levels to Standard's refinery rivals and by which Standard Oil fixed individual railroad market shares and required railroads to pay drawbacks on rival refiner shipments—all of which prevented rival refiners

139. Granitz & Klein, *supra* note 6, at 22. *See also supra* text accompanying note 72.

140. RICHARD A. POSNER, ANTITRUST LAW 194–95 (2d ed. 2001) (restating the legal standard presented in *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 605 (1985)).

from being able to compete effectively with Standard Oil—are obvious grounds on which Standard Oil's conduct would be challenged today under both Section 1 and Section 2. The *Standard Oil* case therefore vividly illustrates the significant shift that has occurred over the last hundred years in the economic analysis of exclusionary practices.