Article

Competitive Injury and Damages Under the Robinson-Patman Act: *Morton Salt* and Statistical Analysis

The Antitrust Bulletin
2015, Vol. 60(4) 318-344

DOI: 10.1177/0003603X15602400
abx.sagepub.com
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Abstract

When a competitor, who sells a homogeneous product in the same market, receives a wholesale cost advantage from a manufacturer, economists should expect some competitive injury absent extraordinary circumstances. Competitive injury refers to a disruption of the competitive process, that is, a reduction in competition in the marketplace where the manufacturer's customers compete. A plaintiff may show competitive injury directly through lost sales or profits, or competitive injury may be inferred through the "Morton Salt" presumption, from *FTC v. Morton Salt Co.*, 334 U.S. 37 (1948). Once competitive injury is established, a plaintiff can quantify the extent of the competitive injury by measuring the impact of the price discrimination on its profits in order to compute damages. Statistical and econometric evidence often play a large role in damages calculations and, to a lesser extent, the establishment of competitive injury. We present a case study in the gasoline fuel market, where competitors engage in a high degree of price-matching and intense competition. We discuss the computational challenges and our solutions to them. In addition, we discuss the implications of this case study for future Robinson-Patman cases.

Keywords

Robinson-Patman, *Morton Salt*, competitive injury, statistics, regression

For some sixty years, the Robinson-Patman Act has been the unloved stepchild of the antitrust family. The Act has been labeled contrary to the public interest,[1] and as the most controversial of our antitrust laws.[2] The Antitrust Modernization Committee has called for repeal (or substantial overhaul) of the Robinson-Patman Act since 1955.[3] In 1975, the Department of Justice called for the

1. Edward H. Levi, *The Robinson-Patman Act: Is it in the Public Interest?*, 1 A.B.A. Antitrust Sec. 60 (1952).
2. Frederick M. Rowe, *The Robinson-Patman Act—Thirty Years Thereafter*, 30 A.B.A. Antitrust Sec. 9 (1966).
3. *See* Antitrust Modernization Comm'n, Report and Recommendations iii (2007).

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repeal of the Act,[4] and neither it nor the FTC enforces the Act. Robert Bork wrote that "If the new economics is right, there is never a case in which price discrimination injures competition."[5] The Act is described as "Antitrust's Least Glorious Hour."[6] Some academics have categorically asserted that the Robinson Patman Act is anticonsumer because it "undoubtedly leads to higher prices for consumers."[7]

The fundamental distain for the Robinson-Patman Act arises from a belief that the Act is used to protect competitors from competition, and it thereby is contrary to consumer welfare. We disagree with such assessment.[8] Indeed, we suggest that the real problem with the Act is its emasculation based on a narrow and improperly static conception of competition. In the next section, we argue that the protection of competitors from price discrimination in fact protects dynamic competition, such that, when properly applied, the Robinson-Patman Act serves well both consumer welfare and economic efficiency. We argue that the misunderstanding of the welfare effects of Robinson-Patman Act results from a failure to recognize the role that competition plays in fostering innovation. As a consequence, we suggest that the true threat to dynamic competition is not the Robinson Patman Act but rather the narrowing of its enforcement.

In the third section of the article, we discuss a very recent case in which a federal district court applied an improper but accepted static consumer welfare approach in (mis)judging the competitive impact of a situation of substantial price discrimination between directly competing gasoline retailers.[9] We first discuss the court's rejection of the *Morton Salt* inference of competitive injury and the faulty economic analysis behind that rejection. We then discuss how the rejection of the competitive inference necessitated difficult complex economic and statistical evidence to address competitive impact.[10] We focus on how such implicit shifting of the burden of proof effectively tips the scale in favor of the defendant, and that this tipping is most consequential in the exact situation where the price discrimination can have the greatest impact on the disfavored purchaser—a market that is highly competitive but for the price discrimination. We conclude by exploring how the focus on static competition and the increasingly accepted emphasis on static consumer welfare to judge competitive impact will likely lead to inefficiency and less robust competition.

The Robinson-Patman Act: Competition, Efficiency, and Competitive Injury

The Robinson-Patman Act arose during the growth of chain stores and the demise of smaller family run businesses. No doubt, the effective lobbying of the small stores against the "chain store menace"[11] was important in the passage of the Robinson-Patman Act.[12] Nonetheless, under the Act, price discrimination is illegal only if the effect of the discrimination "may be to lessen competition, . . . or to injure, destroy, or prevent competition with any person who either grants or knowingly receives the benefit of

4. Hugh C. Hansen, *Robinson-Patman Law: A Review and Analysis,* 51 Fordham L. Rev. 1113 (1983), at note 12.
5. Tamar Lewin, *Business and the Law Antitrust Ideas: 3 Problems*, N.Y. Times, Mar. 8, 1983, D2, http://www.nytimes.com/1983/03/08/business/business-and-the-law-antitrust-ideas-3-problems.html.
6. Roger D. Blair & Christina DePasquale, *"Antitrust's Least Glorious Hour": The Robinson-Patman Act*, 53 J. L. & Econ. S201 (2014) (quoting Robert H. Bork, The Antitrust Paradox (1978)).
7. Hugh C. Hansen, *Robinson-Patman Law: A Review and Analysis*, 51 Fordham L. Rev. 1113, 1118 (1983).
8. We concern ourselves only with secondary line cases.
9. Western Convenience Stores, Inc. v. Suncor Energy (U.S.A.) Inc., Civ. Action No.1:11-cv-01611-MSK-CBS, Dkt. No. 319 (D. Colo., Feb. 13, 2014) (Opinion and Order Directing Entry of Judgment in Favor of Suncor Energy (U.S.A.)) (entered Aug. 22, 2014).
10. The authors were both experts for the plaintiff in the case, as was Professor Mark Glick.
11. U.S. Dept. of Justice, Report on the Robinson-Patman Act (1977).
12. *See*, *e.g.* Phillip E. Areeda & Herbert Hovenkamp, Antitrust Law, ¶ 2302 (2d Pck. ed., Aspen Pub., 2001).

such discrimination. . . .''[13] However, in contrast to the Clayton Act's injury to competition standard, the Robinson Patman Act was adopted with a clear concern for the injury to disfavored purchasers, and concern about the ''fairness'' of price discrimination.[14] In the 1948 *Morton Salt* decision and subsequent decisions over many years involving secondary line cases, the ''may be'' phrase and the ''injure . . . competition with any person who . . . receives the benefit of such discrimination'' language were interpreted to cover a competitor that is less able to compete with the favored purchaser because of the discrimination.[15] Many have concluded that this protects competitors at the expense of protecting competition.

As noted above, this protection of competitors through the Robinson-Patman Act has been the subject of substantial criticism. While the Supreme Court has not explicitly overturned the generous interpretation of competitive injury in Robinson-Patman cases, it has nibbled at the edges.[16] In 1981, in *J. Truett Payne Co. v. Chrysler Motors Corp.*,[17] the Court rejected the amount of the discrimination as a proper measure of the damages to a disfavored purchaser. Rather, the Court held that the disfavored purchaser must demonstrate that damages have actually been incurred. Thus, regardless of any *Morton Salt* competitive injury inference, a plaintiff must prove it ''has been actually injured'' and that the injury is connected to the adverse *competitive impact* of the discrimination.[18] The result is an intertwining of damages and antitrust standing issues. Standing requires injury, and under *J. Truett Payne* showing damages requires demonstration of actual injury.[19] Thus, after *Payne*, a Robinson-Patman plaintiff ''must show that [the price discrimination] adversely affected his ability to compete with favored competitors.''[20] In effect, this conflates the amount of damages question and the antitrust standing question.[21] This conflation effectively emasculates the looser standard of proof for damages, and, it would seem, the inference of competitive injury from *Morton Salt*.[22]

13. The Robinson-Patman Act, 15 U.S.C. § 13(a) (2006).
14. S. Rep. No. 1502, 74th Cong., 2d Sess. (1936).
15. F.T.C. v. Morton Salt Co., 334 U.S. 37 (1948) (''in enacting the Robinson-Patman Act, Congress was especially concerned with protecting small businesses which were unable to buy in quantities, such as the merchants here who purchased in less than carload lots. To this end, it undertook to strengthen this very phase of the old Clayton Act. The committee reports on the Robinson-Patman Act emphasized a belief that § 2 of the Clayton Act had ''been too restrictive in requiring a showing of general injury to competitive conditions. . . . '' The new provision, here controlling, was intended to justify a finding of injury to competition by a showing of ''injury to the competitor victimized by the discrimination.'' At 49); *see also* Falls City Indus. v. Vanco Beverage, Inc., 460 U.S. 428, 436 (1983) (''injury to competition is established prima facie by proof of a substantial price discrimination between competing purchasers over time.'' At 436); American Oil Co. v. F.T.C., 325 F.2d 101 (7th Cir. 1963).
16. *See*, *e.g.* Lawrence A. Sullivan, *Handbook of the Law of Antitrust*, 66 Calif. L. Rev. 661 (1978).
17. J. Truett Payne Co. v. Chrysler Motors Corp., 451 U.S. 557 (1981).
18. *Id.* at 562.
19. *Id.* at 566.
20. World of Sleep, Inc. v. La-Z-Boy Chair Co., 756 F. 2d 1467 (10th Cir. 1985), at 1480. In *Falls City Indus.*, the Court noted that the plaintiff must show that it lost customers or profit because the lower price paid by the favored purchaser was used to lower the price at which it resold goods (or was used in promotional or other activities that directed the disfavored purchasers sales to it), 460 U.S. at 428. However, in 1997, in Chroma Lighting v. GTE Products Corp., 111 F. 2d 137 (9th Cir. 1997), the Ninth Circuit held that injury to a single competitor could be sufficient to establish competitive injury.
21. *See*, *e.g.* Mark Glick, Donald Campbell, & David Mangum, *Measuring Damages in a Private Robinson-Patman Case: Applying Economics to Relieve the Pain of* J. Truett Payne, 48 Antitrust Bull. 77 (2003) (after J. Truett Payne, under antitrust standing requirements, ''a Robinson-Patman plaintiff [would have to] demonstrate that its damages result from the same aspect of price discrimination that harms consumers.''). These authors note that ''any failure to show damages other than through direct identification of lost customers or through difficult economic analysis, is tantamount to a failure to show injury caused by the price discrimination.'' *Id.* at note 42.
22. ''The vagaries of the marketplace usually deny us sure knowledge of what plaintiff's situation would have been in the absence of the defendant's antitrust violation.'' *J. Truett Payne Co.*, 451 U.S. at 566.

In 2006, in *Volvo v. Reeder-Simco*, the Supreme Court attempted clarification of the necessary conditions for an inference of competitive injury.[23] Volvo offered different price concessions to different Volvo heavy-duty truck dealers. Reeder was a dealer that received relatively lower concessions than other dealers. However, there was no evidence that Reeder competed with any favored dealers for truck sales on which it received lower concessions.[24] The Court found that notwithstanding a persistent significant price difference, there could be no inference of competitive injury because there was no relevant competition between the favored and disfavored dealers. However, the Court explicitly did not reject the inference of competitive injury, noting that "We have also recognized that a permissible inference of competitive injury may arise from evidence that a favored competitor received a significant price reduction over a substantial period of time."[25]

Thus, it appears that the Court retained the *Morton Salt* inference in situations where the favored and disfavored purchasers compete. However, the Court concluded its opinion by asserting that

> [i]nterbrand competition ... is the "primary concern of antitrust law."[26] The Robinson-Patman Act signals no large departure from that main concern.... [W]e ... resist interpretation geared more to the protection of existing *competitors* than to the stimulation of *competition*.... [W]e continue to construe the Act "consistently with broader policies of the antitrust laws."[27]

Scholars and commenters have interpreted these musing as implying that injury to competition in a secondary line Robinson-Patman case is congruous with anticompetitive impact analysis under the Sherman Act, and the emphasis in such analysis on consumer welfare.[28] Commenters have concluded "... the Court's adoption [in *Volvo*] of the market analysis approach foreshadows the end of the *Morton Salt* inference by focusing on injured competition instead of injured competitors."[29]

Nonetheless, the next year, in *Feesers, Inc. v. Michael Foods, Inc.*, the Third Circuit reiterated a *Morton Salt* inference rejecting any requirement to show lost sales to the favored buyer, requiring only that there be a reasonable possibility of harm to competition.[30] In 2010, the Sixth Circuit in *Williams v. Duke Energy* relied in part on *Morton Salt* in rejecting a motion to dismiss.[31] The case involved discounts Duke Energy gave to certain customers. Duke argued that the Robinson-Patman Act did not apply because there was not direct competition by the favored and disfavored customers in reselling

23. Volvo Trucks North Am., Inc. v. Reeder-Simco GMC, Inc., 546 U.S. 164 (2006); *see also* Boise Cascade Corp. v. F.T.C., 837 F.2d. 1127 (D.C. Cir. 1988).
24. Volvo dealers typically competed against dealers selling other brands of trucks. "In the atypical event that the same retail customer solicited a bid from more than one Volvo dealer, Volvo's stated policy was to provide the same price concession to each dealer competing head to head for the same sale." *Volvo Trucks North Am., Inc.*, 546 U.S. at 171.
25. *Id.* at 177.
26. *Id.* at 180 (quoting Continental T. V., Inc. v. GTE Sylvania, Inc., 433 U.S. 36, 51–52, n. 19 (1977)).
27. *Id.* at 181 (quoting Brooke Group Ltd. v. Brown & Williamson Tobacco Corp. 509 U.S. 209 (1993)) (emphasis in original).
28. *See*, *e.g.* Richard M. Steuer, Volvo Trucks v. Redder-Simco: *Bidding for a Rational Robinson-Patman Act*, 20 ANTITRUST 61, 63 (2006) ("reconciling the Robinson-Patman Act with the Sherman Act"); *see also* Margaret M. Zwisler, Volvo Trucks v. Reeder-Simco: *Judicial Activism at the Supreme Court?*, 20 ANTITRUST 40, 40 (2006) ("an important step in harmonizing the Robinson-Patman Act with the goals of the antitrust laws."); Water Craft Mgmt. LLC v. Mercury Marine, 457 F.3d 484, 492 (5th Cir. 2006) (discussing the "longstanding mandate" that the Act "be construed consistently with broader policies of the antitrust laws."). A contrary view is offered by John B. Kirkwood, *The Robinson-Patman Act and Consumer Welfare: Has* Volvo *Reconciled Them?*, 30 SEATTLE U. L. REV. 349, 351 (2007) (the Court did not "jettison any of the basic protectionist features" of the Act.).
29. Simon A. Rodell, *Antitrust Law: The Fall of the* Morton Salt *Rule in Secondary-Line Price Discrimination Cases*, 58 FLA. L. REV. 967, 973 (2006); Steuer, *supra* note 28 (discussing how the actual impact of *Volvo* is far more mixed).
30. Feesers, Inc. v. Michael Foods, Inc., 498 F.3d 206, 220 (3d Cir. 2007) ("a permissible inference of competitive injury may arise from evidence that a favored competitor received a significant price reduction over a substantial period of time.").
31. Williams v. Duke Energy Intern., Inc., 681 F.3d 788 (6th Cir. 2012).

electricity. Ignoring that even an injury to a *competitor* requires competition, the 6th Circuit held that under *Morton Salt* competitive injury was shown by the fact that the disfavored customers paid substantially more for an important input. Going even further, the Court relied on the prior *Corn Products Refining* case to note that there is no requirement under Robinson Patman to show actual competitive injury but only there such injury is likely.

Notwithstanding these interpretations of the Robinson-Patman Act, in a 2013 Ninth Circuit decision, *Gorlick v. Car Sound*, summary judgment for the defendant was affirmed.[32] The case concerned the distribution of aftermarket automobile parts. The court found that the defendant, a competitor of Gorlick, had received a favorable price. The court also found that the disfavored plaintiff competed directly with the favored defendant. Nonetheless, retreating from any inference of competitive injury, the Court ruled that because the favored seller faced competition from sellers other than the disfavored seller,[33] there was no injury to competition in the market but merely injury to one competitor.[34]

Thus things are confused and confusing. Using the openings of *J. Truett Payne* and *Volvo*, some courts have reinterpreted the requirement of competitive injury as being synonymous with an injury to consumer welfare. Others have noted that the intent of the Robinson-Patman Act was to protect competitors from injury from price discrimination. We believe the courts' inconsistency is a result of confusion. The strong objections to enforcement of the Robinson-Patman Act noted above are based upon an assumption of a conflict between a consumer welfare related injury to competition standard and an injury to a competitor from price discrimination. We believe that, if the objective of the Robinson-Patman Act were properly understood, such a conflict would not exist. While the originators of the Robinson-Patman Act may have intended simply to protect small businesses from competition from large chain stores, this does not imply that price discrimination cannot and does not injure a broader range of competition. *Morton Salt* contributed to the confusion regarding injury to a competitor versus injury to competition. The Court noted that "[t]he new provision [to the Clayton Act] ... was intended to justify a finding of injury to competition by a showing of 'injury to the competitor victimized by the discrimination."[35] The implication is that an injury to a specific competitor need not be an injury to competition. However, if the favored and the disfavored purchasers directly compete, then an injury to the disfavored competitor is an injury to the process of competition.

Consider the situation in the 1930s as self-service chain grocery stores challenged traditional full-serve mom and pop stores. Undoubtedly, the chains had lower costs, and could offer lower prices. But that does not imply the chains were efficient or welfare enhancing, as they offered a different product to consumer. We are unaware of any a priori way to resolve the question of which method of grocery retailing maximized consumer welfare. Indeed, a major benefit of a competitive market system is the resolution of such questions by the "invisible hand." Consumers effectively vote for the most efficient retailing system by choosing where to spend their money, taking into account the trade-off between location and service versus selection and lower prices. It is the competitive process that enforces efficiency and polices consumer welfare.

However, when the large chain stores receive favorable pricing from their suppliers, and such favorable pricing is not cost-based, the competitive process cannot properly function. Consumers now face a distorted set of choices. They will observe price differences that do not reflect the cost of offering one

32. Gorlick Distrib. Ctrs.s, LLC v. Car Sound Exhaust Sys., Inc., 723 F.3d 1019 (9th Cir. 2013).
33. The Court's analysis was focused on the liability of the favored purchaser and was not related to a meeting competition defense.
34. The Court noted that "favorable prices that improve one distributor's competitive position do not necessarily violate the antitrust laws," and that such favorable prices that improved the defendant's position compared to the disfavored plaintiff did not violate the Robinson-Patman Act. *Id.* at 1027.
35. *Morton Salt*, at 50.

type of retailing versus another.[36] The fact that the chain stores win that competitive battle does not imply increased efficiency or consumer welfare as the competitive race occurred in a tilted playing arena.[37] Of course, from a narrow static perspective, it would appear that protecting the mom and pops results in higher prices, and indeed it may.[38] But that does not imply inefficiency and it ignores dynamic competition.

The trade-off between static (at a point in time) and dynamic (over time) efficiency is a standard issue in antitrust. Patents can limit competition but nonetheless are widely accepted as having potential beneficial consumer welfare impacts. This potential, of course, results from the impact of patents on the incentives to develop new products. It is widely accepted by economists that the potential benefits of enhanced innovation can swamp the relatively small losses from static market power.

However, the analysis of price discrimination has generally ignored such dynamic effects. The efficiency possibilities of competitive markets derive from rewarding entrepreneurs that find better ways of making and marketing products. However, the "creative destruction" inherent in seeking economic efficiency through competition requires that no competitors have one hand tied behind their backs. Of course, perhaps disfavored purchasers are inefficient regardless of the higher prices they face with price discrimination. But only fair competition can answer that question. The purpose of the antitrust laws should be to promote fair competition that allows the market to work.

We therefore conclude that no conflict exists between protecting competitors from price discrimination and protecting competition. As the Supreme Court noted in *Volvo*, there can be an inference of competitive injury only if the two purchasers receiving different prices compete. The Court should have gone on to note also that there can be no injury to a competitor if such purchasers do not compete. Injury to competition requires the favored and disfavored purchasers to compete; injury to a competitor also requires them to compete. And, if the favored and disfavored purchasers do compete, then both an injury to competition and an injury to a competitor from price discrimination result.

In this uncertain and confused judicial environment concerning injury to competition and injury to a competitor, it is not surprising to find a dearth of successful challenges to price discrimination in secondary line cases.[39] We have recently experienced firsthand both such confusion and lack of success by the plaintiff. In the next section of this article, we summarize a recent Robinson-Patman case in

36. Consider the thirty-year battle in the book-selling industry. Initially, small local book stores faced competition from innovative large chains like Borders. The large chains offered lower prices and drove most small book stores out of business. However, the competition did not occur on a level playing field as the chains were receiving lower prices from publishers. *See FTC Cites 6 Big Publishers for Book Pricing Bias*, L.A. Times, Dec. 23, 1988, http://articles.latimes.com/1988-12-23/business/fi-793_1_lower-price. More recently, the large chains are facing competition from the innovative on-line seller Amazon. Again it appears Amazon has won that battle. But this does not imply gains to consumer welfare as consumers are faced with an artificial choice because of the favoring of Amazon by the publishers.
37. This is in contrast to the recent assertions by Blair and DePasquale, who claim, with no analysis, that the "protectionism [of the Robinson-Patman Act] was ill-advised since consumers obviously preferred the lower prices of the more efficient chains to the higher prices offered by mom and pop." Blair & DePasquale, *supra* note 6, at 2. They fail in any way to assess what price the mom and pops may have charged if they had received the same prices as the chain stores. As a result, they reach the unsupported conclusion that "rather than enhancing consumer welfare, therefore, the Act harms consumers." *Id.* at 4.
38. This is certainly not a simple issue as it concerns the difficult question of what will be the but-for-the-discrimination price. In most contexts, the but-for price would be higher for the favored purchasers and lower for the disfavored purchaser. *See*, *e.g.* Keith B. Leffler and Robert H. Whaley, *Private Actions and Proof of Damages in Secondary Line Cases—The* Texaco Inc. v. Hasbrouck *Experience*, 59 Antitrust L. J. 811 (1991); *see* Glick et al., *supra* note 21.
39. *See*, *e.g.* Robert J. Toth, *A Powerful Law Has Been Losing a Lot of Its Punch*, Wall St. J., May 21, 2012, http://www.wsj.com/articles/SB10001424052702304746604577380172754953842; *see* Dukes, et al., *The End of the Robinson-Patman Act? Evidence from Legal Case Data*, 56 Mgmt. Sci. 2123 (2010) (from 2006 through 2010 there were forty-seven cases, with plaintiffs losing forty-five of them); *see* Antirust Modernization Comm'n, *supra* note 3 (of 200 reported cases from 1996–2006, there only two verdicts for plaintiffs that survived appeal).

which we were the economic experts for the plaintiff.[40] Our emphasis is on how a court's rejection of a *Morton Salt* inference of competitive injury resulted in a near impossible burden of finding empirical evidence of the competitive injury. To show this, we review the econometric approach to competitive injury we offered to the court, and the reasons given by the court in rejecting such evidence. We then discuss our econometric approach to damages and the ensuing debate among the experts regarding the proper and required empirical methodology.[41]

The Western Convenience Stores Case

Western Convenience Stores ("Western") owns and operates thirty-nine convenience store gasoline stations in Colorado.[42] Western sells unbranded gasoline and diesel fuel along with the typical convenience store merchandise. Western competes with other suppliers of gasoline including convenience store chains (e.g., Bradley, 7-Eleven, and Loaf N Jug), supermarket chains (e.g., Safeway and King Soopers), wholesale clubs (Costco and Sams), and traditional branded stations (e.g., Conoco, Shell, and Diamond Shamrock).

Western purchased a substantial share of its gasoline from Suncor Energy ("Suncor") during the relevant period of October 2009 through April 2011. During that period, Suncor owned and operated the only refinery located in Colorado.[43] Suncor had approximately a 34% market share of gasoline in the Colorado Front Range.[44] Five other refineries also supply gasoline to Colorado via product pipelines.[45]

In addition to supplying Western (and others), Suncor supplied gasoline to King Soopers and Loaf N Jug, both of which are owned by The Kroger Company. In *Western Convenience Stores v. Suncor*, Western alleged that during the relevant period, Suncor charged it a higher wholesale price for gasoline, purchased on the same days at the same terminals, than Suncor charged the supermarket chain King Soopers.[46] Western further alleged that between February 1, 2010, and April 30, 2011, Suncor charged it a higher wholesale price for gasoline, purchased on the same days at the same terminals, than Suncor charged the convenience store chain Loaf N Jug.

The Court found that twenty-seven of the Western stations in Colorado competed directly with one or more of the Kroger stores during the October 2009 through May 2011 period.[47] The Court also found that "[i]n general, Kroger received more favorable prices from Suncor than Western did."[48] The price difference was significant.[49] In addition, the Court noted that both parties agree that retail fuel sales is a competitive business with high price sensitivity.[50] It would seem therefore a classical

40. *See* Western Convenience Stores, Inc., Civ. Action No.11-cv-01611-MSK-CBS (Professor Mark Glick was also an expert for the plaintiff).
41. The court did not address the econometric analysis of damages, stating that its finding of no pass-through by Kroger obviated any need to address damages.
42. Western Convenience Stores also operates three stations in Nebraska.
43. Energy Analysts International, Denver/North Front Range Fuel Supply Costs and Impacts, Feb. 16, 2011, at ES-4 (Report Rev. 1 for Regional Air Quality Council), https://www.yumpu.com/en/document/view/19298949/denver-north-front-range-fuel-supply-costs-and-impacts.
44. *Id.* at ES-6. This includes the area where most of WCS's stores are located with the exception of stores located in Grand Junction and Nebraska.
45. *Id.* at ES-4.
46. Suncor delivered its Colorado gasoline primarily from four terminals: the Suncor terminal at Commerce City, the DuPont terminal owned by Rocky Mountain Pipeline, the Fountain terminal owned by Rocky Mountain Pipeline, and the Grand Junction or Fruita terminal owned by Colorado Fuel Manufacturers. *See* IRS, Active Fuel Terminals (October 2012).
47. Western Convenience Stores, Inc., 1:11-cv-01611-MSK-CBS, Dkt. No. 319, at 4, 8 (entered Aug. 8, 2014).
48. *Id.* at 7.
49. All data provided by the favored purchaser, Kroger and by defendant Suncor have been sealed under a protective order. We therefore do not reference any specific data concerning the amount of the price advantage.
50. *Id.* at 8.

situation in which the *Morton Salt* inference of competitive injury is warranted, a situation of long-standing significant price discrimination with direct competition between the favored and disfavored buyers in a market with price sensitive customers. In *Morton Salt*, the Supreme Court noted as self-evident "that there is a 'reasonable possibility' that competition may be adversely affected by a practice under which manufacturers and producers sell their goods to some customers substantially cheaper than they sell like goods to the competitors of these customers."[51]

However, in the *Western Convenience Stores* case, Judge Krieger did "not find the [*Morton Salt*] inference ... to be warranted."[52] She held that

> [t]he Morton Salt inference is most appropriately applied in a classic market where retail pricing occurs in accordance with rational, readily anticipated motivations. That is not the case here.... [T]here is some question as to whether Western and Kroger's supermarket entities are comparable competitors ... [they have] different business models, margins and product mixes. Western bases its retail price solely on competitive pricing. Loaf N Jug sets its retail price to combine with anticipated volume in order to meet sales targets; the supermarkets purposefully price fuel several cents above the lowest competitive price.... [N]one operate according to the Morton Salt assumption that changes in wholesale prices will be directly reflected in retail prices charged to consumers.... [I]t is improvident to assume that there was a retail market for unbranded fuel in which Western and the Kroger entities participated that was subject to uniform, rational economic behavior that influenced pricing and market activity.[53]

The Court asserted that "the quintessial question for determination is ... whether Kroger used its wholesale price savings to drive the retail price of fuel below where it otherwise would have been."[54] This is equivalent to asking whether lower marginal costs faced by Kroger will result in lower prices. Any competent Econ 100 student knows the answer—if Kroger is a rational profit maximizer, lower marginal costs lead to lower prices. Nonetheless, while the "Court assumes that ... Kroger's retail price influenced Western's retail price," it accepted the testimony of Kroger personnel that the "primary driver of Kroger's supermarket fuel pricing was not Kroger's wholesale fuel cost, but rather, the retail prices posted by competitors.... It is clear ... that Kroger's wholesale fuel costs were not the primary, or even an important driver of its retail fuel prices."[55]

Thus, the Court effectively rejected the most basic of economic principles—that firms act rationally in their pricing to attempt to maximize profit. The only economic model in which marginal cost does not impact pricing is the textbook construct of perfect competition. But in that model, which certainly is not applicable to the imperfectly competitive world of gasoline retailing, with lower costs Kroger would have continued to expand its sales until other competitors with higher costs ceased to exist. For any reasonable alternative description of rational pricing on the part of the Kroger stations, lower marginal costs from lower Suncor prices will impact the stations' pricing and will lower their profit maximizing retail price. If, however, Kroger is not a rational economic actor, as suggested by Judge Krieger, economic analysis, based on the assumption of rational economic decision making, will have nothing to offer the court.[56] Thus, if economics has anything to say about competitive impact in a situation of long-standing price discrimination in a highly competitive market, it is that competitive injury can be and should be assumed, or in the words of *Morton Salt*, inferred.

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51. *Morton Salt*, 334 U.S. at 50.
52. Western Convenience Stores, Inc., 1:11-cv-01611-MSK-CBS, Dkt. No. 319, at 19.
53. *Id.* at 20.
54. *Id.* at 21.
55. *Id.* at 22–23.
56. The Court asserted that "as noted by Dr. Leffler, it is improvident to assume that there was a retail market for unbranded fuel in which in which Western and the Kroger entities participated that was subject to uniform, rational economic behavior that influenced pricing and market activity." *Id.* at 20. Dr. Leffler has no idea of the judge's basis for this conclusion.

Statistical Analysis of Competitive Injury

Having implicitly rejected centuries of economic analyses, the *Western* Court turned to "direct evidence" concerning competitive impact, asserting that direct evidence is the preferable approach to showing competitive impact.[57] However, in moving away from the inference of competitive injury, the Court noted that "Western bears the burden of proof."[58] As explored in detail by Professors Glick, Mangum, and Swensen in this volume,[59] and as we show herein, placing such a burden on plaintiff in circumstances of a highly competitive market can effectively eviscerate the Robinson Patman Act.

Absent the *Morton Salt* inference, to prevail in a Robinson Patman secondary-line injury, the plaintiff must show that it lost profits *because of* the price discrimination. This is generally interpreted to require that the favored purchaser used its cost advantage to lower its retail prices.[60] Unless the disfavored plaintiff then matched the lower retail prices losing margin, it would lose sales and profits. In either case, it would suffer adverse competitive impact. In the *Hasbrouck* case, testimony from customers that switched to the favored purchaser because of its price advantage was considered sufficient to demonstrate competitive injury.[61] However, this gold standard proof of competitive injury can be a difficult for a plaintiff, especially in cases where the evidence is presented to the finder of fact several years after the alleged discrimination occurred. Finding a customer who made a purchasing decision based on lower prices years after the fact may be virtually impossible in many cases, especially when a small portion of the customer's consumption budget is involved. Further, the disfavored purchaser may have "lost" customers they never had.

The alternative to such direct evidence of competitive impact is to provide statistical evidence that some of the price advantage of the favored purchaser was passed on and that lower prices charged by the favored purchaser resulted in lower sales by the disfavored purchaser. Thus, in cases where data are readily available, as in the retail gasoline market, it would seem the plaintiff should be able to show through statistical analysis that the disfavored purchaser suffered the requisite competitive injury because of the discrimination. However, as we show below, such statistical "proof" can be fraught with difficulties.

Before we discuss the statistical analysis performed in the *Western* case and its implications for future cases, we clarify the prevailing assumption that pass-through of some of the pricing advantage by the favored customer is a necessary condition for competitive injury. Assume, contrary to accepted economic teaching, that the favored purchaser does not pass on any of its favored buying price in the form of lower retail prices; rather, it simply pockets its cost advantage. This is typically considered sufficient to imply no competitive impact. We disagree. As we discuss below, absent the price discrimination, it is very likely that the price paid by the disfavored purchaser would be lower.[62] In this case, if

57. The Court noted that "an inference may be drawn where circumstances preclude the development or presentation of direct evidence … the parties have presented both direct and extensive expert opinion evidence. … Given concrete and specific evidence, there is little justification for instead resorting to the blunt and imprecise instrument of inferences." *Id.* at 19–20.
58. *Id.* at 18.
59. Mark A. Glick, David G. Mangum, and Lara A. Swensen, *Towards a More Reasoned Application of the Robinson-Patman Act: A Holistic View Incorporating Principles of Law and Economics in Light of Congressional Intent*, 60 Antitrust Bull. 279–317 (2015).
60. This was certainly Judge Krieger's interpretation. *See* Western Convenience Stores, Inc., 1:11-cv-01611-MSK-CBS, Dkt. No. 319, at 21 ("the quintessial question for determination is … whether Kroger used its wholesale price savings to drive the retail price of fuel below where it otherwise would have been."). For simplicity, we refer only to injury under the section 2(a) of the Robinson-Patman Act. Under sections 2(d) and 2(e), the disfavored purchaser may claim injury and damages if it alleges that the favored purchaser used its cost advantage to increase its advertising or gain an additional competitive advantage. Also, there was no evidence of such an alternative being of relevance in the Western case.
61. Texaco Inc. v. Hasbrouck, 496 U.S. 543 (1990).
62. The profit maximizing nondiscriminatory price is related to the relative sales and elasticities of the favored and disfavored purchasers. The assumption of no pass-through of a lower price by the favored buyer implies a perfectly inelastic demand by

the disfavored purchaser would pass on some of its cost reduction as implied by profit maximization, then the discrimination has caused injury to both the disfavored purchaser and to the consumer. We consider both injuries "competitive injury." The former is an injury to the competitive process as the disfavored buyer would compete on an equal basis if facing the same price as the favored buyer. In addition, because the discrimination results in the purchasers from the disfavored purchaser paying higher prices, we have an injury to consumer welfare.

Figure 1 illustrates various possibilities related to the pass-on issue. We distinguish in the figure injury to the disfavored purchaser ("injury to competition") through lower profits and direct injury to consumers through higher prices ("injury to consumer").

Figure 1 illustrates how both injury to competition and some injury to consumers will result from price discrimination as long as the favored and disfavored purchasers are rational profit maximizing entities. If the favored purchaser passes on some of its lower purchase costs in lower retail prices, then injury to the competitive process has occurred. If, however, there is insufficient evidence that the favored purchaser would pass on some of its favored price (contrary to economic expectations), the expected response of the disfavored purchaser must be examined. As discussed, if the disfavored purchaser would have passed on some of a lower purchase price, then competitive injury has occurred. This competitive injury results from the disfavored purchaser not being able to compete on a "fair" basis, or equivalently in this context, the showing that additional sales would occur as a result of lower retail prices.

The analysis is somewhat different regarding static consumer injury. First of all, some consumers may benefit from the price discrimination and others may be worse off depending on the pass-on situation and whether they buy from the favored or the disfavored purchaser. While it can straightforward to demonstrate some consumer injury (purchasers from the disfavored buyer are likely injured from the discrimination), aggregating injuries and benefits is problematic, requiring information on the "but-for" nondiscriminatory price, the levels of demand and the elasticities of demand by favored and disfavored buyers.

The shift in judicial thought to a *welfare* approach to assessing competitive injury in antitrust cases seems particularly inappropriate to the Robinson Patman Act. The "may be to substantially lessen competition" language of the Act clearly recognizes prospective injury, and thereby incorporates the dynamic competitive impacts from tilting of the competitive playing field against the disfavored purchaser. However, if a welfare approach requires a plaintiff to demonstrate adverse *net* welfare effects, it is unlikely that burden can be satisfied. If a plaintiff need only show adverse welfare effects to *some* consumers, there should be a rebuttable inference of such effect. As shown in Figure 1, the only cases of no adverse consumer injury (points C, E, G, and I) are economically implausible, requiring that the but-for price to the disfavored purchaser be the same as the actual price,[63] or that the disfavored purchaser not pass on any of a lowered but-for price.[64]

While economic theory and economic experience provides a strong and sound inference of pass-on,[65] "proving" pass-on can require daunting statistical analysis. The statistical methodology to

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the favored purchases. This, in turn, implies no gains to the discriminating seller from the lower pricing, making the discrimination irrational. This again demonstrates the power of a presumption of some pass-on.

63. *See* Glick et al., *supra* note 21, app. 1 (evidencing that the profit maximizing nondiscriminatory but-for price to the disfavored buyer is lower than the discriminatory price).
64. The same economic logic referenced immediately above applies to the pass-on by the disfavored purchaser.
65. In retail gasoline markets considerable evidence for pass-through exists. *See*, *e.g.* Erwan Gautier & Ronan Le Saout, *The Dynamics of Gasoline Prices: Evidence from Daily French Micro Data* 2 (Banque De France, Working Paper No. 375, 2012) ("the degree of pass through of wholesale prices to retail gasoline prices is on average 0.77 for diesel and 0.67 for petrol."); FTC, Investigation of Gasoline Price Manipulation and Post-Katrina Gasoline Price Increases 106 (Spring 2006) ("Retail prices are highly responsive to price changes at the wholesale level, although adjustments

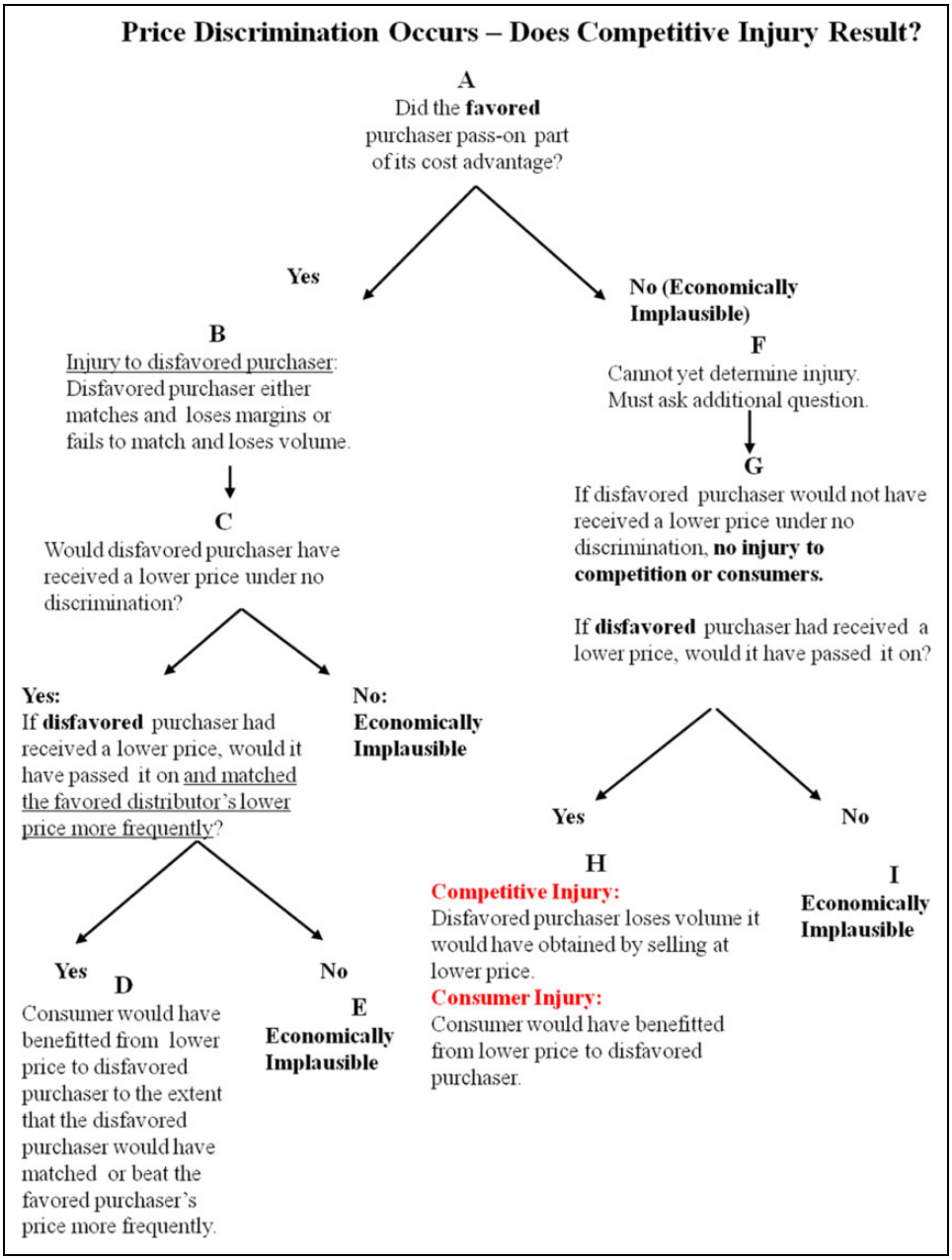

Figure 1. Competitive injury under Section 2a of Robinson-Patman Act.

generally occur with a time lag."); Energy Information Administration, Price Changes in the Gasoline Market – Are Midwestern Gasoline Prices Downward Sticky? 21–22, fig. 3.7 (1999) (lagged wholesale prices predict retail prices at the national level).

showing pass-on generally involves a regression analysis to explain movements in the favored purchaser's retail prices as a function of movements in its wholesale costs, as summarized in the following specification:[66]

$$Retail_t = \alpha + \sum_{i=0}^{X} \beta_i Cost_{t-i} + AR_t,$$

where:

Retail = the retail price at time t,

Cost = cost at time t and lagged costs up to x periods, and

AR_t = Lagged error terms identifying the autoregressive process.

However, despite the widespread acceptance and use of such methodology, the Court in the *Western* case was not persuaded. The Court found that

> He [the expert] observed that the *averages* moved "in tandem" but with some lag effect. He observed that wholesale costs and retail prices may not move exactly the same direction in any period, but over the entire operative period, the wholesale costs and retail prices seem to move together. The Court is unpersuaded by this analysis because it is too general, it is not based on an [*sic*] *generally accepted methodology*, and it fails to account for the complexity in the market.[67]

The Court's statement merits scrutiny, as it contains significant implications for showing competitive impact in Robinson-Patman cases.

Regression analyses have been widely accepted in antitrust cases for decades.[68] Regressions necessarily inform only about average relationships. Regressions frequently use "average" data, such as monthly observations. The averaging that is inherent in regression analyses allows for obfuscation by the opposing side and confusion by judges. "Averaging" can be pitched as conveying a sense of generality, where specificity may be required.[69] The Court correctly states that "the issue is not

66. Certainly, factors other than wholesale costs impact retail gasoline prices. However, researchers often abstract away from structural models when investigating pass-through. *See infra* note 69, as indicated by Lance J. Bachmeier & James M. Griffin, *New Evidence on Asymmetric Gasoline Price Responses*, 85 Rev. Econ. & Stat. 772 (2003). Generally, this exercise does not involve specifying a structural model, i.e., a model where the researcher attempts to include other relevant variables that may influence retail prices, such as seasonality, level of competition, transportation costs, etc. For an example of this approach by the expert for Suncor in the *Western Convenience Stores* case (Professor James Griffin), *see* Bachmeier & Griffin ("Like previous research we abstract from other determinants of gasoline prices and simply focus on variants of the following simple specification: PGt = γ (L)PGt−1 + β (L)PCt + εt (1), where the price of gasoline (PG) is an autoregressive process which depends on a distributed lag (β (L)) of current and past crude oil prices (PC). Nevertheless, this specification should not be interpreted as a structural price equation. It is clear that other factors also influence the price of gasoline such as refinery capacity utilization, inventory levels, and future price expectations. The omission of these other determinants seems justifiable if the purpose of equation (1) is simply to examine the transmission of crude price shocks to gasoline prices.").

67. Western Convenience Stores, Inc., 1:11-cv-01611-MSK-CBS, Dkt. No. 319, at 21, n. 21 (emphases added). Mr. Tados performed the statistical work for plaintiff in the case. The "averages" to which the Court refers represent the average retail price and average wholesale prices across the favored purchaser's competing locations with WCS.

68. *See*, *e.g.* Franklin Fisher, *Multiple Regression in Legal Proceedings*, 80 Colum. L. Rev. 702 (1980); Michael O. Finkelstein & Hans Levenbach, *Regression Estimates of Damages in Price-Fixing Cases*, 46 L. & Contemp. Probs. 145 (1983); Daniel L. Rubinfeld, *Econometric Issues in Antitrust Analysis*, 166 J. Inst. & Theoretical Econ. 62 (2010); Daniel L. Rubinfeld, *Reference Guide on Multiple Regression*, *in* Fed. Jud. Ctr., Reference Manual on Scientific Evidence (2d ed. 2011); James F. Nieberding, *Estimating Overcharges in Antitrust Cases Using a Reduced-Form Approach: Methods and Issues*, 9 J. Applied Econ. 361 (2006).

69. Regression analyses in class action cases are most susceptible to such confusion. For example, a pass-on regression cannot possibly show that there is pass-on on every single transactions, nor what the pass-on was on every single transaction.

whether retail prices go up or down in response to market changes, but instead whether a change in the wholesale cost of one market participant affects its retail price."[70] However, in this case, the Court appears to have misunderstood the averages to mean averages across market participants.

The Court's reluctance to accept the statistical evidence, or perhaps its misunderstanding of the evidence, highlights the difficulty experts often face in explaining statistical concepts. The Court's criticism that the analysis was not based on a "generally accepted methodology" is puzzling. The methodology applied is ubiquitous in the literature, and was employed by both sides' experts. Moreover, this methodology was never challenged by Suncor either in a Daubert motion or a motion in limine. Nonetheless, the Court's decision underscores the necessity both sides face, even in the absence of a Rule 702 challenge, to clearly, and perhaps even effusively, explain the methodology used, how it meets generally accepted principles, and how it has been applied to the facts of the case. Since seldom will an expert be permitted to engage in a didactic monologue to this effect, explaining often difficult statistical concepts requires substantial interaction between the attorney conducting the direct examination and the expert discussing the concepts. As Judge Posner, writing for the 7th Circuit Court of Appeals in the *ATA Airlines v. Federal Express* matter, reminds us,

> But difficult is not impossible. The judge can require the lawyer who wants to offer the expert's testimony to explain to the judge in plain English what the basis and logic of the proposed testimony are, and the judge can likewise require the opposing counsel to explain his objections in plain English.[71]

The Court's third criticism, that the pass-through analysis fails to account for the complexity of the market, merits particular attention for several reasons. This criticism is often levied against a regression analysis by claiming that one or more important variables have been omitted, thus raising a question as to the reliability of the analysis. But regression analysis can never include every variable that might impact prices. This allows an opposing expert to note the exclusion of what will likely be called "a key variable."

Such criticism has been addressed by the U.S. Supreme Court in *Bazemore*:

> Importantly, it is clear that a regression analysis that includes less than "all measurable variables" may serve to prove a plaintiff's case.[72]

Unfortunately, the misconception that a regression model that does not account for all factors that explain a dependent variable is necessarily deficient or unreliable persists. Considerable confusion exists concerning such omitted variables.

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70. Western Convenience Stores, Inc., 1:11-cv-01611-MSK-CBS, Dkt. No. 319, at 25, n. 21.
71. ATA Airlines, Inc. v. Federal Express Corp., 665 F. 3d 882, 889, 896 (7th Cir. 2011). Underscoring the importance that legal counsel work with their experts to understand the statistical analysis used, Judge Posner added:

> This might not have worked in the present case; neither party's lawyers, judging from the trial transcript and the transcript of the Rule 702 hearing and the briefs and oral argument in this court, understand regression analysis; or if they do understand it they are unable to communicate their understanding in plain English. . . . It became apparent at the oral argument of the appeal that even ATA's lawyer did not understand Morriss's analysis; he could not answer our questions about it but could only refer us to Morriss's testimony. And like ATA's lawyer, FedEx's lawyer, both at the trial and in his appellate briefs and at argument, could only parrot his expert. . . . If a party's lawyer cannot understand the testimony of the party's own expert, the testimony should be withheld from the jury. Evidence unintelligible to the trier or triers of fact has no place in a trial.

> We believe that it is of utmost importance that the lawyer has a reasonable grasp of the methodology used by its expert. Failing to do so puts both the expert's testimony and the counsel's own case at risk.

72. Bazemore v. Friday, 478 U.S. 385 (1986).

We make two points on this issue. First, simply because a variable has been omitted from a regression does not mean that any bias has occurred regarding the coefficient of interest. In a pass-through regression, the coefficient of interest is the pass-through coefficient. As noted previously much of the research on pass-through in gasoline markets abstracts from structural models that attempt to explain supply and demand influences on retail prices, focusing almost exclusively on wholesale prices.[73] This does not mean that this entire body of research suffers from omitted variable *bias*. The regression specification should properly be guided by the purpose of the research, and the purpose of a pass-through analysis is to measure the effects of changes in wholesale costs. The purpose is not to "predict" retail prices in general or to account for all the factors that explain retail prices. The reduced form approach abstracting from many factors influencing retail prices is perfectly acceptable if the structural factors, for example, other supply and demand variables, not included in the model, are not highly correlated with the wholesale prices.[74]

Bias to the coefficient of interest or "omitted variable bias" occurs only to the extent that the variable(s) excluded from the model is/are correlated with the included variable of interest.[75] The size of the bias will be proportional to the correlation between the included and excluded variable(s). For example, when estimating pass-through, researchers have assumed little correlation between the wholesale fuel prices and other factors such as the weather. The excluded variables may serve to explain a greater proportion of the movements in retail prices, but are not expected to affect the explanatory power of wholesale fuel prices on retail fuel prices. In this case, while other explanatory variables may be excluded from the model, omitted variable bias is very low or virtually nonexistent. Thus, simply pointing out that a variable is missing from a model is not a valuable insight, but rather likely serves to mislead.

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73. This fact highlights a clear inconsistency in the Court's criticism. The generally accepted methodology as exhibited in the research does not include the variables that account for "the complexity in the market." Following the generally accepted methodology would then run afoul of the Court's third criticism, namely that a model must account for this "complexity."
74. The term "highly correlated" is open to interpretation, though statistical benchmarks for correlation between two variables exist. If two variables are highly correlated and are both included in the model, the problem of multicollinearity results.
75. Unfortunately, the misconception over omitted variable bias has led to what can be termed variable fishing. This occurs when experts or researchers seek out explanatory factor(s) not to advance the level of knowledge, but to remove the effect of one or more included variables. This practice often occurs when the focus of the analysis is on damages and adding a particular variable either serves to increase or decrease damages. Increasing or decreasing economic damages provides no basis nor should it provide any impetus or the excuse for including or failing to include a variable. Further, as we and others have pointed out, multicollinearity is a data problem that may be remedied by collecting additional data. However, in most cases, as in the *Western Convenience Stores*, data collection is expected to be the subject of negotiations by both sides, since the Plaintiff will usually want to collect as much data as possible, while the defendant, who often holds the larger repository of data, will often want to limit the scope. Since the problem of multicollinearity may be solved by gathering additional data, it seems unfair for the rebuttal expert to point to a multicollinearity problem that could have been solved had additional data been provided. Thus, if the party holding the majority of the data seeks to limit the scope of the data produced, it should be aware that, by doing so, it may effectively limit its ability to critique the opposing expert's regression model. Often, by the time the expert becomes involved, the scope of the data discovery has been set, and the expert is presented with a fait accompli. We believe that both sides would be well served by engaging their experts during data discovery phase. By doing so, plaintiffs and defendants will both be more informed of the implications any limitations they, or the court, place on the scope of the data to be shared among the parties will have on the analysis that can be performed. However, our suggestion should not be construed as implying that we believe that more data are necessarily "better." Whether additional data may have probative merit depends on the facts of the case. If the data are irrelevant to the case, collecting such data may only serve to confuse the issues. This is precisely why we believe it necessary to engage the individuals who will be tasked with analyzing these data during the collection and discovery phase. There is one additional benefit to doing so, and one that may save the finder of fact considerable effort when sifting through experts' arguments. If both sides, along with their experts, can come to agreement and stipulate to the data being used as satisfactory for the investigative tasks required, the court as well as the parties involved will be saved considerable expense, both temporal and financial, not to mention any potential debates among experts over issues that could have been resolved in the discovery phase.

A proper critique of a regression model must evaluate (1) whether the missing variables have any theoretical significance, (2) whether the missing variables are correlated with the key variable of interest (e.g., the wholesale price of fuel), and (3) whether the purpose of the regression was to explain or predict pricing in a broad sense or meant to investigate only the effects of a key factor. Simply identifying omitted variables and theorizing about effects of such omission without showing the effects such variables would have, if included in the model, should be given no weight. Over twenty-five years ago, the Second Circuit in an employment discrimination case noted that

> "[A] defendant challenging the validity of a multiple regression analysis [has] to make a showing that the factors it contends ought to have been included would weaken the showing of salary disparity made by the analysis," by making a specific attack and "a showing of relevance for each particular variable it contends ... ought to [be] includ[ed]" in the analysis, rather than by simply attacking the results of the plaintiffs' proof as "inadequate for lack of a given variable."[76]

It is incumbent to test for the effects of any excluded variables claimed to be important. Otherwise, the critique becomes only an exercise in throwing stones, offering no assistance to the finder of fact but adding confusion.[77] Indeed, such confusion is exhibited by the Court noting that our analysis "fails to account for the complexity in the market."[78]

While showing pass-through by the favored purchaser should be sufficient to indicate antitrust injury to the disfavored purchaser, rejection of the *Morton Salt* inference also leads to rejection of the inference of injury to the disfavored purchaser even with pass-on. Absent such inference, a plaintiff must go on to prove competitive injury via the demonstration of damages. We here offer a general overview of econometric approaches to damages calculation under Robinson Patman in the context of the *Western* case. We emphasize the problems that arise in competitive markets where the impact on a disfavored purchaser can be significant but a high degree of correlation among the wholesale prices received by competitors impedes the estimation of damages and also the statistical demonstration of competitive impact. We expect that this collinearity phenomenon occurs quite frequently in practice, especially when a key commodity (crude oil in gasoline markets) drives the wholesale prices paid by all competitors.

The empirical difficulties faced in the *Western* case highlight the fact that plaintiffs are often required to meet far greater thresholds than the purported "reasonably certain" standard of damages, particularly in Robinson Patman cases where the damage estimation is intertwined with competitive impact demonstration. Quite paradoxically, in cases where pass-through exists, and the wholesale prices of the favored and disfavored competitors move virtually in tandem, both the statistical showing of competitive injury and the proof of damages arising from such injury become problematic.

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76. Sobel v. Yeshiva Univ., 839 F.2d 18, 34 (2d Cir. 1988).
77. Indeed, if all the critiquing expert has to do is to identify a missing variable in order to undermine a regression analysis, the burden on the expert performing the original analysis becomes Sisyphean task as there are always missing variables. A critiquing expert could typically identify a missing variable for which data are impossible or extraordinarily difficult to gather. If the critiquing expert does identify one or more such variable(s), it becomes incumbent to gather the required data and test the effect(s) of such variable(s) on the model. Absent such analysis, the rebuttal expert's reliance solely on ipse dixit should be awarded no credit. Certainly, this does not mean that any regression meets standards for admissibility. As the Court in *Bazemore* noted, there may exist "some regressions so incomplete as to be inadmissible as irrelevant...." *Bazemore*, 478 U.S. at 400, n. 10. Once the plaintiff's regression has satisfied the burden of establishing prima facie evidence of price discrimination, the burden shifts to the defendant. In general, a supply and demand model explaining the metric in question, be it profits, volume, revenues, or prices, will satisfy this requirement, absent some significant empirical shortcoming.
78. Western Convenience Stores, Inc., 1:11-cv-01611-MSK-CBS, Dkt. No. 319, at 25, n. 21.

Econometric approaches to damages calculations under Robinson-Patman, as well as generally in most antitrust cases, frequently involve the application of some form of regression analysis. Though model specifications can differ, there are generally two methods available: a direct and an indirect estimation. The direct approach directly estimates the profits as related to the wholesale costs, or buying prices. The but-for buying prices are then substituted for the actual buying prices to give the but-for profits on gasoline sales. Subtracting the actual profits from the but-for profits results in the lost profits damages.

In the indirect approach, the volume of sales made by the disfavored purchaser is related to the prices charged by the favored and the disfavored purchasers, controlling for the prices charged by other significant competitors. This process essentially estimates the demand function faced by the disfavored purchaser. A second regression analysis then determines the relationship between the retail prices and the wholesale prices for both the favored and the disfavored purchasers. The but-for nondiscriminatory buying prices are then estimated and substituted into the retail price equations to estimate the but-for retail prices. Finally, the but-for retail prices are then substituted into the demand functions giving the but-for sales. The difference between the but-for retail and but-for wholesale prices gives the but-for margins. Multiplying the but-for margins by the but-for gallons sold gives the but-for profits on gasoline sales. Subtracting the actual profits from the but-for profits gives the lost profits damages.

In a theoretical sense, the indirect approach is preferred because it disaggregates the relationships between buying prices and retail prices. This approach therefore allows a directly estimated relationship between the favored and the disfavored prices and sales made by the disfavored purchaser. Unfortunately, implementation of the indirect approach requires data conditions unlikely to occur in practice. The fundamental problem is that the prices charged the favored and the disfavored buyers are likely very closely related. This results in ''multicollinearity.'' Multicollinearity is a data problem (*not* a statistical problem) that arises when two or more variables in a regression model are highly correlated with each other. When the independent variables being examined, the retail and buying prices of both the favored and the disfavored buyers in this case, are highly collinear, that is, they move together, it becomes virtually impossible to estimate how each variable independently affects sales.[79]

Under the direct approach, the profits of the disfavored purchaser are estimated as a function of various supply and demand factors. Where the data permit, a ''before and after'' model can be implemented to test whether and how much the period of alleged price discrimination impacted the

79. The issue of multicollinearity often arises in litigation matters where expert testimony involves regression analysis. One such example is the In re High Fructose Corn Syrup Antitrust Lit., 216 F.3d 621 (7th Cir. 2000). The Seventh Circuit's decision explained the situation thusly:

> The plaintiffs' economic expert witness conducted a regression analysis that found, after correcting for other factors likely to influence prices of HFCS, that those prices were higher during the period of the alleged conspiracy than they were before or after. (More precisely, the independent variable that the expert labeled CONSPIRE, which took a value of 1 during the period of the alleged conspiracy and a value of 0 before and after that period, was found to have a positive and statistically significant effect on the dependent variable, which was price.) ... The defendants presented a competing regression analysis done by one of their economic experts, who added a couple of variables to the analysis of the plaintiffs' expert and, presto, the CONSPIRE variable ceased to be statistically significant. The plaintiffs rebutted with still another expert, who pointed out correctly that adding variables that are correlated with the variable of interest can make the effect of the latter disappear—to which the defendants reply, also correctly, that there are statistical methods for solving this problem (the problem of multicollinearity, as it is called by statisticians). They argue that their expert solved it and the plaintiffs argue that he did not and also that there was no statistical rationale for adding those other variables in the first place.

Id. at 651. The Court correctly pointed out the fact that seldom do judges have the training required to evaluate such statistical arguments. As Judge Posner has pointed out, judges may avail themselves of the discretion awarded them under Rule 706 and appoint a neutral expert to evaluate the merits of each side's claims.

disfavored purchaser's profits, holding other economic factors constant.[80] The before and after approach involves comparing the results of a supply and demand model during a period free of any alleged discrimination to the results in the discrimination period. Whether the discrimination-free benchmark period occurs before or after the alleged discrimination does not matter, as long as controls for key economic conditions that could affect profits can be included. Formal testing options include the use of dummy variable(s) to mark the alleged discrimination period(s), the use of the Chow test to investigate structural breakpoints that may mark the alleged discrimination period(s), and using the structural coefficients in the "before" period to predict the profits during the damages period "but-for" the alleged price discrimination.

In both the direct and indirect approaches, the regressions estimated will be time series models. The frequency of the data used will differ according to the facts of the particular case and the availability of the data. Where possible, the data in estimated model should match the frequency with which prices are set in the market. For example, in the gasoline market, refiners and wholesalers set daily wholesale gasoline rack prices. Retail gasoline outlets, in turn, also set daily pump prices. Ideally, in such a case, the regression model would analyze daily changes in prices and costs rather than aggregating the data to a higher level (i.e., weekly or monthly). Of course, daily data for economic factors are unlikely to be available, so these variables will enter into the model at an aggregate level. For example, the U.S. Department of Energy provides statewide gasoline consumption data at the monthly level. Other factors, such as unemployment, may be available on a finer geographic level (e.g. zip code), but only at the monthly level as well. The appropriate variables are selected based on the data frequency and geographic market considerations.

A regression model designed to test the direct impact of the favored purchaser's wholesale price on the disfavored purchaser's profits will generally take the following reduced form, with the disfavored purchaser's profits in a given period as the dependent variable:

$$\pi_{DF} = \alpha + \beta_1 C_{DP} + \beta_2 C_{FP} + \beta_3 C_{OP} + \prod_{i=4}^{n} \beta_i E_i,$$

where the subscripts are:

DP = disfavored purchaser,
FP = favored purchaser, and
OP = other purchaser who competes with the favored and disfavored purchasers.
And the exogenous variables are:
C = wholesale costs and
E = economic factors.

The model above can also include one or more dummy variables to flag the alleged discrimination period if before and after data are available. We focus here on instances, as in the *Western* case, where the estimation period and the discrimination period overlap entirely. In these cases, a substantial econometric burden is faced because the competitive effect of the alleged discrimination, as measured by the impact on profits, must be calculated without the benefit of observing a discrimination-free setting.

In an ideal world, the model above will permit isolation the effects of changing each competitor's wholesale cost on the disfavored purchaser's profits. The resulting profit impact from raising the favored purchaser's price, lowering the disfavored purchaser's price, or a combination thereof can then

80. For an example, see In Re Industrial Silicon Antitrust Lit., 1998-2 Trade Cases ¶ 72,348, 1998 WL 1031507 (W.D. Pa. Oct. 13, 1998), a case discussed in ABA Section of Antitrust Law, Econometrics: Legal, Practical, and Technical Issues (2005) [hereinafter Econometrics].

be examined. Once the model has been estimated, the "but-for" competitive price can be inserted into the regression in place of the actual prices received by the favored and disfavored purchasers to examine how the profits of the disfavored purchaser will change.

Of course, determining a precise "but-for" price is unlikely to be feasible in practice.[81] The most formidable problem relates to the elasticities of demand for favored and disfavored customers. The profit maximizing no-discrimination pricing also may involve customers beyond the specific plaintiff and the particular favored buyer.[82] Thus, all of the seller's transaction data, including sales to all other customers that may not be part of the litigation as well as margin data, may be required. Given the fact that concessions are often made in the discovery process, considerably less than "all data" are likely to be available in litigation. As discussed in the Glick, Mangum, and Swenson article in this volume, one "solution" to this issue is to leave the but-for price to the jury or judge while providing alternative "but-for" prices based on alternative weighted averages of the two prices paid by the favored and disfavored purchasers.[83]

The above discussion refers to the ideal or close-to-ideal situation where the available data allows relatively precise estimation of the regression model. However, in situations such as faced in the Western case, where the high degree of competition causes significant multicollinearity among both purchase and sale prices, substantial statistical difficulties impede precise estimations. Such cases demonstrate the paradox of damages calculation under Robinson Patman. In cases where the plaintiff is most likely to be harmed by price discrimination, the plaintiff faces the highest empirical hurdles to calculate damages. The difficulty facing the plaintiff is compounded by failure to adopt a *Morton Salt* inference of competitive impact in such cases as now the statistical analysis will judged by a stricter standard of proof.

We examine closer the problem in the specific context of the model specified above. We focus on the three important cost variables: the disfavored purchaser's costs, the favored purchaser's costs, and the costs of other competitors.

$$\pi_{DF} = \alpha + \beta_1 C_{DP} + \beta_2 C_{FP} + \beta_3 C_{OP} + \ldots$$

In cases where high degree of competition exists, especially when the wholesale costs are driven by an underlying commodity like crude oil, the problem is apparent. All three cost variables will likely be highly correlated with each other, meaning that one cannot hold the other costs constant when estimating the marginal effects of one cost on profits. While β_1, β_2, and β_3 remain unbiased, their variances are greatly increased, potentially leading to lack of significant *t*-tests (despite a significant overall *F*-test), and nonsensical signs, all of which are symptoms of multicollinearity.[84]

The first step towards "solution" is to identify the extent of the problem using the usual statistical metrics such as Variance Inflation Factors (VIFs).[85] The higher the correlation between the two

81. The estimation of the but-for price is itself not simple. *See* Glick et al., *supra* note 21 (providing an extended analysis of the but-for price issues).
82. We note that the estimation of damages involves the assumption of rational economic actors. We also note the irony that with rational economic actors, competitive injury can be assumed to occur, rendering the statistical demonstration of competitive injury redundant.
83. This was the approach taken by Professor Leffler in the *Hasbrouck* case.
84. *See* Econometrics, *supra* note 80, at 22 (the greater the multicollinearity between two variables, the less precise are the estimates of individual regression parameters).
85. The VIFs indicate how the presence of multicollinearity inflates the variance of an estimator by examining how one explanatory variable can be explained by the remaining explanatory variables in the model. If no collinearity exists, the VIF of a coefficient will be 1. Generally VIF values above 5 or 10 are considered indicators of a multicollinearity problem. *See* A. H. Studenmund, Using Econometrics: A Practical Guide 258 (4th ed. 2000) ("While there is no table of formal critical VIF values, a common rule of thumb is that if VIF(β_i) > 5, the multicollinearity is *severe*"); *see also*

independent variables, the greater the difficulty of disentangling the effects on the dependent variable of one independent variable from the other. We illustrate this in Figures 2 and 3. Figure 2 illustrates the ideal scenario where little multicollinearity exists, and we can estimate the marginal effects on the disfavored purchaser's profits of the disfavored purchaser's costs holding the other costs constant.

Figure 3 illustrates the situation of substantial multicollinearity. The overlap between the portions of the disfavored purchaser's profits explained by each competitor's costs indicates the profits that cannot be attributed separately to the effects of either competitor's costs. Thus, instead of relying on all observations to estimate the effects, the model must rely on only the nonoverlapping parts to estimate the individual coefficients. Suppose the entire circle represents 500 observations. Instead of using all 500 to calculate the coefficients, the model must now effectively only rely a fraction of those, since the two variables overlap for the majority of observations. Thus, multicollinearity in effect is a small numbers problem with the data, not a statistical problem. Hence Arthur Goldberger's tongue-in-cheek moniker "micronumerosity." The greater the overlap between each competitor's costs, the smaller the observations upon which the coefficients are based and the lower the precision (the higher the variance) with which those coefficients are estimated.

Once the problem of multicollinearity has been identified, the issue becomes how to address it. In general, there are four options:

1. *Ignore the problem*. In some cases, the multicollinearity can be ignored. For example, if the goal is forecasting, no use is made of individual coefficients and the multicollinearity should not impact the forecasts.[86] However, in the *Western* case, the interest was in drawing conclusions about specific independent variables, namely how each competitor's costs affects the disfavored purchaser's profits while holding the other cost variables constant.[87] Thus, the problem cannot be ignored.
2. *Drop one of the correlated independent variables*. This is not a viable option in this case. If the model excludes either favored, disfavored or other competitor purchaser costs, it would no longer address the key issue of price discrimination and would create omitted variable bias.
3. *Apply techniques such as ridge regression or principal components analysis*.[88] Neither option provides much help in the *Western* case.[89]
4. *Transform the variables*. This approach presents the most attractive solution, both economically and empirically. It offers the best solution to eliminating multicollinearity, while allowing assessment of whether the cost difference between disfavored and favored purchasers had any impact on the disfavored purchaser's profits.[90]

Damodar N. Gujarati, Basic Econometrics 399 (3d ed. 1996) ("As a rule of thumb, if the VIF of a variable exceeds 10 (this will happen if the R_j^2 exceeds 0.90), that variable is said to be highly collinear.")

86. In such a case, the researcher assumes that the multicollinearity will also exist in the forecast period.
87. Michael D. Intriligator et al., Econometric Models, Techniques, and Applications 132 (2d ed. 1995) ("If . . . the purpose [of the study] is structural analysis, specifically that of disentangling the separate influences of explanatory variables, multicollinearity is a very serious problem that must be addressed.")
88. Ridge regression trades off some measure of bias for an improvement in variance. In other words, the estimate would not have as wide a confidence interval, but the downside is that the confidence interval bounds a biased estimate. Principal components analysis is a method of reducing dimensionality when variables are collinear. Instead of using the actual variables, the method uses orthogonal constructs of them. Of course, the model will then estimate coefficients associated with those orthogonal constructs, not with the original variables. Since we are interested in the coefficients of the original variables (e.g., coefficients on the wholesale costs), principal components regression does not appear useful here, at least not for that purpose.
89. Biased estimates of the effect of changing the favored and disfavored buying prices from a ridge regression will produce biased damages estimates. A principle components analysis is not appropriate either since the expert needs to determine the effect of specific variables not orthogonal constructs of such variables.
90. As Studenmund notes in his textbook:

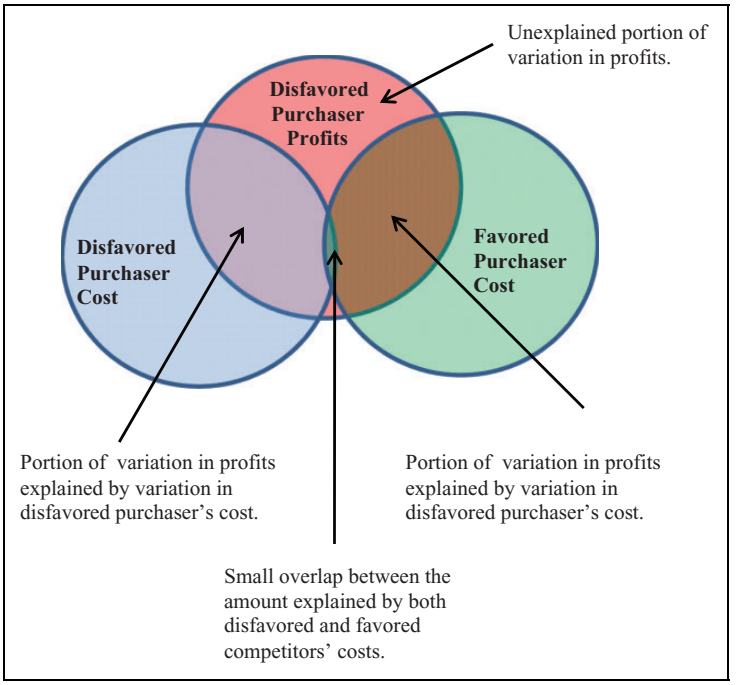

Figure 2. Little multicollinearity.

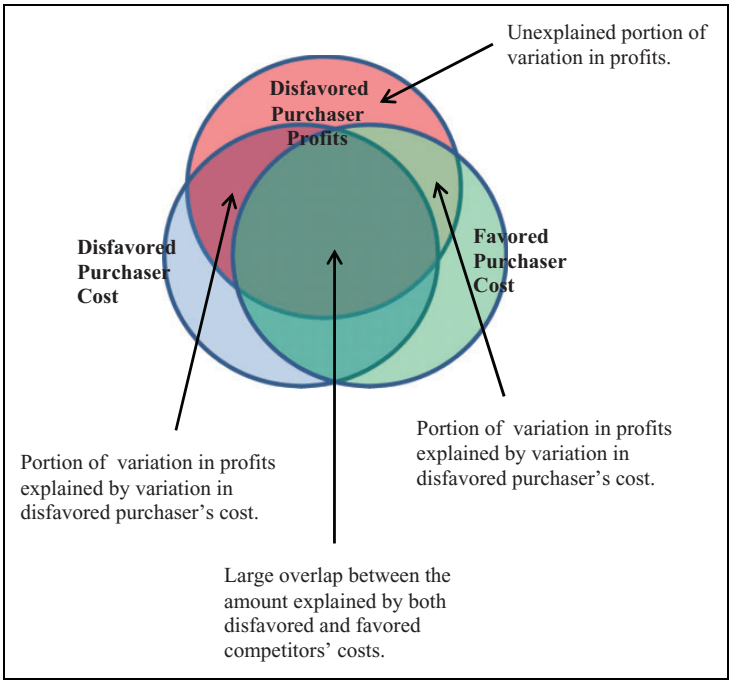

Figure 3. Severe multicollinearity.

In the *Western* case, we adopted the variable transformation approach by calculating the difference between the daily costs paid by the disfavored and favored purchasers. We estimated the model as follows:

$$\pi_{DF} = \alpha + \beta_1(C_{DP} - C_{FP}) + \beta_2(C_{DP(t-1)} - C_{FP(t-1)}) + \beta_2(C_{DP(t-2)} - C_{FP(t-2)}) + \prod_{i=4}^{n} \beta_i E_i,$$

where the subscripts *t*–1 and *t*–2 indicate one- and two-period lagged cost differences. The additional economic factors we used were: monthly gasoline demand in Colorado, seasonal dummy variables, a weekend dummy variable, percentage of the disfavored purchaser's daily deliveries at a particular location that were purchased from Suncor, freight costs, and daily retail price of the lowest-priced competitor.[91] Implementing this approach results in a substantial trade-off. By explaining profits as related to the differences between the favored and disfavored buying prices, we lose the ability to estimate how eliminating the discrimination by changing one buying price versus the other impacts the earnings.

In fact, we expect that, if the discrimination is eliminated mostly by raising the favored buyer's price, the earnings of the disfavored buyer will be impacted less than if the discrimination is eliminated mostly by lowering the disfavored price. When the favored purchaser's price is increased the benefits to the disfavored buyer flow only from the increased retail price expected to be set by the favored buyer because of its higher marginal cost. As a result of that increased retail price, some customers that before chose the favored purchaser's retail outlets will now switch locations with some of those patronizing the previously disfavored station. Of course, many customers will continue to use the original location and, of those leaving, not all will gravitate to the disfavored purchaser's location. However, if the discrimination is eliminated by lowering the price to the disfavored buyer, there will be an immediate increase in earnings from the implied higher margin. In addition, the previously disfavored purchaser's locations are expected to lower the retail price shifting customers from the previously favored location and from other competing locations.

> On rare occasions, the consequences of multicollinearity are serious enough to warrant the consideration of remedial action when the variables are all extremely important on theoretical grounds. In these cases, neither inaction nor dropping a variable is especially helpful. However, it's sometimes possible to transform the variables in the equation to get rid of at least some of the multicollinearity. The two most common such transformations are to 1) form a linear combination of the multicollinear variables, 2) Transform the equation into first differences.

STUDENMUND, *supra* note 85, at 261; *see also* SAMPRIT CHATTERJEE & BERTRAM PRICE, REGRESSION ANALYSIS BY EXAMPLE 200 (2d ed. 1991) ("We have seen that the presence of multicollinearity may prevent individual β's from being accurately estimated. However, as demonstrated blow, it is always possible to estimate some linear functions of the β's accurately. The obvious questions are: Which linear functions can be estimated, and of those that can be estimated, which are of interest in the analysis?").

91. The wholesale prices of all competitors, were, as might be expected, not available. In industries with large numbers of competitors, such as the retail fuel industry, one might expect that gathering such data would be a virtual impossibility. Nonetheless, Suncor's expert criticized our use of the lowest competitor's prices instead of the wholesale costs. We disagreed for two reasons that, we believe, apply generally to such cases. First, given that wholesale cost changes are passed on to retail prices, we expect that the costs would be highly collinear with the prices. We examined the relationships between retail prices at various competing fuel stations and rack prices. Both data were publicly available and obtained from the Oil Price Information Service (OPIS). As might be expected, we observed a clear positive relationship between the wholesale rack prices and the retail prices that stations charged. Thus, we expect that generally, in industries with high degrees of pass-through, the retail prices of a competitor may serve as a good proxy for the wholesale price when considering variables to include in a model. Second, in a highly competitive industry where price matching occurs, there is nothing particularly informative about the retail price of the lowest competitor, other than a general indicator of price levels. As we noted earlier, both the retail prices and wholesale costs of various competitors will be highly correlated. Thus, the price of the lowest competitor simply measures price levels in general.

The trade-off made by applying the direct approach using the differences in costs rather than the costs themselves can be mitigated by carefully investigating the cost data underlying the cost differences to determine the extent to which the variance in the difference results from cases in which the favored price is increased versus the disfavored price decreases. After determining this, the expected change in the buying prices when the discrimination is eliminated in the but-for world can be compared to the actual changes giving rise to the variance in buying prices in the actual world. As long as the actual situation is more weighted towards increases in the favored buying prices than is the but-for change in the buying prices, any ''bias'' in damages is to under-estimate the damages.

Because the modified direct model uses cost differences instead of costs, the but-for price difference absent price discrimination will be zero in most instances.[92] The lost profits are then calculated as ''but-for'' profits estimated from the regression minus the actual profits earned by disfavored purchaser under price discrimination. While the calculation of damages as profits absent the alleged ''bad act'' minus actual profits has been well established, a challenge arose to this approach in the *Western* case.

The expert testifying on behalf of Suncor stated that damages should be calculated in the ''but-for'' and actual worlds based on the regression analysis. Under this approach, damages would equal the predicted lost profits substituting zeros for the cost differences into the model minus the profits *predicted* by the model under the actual world (i.e., the fitted values, not the actual values). In other words, the proposal was to use:

$$Lost\ \ Profits = \hat{Y}_{BF} - \hat{Y},$$

instead of the generally-accepted:

$$Lost\ \ Profits = \hat{Y}_{BF} - Y.$$

The logic behind this suggestion is that, by doing so, all other factors are held constant and the lost profits calculation only considers the effects of the price discrimination. While this approach has some intuitive appeal, it is plagued by several problems. First, it does not permit mitigation. Damages result in all cases where the ''but-for'' price difference would have been lower than the actual price difference, regardless of whether the disfavored purchaser mitigated its damages. In other words, even if actual profits are greater than those predicted by the model, the alternative approach suggested by Suncor's expert would find damages.

The response in defense of this alternative approach is that mitigation is already accounted for in the model's estimated coefficients. The main problem with this argument is that, under the alternative model's assumptions, the temporal location of the mitigation can make a significant difference. Data points at the beginning or end of a time series can exert greater leverage on the regression line than points in the middle, especially in trending series, because the points at the ends will likely be the ones farthest from the average, either below or above.

Second, such an alternative approach raises the bar even farther for the disfavored purchaser. One can easily imagine the difficulty of countering the defense's arguments when the disfavored purchaser's profits were higher than predicted by the model. Intuitive arguments of this nature are not easily

92. If the but-for price difference is based on an average over a period of time, the but-for price differences may not average zero. For example, suppose that the seller needed to sell excess inventory at the end of a season and offered temporary discounts to all of its purchasers at a price below the usual price charged to the favored purchaser. If only the favored purchaser availed itself of this temporary deal, this temporary price difference would not all be part of the discrimination, and the average non-discriminatory price difference could be positive.

overcome.[93] The counterargument, raised by Suncor's expert, is that the "but-for" minus actual approach can generate lost profits even when the "but-for" price difference would have been higher than the actual price difference. The reason why this may occur merits discussion, since such results will almost certainly occur when calculating damages.

The question we address is as follows. If, absent the price discrimination (i.e., in the but-for world), the cost differential between the disfavored and favored purchasers (disfavored minus favored costs) would have been lower than in the actual world, should a properly specified model *always* show damages? Conversely, if the cost differential would have been higher in the but-for world, should a properly-specified model *never* show damages? We believe that, in both cases, the answer is no. Certainly in, for example, cartel cases, one can find but-for prices lower than actual prices during the cartel period.[94] This can occur for various reasons: breakup of the cartel, cheating by one of its members, random error, and so forth. None of these reasons represent evidence that the model specification is somehow incorrect.

However, in the case of price discrimination, the issue is more complex. Let us consider one particular day. Suppose, on that particular day, the disfavored purchaser paid $2.00 and the favored purchaser paid $1.95 for the same fuel from the same location, from the seller at issue.[95] The actual wholesale cost difference is $ 0.05. Now, suppose, in the but-for world, both purchasers would have paid the same price and the difference would have been $0.00. So, one might expect that the model would calculate damages on this day. However, while we may expect the model to find damages in the majority of such days, where the wholesale price difference would have less absent the price discrimination, positive damages need not always result, for several reasons.

- *Random error*—No model can capture all the variation in the dependent variable. Some variation is impossible to capture, for example, street repairs that may affect sales, weather-related issues, and so forth.
- *Mitigation*—The disfavored purchaser may have tried to mitigate its actual (or perceived) cost disadvantage by running specials on other products, increased advertising at the store, and so forth.
- *Product turnover*—While a purchase may be made on a day, there is no requirement that all the sales made on that day had to come from the product, fuel in this case, purchased on that day. Product may have been left over from previous day(s), meaning that the cost differences in

93. The *Western Convenience Stores* case provided clear examples of this. For example, the judge was persuaded by Suncor's expert's argument that the fact that Western Convenience did not close any stores during the relevant period represented evidence that it suffered no harm.: The Court stated: "Although Western presented opinions from Dr. Leffler concerning its damages resulting from the alleged price discrimination, such damages were purely hypothetical; Western presented no evidence of actual losses it suffered during the relevant period. For example, Western closed no stores during or immediately following the operative period. Indeed, Western opened two new stores during the operative period, both in areas in which it would compete with Kroger stores." Western Convenience Stores, Inc., 1:11-cv-01611-MSK-CBS, Dkt. No. 319, at 11. Of course, the Court's argument fails on a basic economic level. A disfavored purchaser does not have to go out of business at any of its locations in order to suffer economic harm in the form of lost profits. This is a nonsensical standard. Nowhere does the Robinson-Patman Act or any precedent claim that simply because the disfavored purchaser did not go out of business at a particular location, this constitutes evidence that no pass-through or economic damages resulted. Further, contrary to decades of legal precedent and universal acceptance of regression analysis as a method to calculate lost profits, the Court dismissed the quantification of lost profits through statistical analysis as "purely hypothetical."

94. For example, *see* sources cited *supra* note 80.

95. All examples in this article are hypothetical. Pursuant to discovery rules, we do not use any company-specific data from the *Western Convenience Stores* case. The only specific data issues we discuss are those that were already discussed in the Opinion and Order Directing Entry of Judgment in Favor of Suncor Energy (U.S.A.), in *Western Convenience Stores*.

previous days could have affected the profits on a given day (i.e., lagged effects). These can be captured, however, by including lagged wholesale price differences, as we did in this case.

While the discussion above mentioned one scenario, a total of four separate scenarios relating profits and the wholesale price differences can occur. These scenarios are represented by four data points (1–4) in Figure 4. The figure illustrates the inverse relationship, estimated by a regression analysis, between profits, the dependent variable, and the "but-for" wholesale price difference minus the actual price difference. The lower this difference, the better off the disfavored purchaser is in the "but-for" world. Suppose the actual and "but-for" price differences, respectively, were as in the example above (5 cents and 0 cents). The difference between the "but-for" and actual differences would be \$0.00 – \$0.05 = \$–0.05. Since the disfavored purchaser would have been better off in the "but-for" world, this scenario would appear on the left side of the figure.

Each point on Figure 4's line represents the predicted profits from the regression model at a given difference. The four data points represent actual profits-price difference pairs. Suppose actual profits are either represented by Point 1 or Point 2. In the case of Point 1, the regression analysis has positive damages. In the case of Point 2, the regression analysis has negative damages. With perfect information, of course, Point 2 would be located below the regression line, since we would have all the information and data to model the reasons why Point 2 appears where it does. Once we accounted for all those reasons, Point 2 would move below the regression line. However, perfect information virtually never exists. With perfect information, there would be no uncertainty, thus eliminating the need for inferential statistics.

Returning to our example, the four data points, represented as scenarios, are as follows:

1. But-for wholesale price difference is lower, and the model calculates damages, since Point 1 is below the predicted line. This is what we expect. (Intuitive)
2. The disfavored purchaser is better off from a wholesale price reduction but the model calculates zero or negative damages, because the actual value is above the predicted line. (Counterintuitive)
3. The disfavored purchaser is worse off because the wholesale price rises but the model calculates damages, because Point 3 is below the line. (Counterintuitive)
4. The disfavored purchaser is better off and the model calculates zero or negative damages, because Point 4 is above the line. (Intuitive)

The four scenarios can be summarized by a 2×2 contingency table, as shown in Figure 5.

The green-shaded cells indicate intuitive results while red-shaded cells indicate counterintuitive results. Of course, on average, a properly specified regression model will be dominated by the "intuitive" results with positive damages estimated. Nonetheless, each of these scenarios is expected to occur in any estimation procedure. The expert presenting such a model can expect to be critiqued and cross-examined regarding the observations in Cell #3.[96]

Such issues arise in all statistical analysis. To experts versed in statistics, the explanations are straightforward and themselves intuitive. To the nonexpert judge or jury member, something seems

96. In Scenarios 2 and 4 we noted that damages are negative. From a purely computation standpoint, of course, predicted minus actual profits would yield a negative number. The issue is whether this negative number should be treated as zero damages or should be allowed to offset instances of positive damages. In instances of price discrimination the answer is obvious. Since price-fixing is a per-se violation of the Sherman Act, the cartel receives no "credit" for poor organization or "cheating" on the part of its members. As such, negative damages are set to zero and do not offset positive damages. Under Robinson-Patman, the issue is more complex. In the *Western Convenience Stores* matter, we were instructed to present both calculations, offsetting and not offsetting, since the issue of whether damages could be offset hinged on a state statute under which claims had also been brought by the plaintiff.

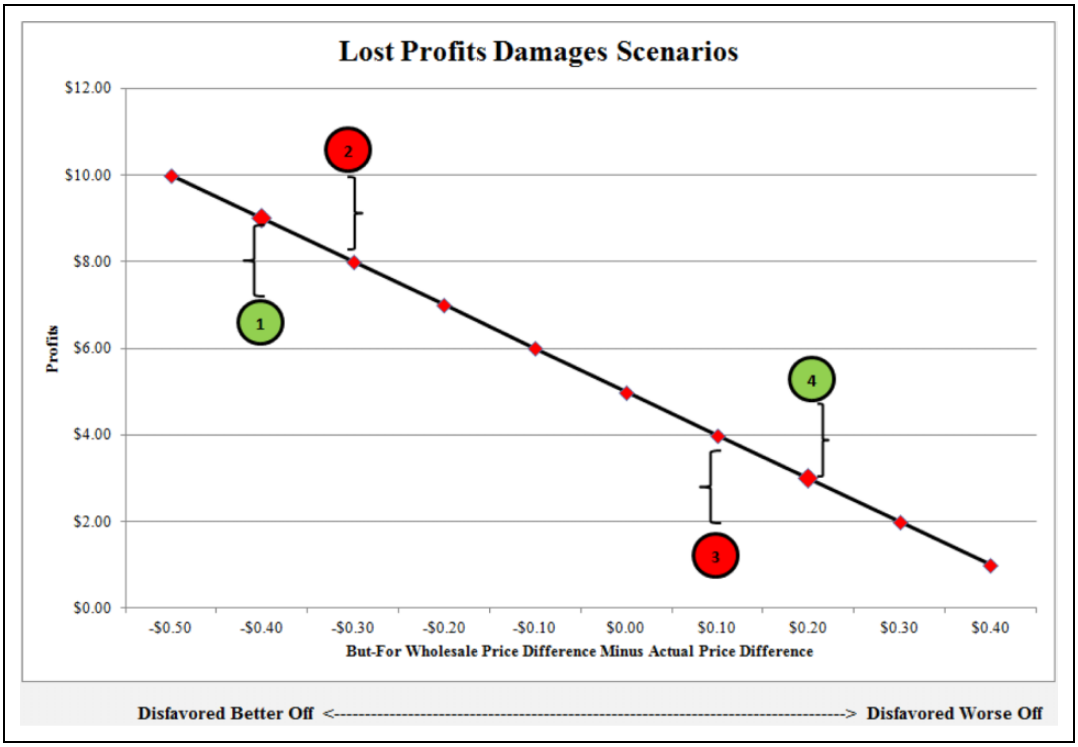

Figure 4. Lost profits damages scenarios.

	Lost Profits	No Lost Profits
Disfavored gets better prices in but-for world	1	2
Disfavored gets worse prices in but-for world	3	4

Figure 5. 2 × 2 contingency table.

wrong. If the statistical exercise is only to *estimate* damages, all is probably well. However, if the statistical exercise is to *prove* competitive impact, the resulting confusion and assault on the statistics may lead to a conclusion of failure to prove.

Concluding Remarks

This brings us back to our central theme—*Morton Salt* had it correct. When some competitor or competitors are forced to compete with a disadvantage caused by price discrimination that is unrelated to costs, the competitive process cannot be counted on to discipline the market to promote efficiency. Whether it be the market power of favored buyers or the variances in buyer elasticities lying behind the discrimination, the discrimination causes potential competitive injury.

The injury in the context of the Robinson Patman Act is more significant than a static injury to one competitor. Western Convenience Stores' ability to compete, much less exist, makes little difference in the short run to the gasoline prices paid in Colorado, where hundreds of gasoline stations exist. However, the ability of an entrepreneur to thrive if he or she better satisfies consumers' preferences is the cornerstone of the foundation of a competitive system. If those entrepreneurs engaged in the competitive struggle are hindered, not because of their inefficiency or lack of good ideas, but because they pay higher prices than their competitors, the invisible hand of competition is no longer an efficient regulatory scheme.

Whether or not Western Convenience Stores in fact had a better idea is not the relevant question, and it not something that would typically be knowable until the pressures of the market provided a test. Given the benefits of new ideas to consumers, it is incumbent in a market system to ensure a fair process. Properly applied and understood, the Robinson Patman Act is the mechanism helping to ensure such a process. Therefore, if it can be shown that significant price discrimination has occurred over a significant period of time, and the different prices are paid by purchasers shown to compete directly with one another, the competitive process has been impeded, and a competitive injury should be inferred. Does such injury to the competitive process result in inefficiency or reductions in consumer welfare? Maybe or maybe not, but the evidence answering this question will not be available during the period of price discrimination. If a disfavored competitor in a Robinson Patman case is required to prove that consumer welfare has been injured, that is proof that could rarely be achieved as the process for demonstrating such injury has not been allowed to play itself out.

It seems relatively innocuous to require a plaintiff to show injury, and in many cases it is. A merger that leads to higher prices shows such injury; price fixing that leads to higher prices shows such injury. Price discrimination is of a different nature. Its harmful effects are from the subversion of the competitive process itself, and injury in any particular situation may or may ever happen. Western Convenience Stores may be operating under an obsolete business model. Gas stations of the future may all be linked to large scale merchandisers like Kroger that can offer discounts related to other purchases. But if Western, or any other small business, is not allowed to compete on an equal basis, we would never know. When the burden of proving competitive or antitrust injury falls on the Robinson Patman plaintiff, we implicitly change proof from a ''may be'' possible dynamic injury standard to a narrow, static standard that can be very difficult to satisfy, and which is not relevant to the true competitive problem.

As we have discussed, the technical requirements for showing the static impact of price discrimination in a market with otherwise highly competitive characteristics are severe. Some might suggest any such problems are unimportant because the market is otherwise highly competitive. But that misses the point. The phrase ''highly competitive'' simply means that there are many sellers selling similar goods. It means that, at a point in time, margins will be relatively low. In that context, whether one of those competitors is disadvantaged will have little if any impact on consumer welfare at that point in time. The Robinson Patman problem is different because it deals with how competition evolves not just with how it exists at a point in time. Perhaps Western would have attracted Kroger's customers because it promoted a low carbon footprint, began offering natural gas, or sold unique toys in the convenience store. We do not know and will never know unless our antitrust laws promote fair competition in which all entrepreneurs have the chance to test the market on an equal basis. That is what the Robinson Patman Act was designed to do and what it should be permitted to continue doing.

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Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.