Is Professor Salop Right That Judge Leon Bungled *United States v. AT&T*?

Janusz A. Ordover,[*] J. Gregory Sidak[†] & Robert D. Willig[‡]

On June 12, 2018, Judge Richard Leon of the U.S. District Court for the District of Columbia dismissed *United States v. AT&T Inc.*, the Antitrust Division's challenge to AT&T's proposed acquisition of Time Warner.[1] The decision, currently on appeal to the U.S. Court of Appeals for the District of Columbia Circuit, has attracted widespread attention from economists and antitrust scholars, as the case is the government's first challenge to a vertical merger since *United States v. Hammermill Paper Co.* in 1977.[2] One indication of that attention is that 27 economists and antitrust scholars filed an *amicus* brief attacking the merger and Judge Leon's economic reasoning in his order finding it lawful,[3] and that 37 economists and antitrust scholars, including the three of us, filed our own *amicus* brief defending the soundness of his economic reasoning.[4]

Judge Leon correctly applied economic analysis to assess the validity of the government's case that this vertical merger is anticompetitive in that it would have adverse effects on consumers. He found no credible evidence of an anticompetitive effect. At the same time, he did find credible evidence that the merger would produce efficiencies. Consequently, Judge Leon concluded

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[*] Professor of Economics Emeritus, New York University; Senior Consultant, Compass Lexecon. Email: jao@jordover.com.

[†] Chairman, Criterion Economics, Washington, D.C. Email: jgsidak@criterioneconomics.com.

[‡] Professor Emeritus of Economics and Public Affairs, Princeton University; Senior Consultant, Compass Lexecon. Email: rwillig@compasslexecon.com. This article draws from an *amicus* brief we filed with 34 others in support of AT&T in *United States v. AT&T*. To the extent that views expressed here go beyond those expressed in the *amicus* brief, they are solely our own and should not be imputed to the other *amici*. Copyright 2018 by the authors. All rights reserved.

[1] 310 F. Supp. 3d 161 (D.D.C. 2018), *appeal docketed*, No. 18-5214 (D.C. Cir. July 13, 2018).

[2] 429 F. Supp. 1271 (W.D. Pa. 1977).

[3] *See* Brief for 27 Antitrust Scholars as *Amici Curiae* in Support of Neither Party, United States v. AT&T, Inc., No. 18-5214 (D.C. Cir. Aug. 13, 2018) [hereinafter Brief for 27 Antitrust Scholars as *Amici Curiae* in Support of Neither Party].

[4] *See* Brief *Amici Curiae* of 37 Economists, Antitrust Scholars, and Former Government Antitrust Officials in Support of Appellees and Supporting Affirmance, United States v. AT&T, Inc., No. 18-5214 (D.C. Cir. Sept. 26, 2018), 2018 WL 4628092.

that the government had not shown that the merger would likely diminish competition or harm consumers. Those findings should stand, as there is no indication that they were clearly erroneous.

Judge Leon's findings do not rest on a misunderstanding of economic theory or its empirical application, as some have declaimed. To the contrary, they reflect a deep understanding of what facts are needed to support the government's economic theory reliably and a clear-minded appraisal of the failures of the government's evidence. Judge Leon rejected the government's case against the merger not due to a lack of understanding of key economic principles, but because he decided that the weight of the industry testimony showed no significant anticompetitive effect but did show credible efficiencies, including those agreed to by the government, and because he decided that the government's case, including the testimony of its leading expert economic witness, Professor Carl Shapiro, was ultimately unpersuasive.

AT&T of course owns DirecTV, the satellite-based multichannel video programming distributor (MVPD). According to the government, bargaining theory demonstrates that the merger would raise prices of the acquired Turner program content charged to rival MVPDs, such as cable companies. In support of this claim, the government and Professor Shapiro put forward a Nash bargaining model of price negotiations between Turner as content provider, on the one hand, and video programming distributors, on the other hand. Using this model, the government argued that the merger would raise resulting prices because the fallback position for Turner—the path that it would rationally consider taking if the negotiations fell through—would be less costly after the merger. That was so, the government asserted, because the resulting blackout of Turner programming would profitably divert some of the video programming distributor's subscribers to AT&T's DirecTV, thereby offsetting some of the losses of revenue from the discontinued sales of Turner programming.

Judge Leon found that, although Nash bargaining can be a useful approach to evaluating mergers in some cases, the empirical evidence in this case did not support the government's claims, even when viewed through the lens of Nash bargaining. In large part, the problems he identified rested on the inputs to Professor Shapiro's model, not the model itself. The court found that Professor Shapiro employed unreliable estimates of critical inputs, including his estimate of the number of subscribers who would depart from their video content distributors and switch to DirecTV if faced with a loss of Turner content, and his use of outdated and inflated profit margins for AT&T. And, critically, Judge Leon found that small changes in the values of these inputs caused the model's predictions to change dramatically. Indeed, modest changes to the inputs caused the predicted sign for competitive harm to *flip*, so that the government's predicted prices for the programming in

question would fall after the merger rather than rise. Moreover, he decided, on the basis of industry testimony, that the long-term blackouts that Professor Shapiro used as the fallback option in his Nash bargaining model are not credible threats. Given these findings, Judge Leon was fully justified in holding that the government had failed to meet its burden to prove that the merger was likely to harm competition and consumers.

Nevertheless, the controversy continues to engage the academic antitrust community. A forthcoming article by Professor Steven Salop in the *Journal of Antitrust Enforcement* embraces Professor Shapiro's arguments and criticizes Judge Leon's findings, particularly findings concerning the government's and Professor Shapiro's model.[5]

In this article, we rebut the economic arguments in Professor Salop's forthcoming article. In Part I, we summarize his main criticisms of Judge Leon's decision: (1) that, contrary to Judge Leon's finding, Time Warner executives would have the economic incentive to "maximize the 'joint profits' of the vertically integrated company"[6] and (2) that the mere threat of a blackout would suffice to increase Time Warner's bargaining leverage and thereby raise the negotiated price for its Turner cable networks.[7] In Part II, we explain that each of Professor Salop's arguments fails to successfully undermine the conclusions that Judge Leon reached in his decision.

I. Professor Salop's Criticisms of Judge Leon

Professor Salop articulates several criticisms of Judge Leon's findings with respect to the government's and Professor Shapiro's Nash bargaining model. First, Professor Salop criticizes Judge Leon's conclusion that Time Warner executives would not account for the interests of DirecTV (AT&T's main programming content distribution entity) when negotiating prices for access to Time Warner's Turner cable networks.[8] In other words, Professor Salop argues that Judge Leon improperly dismissed the government's argument "that Time Warner executives would work to maximize the 'joint profits' of the vertically integrated company."[9] According to Professor Salop, it is "economically rational" for Time Warner executives to seek to maximize Time Warner's and DirectTV's joint profits because the two divisions belong to the same vertically integrated firm.[10]

[5] *See* Steven C. Salop, *The AT&T/Time Warner Merger: Judge Leon Garbled Professor Nash*, J. Antitrust Enforcement (forthcoming 2018). Our citations are to the unpublished working paper version of Professor Salop's forthcoming article, which is posted on the Social Science Research Network (SSRN).

[6] *Id.* at 3.

[7] *Id.* at 5.

[8] *Id.* at 3.

[9] *Id.*

[10] *Id.* at 4.

Second, Professor Salop criticizes Judge Leon's conclusion regarding the effect of blackout threats on bargaining leverage.[11] In his opinion, Judge Leon was skeptical of the government's bargaining leverage model because that model relied on the assumption that the parties' failure to reach an agreement would result in a long-term blackout of the negotiated content.[12] According to Professor Salop, although content blackouts "rarely if ever occur . . . leverage theory is premised on blackout *threats*, not actual blackouts."[13] In other words, Professor Salop argues that, even when the likelihood of a content blackout is low and reaching an agreement would be more profitable for both parties than not reaching an agreement, "negotiators commonly make threats not to agree unless their demands are met."[14] He explains that, because the AT&T-Time Warner merger would increase Time Warner's bargaining leverage in a negotiation, the merger would alter the relative losses to the negotiating parties and thereby change the equilibrium negotiated price.[15]

Salop then conjectures that, on the basis of these alleged economic misunderstandings of the government's bargaining leverage model, Judge Leon's interpretation of the empirical evidence might have been tainted by "confirmation bias."[16] Professor Salop emphasizes that his "analysis is intended to be more illustrative than a rigorous evaluation."[17] As anecdotal evidence of confirmation bias, Professor Salop examines five examples of inconsistent reasoning in Judge Leon's evaluation of the empirical evidence.[18] It bears emphasis that Professor Salop did not actually analyze the empirical inputs to Professor Shapiro's model. Instead, Professor Salop just speculated on the basis of anecdotal evidence that Judge Leon had been susceptible to confirmation bias.[19]

Finally, Professor Salop questions the Antitrust Division's analysis of the elimination of double marginalization in the merger.[20] He contends that the supposed efficiencies from the merger—that is, the elimination of double marginalization—should have been analyzed in the specific context of this merger, but that there is no evidence that either party performed a "merger-specific" analysis.[21]

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[11] *Id.* at 4–6.

[12] *Id.* at 5.

[13] *Id.* (emphasis in original).

[14] *Id.* at 6.

[15] *Id.* at 5.

[16] *Id.* at 6.

[17] *Id.* at 8.

[18] *See id.* at 8–10.

[19] *Id.* at 2 ("Judge Leon also rejected the empirical inputs that were used by DOJ's expert economist, Professor Carl Shapiro, in his quantitative analysis, though this article will not analyze these issues.").

[20] *Id.* at 10–11.

[21] *Id.* at 10.

II. The Fallacies
in Professor Salop's Criticisms

We address now Professor Salop's specious criticisms of Judge Leon's findings on merger efficiencies, post-merger bargaining, and profit maximization in a multi-divisional firm.

A. *Vertical Mergers Have Inherent Efficiencies That Judge Leon Properly Considered When Evaluating the Merger's Competitive Effects*

Vertical integration is a decision by a firm about how to organize production, so that the firm might harness productive efficiencies from coordinating production within a single entity and reduce the transaction costs of trying, in the alternative, to achieve these efficiencies of vertical coordination through contract.[22] Unlike a horizontal merger, which combines firms that produce substitutes, a vertical merger combines firms that produce complements and thus generally inclines the merged firm to reduce prices, expand output, and increase investment. This is not to say that vertical mergers never raise competitive concerns. But it is to say that the efficiencies from vertical integration cannot be ignored if one is to predict a vertical merger's likely competitive effect.[23]

Professor Salop argues that the Antitrust Division did not analyze the efficiencies resulting from vertical integration, mainly the elimination of double marginalization, specifically in the context of the AT&T-Time Warner merger.[24] However, in this case, it is significant that Judge Leon held that his "ruling does *not* turn on the efficiencies offered by defendants in their affirmative case, but rather on [his] conclusion that the *Government's* evidence, as 'undermined['] and 'discredit[ed]' by defendants' attacks, is insufficient to

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[22] Judge Bork called vertical integration "indispensable to the realization of productive efficiencies." Robert H. Bork, The Antitrust Paradox: A Policy at War with Itself 226 (Free Press rev. ed. 1993) (1978). Nobel laureate Oliver Williamson explained that, given "the problems that both long and short-term contracts are subject to, vertical integration may well be indicated. The conflict between efficient investment and efficient sequential decision-making is thereby avoided. Sequential adaptations become an occasion for cooperative adjustment rather than opportunistic bargaining; risks may be attenuated; differences between successive stages can be resolved more easily by the internal control machinery." Oliver E. Williamson, *The Vertical Integration of Production: Market Failure Considerations*, 61 Am. Econ. Rev. Papers & Proc. 112, 116 (1971). The Nobel Prize committee said in its summary of his work that "Williamson's theory of vertical integration clarifies why firms are essentially different from markets. As a consequence, it challenges the position held by many economists and legal scholars in the 1960s that vertical integration is best understood as a means of acquiring market power. Williamson's analysis provides a coherent rationale for, and has probably contributed to, the reduction of antitrust concerns associated with vertical mergers in the 1970s and 80s. By 1984, merger guidelines in the United States explicitly accepted that most mergers occur for reasons of improved efficiency, and that such efficiencies are particularly likely in the context of vertical mergers." Economic Sciences Prize Committee of the Royal Swedish Academy of Sciences, Scientific Background on the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2009: Economic Governance 5(19) (Oct. 12, 2009).

[23] *See, e.g.*, Comcast Cable Commc'ns, LLC v. FCC, 717 F.3d 982, 990 (D.C. Cir. 2013) (collecting cases).

[24] Salop, *supra* note 5, manuscript at 10–11.

'show[] a probability of substantially lessened competition,' and thus that the Government has 'failed to carry its ultimate burden of persuasion.'"[25] Although this finding alone suffices to defeat the government's case, Judge Leon further found that the merger "will achieve considerable efficiencies" that go "beyond those conceded by the Government."[26]

These factual findings rest on Judge Leon's exposure to the entire record and justify reversal only if clearly erroneous.[27] As we describe below, Judge Leon's decision had a firm foundation in economic theory, in empirical research, and in the specific facts of this case for its conclusion that the government failed to carry its burden of proving a reasonable probability of substantial harm to competition.

Professor Salop's claims that the decision was wrong, and our rebuttal of that position, rest on the conceptual framework and some details of the model that the government employed in its case against the merger, to which we now turn.

B.   *Judge Leon's Analysis of Competitive Effects Properly Discounted the Reliability of the Government's Bargaining Model*

The government predicated its model of competitive effects on its interpretation of the Nash bargaining solution. In his 1950 article, *The Bargaining Problem*, John Nash proposed a solution to what he called the "bargaining situation"—an economic game in which two parties "have the opportunity to collaborate for mutual benefit in more than one way."[28] A solution to that game maximizes "the amount of satisfaction each [party] should expect to get from the situation."[29] According to Nash's model, an increase in the value of a party's position absent an agreement improves the party's bargaining position and therefore results in an improvement in that party's value of the bargain.[30]

According to the testimony of Professor Shapiro, the theoretical definition of the no-agreement fallback for each negotiating party is the best

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[25] United States v. AT&T, 310 F. Supp. 3d 161, 191 n.17 (D.D.C. 2018), *appeal docketed*, No. 18-5214 (D.C. Cir. July 13, 2018) (quoting United States v. Baker Hughes Inc., 908 F.2d 981, 983, 990–991 (D.C. Cir. 1990) (emphasis in original)).

[26] *Id.*

[27] *See* United States v. Am. Express Co., 838 F.3d 179, 193 (2d Cir. 2016) (following an antitrust bench trial, the district court's findings of fact reviewed "for clear error"), *aff'd sub nom.* Ohio v. Am. Express Co., 138 S. Ct. 2274 (2018).

[28] John F. Nash, Jr., *The Bargaining Problem*, 18 Econometrica 155, 155 (1950).

[29] *Id.*

[30] Before deriving his solution, Nash made certain assumptions about the game's participants: that each bargaining party is "highly rational," "can accurately compare [its] desires for various things," is "equal [to the other] in bargaining skill," "has full knowledge of the tastes and preferences of the other," and "wishes to maximize the utility to [itself] of the ultimate bargain." *Id.* at 155, 159. Nash further assumed the independence of irrelevant alternatives—that is, if a bargainer faces a choice between *A* and *B* and prefers *A* to *B*, then that bargainer must also prefer *A* to *B* if faced with a choice between *A*, *B*, and *C*. *Id.* at 156.

option available to that party if no deal is reached; in other words, it is each party's best alternative to a negotiated agreement.[31] Judge Leon recognized this when he noted that "Professor Shapiro's opinion incorporates the 'key' recognition that each side's bargaining leverage 'is based on what would happen if there were no deal.'"[32]

The government uses the Nash bargaining model to predict how the merger would alter market outcomes (such as prices charged for Turner content to cable operators or other content distributors) by predicting how the merger would alter the no-agreement fallback options for Turner and its counterparty in a negotiation over content pricing. Accordingly, the conclusions drawn under the Nash bargaining model about the impact of the merger can be influenced significantly by what are viewed as the no-agreement fallback options and their predicted values to the parties, pre- and post-merger. For the model to be reliable, the predicted no-agreement fallback options must be credible; the parties must actually be willing to accept them as fallbacks, or else they will not influence the market outcomes predicted by the Nash bargaining model.[33] Likewise, the underlying predictions of the merger's effects on the parties' valuations of their fallback options must also be reliable. If those predictions are inaccurate, then the model will not reflect the real-world incentives facing the parties during actual negotiations, and its results about the impacts of the merger on market outcomes will not be reliable.

1. Economic Models That Are Highly Sensitive to Their Empirical Inputs Are Only as Reliable as Those Inputs Themselves

Professor Salop argues that Judge Leon's interpretation of the empirical foundations for the Nash bargaining model could have been "colored" by confirmation bias.[34] Although we are neither psychologists nor behavioral

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[31] *See* Expert Report of Carl Shapiro at 43, United States v. AT&T, Inc., No. 1:17-cv-02511 (D.D.C. Feb. 2, 2018) [hereinafter Shapiro Report (Redacted), *United States v. AT&T*], https://www.justice.gov/atr/case-document/file/1081336/download.

[32] United States v. AT&T, 310 F. Supp. 3d 161, 223 n.35 (D.D.C. 2018), *appeal docketed*, No. 18-5214 (D.C. Cir. July 13, 2018).

[33] Nash emphasized this perspective in his 1953 article, extending his 1950 article in a manner that "tells the players what threats they should use in negotiating." John Nash, *Two-Person Cooperative Games*, 21 ECONOMETRICA 128, 130 (1953). He summarized: "Supposing *A* and *B* to be rational beings, it is essential for the success of the threat that *A* be *compelled* to carry out his threat *T* if *B* fails to comply. Otherwise it will have little meaning." *Id.* (emphasis in original). Both the government and Professor Shapiro relied heavily on the credibility of threats made during bargaining. *See* Shapiro Report (Redacted), *United States v. AT&T*, *supra* note 31, at 41 & n.169, 42 & n.172; Expert Rebuttal Report of Carl Shapiro at 5 & n.10, United States v. AT&T, Inc., No. 1:17- cv-02511 (D.D.C. Feb. 26, 2018), https://www.justice.gov/atr/case-document/file/1081321/download. Professor Shapiro cited Nash's 1950 article—but not Nash's 1953 article—as the basis for his bargaining model of competitive effects.

[34] Salop, *supra* note 5, manuscript at 6 (internal quotation marks omitted).

economists, we can confidently say that Judge Leon's understanding of the empirical foundations for the model was correct as a matter of economics.

Sensitivity to changes in key empirical inputs is a critical characteristic of many economic (as well as other) models. If small changes in key empirical inputs radically change the model's salient predictions, one must question the validity of the model's conclusions and recognize their unreliability where the values of the empirical inputs are unreliable themselves.

To be sure, Nash bargaining can be a useful theoretical modeling tool for gauging the economic effects of mergers. But it was entirely appropriate for Judge Leon to question the empirical robustness of the results emerging from the government's bargaining model by testing the sensitivity of those results to modest changes in assumed input values.

Such testing is entirely routine in economic analysis. Indeed, it is expected for credible work. And it is particularly important in this case because the government predicted only very modest net harm, measured as an increase in a typical subscriber's monthly cable TV bill. Absent any demonstration that the estimate of harm remains positive in the face of reasonable modifications to the inputs and assumptions—that is, absent a demonstration that the result is robust and will not be flipped by small changes in the values of the key inputs—such a modest estimate cannot reliably and meaningfully support an inference of harm. Here, the government provided no such demonstration, yet it attempted to draw such an inference.

The effects of a given merger on the economic variables of interest depend on many case-specific inputs and parameters. The general framework of Nash bargaining cannot determine a merger's effects. To do that, it is necessary to examine the values of those inputs and parameters, the precision with which they can be determined, and the sensitivity of any predictions to changes in those inputs. The fact that the government's prediction of net harm was extremely sensitive to input values—which were based on assumptions that Judge Leon found to be unsupported by or inconsistent with the evidence—appropriately calls into question the reliability and the probative value of the government's predictions.[35]

Central to this case, the results of the government's model are highly sensitive to predictions about customer "departures" (the number of customers that would leave a rival content distributor in the face of a long-term Turner blackout) and "diversions" (the number of those departing customers that would switch to DirecTV). This is so because the government's theory rests on the long-term blackout scenario as the no-agreement fallback for

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[35] As the Federal Circuit explained in the context of measuring reasonable royalty damages, "[t]he Nash [bargaining] theorem arrives at a result that follows from a certain set of premises" but "itself asserts nothing" about the real-world reliability of those premises. VirnetX, Inc. v. Cisco Sys., Inc., 767 F.3d 1308, 1332 (Fed. Cir. 2014) (analyzing Nash, *The Bargaining Problem*, *supra* note 28).

the Nash bargaining. The merger's anticipated effect on the cost to Turner of a long-term blackout depends on predicted increases in profits from new subscribers who switch to DirecTV from the competing distributor because Turner's content is blacked out on the competitor's service.

The government (and its expert economic witnesses) did not directly measure the anticipated departures and diversions empirically. Although we offer no opinion on the details of how departures and diversions were estimated, we note that insofar as Judge Leon determined that the government's estimates were unreliable, it was correspondingly appropriate as a matter of sound economic analysis for Judge Leon to conclude that any predicted price increases emerging from the model were also unreliable.[36]

This concern is not about the theoretical underpinnings of Nash bargaining, but rather whether the inputs into the government's version of the Nash bargaining model themselves were reliable and hence whether the predictions of the government's model were reliable on that basis.

As another example, the parties agreed that the results of the government's bargaining model were also highly sensitive to estimates of AT&T's profit margins on its video customers. Again, the merger's anticipated effect on Turner's bargaining outcome depends on the merger's impact on the cost of a long-term blackout to the post-merger firm. That impact, in turn, depends on the profit margin to DirecTV on the flow of new subscribers that results from the blackout. We offer no opinion on the government's particular profit margin assumption. But insofar as Judge Leon determined that the margin employed in the model was outdated and inflated, it was appropriate to identify this shortcoming as yet another reason to reject the model's conclusions.[37]

According to Judge Leon, the evidence supported estimated values for these and other inputs that would have yielded predictions from the government's model of net benefits resulting from the merger. Insofar as Judge Leon

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[36] *See, e.g.*, *United States v. AT&T*, 310 F. Supp. 3d at 234 ("For all of the reasons discussed above, the evidence is not sufficient to support the 9% long-term subscriber loss figure that Professor Shapiro utilized in his model. Because the Government has the burden of proof as well as the responsibility to demonstrate that its proffered expert testimony has an adequate grounding in evidence, the lack of evidentiary support for Professor Shapiro's input is fatal to the model's probative value in predicting the asserted harm associated with the Government's increased-leverage theory."); *id.* at 237 ("In the final analysis, it is the Government's burden to adequately support its proffered model's harm—and, necessarily, the model's inputs—through the testimony of its expert or related evidence. . . . As with the long-term subscriber loss estimates, I therefore conclude that the Government has also failed to provide adequate support for Professor Shapiro's diversion rate estimate and thus the model's predicted net consumer harm.").

[37] *See id.* at 238–39 ("In view of the above evidence, I agree with defendants that the 2016 margin data utilized by Professor Shapiro is outdated and inflated. Whether one substitutes that figure for the June 2017 LTV [lifetime value] data or an average of all of the finalized 2017 LTV data in Professor Shapiro's model, the result is a significant decrease in the predicted amount of net consumer harm. Although that decrease, standing alone, does not eliminate all of the harms generated by Professor Shapiro's model (just the bulk of them), it provides yet another reason to reject the predictions offered by Professor Shapiro at trial.").

concluded that those estimates of the input values were more credible than the government's estimates, it was once again appropriate for him to reject as unreliable the government's claims of net harm.[38]

The debate in this case over each of the inputs also highlights the lack of any measure of statistical confidence for the government's estimate of harm. None of the inputs that the government used was known with certainty, meaning that there was inherent uncertainty in the government's estimate of harm. Yet, the government provided no measure of the degree of that uncertainty, such as a "standard error." It is conventional in economic practice to provide standard errors or other measures of the precision of one's statistical estimates so that a reader can determine the strength of any inferences that can be drawn from the estimates.[39]

In this case in particular, an estimate of modest harm coupled with the failure to present any information about the estimate's degree of precision or robustness makes it impossible to draw any reliable inferences from the government's bargaining model. Indeed, because the inputs were multiplied together to reach a final price prediction in the government's model, the uncertainty surrounding the final estimate is even greater than the sum of the uncertainties associated with each of the inputs considered independently.

Given the evidence-based critiques and skepticism of Judge Leon about key inputs into the government's model, and given evidence that the government's conclusions were sensitive to its choices of values for multiple inputs (as well as to its simplifying assumptions), it was appropriate for Judge Leon to conclude that meaningful inferences of competitive harm could not be validly drawn from the government's estimates of harm.

Professor Salop's article does not deal with this central underpinning of Judge Leon's decision. Even if there were some validity to Professor Salop's view (with which we disagree) that Judge Leon was too accepting of the TimeWarner witnesses on the subjects of blackouts and of independent negotiations, Professor Salop's ignoring this underpinning of the decision is hard to understand. Suppose that Judge Leon had fully credited the

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[38] *See id.* at 220 ("[D]efendants, both through their own experts and their examinations of industry witnesses, argue that Professor Shapiro's inputs are faulty, and note further that use of the proper inputs would cause the model to predict that the merger will have a net benefit to consumers rather than a net harm. As will become clear in the section that follows, I largely agree with defendants' various critiques of Professor Shapiro's testimony."); *id.* at 235 ("According to defendants, Professor Shapiro's 10% figure understates the rate of cord-cutting and, accordingly, results in an inflated diversion rate. Defendants insist that the proper cord-cutting rate is closer to 20%. Plugging that 20% cord-cutting rate into Professor Shapiro's model, defendants' lead expert Professor [Dennis] Carlton testified, would result in a predicted net consumer *benefit*. After evaluating the evidence and the parties' arguments on cord cutting, I conclude that there is insufficient evidence to support the 10% cord-cutting figure utilized by Professor Shapiro." (emphasis in original) (internal citations omitted)).

[39] That is why reporting of standard errors or other measures of precision is a requirement for publication in the leading professional economic literature and why measures of statistical accuracy and econometric inference have been core subjects of leading economics Ph.D. education programs for at least 50 years.

government's view of the plausibility of blackouts as a threat and the government's further view that negotiators would have been successfully instructed to take the integrated firm's total profit picture into account; the judge still could have properly found against the government because it did not reliably show that there would be extra profitability to AT&T from a blackout due to the merger.[40] The only way that Professor Salop attempts to deal with this fundamental logic is with his unfounded and inexpert psychological speculation that Judge Leon fell into confirmation bias in his assessments of the errors and unreliability underlying the government's empirical inputs.

2. *Judge Leon's Skepticism of the Government's Bargaining Model Was Appropriate in Light of the Facts*

All economic models are necessarily simplified abstractions, and Nash himself noted in his 1953 article that the assumptions required by his simplified model "are not generally perfectly fulfilled in actual situations."[41] It is important to evaluate whether simplifications in a model in fact abstract away from important elements in a way that affects the accuracy of the model's predictions.

Bargaining is complex, and many factors can influence bargaining outcomes. The government is wrong to suggest that Judge Leon should have accepted that the merger would substantially affect bargaining leverage and bargaining outcomes simply because a contested empirical implementation of a particular theoretical bargaining model says so.

Models that predict well in some circumstances can produce highly inaccurate predictions in other circumstances. It was appropriate for Judge Leon to evaluate whether the particular version of the model that the government presented rested on assumptions that were appropriate to the particular circumstances of this merger. He was also right as a matter of sound economic reasoning to ask whether the price increases predicted by the government's model are consistent with industry facts and experience, including actual experience following prior vertical mergers. A model shown to be inconsistent with outcomes of previous events is much less likely to predict the outcomes of current events reliably. Insofar as Judge Leon found that actual experience following prior vertical mergers contradicted the predictions of

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[40] Even if the government's model predicted that the merger would lower the cost and elevate the credibility of a long-term blackout by AT&T-TimeWarner of Turner programming, if only as a bargaining threat, this effect would not suffice to condemn the merger. The pertinent question would be whether the parties' rational acknowledgment of that proposition would be enough for Turner to become more aggressive in its demands regarding rates, whether rival MVPDs would become more willing to acquiesce to a demand for a higher rate, and whether any resulting upward price pressure would outweigh material efficiency benefits from the merger.

[41] Nash, *Two-Person Cooperative Games*, *supra* note 33, at 130.

the government's model, it was appropriate for him to be skeptical about the predictions of the government's model on that basis.

Key features of the television-content-distribution industry present serious challenges for the application of a simple Nash bargaining model. Nash bargaining, as developed in the scholarly articles described above, addresses one-shot, bilateral negotiation, while actual bargaining between video content providers and distributors is repeated and multilateral. Although the economic literature has begun considering how to handle multilateral, dynamic negotiation settings, that literature is far from a settled consensus on the appropriate method in such cases or on whether certain simplifying approaches yield accurate predictions. This lack of consensus makes it all the more important for a factfinder to question the reliability of conclusions from a bargaining model that is a poor fit with the context to which it is applied.

Nash himself noted that, in his model, "we must suppose that the players have no prior commitments that might affect the game."[42] But, as Judge Leon recognized, negotiations in this industry occur in the shadow of several kinds of prior commitments, such as most-favored-nation clauses in other contracts, contractual commitments to arbitration, and regulatory requirements. Judge Leon thus properly questioned whether abstraction away from such industry conditions within the model might cause the model to produce inaccurate predictions.

Contrary to Professor Salop's claims, Judge Leon was right to ask whether a permanent blackout—an extremely rare event—was the most appropriate alternative to an immediate negotiated agreement, rather than a delayed agreement following a temporary blackout or some other more credible outcome. The conclusions of the Nash bargaining model presented by the government would be significantly affected by this distinction, in terms of the associated assumed flows of diverted video customers and the losses of subscriber fees and advertising revenues that underlie the bargaining parties' valuations of the fallback scenarios.

The government's model assumes that a permanent blackout would be the relevant and credible fallback outcome of a failure of the bargaining parties to reach an agreement. But there is no theoretical reason why that must be so, and there is no theoretical basis to reject an evidence-based conclusion to the contrary. Determining the relevant no-agreement fallback must be informed by the specifics of the industry and the contractual and regulatory constraints present in the negotiation. Judge Leon was correct to consider evidence to that effect.

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[42] *Id.*

Nor can a proper application of Nash bargaining in this context ignore the presence of regulation and Turner's prior commitment to binding arbitration. Both legal constraints change Turner's no-agreement fallback scenario, which, as discussed above, is a crucial element of both the government's argument and the Nash bargaining model. There may be disagreement about the precise economic effect of these legal constraints, but a reliable bargaining model cannot just ignore the effects of Turner's arbitration commitment and the FCC's program-access rules on the options open to each party, as the government's bargaining model did, and as Judge Leon properly refused to do.

3.   There Is No Inherent Contradiction in Judge Leon's Treatment of the Profit-Maximizing Decisions of Multi-Division Firms

Professor Salop asserts that Judge Leon's opinion is inconsistent with the economic principle that corporations will seek to maximize corporate-wide profit.[43] According to Professor Salop, Judge Leon was wrong to conclude that, when negotiating with content distributors, vertically integrated content providers (like Turner) would focus on maximizing their own profits rather than seek to maximize the collective profits of all divisions within the post-merger firm. This argument does not follow as a matter of economics.

In the pursuit of maximized profits, multi-division firms face a multitude of decisions about when to exercise centralized control and when to allow divisions to operate in a decentralized manner, within the overarching rules and constraints imposed at the corporate level. Here, Judge Leon relied on testimony of industry fact witnesses indicating that, in an integrated firm, the division that produces content does not consider in its contract negotiations the effects of its deals on the division that distributes content. In light of that testimony, it was consistent with economic principles for Judge Leon to conclude that these negotiations—which are highly complex even for a single division—are an example of profit-maximizing firms choosing to operate in a more decentralized manner.

Indeed, given that Judge Leon also concluded that any benefits to the integrated content distributor may be small and difficult to ascertain, it was consistent for the court to conclude that it would not be in the overall corporate interest, given the likely complications and risks, to prod its content division to negotiate more aggressively on account of a hoped-for diversion of new subscribers to its distribution division. After all, if the extent and profitability of such diversion from a long-term blackout are problematic, and if such diversion is even more unlikely following a more credible short-term blackout, then it would be unprofitable for an integrated firm to direct

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[43] Salop, *supra* note 5, manuscript at 3–4.

its content negotiators to negotiate more aggressively following a merger. Under those conditions, it would maximize the profits of the integrated company for the content negotiators to be instructed to proceed as they had pre-merger, to maximize the profits of the content division alone.

This line of reasoning does not contradict Judge Leon's acceptance of the cost savings resulting from the elimination of "double marginalization," an economic principle that says that, once merged, DirecTV will no longer see the margin charged to it by Turner as a true economic cost, and thus will face lower economic costs and have an incentive to cut prices accordingly. As a matter of economic reasoning, there is no inherent contradiction in saying that a multi-division firm will reach different decisions about centralization versus decentralization with respect to different corporate strategies. An integrated firm may well find a way to induce its internal divisions to work together to capitalize on the efficiencies of vertical integration (such as the elimination of double marginalization) while concluding that potentially adversarial negotiations with outside entities are better handled in a decentralized way. That is especially so when (as here) the cross-divisional effects of those negotiations have been found to be problematic and at most modest.

Conclusion

In his forthcoming article, Professor Steven Salop attempts but fails to cast doubts on Judge Leon's decision dismissing the government's challenge to the proposed merger of AT&T and Time Warner. He echoes the government's argument on appeal that Judge Leon's reasoning is illogical, that it failed to understand the Nash bargaining model, that he weighed the industry testimony incorrectly, that he should have taken long blackouts into account as credible threats, and that the diversion rates driving Professor Shapiro's model are sufficiently probative. To these economic criticisms, Professor Salop adds the psychological conjecture that Judge Leon succumbed to confirmation bias. Is such speculation the future of merger enforcement?

We hope not. Confining our analysis to economics, we show that a close reading of Judge Leon's reasoning confirms that he did understand the Nash bargaining model, including the premise that the fallback option must be credible to be effective in influencing the negotiated outcome. That close reading also confirms that Judge Leon found that the results of the government's model turn sensitively on the values of the inputs used to run the model and that, accordingly, he understood that, with unreliable estimates of those inputs, the model cannot support a reliable inference of competitive harm. Judge Leon also found that the reliability of the government's model was further undercut by its inconsistency with testimony on how real-world

industry bargaining works, and on the actual observed effects of past vertical integration in the industry.

Against this background, there is no basis from settled economic principles or practice to conclude (as Professor Salop does) that Judge Leon's findings regarding the relevance and reliability of the government's proffered evidence were clearly erroneous. Given the facts and testimony presented in the opinion, Judge Leon reasonably concluded that the government failed to meet its burden of proof.