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UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA,	)	
Plaintiff,	)	
v.	)	Case No. 1:17-cv-02511-RJL
AT&T INC., DIRECTV GROUP HOLDINGS, LLC, and TIME WARNER INC.,	)	
Defendants.	)	

REBUTTAL EXPERT REPORT OF DENNIS W. CARLTON

February 26, 2018

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I. INTRODUCTION

1. I submitted an initial report in this proceeding dated February 2, 2018.[1] In that report, I showed that Plaintiff's claim that the merger would substantially lessen competition by leading to higher prices for Turner content is inconsistent with proper economic analysis of the body of empirical evidence.

2. My initial report explained:

- Vertical mergers, which neither eliminate a competitor nor increase concentration in any market, typically bring inherent efficiencies and consumer benefits.[2]
- The proposed vertical integration of AT&T and Time Warner is following the trend in this dynamic industry toward vertical integration between content providers and video distributors. This trend shows that vertical integration is efficient in this industry, as is reflected in the statements and actions of the vertically integrated firms about their use of data and content.
- The video content market as implicitly defined by Plaintiff is rapidly changing, unconcentrated and becoming more so, as well-funded entrants like Netflix, Amazon and Apple enter and expand (often vertically into both content and distribution). Turner has a small and declining share of that market—less than 10%.
- Plaintiff has not demonstrated how Turner, with its small and declining share of under 10% in the provision of content, could possess sufficient market power to create substantial harm to competition in video distribution.
- The empirical evidence, especially on the price effects after the Comcast-NBCU deal, directly contradicts the Plaintiff's predictions of harm. Specifically, content prices did

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1 Expert Report of Dennis W. Carlton, February 2, 2018 ("Carlton Report"). My qualifications and Compass Lexecon's compensation for my time are discussed in that report. I update my materials relied upon list in Appendix A to this report.

2 Carlton Report, p. 12.

not rise after the Comcast-NBCU transaction, showing that either there is no cause for concern regarding a harm to competition from a vertical transaction like this one or that the conditions in that transaction, similar to AT&T's contractual commitment here, protect competition.

- The failure of the Plaintiff to take account of AT&T's contractual commitment, with its associated standstill provision, renders the Plaintiff's theory moot.
- Even if one were to ignore all the evidence against the Plaintiff's theory of harm, it would still be hard to see how the Plaintiff has shown a *substantial* lessening of competition in video distribution.
- Empirical evidence demonstrates that HBO is not such a particularly important promotional tool that, post-merger, AT&T could substantially lessen competition in video distribution markets by restricting the promotional use of HBO.
- Industry characteristics hinder coordination to harm VMVPDs, as do a wide variety of differences between AT&T and Comcast. For example: AT&T has a leading nationwide wireless network, but it lags Comcast significantly in fixed broadband, creating different incentives in the treatment of VMVPDs.

3. In this report I respond primarily to Prof. Shapiro's claims.[3] My report may also be relevant to certain claims in the reports of Prof. Kwoka, Prof. Athey, Mr. Quintero and Mr. Hauser.[4] I begin by summarizing areas where Prof. Shapiro and I agree.

- He agrees with me that vertical mergers such as this one have inherent efficiencies. In particular, he agrees with me that the merger will create incentives for AT&T to reduce its video distribution prices to consumers as the result of the elimination of double

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[3] Expert Report of Carl Shapiro, February 2, 2018 ("Shapiro Report").

[4] Expert Report of John R. Hauser, Sc.D., February 2, 2018 ("Hauser Report"); Expert Report of John E. Kwoka, Jr., Ph.D., February 2, 2018 ("Kwoka Report"); Expert Report of Susan Athey, February 2, 2018 ("Athey Report"); Expert Report of Ronald G. Quintero, February 2, 2018 ("Quintero Report").

marginalization.[5] Indeed, even without accounting for any of the other efficiencies the parties expect from this transaction, he agrees with me that AT&T will reduce its prices to video subscribers as a result of this transaction.[6]

- He agrees with me that economic analysis indicates Turner will not withhold content from MVPDs post-merger—that is, he agrees that even if AT&T had not entered into a contractual commitment to continue to provide Turner content, it has no unilateral economic incentive post-merger to foreclose competing distributors from Turner content.[7]
- He agrees with me (both here and in his submission to the FCC in an earlier vertical merger) that one should evaluate the *net* effect of the merger on the prices consumers pay for video distribution services, taking account of the pro-competitive benefits of vertical integration in lowering the merged firms' prices, rather than considering the gross price effect on content price changes without accounting for efficiencies.[8]

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5 Shapiro Report, p. 38 ("[T]he proposed transaction is thus a *vertical merger*." Emphasis in original.), p. 62 ("[Elimination of double marginalization] is a common element in the antitrust analysis of vertical mergers."), p. 63 ("I estimate that the proposed merger will reduce DTV's marginal cost of Turner Content by $1.20 PSPM [per subscriber per month]".), pp. 67-68.

6 Shapiro Report, pp. 67-68, estimating DIRECTV prices to fall by $0.26 per month as a result of the merger.

7 Shapiro Report, p. 40 ("It is likely that after the merger there will continue to be gains from trade when Turner negotiates with MVPDs such as Charter or Dish that compete against DTV. Therefore, economic analysis predicts that Turner will continue to license its content to these MVPDs."). I note that this conclusion is not surprising given the large costs of a blackout to Turner post-merger. Prof. Shapiro's bargaining model estimates the losses to Turner of a permanent blackout pre-merger and post-merger. For example, Prof. Shapiro's bargaining model (without any of the corrections that I discuss later), estimates that the pre-merger losses for a permanent blackout of Turner on Comcast are $139 million per month, but fall to $105 million per month post-merger once one accounts for the diversion of Comcast subscribers to AT&T. See my backup materials.

8 Shapiro Report, pp. 64 to 68, discussing the "two countervailing effects" of raising rivals' costs and lowering costs through efficiencies, and analyzing the "net effect" of the two to

- He agrees with me that, because existing contracts between Turner and video distributors lock in pre-merger prices, any post-merger price effect to rivals would occur only gradually.[9]
- He agrees with me that the conditions in the Comcast-NBCU transaction have provided at least some protection against price increases and that contractual commitments "can alter the effects of a merger."[10]
- He agrees with me that "the best option available" to an MVPD "if no deal is reached" (the no agreement point) is the "key input[]" to his bargaining model.[11]
- He agrees with me that when a merger can be expected to generate efficiencies that are merger-specific and verifiable, such efficiencies should be taken into account in evaluating the likely effect of the merger on consumers.[12]

4. Despite these points of agreement, Prof. Shapiro claims that the proposed transaction will substantially lessen competition in video distribution. Instead of relying on the actual outcomes of past vertical integration events, Prof. Shapiro relies on a theoretical "Nash bargaining" model,

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determine whether there is "a harm to competition." Steven Salop, Carl Shapiro, David Majerus, Serge Moresi and E. Jane Murdoch, "News Corporation's Partial Acquisition of DIRECTV: Economic Analysis of Vertical Foreclosure Claims," July 1, 2003, p. 13 ("In a full competitive analysis, foreclosure is only considered anticompetitive if it leads to harmful effects in the [downstream] MVPD market, that is, higher prices and reduced output. Analysis of these potential anticompetitive effects must also take into account the potential pro-competitive incentives and downward price pressure associated with elimination of a double markup and other efficiencies, as well as any regulatory constraints on price discrimination.").

9 Shapiro Report, note 223 ("Since the expiration dates of the current contracts are staggered, I would expect the effects of the merger to develop over time.").

10 Shapiro Report, p. 96. *See also* p. 48 ("[T]he ongoing oversight faced by Comcast presumably has had some impact on Comcast's ability to increase NBCUniversal's programming fees.").

11 Shapiro Report, p. 43.

12 Shapiro Report, pp. 95-96.

from which he estimates a tiny price increase in video distribution markets after the merger. The results of Prof. Shapiro's model cannot support a conclusion of substantial lessening of competition in video distribution for at least three reasons.

5. First, even without correcting the fundamental errors in Prof. Shapiro's approach, I note that on its face, Prof. Shapiro's estimate of harm reinforces my conclusion that there is no sound economic basis to prevent this transaction. Prof. Shapiro estimates that the overall effect of the transaction on consumer prices in video distribution would be only $0.27 per subscriber per month.[13] On a typical MVPD subscriber bill of around $140 per month,[14] this amounts to about a 0.19% price increase (less than 1%).[15] Although Prof. Shapiro is clearly supporting the Plaintiff's theory that there is a substantial lessening of competition in video distribution, he actually never specifically states that this price increase of 0.19% represents a substantial lessening of competition in video distribution. (But I assume he must hold that opinion.) This tiny estimate of a price increase cannot be used to support an inference that the merger will substantially lessen competition in video distribution. I show that Prof. Shapiro's analysis is built upon a series of estimates and assumptions, and reasonable changes or corrections to those estimates and assumptions eliminate his tiny estimated net price increase to consumers. Such a fragile model does not provide a basis to conclude that the merger is likely to substantially lessen competition particularly given all of the actual marketplace evidence pointing the other way, detailed in my initial report and here. While it is for the court to determine whether such a tiny price increase would constitute a "substantial lessening of competition," my point is that as a practical matter, given the inherent uncertainty involved in any predictive exercise, it might make sense to have some margin above zero, otherwise too many mergers might be banned,

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13 Shapiro Report, p. 68.

14 Shapiro Report, pp. 21-22, reporting average consumer MVPD bills of $120 to $160.

15 This average increase applies only to MVPD subscribers taking Turner content. However, Prof. Shapiro's defined product markets are more extensive than that, so a market-wide average price increase would be smaller as he does not claim that prices to other customers in the market (e.g., SVOD customers) would increase.

including efficient ones. I once considered exactly what a significant increase in price should mean in an antitrust context and reported that scholars had recommended using a 5% threshold for a "significant" price increase.[16] Prof. Shapiro's tiny price increase of 0.19% clearly fails that standard.

6. Second, Prof. Shapiro's Nash bargaining model depends on accurately describing the parties' positions in the event they fail to reach agreement, i.e., it depends on the no agreement point. But, as I understand Prof. Katz explains in more detail, Prof. Shapiro models the wrong no agreement point because he ignores AT&T's contractual commitment to arbitrate programming disputes and to continue to provide programming during the arbitration at current rates (a "standstill" provision) and instead assumes that no agreement means that the MVPD is permanently blacked out from receiving Turner. By ignoring the ability for distributors to choose arbitration and thus avoid blackouts, Prof. Shapiro incorrectly models the no agreement outcome, meaning that his bargaining model and all its results are based on an erroneous assumption, rendering his prediction of an increase in content prices completely unreliable. As a result, Prof. Shapiro has no valid basis for his conclusion that the merger will harm competition.

7. Third, even if one chooses to use Prof. Shapiro's flawed bargaining model as an ingredient to predict the effects of the merger, the predictions will depend on the estimates used for certain critical inputs required for the implementation of the model (e.g., margins). I show that Prof. Shapiro's results are based on incorrect values for key inputs that lead him to overstate the impact of the transaction on content prices and prices to consumers. I have identified several substantial errors in Prof. Shapiro's estimates (in addition to his failure to account for AT&T's contractual commitment). Correcting his model for just these errors causes Prof. Shapiro's

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16 Dennis Carlton, "Market Definition: Use and Abuse," Competition Policy International, 3:1 (2007), p. 6, citing, for example, Areeda and Turner. *See also* Phillip Areeda and Herbert Hovenkamp, *Antitrust Law: An Analysis of Antitrust Principles and Their Application*, 3rd and 4th editions 2010-2017, ¶ 537, "Significant" Price Increase Required and Defined.

prediction of a tiny price increase from the merger to turn into a prediction of a price decrease to consumers. That is, even Prof. Shapiro's flawed model predicts benefits from the merger.

8. The remainder of my report is organized as follows. Section II explains that Prof. Shapiro offers no economically sound justification for disregarding the empirical evidence showing that prior vertical integrations did not lead to higher prices. I further update my empirical analyses with newly received data from additional parties, including DISH, which strengthens my conclusion that the evidence provides no statistical support for the claim that vertical integration leads to higher prices. Prof. Shapiro does not assert that there is any evidence that vertical integration of Time Warner and TWC or, most importantly, Comcast and NBCU, led to higher prices, and he offers no economically sound reason to disregard the evidence I present. His reliance on an FCC analysis of the DIRECTV/Fox transaction is not persuasive; he makes no effort to reproduce that confidential study and my own analysis redoing that study with more recent and better data finds no evidence of higher prices associated with the vertical integration.

9. Section III explains why, in light of industry dynamics, there is even less cause for concern about vertical integration in video content and distribution today than there was at the time of the Comcast-NBCU transaction. To begin with, Prof. Shapiro overstates Turner's significance as a video content provider. He has not presented any evidence that would refute the figures I provided in my initial report showing that Turner has small and declining shares by a wide range of metrics. Even using the figures Prof. Shapiro presents (which overstate Turner's share of content), it is clear that the upstream content market—whether one uses the implicit market definition of content in Plaintiff's complaint or Prof. Shapiro's apparent definition based only on AT&T's expenditures on content—is unconcentrated. His claim that the fact that prices for both content and video distribution have grown faster than inflation implies an increase in market power is wrong—it ignores evidence that margins have been falling and are expected to fall further, indicating that standard economic measures of market power have been falling. This is consistent with the decreasing concentration and explosions in content creation and online

video distribution, especially from vertically integrated firms like Netflix and Amazon, as I discussed in my prior report.

10. Section IV explains the inadequacies of Prof. Shapiro's modeling approach, including various ways in which his model does not comport with reality. Section V focuses on one particular reason—his assumption that AT&T will have the right to withhold Turner content, when in fact AT&T has made a contractual commitment to enable MVPDs to submit disputes to arbitration and to continue to provide programming while the dispute is resolved. Because Prof. Shapiro models the wrong alternative in the case of no agreement between Turner and a MVPD, his estimates of price increases in Turner content—which are the only basis for his estimate of competitive harm in video distribution—are incorrect. Importantly, because his estimated net price increase is tiny, the arbitration does not have to work perfectly (or even close to perfectly) to flip Prof. Shapiro's estimated net harm to net benefits. If those mechanisms reduce the predicted increases in MVPD prices by only *half*, for example, Prof. Shapiro's model predicts that consumers will benefit from the transaction.

11. In Section VI, I report that, even if one incorrectly assumes that Prof. Shapiro's bargaining model is appropriately applied in this context, his calculations produce tiny estimates of net price increase of only 0.19% (less than 1%) of the average consumer price in video distribution. I also show that this estimate does not hold up to reasonable changes to his model. Given that reasonable changes in the model eliminate the net harm, Prof. Shapiro's model is not sufficiently reliable to support a claim of substantial lessening of competition. I show that his already tiny level of net price increase is based on demonstrably incorrect figures. Correction of just some of these figures (even assuming no protection from the AT&T contractual commitment) eliminates his already small prediction of net price increases and lead to a prediction that net monthly prices for video distribution services would be <u>lower</u> by $0.51 per subscriber (looking over the next seven years), producing a net benefit to consumers of $534

million per year, and be lower by $0.48 per subscriber (looking at a longer term horizon), providing a net benefit of $502 million per year.[17]

- The margin he uses for his calculations is based on data from early 2016. But margins have been falling over time. Newer data shows that margins have fallen by 39% by June 2017.[18]
- He fails to account for the fact that pre-merger contracts will last post-merger and protect MVPDs from price increases. For example, Turner and Comcast recently signed a [redacted] year agreement pinning down prices for the next [redacted].
- The departure rates he uses are overstated in light of marketplace evidence. In particular, Prof. Shapiro significantly overstates the departure rate observed when Suddenlink stopped carrying Viacom in 2014 because he fails to account for industry trends.
- Prof. Shapiro underestimates the significance of cord cutting, causing him to overstate the harms *and* understate the benefits from the merger.
- Prof. Shapiro's results are also sensitive to the "bargaining split"—that is, how successful the parties are at capturing the value ("surplus") created by a carriage agreement.

12. In Section VII, I explain the implication of the other pro-competitive benefits of this transaction for Prof. Shapiro's analysis. Prof. Athey and Mr. Quintero attempt to dismiss these benefits, but they each underestimate the well-recognized limitations in what can be accomplished by arms-length contract relative to what a vertical integration can do. Notably, Prof. Shapiro's analysis supports my point. Prof. Shapiro explains that elimination of double marginalization will reduce DIRECTV's marginal costs for Turner content by $1.20 per

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17 See my backup materials.

18 See my backup materials.

subscriber per month.[19] In so doing, Prof. Shapiro acknowledges that DIRECTV and Turner have not been able to achieve this outcome by contract, but that the merger will enable this pro-competitive benefit.[20] Prof. Shapiro's analysis demonstrates the weakness of Prof. Athey and Mr. Quintero's conclusory claims that the benefits of the merger could be achieved through contracts between AT&T and third parties. DIRECTV and Turner already have contracts with one another for the Turner content but could not structure the contracts in an economically efficient way to achieve this pro-competitive benefit, which Prof. Shapiro concedes will result from the merger. Attempting to write new contracts for new and innovative usages of data is likely to be even more difficult. I further explain that Prof. Shapiro's estimate of net price increases is so tiny that even a small fraction of the estimated pro-competitive benefits associated with the merger would be sufficient to outweigh Prof. Shapiro's estimated net harm and make the merger beneficial for consumers even under Prof. Shapiro's flawed model and flawed implementation.

13. In Section VIII, I respond to Prof. Shapiro's claim that post-merger AT&T would not allow rival firms to promote HBO thus substantially lessening competition. Prof. Shapiro states this theory but provides no support for it. To support such a claim Prof. Shapiro would need to demonstrate that post-merger the gains to AT&T from such a strategy would outweigh the costs to HBO, but, strikingly, Prof. Shapiro does not even mention the costs to HBO, much less try to demonstrate that the benefits of such a strategy to AT&T would outweigh those costs. Given that HBO relies heavily upon promotions by its MVPD distributors, the costs of restricting MVPDs from promoting HBO are likely to be substantial. Indeed, MVPDs today reduce their promotion of HBO to pressure HBO in negotiations. With respect to the gains to AT&T, for Prof. Shapiro's theory to be correct it must be the case that HBO is an especially important promotional tool with strong impact on moving subscribers between MVPDs, but this argument is belied by the fact that many MVPDs do not use HBO in their promotions today, indicating that

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[19] Shapiro Report, p. 64.

[20] Shapiro Report, p. 62.

any restrictions on an MVPD's ability to promote HBO would simply result in it turning to other promotional methods.

14. Finally, in Section IX, I critique the claim that the merger would lead to coordination between AT&T and Comcast to withhold content from VMVPDs or provide it only on restrictive conditions, as well as the claim that such coordination would lead to substantial harm to competition in video distribution markets. Again, Prof. Shapiro states this theory but does not provide any evidence to support it. Indeed, it is unclear if he supports the theory. He states that "[w]hile I am not able to quantify the risk of anti-competitive withholding or restricting content …, it is clear that this risk does not exist prior to the merger…"[21] I show why a theory of coordination is not consistent with marketplace facts. For example, Prof. Shapiro fails to consider that there are many existing VMVPDs that are already contractually protected against the harm that Prof. Shapiro claims, and that any distributor can also launch a new VMVPD with guaranteed access to Turner content, eliminating the possibility of substantial harm to competition. In even the narrowest product market defined by Prof. Shapiro—one that excludes such major video distributors as Netflix and Amazon—there are typically at least three or four MVPD competitors in any area, plus eight or more existing VMVPDs. Thus, as an initial matter, Prof. Shapiro's theory requires a belief that AT&T (and Comcast) would gain substantially from impeding the entry of a 12th firm in the market. Prof. Shapiro provides no basis for such a claim. In addition, Prof. Shapiro agrees with me that there are substantial gains from trade between Turner and MVPDs, and that therefore AT&T would not withhold content from them post-merger, and that is likely to be even more so for VMVPDs that are both differentiated from one another and often compete for customers who would not otherwise subscribe to an MVPD. Importantly, Prof. Shapiro fails to address ways in which AT&T and Comcast's interests differ, such as the fact that AT&T is heavily invested in mobile broadband while Comcast is heavily invested in landline broadband. Nor does Prof. Shapiro explain how the firms would overcome

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[21] Shapiro Report, p. 88.

practical coordination difficulties such as the fact that Turner's and NBC Universal's contracts with VMVPDs are staggered and expire at different times

15. In sum, I establish multiple independent bases for rejecting Prof. Shapiro's claim that the transaction would result in substantial harm to competition in video distribution.

II. EMPIRICAL EVIDENCE FROM PRIOR VERTICAL MERGERS SHOWS NO HARM

16. In my prior report I explained that an empirical investigation of past integration events in the industry is a useful way to study the effects of a proposed vertical merger. I pointed to three events—with particular focus on the Comcast-NBCU merger in 2011—and showed that the results of these events do not support a claim that vertical integration in the video industry leads to higher prices for the associated content as Plaintiff claims.[22] Prof. Shapiro discusses these events but makes no claim that there was any increase in content price as a result of the Comcast-NBCU merger. I respond to his discussion later in this section.

17. Since my initial report I have obtained additional data through discovery.[23] I report below additional analyses based on the new data. The conclusions are the same: The empirical evidence provides no statistical support for Plaintiff's theory that vertical integration leads to higher content prices.

18. DISH has produced data for 2011 to 2014 on per subscriber affiliate fees for cable networks as well as information on when it negotiated new contracts with NBCU, Turner and Fox.[24] DISH's first new contract with NBCU after the Comcast-NBCU merger was signed in

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22 Carlton Report, p. 62.

23 As in my prior report, I look at cable network affiliate fees, as others that have examined this issue have done (e.g., the FCC and the Phoenix Center). Carlton Report, p. 66.

24 I rely upon spreadsheets with pricing information created by DISH in response to a request from DOJ. DISH-ACC-00000003—DISH-ACC-00000006. Contract dates obtained from DISH Network L.L.C.'s Response Subpoena to Produce Documents,

[redacted] This allows me to apply the same econometric framework I did in my prior report, looking at rates before and after vertical integration of NBCU, and looking at a cross-section of [redacted], i.e., does DISH pay more for NBCU networks than for non-vertically integrated networks, controlling for other factors. I combine the DISH data with the DIRECTV data I analyzed in my prior report to test whether there is statistical support for the claim that NBCU raised content prices to Comcast's two largest primary competitors (per Prof. Shapiro) as a result of vertical integration.[25] I follow the same approaches I took in my prior report. (See my prior report and Appendix B in this report for further discussion.) The evidence provides no statistical support for Plaintiff's theory that vertical integration leads to higher content prices.[26]

Table 1: Effect of Comcast/NBCU Vertical Integration on DIRECTV and DISH Network Affiliate Fees (Before and After Vertical Integration)

	(1)	(2)	(3)	(4)
	With Ratings		Without Ratings	
	Weighted	Unweighted	Weighted	Unweighted
Est. Impact (approx. pct. effect)	-0.009	-0.068	-0.007	-0.042
Standard Error	(0.061)	(0.046)	(0.034)	(0.040)

Notes:

Standard errors in parentheses, clustered by owner.

* p<0.05, ** p<0.01

Top 50 networks are based on the largest 50 networks in DIRECTV/DISH data in terms of the affiliate fee revenue in 2010 for DIRECTV and 2011 for DISH, obtained from SNL Kagan data (see backup materials for networks excluded from top 50).

Dependent variable is the natural logarithm of network's affiliate fee per sub per month. Independent variables include a term that measures the impact on Dish and DTV of vertical integration for the Comcast/NBCU event. Other independent variables are MVPD specific and include network and year fixed effect, natural logarithm of the 3-year moving average of programming expenses and dummy variables for MVPD. Regressions with ratings include 3-year moving average of prime time ratings; regressions use as weights the network's total affiliate revenues (across all MVPDs) in 2011 for DISH and 2010 for DIRECTV, obtained from SNL Kagan data.

Sources: DIRECTV: Rates 2010-2017. DISH: Rates [redacted]. SNL Kagan "TV Network Summary: Financial and Ratings," pulled January 11, 2018.

Information, or Objects, United States v. AT&T Inc., Civil Action No. 1:17-cv-02511-RJL (D.D.C.), Request 2-5, February 12, 2018.

25 Shapiro Report, p. 47.

26 See Appendix B for results using DISH data only. Again, the evidence provides no statistical support for Plaintiff's theory that vertical integration leads to higher content prices.

Table 2: Effect of Comcast/NBCU Vertical Integration on DIRECTV and DISH Network Affiliate Fees, Cross-Section

	(1) Weighted	(2) Unweighted
Est. Impact (approx. pct. effect)	-0.135	-0.050
Standard Error	(0.095)	(0.077)

Notes:
Standard errors in parentheses, clustered by owner.
* p<0.05, ** p<0.01
Top 50 networks are based on the largest 50 networks in DIRECTV/DISH data in terms of the affiliate fee revenue in 2017 for DIRECTV and [redacted] for DISH, obtained from SNL Kagan data.
Dependent variable is the natural logarithm of network's affiliate fee per sub per month. Independent variables include a term that measures the impact on Dish and DTV of vertical integration for the Comcast/NBCU event. Other independent variables are MVPD specific and include a dummy variable for NBCU networks, natural logarithm of the 3-year moving average of programming expenses and 3-year moving averages of rating variables (prime time rating, 24 hours rating, natural logs of prime time and 24 hours delivery), dummy variables for network's genre as reflected in SNL Kagan, network's age in months and dummy variables for MVPD. Regressions use as weights network's total affiliate revenues (across all MVPDs) in [redacted] for DISH and 2017 for DIRECTV, obtained from SNL Kagan data.
Sources: DIRECTV: Rates 2010-2017. DISH: Rates [redacted]. SNL Kagan "TV Network Summary: Financial and Ratings," pulled January 11, 2018.

19. These empirical analyses confirm the findings of my prior studies that the outcomes of previous vertical integration in this industry provide no support for Plaintiff's theory that vertical integration leads to higher prices, and no statistical support for a theory that NBCU prices were higher as a result of vertical integration.

20. Although Prof. Shapiro agrees that the "effects these transactions had on programming fees could, in principle, offer a way to test the predictions of bargaining theory in this industry,"[27] he does no such testing. Prof. Shapiro had access to the same data I analyzed, yet he made no effort to use this data to test the predictions of his bargaining theory in this industry.

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[27] Shapiro Report, p. 46.

Instead, he dismisses the evidence because of claimed differences between those events and this transaction.

21. With respect to the Comcast-NBCU transaction, Prof. Shapiro does not claim there is any evidence to support his predictions that price will rise as a result of such a transaction. Instead, Prof. Shapiro appears to concede that, although the FCC relied on a bargaining model that predicted price increases, there is no evidence of such increases. He attributes that, at least in part, to the conditions imposed on the merger, which "presumably has had some impact on Comcast's ability to increase NBCUniversal's programming fees."[28] As I discuss below, AT&T has made contractual commitments of the same type.

22. Prof Shapiro dismisses the relevance of that transaction by saying that because "Comcast primarily competes against DTV, DISH, and Verizon" that "makes it more difficult to detect a merger-induced price increase in the data."[29] (I presume he means using the SNL Kagan industry data.) Whatever one thinks of Prof. Shapiro's criticism, it cannot apply to the DIRECTV data which I used in my initial report and the DISH data analyzed here since, as he recognizes, Comcast does compete against DIRECTV and DISH. Yet my analysis of that data shows there is no merit to Prof. Shapiro's prediction that vertical integration led to elevated pricing in that transaction.

23. With respect to Time Warner and Time Warner Cable, again, Prof. Shapiro does not claim there is any evidence that prices were higher as a result of vertical integration. He claims that predicted price increases would be relatively low given Time Warner Cable's national share of around 10% to 12% and its status as a regional incumbent cable company that has only limited overlap with other MVPDs (although presumably DIRECTV and DISH are strong competitors of Time Warner Cable just as Prof. Shapiro notes for Comcast).[30] However, Prof. Shapiro does not dispute that his model would predict higher prices for Turner content during the vertical

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28 Shapiro Report, pp. 47-48.

29 Shapiro Report, p. 47.

30 Shapiro Report, p. 47.

integration of Time Warner and Time Warner Cable, and he does not claim there is any evidence that higher prices in fact occurred.

24. With respect to DIRECTV/Fox, Prof. Shapiro claims that there is some "limited evidence" that provides support for his model's predictions.[31] The extent of that "limited evidence" appears to be an FCC analysis of DIRECTV/Fox conducted in 2010 as part of the Comcast-NBCU transaction.[32] The full details of that analysis are not publicly available, but the general methodology was described by the FCC based on SNL Kagan data and a limited time period. Those data have since been updated by SNL Kagan. I have studied the event using SNL Kagan's updated data for the same time period and find no evidence of a price increase.[33]

25. I also note that Prof. Shapiro provided economic testimony on behalf of DIRECTV in that transaction, as did I.[34] On behalf of opponents of the merger, Prof. Rogerson submitted a bargaining model that he claimed predicted higher prices as a result of the transaction. Prof. Shapiro rejected that analysis and claimed that the vertical integration would lead to lower prices, not higher, which was consistent with my testimony in that case and is consistent with my own analysis here.

> We [Shapiro, et al.] then showed [in our initial submission] that there would not be upward pressure on non-discriminatory [News Corporation] programming

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31 Shapiro Report, pp. 46-47. Prof. Shapiro also claims that the likelihood of fee increases would be smaller because there was only a partial ownership interest and DIRECTV's national share was relatively small at the time. Shapiro Report, p. 47. However, both factors would indicate that Comcast-NBCU price increases would be more likely and larger, but Prof. Shapiro does not claim there is any evidence of such price increases.

32 Shapiro Report, p. 47, note 184, citing FCC's Comcast-NBCU Order.

33 Results in my backup materials.

34 Dennis Carlton, "Economic Analysis of the News Corporation/DIRECTV Transaction," FCC MB Docket No. 03-124, July 1, 2003 (with J. Halpern and G. Bamberger) (redacted); "Response to William P. Rogerson and Daniel L. Rubenfeld and Duncan Cameron," September 8, 2003 (with J. Halpern and G. Bamberger) (redacted).

prices resulting from the transaction. Instead, the pricing pressure would be downward.[35]

III. PROF. SHAPIRO FAILS TO RECOGNIZE THAT THE STRUCTURE AND TRENDS IN THE CONTENT MARKET ARE INCONSISTENT WITH PLAINTIFF'S THEORY OF HARM

26. I explained in my initial report that the first steps in economic analysis of a merger are to consider the structure and dynamics of the markets at issue. I demonstrated that the video content marketplace (implicitly referenced in Plaintiff's definition of markets for video distribution services) is changing, unconcentrated, and becoming more so. I also demonstrated that Turner has a limited and declining share in the video content marketplace, with shares under 10% by a range of metrics. The low and declining shares for Turner undermines Plaintiff's claim that Turner content is so important that it can be used to substantially lessen competition in the video distribution market. I also presented evidence that the video industry has become more competitive over the last several years, and that those changes since the Comcast-NBCU integration further lessen any cause for concern.

27. Prof. Shapiro defines the same downstream product markets defined in the Complaint and Responses to Interrogatories. However, Prof. Shapiro has still not defined a market for video content despite the fact that that market is the one where the market power of Turner content will supposedly be used by the merged firm to harm competition in downstream video distribution markets. He does not claim to report market shares nor any measures of concentration in a content market.

28. Instead, Prof. Shapiro discusses shares or concentration in only two ways, neither of which change any of my conclusions. His only discussion of content shares is in his Figure 1 where he reports the share of AT&T's 2017 content expenditure by programmer and reports a

35 Steven C. Salop, Carl Shapiro, David Majerus, Serge Moresi and E. Jane Murdoch, "News Corporation's Partial Acquisition of DIRECTV: A Further Economic Analysis," September 8, 2003 ("Shapiro DIRECTV/Fox Reply Report"), p. 3.

[redacted] share for Time Warner.[36] He does not claim these are shares in a relevant market for content, but uses them anyway in his discussion of Turner's importance. These shares are biased in two ways. First, he has combined Turner and HBO, although his bargaining model applies only to Turner. Turner's share of AT&T's spend is only [redacted].[37] Second, he is looking just at content licensed by AT&T. That is too narrow to be a relevant product market here—MVPDs, VMVPDs and SVODs license additional content and create their own original, and often exclusive, content. Thus, there is a great deal of content available that AT&T does not carry (e.g., all of Netflix's original series). Nevertheless, even if I were to assume Prof. Shapiro's Figure 1 defines shares in a relevant content market, the HHI (a standard antitrust measure of industry concentration) is less than 1,000,[38] which the DOJ would classify as unconcentrated (and thus unlikely to raise competitive concerns in a merger).[39]

29. Prof. Shapiro's only discussion of content concentration concerns his Figure 3, where he presents a table on basic cable network ownership, claiming that a handful of video content aggregators own the majority of the top basic cable networks and earn the majority of revenues.[40] This is an even more narrow view than content carried by just AT&T, as it excludes broadcast networks and premium networks along with SVOD and VMVPD content.

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36 Shapiro Report, Figure 1.

37 ATT-LIT-00761143, AT&T Entertainment Group Content Special Topics Meeting, October 19, 2017, at 153.

38 Results in my backup materials. ATT-LIT-00761143, AT&T Entertainment Group Content Special Topics Meeting, October 19, 2017, at 204. The document Prof. Shapiro relies upon for Figure 1 also reports shares of DIRECTV subscriber viewing by programmer. If one were to calculate an HHI based upon these viewership shares, it would be below 700.

39 U.S. DOJ and FTC, Horizontal Merger Guidelines, August 19, 2010 ("Horizontal Merger Guidelines"), § 5.3.

40 Shapiro Report, p. 17 and Figure 3.

Nevertheless, even if one were to calculate the HHI for such an erroneously conceived market, the HHI for basic cable networks is 1,163.[41] The DOJ would classify that as unconcentrated.[42]

30. As stated in my prior report, unconcentrated markets rarely give rise to competitive concerns even in horizontal mergers which eliminate a competitor.[43] Thus, Prof. Shapiro has not established a basis to claim Turner has sufficient market power in the upstream (content) market to produce a substantial harm to competition in the downstream (video distribution services) market, as he has not defined any such upstream market, and the evidence indicates that the implied upstream market is unconcentrated.

31. With respect to trends in prices and competition, Prof. Shapiro presents figures on "growth in programming fees" and "growth in video ARPU," and compares them to the CPI.[44] To the extent that he is presenting these figures to suggest increases in market power in video content or video distribution, what he has done cannot support such an inference. With respect to his figure on "growth in programming fees," Prof. Shapiro's figure does not accurately represent changes in prices for networks. Rather, the data he uses is the total per subscriber programming fees being paid by MVPDs, but MVPDs have increased the number of networks, and hence the *amount* of programming, they provide over time to any subscriber, which increases the total fees being paid even when the fees for any particular piece of content per subscriber are unchanged.[45] In fact, his data source states that "the typical multichannel video package evolved greatly over the analyzed period, with the amount of programming included

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41 Results in my backup materials. Based on net operating income as reported by SNL Kagan. SNL Kagan, "TV Network Summary," data pulled February 20, 2018.

42 Horizontal Merger Guidelines, § 5.3.

43 Carlton Report, p. 23.

44 Shapiro Report, Figures 4 and 6.

45 Prof. Shapiro's figure includes retransmission fees for broadcast networks. To the extent that Prof. Shapiro is claiming that increases in retransmission fees might be related to the Comcast-NBCU merger, I have examined that possibility and do not find any empirical support for such a claim. See my backup materials.

growing exponentially."[46] I discussed the explosion of content, and the decreasing shares of any particular piece of content, in my initial report.[47]

32. With respect to Prof. Shapiro's "growth in video ARPU" figure, SNL Kagan reports that video distribution margins have fallen by about 25% between 2009 and 2016 and forecasts that they will continue to fall in coming years.[48] This demonstrates that competition has increased in recent years, as I described in my prior report.

33. As I explained in my prior report, a standard question to ask about studies of previous integration events is how changes in the marketplace since the previous event affect the likelihood of harm and thus the applicability of the results to this transaction. In this case, the answer is clear: as detailed throughout my prior report and above in this report, the video industry has become much more competitive over the last several years, especially since the Comcast-NBCU transaction.[49] These changes make my studies of previous integration events conservative since competitive harm was more likely during the years of the prior vertical integration events than today. Thus, the absence of evidence of higher content prices or other

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46 SNL Kagan, "Cable Industry Overview 2017 Edition," p. 7, cited by Prof. Shapiro as his source for Figure 4: Growth in Programming Fees vs. Growth of the Consumer Price Index: 2009-2016.

47 Carlton Report, § III.

48 SNL Kagan, "Cable Industry Overview," data pulled February 6, 2018.

49 When discussing entry in video content (Shapiro Report, pp. 89-95), Prof. Shapiro acknowledges that "Netflix and Amazon have increasingly been producing their own original content over the past several years." Shapiro Report, p. 90. However, he does not discuss the many other firms producing original content that I documented in my prior report (Carlton Report, §III) or Turner's declining share within his implied video content market. Similarly, he acknowledges that there are multiple VMVPDs currently in the market for video distribution that are already "winning customers from MVPDs," have 4% of U.S. households in 2017 and are forecast to have 21% in 2022. Shapiro Report, p. 81. He does not account for such entry in his model nor does he explain how he can reach a conclusion that there will be now and in the future a substantial lessening of competition in video distribution without considering such entry.

harm to competition in distribution markets from the prior transactions provides strong evidence that the proposed merger will not harm competition in today's video distribution markets.

IV. INADEQUACY OF PROF. SHAPIRO'S MODELING

34. Prof. Shapiro bases his prediction of harm on a Nash bargaining model in which multiple parties are involved and compete with each other. These models have been challenging for economists to implement because of the complexity involved and because of the need for simplifying assumptions to make such models tractable. Such simplifying assumptions abstract from many industry features. Because actual outcomes may be heavily influenced by such features, it is important to inquire whether such a model is a reliable predictor of real world outcomes. Prof. Shapiro presents no evidence that his model is a reliable predictor of real world outcomes. Moreover, as I have shown, the evidence from past events provides no statistical support for Plaintiff's theory.

35. Prof. Shapiro's model does not comport with reality in significant respects. The logic of Prof. Shapiro's bargaining model is that prices for Turner content will be set so as to divide the combined incremental profits that Turner and an MVPD make when reaching agreement, relative to the outcome that each party receives when no agreement prevails (and thus no distribution of Turner content by that MVPD). There are several simplifications that Prof. Shapiro's implementation makes, presumably for tractability. These simplifications are inconsistent with the way this industry operates and will operate as indicated by the following examples:

- Prof. Shapiro ignores the AT&T contractual commitment that enables an MVPD to select arbitration and thus prevent Turner from withholding content. The no agreement point that Prof Shapiro assumes is relevant for an MVPD is the pre-merger one in which Turner can permanently withhold content from an MVPD, rather than one in which the MVPD asserts its contractual right to receive Turner content and have an arbitrator set the price for the content, as would be available post-merger. He also does not account for the automatic application of the FCC Program Access Rules that I understand Prof. Katz explains is designed to address this presumed leverage from vertical integration.

- The bargaining occurs at one point in time among all firms with no recognition that contracts are negotiated at different points in time, and importantly that a bargain on one contract at one time can affect the bargained for outcome pricing of other contracts, both those of other MVPDs (e.g., through an MFN) as well as those of the MVPD (and those of its rivals) in subsequent negotiations with other content providers (by affecting the alternatives available to the MVPD). This means that the combined incremental profits from reaching one deal do not in reality depend only on the terms of that deal in isolation as Prof. Shapiro assumes, but also on the effects of that deal on other negotiations, which Prof. Shapiro ignores.
- Prof. Shapiro's model does not fully account for all the ways distributors can react to the loss of content, including substituting other content.
- Nor does it reflect the full range of consumer reactions to the loss of any particular content, including not leaving the MVPD but finding the same or substitute content in other places.
- Prof. Shapiro ignores the fact that several MVPDs have existing contracts that protect them for several years from any price increase in Turner content.
- Prof. Shapiro uses a static model that ignores the trends in the industry, including increasing entry, increasing cord cutting, declining margins and declining shares, with the result that he underestimates the current and future competitiveness of the industry.
- With regard to the division of the incremental joint profits, Prof. Shapiro's model simply assumes an arbitrary 50/50 split in every Turner negotiation with every distributor, with no evidence that this is what actually occurs.

36. All models involve simplification, but ultimately the question is whether a model is useful for making accurate predictions. Given the myriad assumptions that Prof. Shapiro makes, one must recognize that the inherent uncertainty in his assumptions renders his prediction as inherently uncertain. Therefore it is a mistake to think that even his prediction of a 0.19% increase in video distribution prices deserves to be treated as if it were statistically significant

and different from zero. There is no evidence that Prof. Shapiro's model can make accurate predictions that comport with reality. This is not surprising since the model ignores or does not adequately address or correctly estimate many core features of the video industry. His model is not a reliable guide to use to predict the effect of this merger. In the subsequent sections, I explain in more detail the ways in which his model's inadequacies lead him to reach incorrect conclusions about this transaction.

V. AT&T'S CONTRACTUAL COMMITMENT EVISCERATES PROF. SHAPIRO'S THEORY OF HARM

37. I explained in my initial report that Plaintiff's theory of harm depends on the outcome if Turner and an MVPD fail to reach an agreement (that is, the "no agreement point.").[50] Under Plaintiff's theory, the merger gives Turner additional bargaining leverage because, post-merger, the merged firm would now see an additional gain from subscribers who leave the rival MVPD for DIRECTV if there is no agreement.[51] In Plaintiff's theory, the merged firm's no agreement point is better post-merger (its profits are higher) because a permanent blackout of a rival MVPD causes a migration of subscribers away from the rival MVPD to DIRECTV. Prof. Shapiro's bargaining model adopts the same assumption regarding the merger's impact on an MVPD's no agreement point post-merger as in Plaintiff's theory of harm. Prof. Shapiro assumes that in the event of a failure to reach agreement with Turner, the MVPD necessarily loses permanent access to the Turner programming and loses subscribers as a result.[52]

38. As I explained in my prior report, and as I understand Prof. Katz also explains in much more detail, Plaintiff's theory, as now implemented in Prof. Shapiro's model, fails to account for AT&T's contractual commitment. As a result of that commitment, an MVPD has the option of

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[50] Carlton Report, pp. 60-61.

[51] Complaint, *United States of America v. AT&T, Inc., DIRECTV Group Holdings LLC, and Time Warner Inc.*, Case No. 1:17-cv-02511 (RJL), November 20, 2017 ("Complaint"), ¶¶ 35-36.

[52] Shapiro Report, p. 49.

invoking arbitration under which the MVPD does not face a permanent blackout and under which an arbitrator uses baseball style arbitration to determine the price the MVPD must pay for Turner access. Hence, contrary to the assumption of Prof. Shapiro's model, a blackout is not the relevant no agreement point given AT&T's contractual commitment. By misidentifying the relevant no agreement point, Prof. Shapiro has produced a model that ignores the post-merger circumstances that will constrain prices and therefore his prediction of harm to competition is unreliable.[53].

39. Prof. Shapiro and Prof. Kwoka make various claims about why the arbitration provision may be imperfect.[54,55] I understand that Prof. Katz rebuts their criticisms in detail. Many of Prof. Shapiro's criticisms, however, could also have been made of the arbitration remedy imposed by the FCC and DOJ in Comcast/NBCU. And Prof. Shapiro acknowledges that, to the extent that Comcast/NBCU even attempted to raise programming prices because of their merger, the FCC's order in that case, in which arbitration was the central remedy available to MVPDs, has been effective in preventing such price increases, despite the order's claimed imperfections: "…Comcast's post-merger behavior has been regulated by an FCC order. While the FCC order is an imperfect replacement for competition, the ongoing oversight faced by Comcast presumably has had some impact on Comcast's ability to increase NBCUniversal's programming fees." [56]

40. Madison Bond, Chairman of Content Distribution for NBCUniversal, has testified that in most negotiations with distributors, [redacted]

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53 In Appendix C, I describe some additional concerns with the model's assumptions.

54 *See, e.g.*, Shapiro Report, pp. 96-98; Kwoka Report, pp. 15-18.

55 Prof. Shapiro refers to the lack of a standstill provision in the FCC Program Access Rules as a reason those rules do not undermine his model, but never mentions the fact that the contractual commitment does contain a standstill provision. Shapiro Report, note 192.

56 Shapiro Report, pp. 47-48.

[redacted].[57]

41. Here I stress a simple point that Prof. Katz also makes: Even an imperfect arbitration commitment, in the presence of efficiencies, can not only eliminate harm but also lead to the merger being pro-competitive. For example, while arbitration that removes all the elevation in content prices predicted by Prof. Shapiro obviously yields a pro-competitive merger (due to the efficiencies from the merger, including the EDM efficiencies that are acknowledged by Prof. Shapiro), even highly imperfect arbitration is sufficient to reverse Prof. Shapiro's conclusion of a net harm to consumers of video distribution. For example, even if arbitration removes only one-half of Prof. Shapiro's projected content price increase for each MVPD, this still results in a reduction of monthly video prices to consumers of about $0.05, leading to net benefits of about $50 million per year, based on Prof. Shapiro's own model.[58.59]

VI. PROF. SHAPIRO'S BARGAINING MODEL CANNOT SUPPORT A FINDING OF HARM FROM THE TRANSACTION; EVEN IF TAKEN AT FACE VALUE, CORRECTING KEY ERRORS IN THE EMPIRICAL IMPLEMENTATION OF HIS MODEL PRODUCES NET BENEFITS FROM THE TRANSACTION

42. Even if one assumes that Prof. Shapiro's bargaining model is appropriately applied in this context, his calculations based on it produce an estimate of a net price increase of only 0.19% (less than 1%) of the average consumer price in video distribution. Even if one ignores the flaws in Prof. Shapiro's model that I described above and his failure to validate his model with evidence of past transactions, his estimate of a tiny price increase in video distribution cannot

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57 Deposition of Madison (Matt) Bond, February 15, 2018, pp. 48-49.

58 See my backup materials.

59 I also understand that the FCC's Program Access Rules, which do not apply to Turner today, will apply post-merger. I understand that Prof. Katz is addressing these rules in his report, but to the extent that, like AT&T's contractual commitment, the rules place new restrictions on Turner's pricing that do not exist today, that can also undermine Prof. Shapiro's estimates of harm, which are based on an assumption that both AT&T's contractual commitment and the program access rules will be ineffective.

support an inference that the merger will substantially lessen competition because it is so tiny that a few changes could easily eliminate the net harm. Prof. Shapiro's analysis is built upon a series of estimates and assumptions, and reasonable changes or corrections to those estimates and assumptions eliminate his estimated net harm. Furthermore, those estimates and assumptions are based on current conditions and do not account for ongoing industry trends that I discussed in my initial report that continue to reduce any potential concerns. Ultimately what Prof. Shapiro has presented is a model that is so sensitive to reasonable changes and so fragile that it cannot support a conclusion that the proposed merger is likely to substantially lessen competition.

43. In this section I show that Prof. Shapiro has made several major errors in his empirical implementation of his model. Those errors in implementation include:

1. His use of outdated margin data.
2. His failure to adjust for the fact that many MVPDs, including Comcast, are protected by contract from price increases for several years.
3. His overestimation of the departure rate if Turner content is lost.
4. His underestimation of cord cutting.
5. Other errors such as having no reliable way to estimate his "bargaining split."

44. I explain those now and show that the correction of those errors—at least some of which should be relatively non-controversial—demonstrates that even his already tiny alleged net price increase of only 0.19% (less than 1%) of the average consumer price in video distribution is too high and that the corrections lead to estimates of net benefit rather than net harm, even if one uses Prof. Shapiro's flawed model. I report all of my results at the aggregate level with respect to video distribution services, just as he does, which is the aggregation of all the effects at the local level from this national transaction.[60] I note that given a national transaction with national

[60] This is consistent with Prof. Shapiro's testimony in DIRECTV/Fox. Steven Salop, Carl Shapiro, David Majerus, Serge Moresi and E. Jane Murdoch, "News Corporation's Partial Acquisition of DIRECTV: Economic Analysis of Vertical Foreclosure Claims,"

efficiencies, the elements of the transaction are so inextricably linked that the correct analysis is to ask whether on balance the merger is beneficial or harmful across consumers nationally. In national transactions it is often true that some consumers might be harmed but use of such a criterion to prevent a merger that overall benefits consumers would make no economic sense. No deal that, for example, promoted innovation would ever pass muster because there would always be some consumer who could object that he is happy with the old model and doesn't want to learn how to use the new model. The sources of the harms and benefits discussed by Prof. Shapiro—higher national fees for Turner content leading to higher prices in video distribution and elimination of double marginalization, which relates to the national fee that DIRECTV pays for Turner today—are inextricably linked and national in scope, and so the merger is appropriately addressed at the national level.

A. CORRECTING PROF. SHAPIRO'S MARGINS

45. Prof. Shapiro uses AT&T margins from early 2016.[61] There is no basis to use outdated margins, particularly given the recent trend that AT&T's margins have declined each year since 2012, and SNL Kagan predicts that margins will continue to decline, as I discussed in my initial report and above.[62] Prof. Shapiro uses a weighted average margin for AT&T of [redacted] per

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July 1, 2003, p. 13 ("In a full competitive analysis, foreclosure is only considered anticompetitive if it leads to harmful effects in the [downstream] MVPD market, that is, higher prices and reduced output. Analysis of these potential anticompetitive effects must also take into account the potential pro-competitive incentives and downward price pressure associated with elimination of a double markup and other efficiencies, as well as any regulatory constraints on price discrimination.").

61 Prof. Shapiro uses customer lifetime value data presented by my colleague Dr. Israel to the DOJ in an April 20, 2017 presentation. Shapiro Report, p. 58 ("To estimate the DTV contribution margin, I rely on AT&T's data on revenues, costs, and lifetime value [LTV] of subscribers by video package.") and note 220, citing Dr. Israel's April 20, 2017 presentation. The customer lifetime value (LTV) data from that presentation were from the first part of 2016.

62 The SNL Kagan figures and predictions are consistent with the decline I discussed in my prior report. This includes not just a decline between the early 2016 figures relied upon by Prof. Shapiro, but a decline between January and April 2017 figures. *See, e.g.*, Carlton Report, Figure 16 and my backup materials.

subscriber per month from data from the first half of 2016, but the weighted average margin as of June 2017 was only [redacted], a reduction of 39% from the margin used by Prof. Shapiro.[63] This is a large decline in a year and is illustrative of the rapidly changing nature of the industry that Prof. Shapiro ignores both in his discussion and his implementation of his model.

46. In this section I simply follow Prof. Shapiro's methodology but use the June 2017 margins.[64] I also note that those margins are likely to fall in the future so even the 2017 margin I use is likely an overestimate of future margins, which matter in Prof. Shapiro's model as the determinant of content price increases. After correcting the margins, Prof. Shapiro's predicted net price increase to consumers falls by more than 80% from $0.27 to $0.05, or roughly 0.04% on a $140 average monthly consumer bill in video distribution.[65]

B. CORRECTING PROF. SHAPIRO'S FAILURE TO CONSIDER CONTRACT RENEWAL DATES

47. Prof. Shapiro also fails to consider the price protections in current contracts. In particular, Prof. Shapiro's estimates do not take account of Comcast's new contract, which was [redacted] signed and protects Comcast from post-merger price increases for at least [redacted] years.[66]

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63 Weighted monthly average for AT&T and DIRECTV across product bundles using subscriber count, following Prof. Shapiro's Figure 12. See my backup materials.

64 AT&T does not calculate expected margins for new customers every month. The prior months where margin data are available are January and April 2017. I include in my backup results using those margins as well.

65 See my backup materials.

66 The contract was signed [redacted] and runs for [redacted] years. Prices are specified within the contract for [redacted]. I [redacted] contract renewal dates, see TWI-LIT-00177811, Turner 2018 Budget & Long-Range Plan; TWI-LIT-02846815, Comcast – Turner Amendment to Affiliate Agreement, Broadband Agreement, VOD Agreement, EST Agreement and Short-Form Agreement,

48. One of the peculiarities of Prof. Shapiro's estimates is that they are predictions of long-term outcomes, after all contracts have expired and been renegotiated, but they are based on current margins and shares with no attention paid to the existing contracts (and as already discussed, no attention paid to the AT&T contractual commitment of no blackout/arbitration). That is, Prof. Shapiro is predicting what prices will look like some time years in the future after all current contracts have expired, but he is assuming that AT&T's margins, for example, will be just as high as they are today when those new contracts are renegotiated. That assumption is clearly incorrect. As I show below, if one accounts for the actual timing of contracts and uses the 2017 margin rather than his outdated margins, Prof. Shapiro's model does not predict any net harm.

49. Prof. Shapiro's estimate of harm assumes that the harms start immediately, but that is not correct, and Prof. Shapiro acknowledges in a footnote that his estimated price increases will only develop over time.[67] In the meantime, according to Prof. Shapiro's model, consumers in Comcast's footprint, for example, will still benefit from the elimination of double marginalization, which results in AT&T's prices falling, but will not face higher prices from Comcast. Indeed, Comcast's prices will also fall as it responds to AT&T's price reductions. Increased content prices to Comcast <u>alone</u> account for 85% of Prof. Shapiro's claimed net harm but Prof. Shapiro ignores that its current contract protects Comcast from those price increases for at least the next [redacted] years.

[redacted] at 894-912; TWI-00464164, Charter – Turner Amendment to Affiliate Agreement, [redacted], at 340-355; TWI-05063419, Altice – Turner Affiliate Agreement, [redacted] at 433; TWI-LIT-00746655, Sony – Turner Affiliate Agreement, [redacted] at 676. [redacted]. I assume that Charter will be [redacted] impacted by any merger-related effects. If a contract allows for Turner to unilaterally terminate the contract (e.g., Altice), I assume Turner will take advantage of that opportunity.

67 Shapiro Report, note 223. Prof. Shapiro also notes that consumer price increases may be further delayed by the existence of consumer contracts, though he does not take it into account. I too do not take into account this protection that consumers have from increases in the price of video distribution services.

50. Prof. Shapiro's bargaining model and merger simulation model are inherently *static* models that are not suitable for analyzing market changes that unfold *dynamically* over time. In order to use a static model to predict the dynamic effect of the proposed merger, Prof. Shapiro re-computes key dynamic inputs to the model, such as the subscriber loss rate, by finding the constant annual amount that would give the same present value when time-discounted over an infinite horizon.[68] Essentially, the annual impact predicted by this model corresponds to a constant annual impact that would give the same present value in an imaginary world where the same merger would happen every year under the same circumstances for an infinite number of years. Although I believe that this is the wrong framework for analyzing mergers in dynamic markets like this one, I follow Prof. Shapiro's approach.[69]

51. In Table 3 I report the periods covered by Turner contracts for MVPDs in Prof. Shapiro's analysis.

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68 Shapiro Report, Appendices D and G.

69 That is, I also report the equivalent constant annual impact of a time-discounted infinite series of mergers, except that I explicitly account for the contract renewal dates of the MVPDs in the first few years. More specifically, I assume that MVPDs are price-protected and do not face any merger-related fee increase until their contracts with Time Warner have expired. Having calculated the annual impact of the merger following Prof. Shapiro's methods for each year, I time-discount this stream of merger impacts using the same discount rate Prof. Shapiro uses and calculate the equivalent constant annual impact as Prof. Shapiro does.

Table 3: Turner Contract Periods

	Price Protected?				
MVPD	**2018**	**2019**	**2020**	**2021**	**2022**
[redacted]	Yes	Yes	Yes	Yes	
	Yes				
	Yes	Yes			
	Yes				
	Yes	Yes			
	Yes	Yes			
	Yes				
	Yes				
% Subscribers Price Protected	77.5%	42.4%	29.1%	29.1%	0.0%

Source: Turner; Shapiro Figure 13.

Notes:

[1] [redacted]

[2] [redacted]

[3] All calculations done at the annual level. If the MVPD is price protected for less than half a year, it is assumed not to have any protection for that year, and vice versa.

52. Looking over the next seven years (the period covered by the AT&T commitment, but without accounting for the commitment), and just accounting for when contracts come up for renewal, Prof. Shapiro's model predicts a net price increase to consumers of $0.10, or roughly two thirds less than Prof. Shapiro reports (0.07% on a $140 bill).[70] Accounting for the corrections in margins and contract dates, Prof. Shapiro's model predicts that the monthly net

70 See my backup materials. Prof. Shapiro claims also a "5% increase in the cost to MVPDs (including DTV and its rivals) for Turner Content." Shapiro Report, p. 64. As I have discussed earlier, Prof. Shapiro has not defined a video content market, nor has he claimed that Turner Content is a relevant product market. It is unclear why his claim of a 5% increase in the price of Turner content is relevant to harm to competition in the video distribution market except as it affects the video distribution market, the only market where the Plaintiff has claimed there is a harm.

consumer price will be <u>lower</u> by $0.07 (looking over a seven year period), or higher by $0.01 (looking over an infinite number of years).[71]

C. Correcting Prof. Shapiro's Estimated Departure Rate

53. Prof. Shapiro assumes that if an MVPD did not carry Turner it would lose 9% of its subscribers. However, Prof. Shapiro relies upon surveys and forecasts that are inaccurate or not appropriate to the situation here. I discuss those later in this section. Prof. Shapiro relies upon only one piece of actual empirical evidence—he claims that Suddenlink experienced a departure rate of roughly 9% of its subscribers based on a multi-year blackout of Viacom. However, Prof. Shapiro makes a fundamental error in his statistical modeling. He fails to control for the fact that the entire industry experienced a downturn in subscribership during that same period. After correcting for that error, Prof. Shapiro's estimate falls by half and thus is closer to Suddenlink's own ordinary course of business estimates of the effects of the blackout.

54. Prof. Shapiro and I agree that the long-term blackout of Viacom networks on Suddenlink is a relevant benchmark for a long-term blackout of Turner networks.[72] I disagree with Prof. Shapiro, however, as to his estimate of the blackout's impact on Suddenlink. Prof. Shapiro claims that his analysis of Suddenlink's subscriber data is consistent with a long-term departure rate of 9.4%.[73] He supports this claim in his Figure 10, arguing that after the Viacom blackout began in October 2014, Suddenlink experienced declining subscribership that Prof. Shapiro attributes to the blackout.

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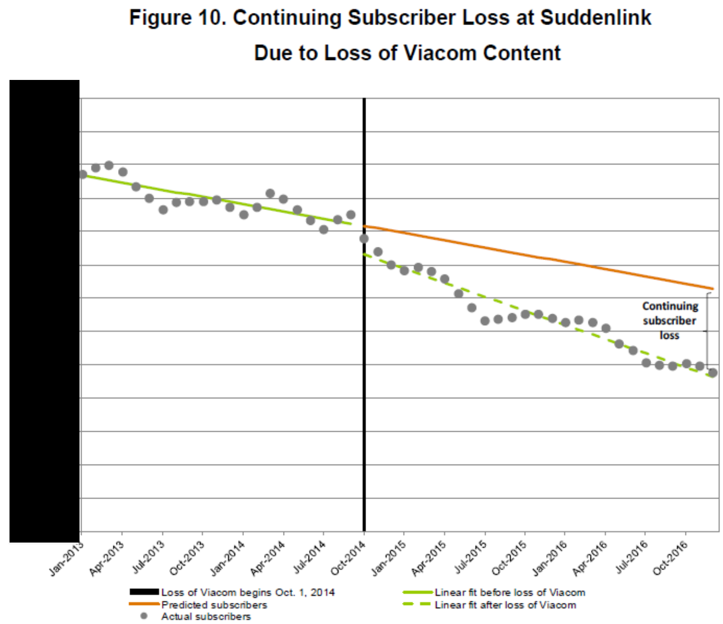
71 See my backup materials.

72 Shapiro Report, p. 53.

73 Shapiro Report, p. 128.

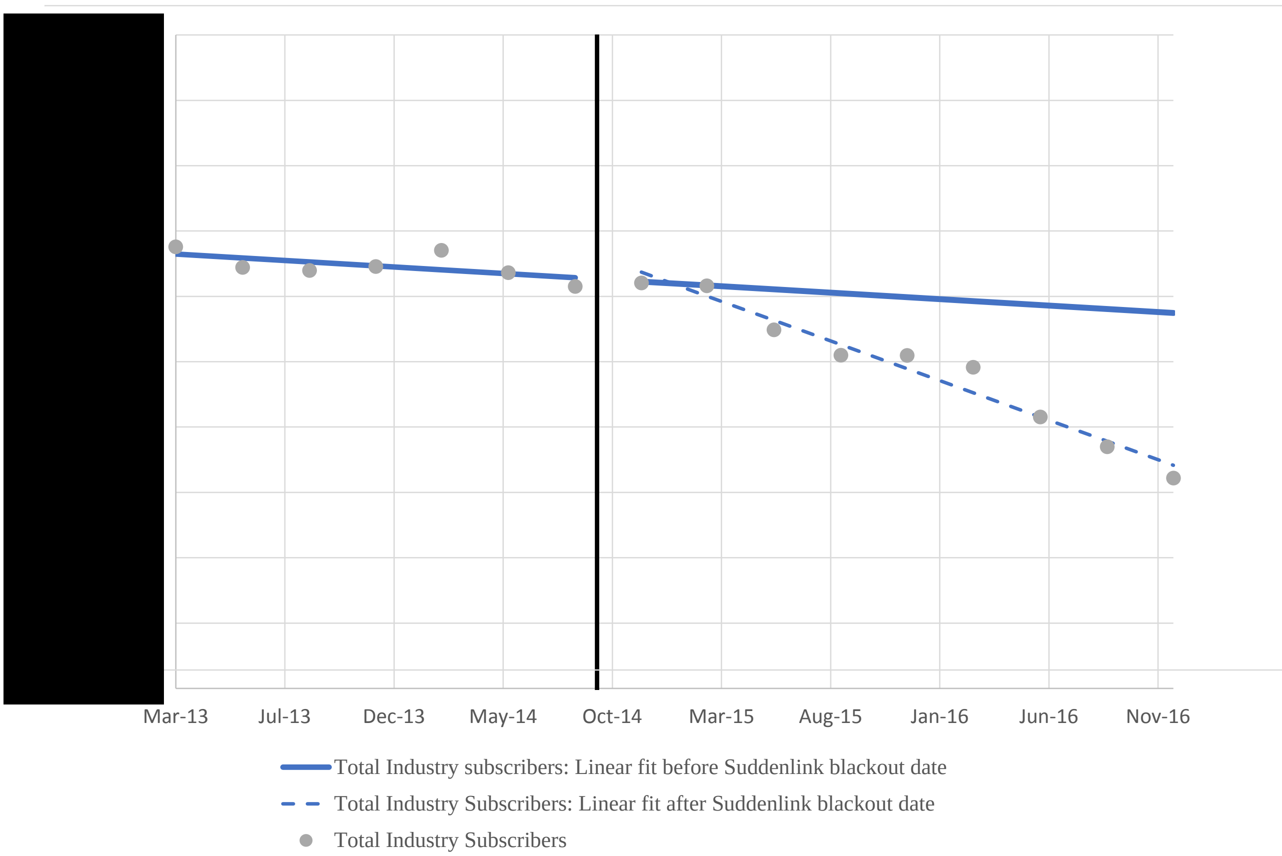
Figure 1: Prof. Shapiro's Figure 10



Source: ALT-00010559-566.

55. However, Prof. Shapiro fails to compare the Suddenlink change to the baseline trend in industry subscribership among MVPDs that did not lose access to Viacom. As I discussed in my prior report, MVPDs have been losing subscribers at an increasing rate in recent years. In fact, the entire industry experienced a downturn in subscribership starting around October 2014—the date when Suddenlink's blackout with Viacom began. In Figure 2 below, I graph total subscribership nationally for MVPDs other than Suddenlink along with trend lines as Prof. Shapiro did. As shown by this figure, the post-October 2014 downward trend for Suddenlink that Prof. Shapiro attributed to the Viacom blackout is, in fact, primarily a reflection of how the entire industry began losing subscribership at an increasing rate beginning at the same time.

Figure 2: Subscriber Trends for Other MVPDs
Before and After Suddenlink Blackout Date



Total Industry Subscribers includes all MVPD subscribers from SNL Kagan excluding Suddenlink and CableOne, each of which had a Viacom blackout

56. If I simply account for industry trends in Prof. Shapiro's regression analysis—by computing the change in subscribership for Suddenlink relative to the baseline trend for the industry as a whole—it indicates that total subscribership for Suddenlink was only 4.7% lower after 27 months as a result of the Viacom blackout. Prof. Shapiro's estimate of the long-term departure rate then falls to 4.8%.[74]

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74 See Appendix B and my backup materials.

57. Those results are more consistent with Suddenlink's own analysis of the blackout, as well as with third party analyses, both of which Prof. Shapiro ignores. Indeed, Prof. Shapiro does not cite any of the public statements from Suddenlink about the blackout. As I noted in my prior report,[75] in the fourth quarter of 2014, Suddenlink reported that the "Viacom decision resulted in Q4 video customer losses of 2.0% - 2.5%,"[76] but the impact was dying out by the end of the quarter: "Two thirds of impact seen in first six weeks, nearly 90% through November[.] Little impact seen since mid-December."[77] Suddenlink did not report any ongoing effect.[78]

58. As I discussed in my prior report, Cable One also ceased carrying Viacom networks in 2014, and still does not carry them. I reported that Cable One estimated that the Viacom blackout had a total [redacted] impact on subscribership over the course of [redacted] and had [redacted]

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75 Carlton Report, pp. 51-52.

76 Suddenlink, Cequel Communications Holdings I, Fourth Quarter and Full Year 2014 Results, February 24, 2015, *available at* https://s22.q4cdn.com/118672413/files/doc_presentations/suddenlink/2015/Cequel-Communications-Holdings-I-LLC-Q4-2014-Earnings-Presentation.pdf, Slide 11.

77 Suddenlink, Cequel Communications Holdings I, Fourth Quarter and Full Year 2014 Results, February 24, 2015, *available at* https://s22.q4cdn.com/118672413/files/doc_presentations/suddenlink/2015/Cequel-Communications-Holdings-I-LLC-Q4-2014-Earnings-Presentation.pdf, Slide 12.

78 To support his claim there could be large ongoing losses, Prof. Shapiro also cites a DIRECTV document that analyzed the potential impact on DIRECTV of a long-term loss of Disney content. Shapiro Report, p. 50. Prof. Shapiro's claim concerning that document is contradicted by deposition testimony in this case. Vince Torres, AT&T Senior VP of Planning, Pricing, Promotions and Go-to-Market Strategy, is cited by Prof. Shapiro as talking about possible effects of a Disney blackout (Shapiro Report, note 181), but Prof. Shapiro does not report that Mr. Torres stated with respect to the Disney document that "I do not believe that these numbers are accurate." Deposition of Vince Torres, January 12, 2018, p. 184. Similarly, Daniel York, the chief content officer at AT&T, stated that the assumption of ongoing gross add losses in the document was implausible: "I -- frankly, as I stare at it today, I would take a lot of exception with the gross add number over time. It appears that someone has kind of taken a one-week impact of Disney content no longer being available and run that out for, what, 72 months and that that would stay exactly the same. I -- I find that rather implausible, personally." Deposition of Daniel York, February 9, 2018, pp. 164-165.

[redacted] 2014.[79] William Sejen, former chief negotiator for Cable One, has testified that there was [redacted] specifically because Cable One put up replacement networks (partly by adding new networks and partly by moving some networks from higher tiers to lower tiers).[80]

> Q. Okay. So was it your experience that the – that the permanent drop of Viacom that the impact of it was sort of felt and absorbed within about a [redacted]?
>
> A. Yes, that's true.
>
> Q. Okay. And [redacted], to the best of your recollection?
>
> A. Yes, that is true. Just because we put up some very viable replacement networks.[81]

59. Prof. Shapiro's claim is also contradicted by an analysis in one of his cited documents from Comcast.[82] Prof. Shapiro cites this document "[f]or other evidence on the impact of losing Turner Content" without otherwise describing its contents or mentioning that it also contains an analysis of the Suddenlink/Viacom blackout. However, [redacted] analysis of that event contradicts Prof. Shapiro's interpretation. I am not aware of any testimony providing detail on [redacted] analysis, but the reported results indicate that after nine months, the impact of the blackout was essentially over, and unlike Prof. Shapiro's pre-merger and post-merger trend lines that grow increasingly far apart, [redacted] pre-merger and post-merger trend lines run parallel going forward, indicating no "continuing subscriber loss." Hence, this third party analysis (in materials cited by Prof. Shapiro) also did not find any ongoing reduction in subscribers, and estimated an impact on subscribership of only about [redacted]—see the figure below, which is very close to the estimate of the impact after 27 months provided by my correction of Prof. Shapiro's regression.

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79 Carlton Report, p. 54.

80 Deposition of William Randolph Sejen, February 13, 2018, p. 99.

81 Deposition of William Randolph Sejen, February 13, 2018, p. 99.

82 Shapiro Report, note 199, citing [redacted].

[redacted]

60. I noted in my prior report that Viacom had similar ratings in 2014 as Turner does today, as well as similar programming expenditures, and that Viacom had more original shows than Turner and a larger share of top 500 series than Turner (or Turner and HBO combined). I also noted that Citi and AT&T have both used Viacom as a benchmark for a Turner blackout and predicted departure rates for the two that were very similar.[83] I further note that Viacom had higher gross margins in 2014 than Turner does today.[84]

61. With respect to the other materials Prof. Shapiro cites related to Turner departure rate estimates,[85] I note first that while Prof. Shapiro states that his primary documentary source for his 9% departure estimate is a Charter document from April 2017 reflecting analysis by the consulting firm Altman-Vilandrie, an internal Charter analysis from February 2017 assumed a

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83 Carlton Report, pp. 52-53.

84 SNL Kagan, "TV Network Summary," data pulled February 20, 2018.

85 Shapiro Report, p. 51 and note 202.

substantially lower long-term departure rate for not carrying Turner content.[86] Prof. Shapiro cites this latter document to establish that Charter considered loss of gross adds in its analyses, but he did not report the actual estimate of the "Go Forward Connect Impact," which was only [redacted].[87] Using Prof. Shapiro's formula for long-term impact, the estimate based on this document would be only 4.6%.[88]

62. Overall, the documentary materials he cites vary but suffer from common flaws. First, the forecasts he cites are all estimates—none of them are based on actual long-term Turner blackouts as there have been no such blackouts. Second, with only a few exceptions, the estimates of departure rates that Prof. Shapiro relies upon do not consider competitive reactions the MVPDs could take to diminish the effects of losing content. The three documents he cites that do discuss competitive reactions do not always take those into account in the departure rate estimates, and critically when they do, they provide for only short-term and limited competitive reactions to prevent subscriber losses. Specifically, they allow for variations on save desk offers—small, short-term price decreases or offers of increased broadband speed, for example.[89]

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86 CHTR-CID-012611, Charter Communications, Turner Networks Analysis, February 23, 2017, p. 6.

87 Shapiro Report, note 196, citing CHTR-CID-012611, Charter Communications, Turner Networks Analysis, February 23, 2017. Nor did he report that [redacted] which, as I discuss later in this section, is inconsistent with his claim that MVPDs have equal bargaining strength to Turner.

88 Calculation based on Shapiro Report Appendix D formula. Values for beta and c taken from Prof. Shapiro Appendix D. d=1.3% based on [redacted] departures on [redacted] million subs per CHTR-CID-012611, Charter Communications, Turner Networks Analysis, February 23, 2017, at 617 and 623; x = [redacted] base case on go forward video connect suppression per CHTR-CID-012611, at 617.

89 Shapiro Report, note 198, citing CHTR-CID-012471, Altman Vilandrie & Company, Content Valuation Project Update Final Readout Prepared for Charter Spectrum, April 27, 2017, at 531; CHTR-CID-012611, Charter Communications, Turner Networks Analysis, February 23, 2017, at 618; TTWX-00029557, Verizon, Potential Major Content Portfolio Exists: Cable Network Group, RSN, and Premium Drops, October 10, 2016, at 567.

As I discussed in my initial report, MVPDs have other options to prevent losing prospective customers. In particular, the MVPD can lower its price or replace the content or both.[90] I explained that these are not theoretical reactions. Firms can and do react in those ways. Thus, all of the forecasts he cites are overstated because they assume that an MVPD in the face of a long-term loss of Turner content would do nothing to replace the content, either licensing new content, commissioning new content, or moving content from higher tiers onto lower tiers.

63. Many of the estimates Prof. Shapiro relies on are based on surveys.[91,92] As I understand Prof. Rossi explains, the surveys by Mr. Hauser and Altman-Vilandrie that Prof. Shapiro relies upon are not, in fact, reliable. I note that surveys can produce forecasts for blackouts that are inconsistent with the empirical evidence. For example, a 2013 Suddenlink survey that Prof. Shapiro cites elsewhere in his report predicted a departure rate of up to [redacted] if Suddenlink lost

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[90] Carlton Report, p. 49.

[91] Specifically, the following estimates appear to be at least partially survey-based: CHTR-CID-012471, Altman Vilandrie & Company, Content Valuation Project Update Final Readout Prepared for Charter Spectrum, April 27, 2017; TWI-01478361, Turner Content Distribution; TWI-01478503, Turner Research, Emerging Media Analytics, Rubix Initiative Findings – TCD Initial Overview, November 3, 2016; TWDC-ATT-TW-00012410, Disney, US Video Strategy Work Session, September 27, 2016; HULU-0006254, Hulu, Agenda. Most of them are surveys related to demand for Turner within a VMVPD product.

[92] Many of the other estimates are based on some type of viewership measurements or the basis is unclear. These include CHTR-CID-012471, Altman Vilandrie & Company, Content Valuation Project Update Final Readout Prepared for Charter Spectrum, April 27, 2017; COMATT-COM-00016447, Comcast and EBI, Subscriber Loss Analysis: Turner Broadcasting Network, September 2015; COMATT-COM-00016592, Comcast and EBI, Subscriber Loss Analysis: Viacom, Turner, November 4, 2016; TTWX-00029557, Verizon, Potential Major Content Portfolio Exists: Cable Network Group, RSN, and Premium Drops; COMATT-COM-00034075, Comcast and EBI, Turner DropShot Analysis: Follow Up, October 2017; COMATT-COM-00034056; COMATT-COM-00034057. Prof. Shapiro states that he does not rely upon some of these documents because they "rely entirely on viewership statistics" or he "lack[s] sufficient clarity on the circumstances surrounding the creation of the documents." Shapiro Report, notes 199 and 201.

Viacom content, a projection that greatly exceeds Suddenlink's actual experience.[93] Mr. Hauser predicts, based on his survey, one month departures of 8% in response to a blackout of Turner content.[94] However, there have been two short-term blackouts of Turner content, each roughly a month in duration, that resulted in only very small departures.

64. Cable One had a blackout that began October 1, 2013, and DISH had a blackout that began October 21, 2014. Cable One estimated that the total impact for the blackout was only [redacted] in October and [redacted] in November, or a total impact of [redacted].[95] William Sejen, Cable One's former chief negotiator, has testified that [redacted] percent sounds very small to me. And I know or I believe anyway that our subscriber losses were fairly insignificant so it sounds about right."[96] With respect to DISH's Turner blackout (which did not include TBS and TNT), AT&T's ordinary course assessment was that it received only 6,000 to 9,000 additional subscribers as a result of the DISH/Turner blackout.[97] DISH had roughly 14 million subscribers in 2014 and DIRECTV had roughly 20 million.[98] The 6,000 to 9,000 subscribers are between 0.04% and 0.06% of DISH's subscriber base, and 0.03% to 0.04% of DIRECTV's subscriber base. Even if a third of departing DISH subscribers were assumed to have gone to DIRECTV, the total impact on DISH would be no more than 0.19%. DISH itself estimated that it lost around [redacted] subscribers associated with the blackout, or [redacted] of its subscriber base.[99] I also note that AT&T has analyzed the impacts from various blackouts it has experienced and even the

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93 ALT-00004692, Suddenlink and Cequel Communications, Viacom Update, at 694, reporting [redacted] of those surveyed would begin looking for a new TV provider or would be likely to drop pay TV service altogether. This document was cited by Prof. Shapiro in his report with respect to a discussion of "must have" content. Shapiro Report, note 36.

94 Hauser Report, p. 49.

95 DOJ-ATTTWX-CABONE-000001.

96 Deposition of William Randolph Sejen, February 13, 2018, p. 95.

97 ATT-DOJ2R-04702637, DIRECTV email chain, January 2015.

98 DISH Form 10-K for the year ending December 31, 2014, p. 55; DIRECTV Form 10-K for the year ending December 31, 2014, p. 53.

99 DISH-ATT-00006782, excel file.

blackout of multiple broadcast stations has not produced anything close to a one month 8% departure rate. For example, AT&T experienced a blackout of NBC, CW in one DMA and Fox in another DMA (Sunbeam) for more than 20 days and found a total impact of [redacted].[100]

65. Even using a conservative adjustment—adjusting Prof. Shapiro's model by using a departure rate of 5% rather than the 9% he assumes—Prof. Shapiro's model predicts that net monthly prices to consumers will be lower by $0.01.[101] Accounting also for the corrections in margins and contract dates, Prof. Shapiro's model predicts that the monthly net consumer price will be lower by $0.20 (looking over a seven year period), or by $0.16 (looking over an infinite number of years).

D. PROF. SHAPIRO UNDERSTATES THE IMPORTANCE OF CORD CUTTING

66. The extent of cord cutting is important both to Prof. Shapiro's estimate of harm but also to his estimate of the benefits of eliminating double marginalization. Hence, underestimating the importance of cord cutting both inflates Prof. Shapiro's estimates of harm and understates the benefits of eliminating double marginalization, thus increasing his estimate of net harm from both sides.

67. On the harm side, customers that cut the cord and, as a result, do not take Turner content not only do not produce any gains for AT&T, but they reflect ongoing losses for Turner, as those are subscribers that used to take Turner but on whom Turner going forward is not earning any advertising or affiliate fee revenue. When Prof. Shapiro calculates diversion ratios—where customers go when they leave an MVPD—one of those options is cutting the cord. As more people choose that option, the odds of AT&T securing any particular subscriber leaving another MVPD go down, and Prof. Shapiro's estimate of harm goes down.

68. On the benefits side, the elimination of double marginalization is driven by efforts from AT&T to lower its video distribution prices in order to attract subscribers that do not currently

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[100] Exhibit 6 of AT&T's response to U.S. Department of Justice Antitrust Division's Civil Investigation Demand No. 29071.

[101] See my backup materials.

take Turner. The more cord-cutters there are that do not take Turner, the greater the incentive for AT&T to cut video distribution prices. Thus, when Prof. Shapiro underestimates the importance of cord cutting, he both overstates his estimate of harm and understates his estimate of benefits.

69. Prof. Shapiro obtains his estimate of the "Outside Good"[102] (or cord cutters) by looking at a Charter document (the same one he relies upon for his departure rate) and taking the fraction of subscribers predicted to switch to "no-video options in response to the loss of Turner Content."[103] I understand that Prof. Rossi explains that the underlying survey by Altman-Vilandrie is not reliable.

70. Prof. Shapiro assumes in his model that diversion will be proportional to current subscriber shares, but he ignores the current share of cord-cutters. SNL Kagan reports in 2018 that 20% of U.S. television households are cord cutters (i.e., do not obtain service from an MVPD or VMVPD).[104] If Prof. Shapiro had simply followed his approach of assuming

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102 Prof. Shapiro defines the "Outside Good" as those who "in response to the loss of Turner Content, decide to drop their MVPD subscription altogether." Shapiro Report, p. 56.

103 Shapiro Report, p. 145. Even within this document, Prof. Shapiro makes an error. For elimination of double marginalization, the relevant group is those that are not currently Turner subscribers. That includes not just cord-cutters, but roughly 9% of all MVPD subscribers (as Turner's highest penetrated networks have national penetration about 91%). Prof. Shapiro assumes that all of the people that his document indicates would go to MVPDs would all take Turner, but that is not correct. By ignoring this group, Prof. Shapiro understates the benefits from elimination of double marginalization. That is, for purposes of diversion, Prof. Shapiro recognizes that many subscribers would go to MVPDs other than AT&T, but for purposes of calculating the impact on Turner for the elimination of double marginalization, Prof. Shapiro fails to recognize that not all of those subscribers will take Turner at their new MVPD.

104 SNL Kagan, Basic & HD cable network economics 2017-2026, data pulled February 20, 2018. I note that the document Prof. Shapiro cites with respect to VMVPD growth also reports 20% of households as cord cutters for 2018, with both sources predicting that share to grow. ATT-LIT-00969150, at 155, cited by Prof. Shapiro at note 308.

diversion based on market share with respect to the outside good, he would have simply used this 20% share. I use the 20% share as the share of the outside good.[105]

71. Another estimate of the importance of cord cutting can be obtained simply by looking at where customers leaving DIRECTV actually go. Following Prof. Shapiro's definition of the "Outside Good," as of the last year of surveys (2Q 2016 to 1Q 2017), 26.2% of former DIRECTV subscribers report that they have no MVPD service and "will not subscribe to a television provider at any time in the foreseeable future."[106] I note that when Mr. Hauser performed his survey, he screened out 25.3% of his survey respondents because they are "[n]ot subscribed to pay-TV service" and an additional 5.2% because they did "not have access to Turner channels," which would be consistent with an outside good share above 30%.[107]

72. After correcting Prof. Shapiro's model for the importance of cord cutting, Prof. Shapiro's model predicts that the benefits from elimination of double marginalization would result in AT&T's monthly prices in video distribution being <u>lower</u> by $1.30. His merger simulation predicts that, on net, monthly consumer prices in video distribution would be <u>lower</u> by $0.17. Accounting for the corrections in margins, contract dates, the departure rate and cord cutting, Prof. Shapiro's model predicts that monthly net consumer prices will be <u>lower</u> by $0.51 (looking over a seven year period), or by $0.48 (looking over an infinite number of years).[108] And notably, this figure conservatively assumes that cord cutting will not become any more important in the future than it already is.

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105 I do not necessarily endorse the simplified demand structure in Prof. Shapiro's model in which he assumes diversion based on share.

106 Churn research from DIRECTV, May 2015-February 2017. I use the simple average over the last four quarters of surveys. The 1Q 2017 rate is 29.2%. See my backup materials. AT&T changed survey providers and survey design after 1Q 2017 and a full year of data is not available from the new survey.

107 Hauser Report, Exhibit 1. Although Prof. Shapiro treats the "outside good" as people who do not have pay-TV service, for elimination of double marginalization, those who have MVPD service but do not take Turner are also relevant.

108 See my backup materials.

E. PROF. SHAPIRO'S RESULTS ARE SENSITIVE TO HIS ASSUMED BARGAINING SPLIT

73. Prof. Shapiro assumes that Turner and the MVPDs "would split the gains from trade equally or nearly equally."[109] That is, he assumes a bargaining split of 50/50. However, his assumption is inconsistent with documents he relies upon. More specifically, the study he cites as his primary support for his departure rate estimate concludes that the MVPD was paying more to Turner than the content was worth (i.e., that the MVPD would be better off dropping Turner content).[110] That is not consistent with Prof. Shapiro's claim that the gains from trade are being split equally. To the contrary, it is consistent with Turner extracting most or all of the gains from trade—that is, having a bargaining split where Turner's share is close to 100%. The higher Turner's share of those gains, the lower the harm estimated by Prof. Shapiro's model. For example, a 71% split in Turner's favor would entirely eliminate Prof. Shapiro's estimated net increase in consumer prices without making any of the other corrections I discussed above.[111] Any bargaining split higher than 71% would imply net consumer benefits from the transaction, further demonstrating the fragility of Prof. Shapiro's finding of harm.

VII. PRO-COMPETITIVE BENEFITS FROM THE TRANSACTION OUTWEIGH PROF. SHAPIRO'S ESTIMATES OF HARM

74. In my prior report, I made four points concerning the benefits that would result from bringing together the complementary products and assets at issue in this transaction. First, increasing the value of Time Warner content and advertising inventory through use of AT&T consumer relationships and data is simply following in the footsteps of other vertically integrated firms in the industry, creates more value from distribution of Time Warner content, and thus places downward pressure on prices in order to expand the distribution of Time Warner content.

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[109] Shapiro Report, p. 42.

[110] As does the contemporaneous Charter internal analysis I discussed in the prior section. CHTR-CID-012611, Charter Communications, Turner Networks Analysis, February 23, 2017, p. 6. CHTR-CID-012471, Altman Vilandrie & Company, Content Valuation Project Update Final Readout Prepared for Charter Spectrum, April 27, 2017, at 477.

[111] See my backup materials.

Second, cost savings produce downward pressure on prices (e.g., if AT&T's costs for acquiring a new customer go down, that places downward pressure on AT&T's prices to consumers). Third, the elimination of double marginalization produces downward pressure on AT&T's prices to consumers. And finally, this transaction is likely to spur new innovations (just as they have for vertically integrated firms like Netflix and Amazon, as I discussed in my prior report). The economic literature establishes that innovations can provide large consumer benefits even when difficult to quantify precisely.[112]

75. Prof. Shapiro does not analyze pro-competitive benefits other than the elimination of double marginalization.[113] Prof. Athey and Mr. Quintero claim that the other benefits are not merger specific but could be achieved by contract without a merger, and that many of them are speculative.[114] I understand that Mr. Gokhale and Prof. Kearns are commenting on the claims of Prof. Athey and Mr. Quintero.

76. Here, I stress that, as a matter of economics, the potential benefits of the merger (other than EDM, mentioned above) analyzed by Mr. Gokhale and Prof. Kearns but ignored by Prof. Shapiro, stem largely from the same economic effects as the elimination of double marginalization, an efficiency that Prof. Shapiro recognizes and accounts for. In particular, they stem from the fact that, as separate firms, AT&T and Time Warner do not internalize the benefits to one another that arise from taking costly steps to improve the pricing or characteristics of their complementary products. In the case of double marginalization, this costly step is a price cut; for the other efficiencies it takes other forms such as increased investments in the use of data or in cross-promotional efforts.

77. Prof. Shapiro agrees with me that elimination of double marginalization is a merger-specific benefit of this transaction. Prof. Shapiro estimates that elimination of double marginalization will reduce DIRECTV's marginal costs for Turner content by $1.20 per

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112 Carlton Report, pp. 90-100.

113 Shapiro Report, pp. 62-64, 95-96.

114 *See, e.g.*, Quintero Report, pp. 54-55; Athey Report, p. 4.

subscriber per month.[115] Furthermore, Prof. Shapiro acknowledges that DIRECTV and Turner have not been able to achieve this outcome by contract even though they have contractual relations with each other.[116] Prof. Shapiro's analysis is in tension with Prof. Athey and Mr. Quintero's claims that the efficiencies from the merger (apparently other than those analyzed by Prof. Shapiro) are not merger specific because they could be achieved by contract. Indeed, I would expect that attempting to write contracts for new and innovative usages of data is likely to be more difficult than writing contracts on pricing to solve double marginalization, but that has not been accomplished as Prof. Shapiro acknowledges.

78. The existence of double marginalization also shows that the mere existence of a contract does not mean that the economic problem of coordination has been solved, as Prof. Athey and Mr. Quintero suggest. The same phenomenon applies to other efficiencies in this case: Even when firms sign contracts for joint use of data, there could remain inefficiencies that can be eliminated by vertical integration (e.g., experimentation can be easier in a vertically integrated firm than through two firms experimenting together under a contract). I also note that while Prof. Athey and Mr. Quintero express skepticism as to the various categories of competitive benefits, it would be economically inappropriate to dismiss these potential benefits and treat them as zero simply because they cannot be quantified with precision pre-merger. To do so would condemn many pro-competitive transactions and deny consumers the benefit of innovation simply because it cannot be precisely quantified upfront. There are many categories of benefits, and while there may be uncertainty associated with each, Prof. Shapiro's estimate of harm (which ignores these many categories of benefits with the exception of the elimination of double marginalization and has its own imprecision built into it) is so small that if even only a small fraction of the pro-competitive benefits expected from the merger are realized, the merger will be beneficial for consumers even under Prof. Shapiro's flawed model. And this is of course assuming that what Prof. Shapiro has done is sensible, which it is not.

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115 Shapiro Report, p. 64.

116 Shapiro Report, p. 62.

79. Several of the efficiencies discussed by Mr. Gokhale and Prof. Kearns would alter the outcome in Prof. Shapiro's bargaining model and could easily offset completely his harms. Notably, Prof. Shapiro fails to acknowledge or discuss the role of these possible efficiencies in his bargaining model or how they could offset his harms. To illustrate just one possibility, Prof. Shapiro does not address the impact on bargaining of enhancements in the value of the advertising that Turner sells. Prof. Shapiro acknowledges that Turner "generates revenues from Turner Content" in part "by selling advertising on those networks."[117] As a result of the merger, the value of that advertising will be enhanced, as discussed by Mr. Gokhale and Prof. Kearns. As a consequence, Time Warner's profit from licensing Turner to an unaffiliated MVPD will *increase* post-merger. A permanent blackout on another MVPD of Turner content would directly reduce these benefits. Thus, this increase in profit to AT&T/Time Warner will enhance the bargaining power of the unaffiliated MVPD since failure to reach agreement would result in at least some consumers doing without Turner content, thereby lowering the profits of the merged firm. That is, Prof. Shapiro's estimate of harm is based on his claim that the gains from trade from Turner licensing an MVPD are lower post-merger, but he fails to recognize that improvements in advertising post-merger make distribution of the Turner networks <u>more</u> valuable, and thus could offset his incentive for harm. For example, if I adjust Prof. Shapiro's model to take into account Mr. Gokhale's analysis that advertising revenue will increase by 5% as a result of the transaction, that would produce a roughly $0.08 decrease in Prof. Shapiro's predicted net price increase in monthly video distribution prices.[118] Accounting for the corrections in margins, contract dates, the departure rate, cord cutting, and advertising efficiencies, Prof. Shapiro's model predicts that net consumer prices will be <u>lower</u> by $0.58 (looking over a seven year period), or by $0.56 (looking over an infinite number of years).[119]

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[117] Shapiro Report, p. 7.

[118] See my backup materials.

[119] See my backup materials.

80. The relevant economic issue for evaluation of the benefits from the efficiencies is whether in aggregate they produce expected gains that would offset Prof. Shapiro's small harm that he gets from his flawed model. I leave to Mr. Gokhale and Prof. Kearns the task of describing the efficiency benefits and valuing them. I simply note here that the benefits they estimate from, for example, improved advertising value resulting from better usage of data, improved quality of programming again resulting from better use of data, lowered operating costs, and other efficiencies are substantial—more than $1.5 billion in annual cost savings and more than $1 billion in other benefits related to product improvements as of 2020. (I also note that, as with the AT&T/DIRECTV merger, I understand that executives will be compensated based on whether they successfully achieve these targets. I understand Mr. Gokhale documents that AT&T has a history of successfully achieving its targets.)

81. As I discussed in my prior report, cost savings can unquestionably create downward pricing pressure on prices in video distribution. For example, if one focuses just on Mr. Gokhale's estimate of more than $400 million in annual variable cost savings, and assuming these represent marginal cost savings, Prof. Shapiro's model would imply additional benefits to DIRECTV consumers of more than $250 million per year in lowered prices, and that ignores the benefit that non DIRECTV consumers would receive as other MVPDs respond to DIRECTV's lower price.[120]

82. Finally, as I discussed in my prior report, the exact amount of future innovation from the merger is hard to predict and quantify, but the benefits from innovation can be substantial. Indeed, innovation is the key driver in the growth of consumer welfare over time.

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120 See my backup materials. I calculate the pass-through rate from Prof. Shapiro's model as the amount that DIRECTV consumer prices would fall if AT&T's marginal cost falls by $1. That number is $0.71, or a 71% pass-through rate. I note that Prof. Shapiro reports an "implied pass-through rate" of 21.7% for DIRECTV in his Figure 15. That is not a pass-through rate in the normal economic sense of the term in asking how a firm's price would be affected by a $1 change in its marginal cost.

VIII. PROF. SHAPIRO'S THEORY OF HARM FROM HBO IS UNSUPPORTED AND INCONSISTENT WITH THE EVIDENCE

83. I explained in my initial report that HBO is taken by only about a third of MVPD subscribers, that an exact replica of HBO is available online and is assured to remain available because of the presence of long-term contracts, that empirical analysis of HBO pricing changes indicates that it has very little effect on subscriber losses, that many firms make little use of or do not use HBO for promotions, and that HBO's pricing strategy is, as a matter of economic theory, inconsistent with Plaintiff's theory of harm.[121]

84. Prof. Shapiro reiterates claims made in the Complaint that HBO content is used for promotional purposes, but he does not provide any economic analysis to support an actual theory of harm with respect to HBO. In particular, Prof. Shapiro discusses possible benefits to AT&T if HBO were to limit the ability of MVPDs to promote HBO. But this is not a complete theory of harm because it ignores the other side of the equation: If HBO does not permit MVPDs to promote HBO, that directly harms HBO because it will have fewer subscribers as a result. Prof. Shapiro not only does not establish that post-merger such a strategy would be profitable, he never even mentions the fact that such a strategy would be costly to HBO.

85. The evidence indicates that a strategy of limiting the ability of MVPDs to use HBO in promotions would be very costly to HBO. To begin with, Prof. Shapiro notes that MVPDs use reduced promotions of HBO as a negotiating tactic to extract concessions from HBO and discusses Comcast's [redacted] of HBO. Prof. Shapiro explains that "to strengthen its bargaining position with HBO, Comcast [redacted][22] Prof. Shapiro claims that Comcast's efforts are consistent with HBO being an important promotional tool used to attract and retain subscribers. However, the question is not whether HBO can be used as a promotional tool, but whether it is uniquely important to MVPD competition and whether restricting MVPDs' promotions of HBO would

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121 Carlton Report, § VIII. *See also* ATT-DOJ2R-00528735, Consumer Facing Lead Offers: Current Competitive Offers Update, July 25, 2016, at 737, 740, 754.

122 Shapiro Report, pp. 75-76.

harm HBO more than it would benefit AT&T. Prof. Shapiro claims that Comcast [redacted] engaging in this strategy, but that misses the key point. Comcast's video subscribership [redacted] while its HBO penetration [redacted], indicating that a [redacted] but did not prevent Comcast from [redacted] video subscribers.[123] That is, this demonstrates that [redacted], which undermines Prof. Shapiro's claim that limiting HBO promotion would benefit AT&T by diverting subscribers from other MVPDs. It also demonstrates that [redacted] harms HBO, since the tactic was used to put pressure on HBO.

86. More generally, HBO obtains essentially all of its sales through distributors. It relies upon those distributors to market and promote HBO. Restricting its own distributors' ability to market and promote HBO will directly harm HBO and undercut its business model. The importance of specific MVPDs' efforts to promote HBO can be seen in the variability of HBO's penetration rates across MVPDs and over time for any given MVPD. For example, between 2013 and September 2016, HBO's penetration rate among large MVPDs varied between [redacted] and [redacted] depending on the MVPD and the quarter. HBO's penetration rate varied between [redacted] for Comcast (a more than [redacted] difference), [redacted] for Verizon (a [redacted] change), [redacted] for Time Warner Cable (a [redacted] difference), [redacted] for Charter (a 34% difference), and [redacted] for DISH (a [redacted] difference).[124]

87. HBO executives have testified about the high churn experienced by HBO and how important promotion of HBO by its distributors is to maintaining subscribership and profitability. HBO's CEO, Richard Plepler, has testified that "we need to replace every year somewhere

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[123] Carlton Report, pp. 105-106. *See also* Deposition of Gregory Rigdon, Comcast EVP of Content Acquisition, February 6, 2018, p. 61 [redacted]

[124] HBO Subscription Revenue_2008-2016 by month.xlsx; SNL Kagan, All Video by DMA Q1 2013 – Q3 2016. See my backup materials.

around [redacted] percent of our subscribers through churn to stay even."[125] HBO's President of Global Distribution, Simon Sutton, has testified that "the best way to [maximize HBO revenue] is to incent affiliates to promote and sell HBO as much as possible. And we find we have to incent them to do that. The best way to incent them to sell HBO as much as possible is to provide a discount on HBO at the margin. Because we found, without that discount, the penetration and the volume of HBO subscribers decreases."[126]

88. Limiting its own distributors' ability to promote HBO is thus likely to be a very costly strategy for HBO. Indeed, a large fraction of HBO's subscribers become subscribers through MVPD promotions. For AT&T, roughly <u>half</u> of its HBO customers are currently on promotions. For those customers that are not currently on promotions, roughly 60% had HBO promotions at some point in the past two years.[127] This indicates that around 80% of AT&T's entire HBO subscriber base has had a promotion in the past two years. This should not be surprising since a typical path for a new subscriber is that they obtain a promotional subscription for free HBO for a few months. HBO's hope is that the subscribers will, at the end of the promotion, transition to becoming paying subscribers. Most do not; they drop HBO after the promotion.[128] But even still, most of HBO's paying subscribers consist of those that did transition. In the absence of promotions by the MVPDs, HBO would have to hope that most of those subscribers would have signed up directly without a promotion. But the fact that the vast majority of HBO subscribers come to HBO through promotions suggests otherwise.

89. Thus, the impact of restricting promotions goes to the heart of HBO's business model. If, for example, HBO were to lose half of the DIRECTV customers it gains through promotions, it would lose millions of HBO subscribers. By contrast, Prof. Shapiro provides no evidence as to how much of a gain AT&T would experience in terms of diverted subscribers to offset such a

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125 Deposition of Richard Plepler, May 10, 2017, pp. 121-122.

126 Deposition of Simon Sutton, January 19, 2018, pp. 28-29.

127 201802 - HBO Units by Promo.xlsx; HBO Snapshots for 2 Years.xlsx.

128 New Customer Premium Persistency.xls.

large loss by HBO, and the empirical evidence I have previously discussed (e.g., AT&T controlled marketing experiments in which a subset of HBO customers is charged higher prices while others are not[129]) suggests there would be little if any gain to AT&T.

90. Finally, as I explained in my initial report, HBO's pricing strategy contradicts Prof. Shapiro's theory of harm.[130] Prof. Shapiro claims that post-merger AT&T would have an incentive to raise the marginal cost of HBO to other distributors with the goal of diverting video subscribers away from those other distributors to AT&T. However, HBO structures its largest MVPD contracts to use low or zero marginal cost "bands." As a matter of economic theory, this would be irrational if HBO pricing and promotional activity drove significant substitution between MVPDs because the MVPD rivalry would drive HBO consumer prices down, leaving no value for HBO to extract through an upfront fee. I note that Prof. Shapiro makes no claims as to how significant switching would be, but in order for there to be a significant harm, switching must be significant (i.e., if switching is not significant, then AT&T has little to gain from restricting other MVPDs' promotional use of HBO). Thus, the pricing structure itself provides evidence that undermines Prof. Shapiro's claims.

IX. PROF. SHAPIRO'S CLAIMS OF RISK FROM COORDINATION ARE INCORRECT

91. In this section I critique Prof. Shapiro's claim that there is a risk that coordination between AT&T and Comcast will result from this transaction and that competition will be harmed.[131] It is important to be clear as to what Prof. Shapiro does and does not claim in his report. He does not claim that there is any risk of coordination between any parties other than AT&T and Comcast; he does not claim that there is any risk of coordinated action with respect to rival MVPDs; he does not claim any harm to SVODs like Netflix; and he does not claim that there is any risk of withholding of Turner content from rival MVPDs. His claims extend only to

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[129] Carlton Report, pp. 103-104.

[130] Carlton Report, pp. 106-107.

[131] Shapiro Report, § 15.

VMVPDs and only to possible coordination between Comcast and AT&T. Even there, he does not claim that there is any risk of unilateral action by either firm to withhold content from VMVPDs (and in any event, any such claim would be demonstrably false in light of actual licensing agreements with VMVPDs who are further protected when their current contracts expire by AT&T contractual commitment). He also does not claim coordination would actually occur, only that there would be some unquantified risk that it might, and he does not claim substantial lessening of competition would result.

92. First, there is no risk to existing VMVPDs that already carry Turner content (which, at the time of writing, includes at least Sling, Vue, YouTube TV, Hulu, Spectrum TV, DIRECTV NOW and Comcast's Instant TV).[132] Prof. Shapiro claims, for example, that "Sling and Vue will be vulnerable as their contracts expire and they seek to negotiate renewals,"[133] but that is incorrect. Sling and Vue are both protected by AT&T's contractual commitment. AT&T <u>cannot</u> take Turner content away from Sling and Vue in their next negotiations, and the terms and conditions are subject to arbitration if there is a dispute, during which the VMVPD will continue to be able to offer Turner content. Prof. Shapiro questions how effective an arbitrator may be, but if the offered terms and conditions were so disadvantageous as to have a "major negative impact on the demand for" the VMVPD, as Prof. Shapiro claims,[134] that would presumably be readily apparent even to an imperfect arbitrator. And finally, Prof. Shapiro lists some factors that can facilitate coordination, but misses listing factors present here that hinder coordination, including differentiated products, different incentives across different companies, rapidly changing industry conditions including entry and expansion at all levels, contracts where pricing is not observable, and contracts negotiated at different times.[135]

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132 Carlton Report, pp. 56-57. I understand from counsel that YouTube TV has recently signed a license with Turner.

133 Shapiro Report, p. 82.

134 Shapiro Report, p. 84.

135 Dennis W. Carlton and Jeffrey M. Perloff (2005), *Modern Industrial Organization*, 4th edition, Chapter 5.

93. Prof. Shapiro also claims that there will be a significant number of VMVPD entrants in the next several years and that these entrants will be vulnerable.[136] This claim does not survive scrutiny. As I have previously discussed, multiple VMVPDs have entered without Turner content, so it is not at all clear that competition could be substantially harmed by withholding Turner. Also, any new entrant that wishes to launch a VMVPD is also protected by AT&T's arbitration commitment.[137] Furthermore, Prof. Shapiro cites documents discussing forthcoming entry by Amazon and Apple with VMVPDs.[138] Prof. Shapiro does not provide any basis to conclude that Amazon and Apple could be deterred from launching VMVPDs.

94. It is also important to note that Prof. Shapiro has never defined a product market consisting of only VMVPDs, so he must show a substantial lessening of competition in video distribution generally. Since there are typically at least three MVPDs in any given area, along with at least eight national VMVPDs, that means Prof. Shapiro would have to establish that disadvantaging or blocking a 12th entrant into video distribution would result in a substantial lessening of competition in the overall video distribution market. I am unaware of any study that demonstrates that blocking a 12th entrant would substantially harm competition.

95. Prof. Shapiro claims that "it is clear that this risk does not exist prior to the merger, since AT&T lacks the content necessary to engage in such behavior to benefit DTV."[139] However, this claim highlights how unlikely his theory is. Prof. Shapiro does not claim that AT&T would act against VMVPDs unilaterally today or even post-merger (other than through his bargaining model, which I have responded to above). As a matter of economic theory, AT&T, Comcast and Time Warner as separate entities could coordinate in the same way that Prof. Shapiro claims would occur post-merger, but Prof. Shapiro claims there is zero risk of that happening,

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136 Shapiro Report, p. 83.

137 I understand that AT&T has given sworn testimony that it is committed to make the arbitration remedy available to any new VMVPD not currently under contract.

138 Shapiro Report, note 318.

139 Shapiro Report, p. 88.

presumably due to the industry factors that I discussed in my initial report that raise the difficulty of coordination. Those same difficulties exist post-merger, however, as I return to below.

96. Nor does Prof. Shapiro establish that there is the likelihood it would be in the firms' interests post-merger to withhold content given the available gains from trade, other than to assert that AT&T and Comcast would benefit from having less competition from VMVPDs. Prof. Shapiro acknowledges that "in the vast majority of negotiations between major programmers and MVPDs, there are positive gains from trade—i.e., it is mutually beneficial for the MVPD in question to carry the programming in question, at least on some subscription tiers."[140] Prof. Shapiro does nothing to establish that there are not also positive gains from trade with VMVPDs and does nothing to establish that those incentives would not be the ones motivating a decision to trade. Indeed, given how differentiated VMVPDs are, it is quite likely that a VMVPD might be much more attractive as a business partner for, say, AT&T than to Comcast (or vice versa) since AT&T and Comcast have different interests (as I discuss next).

97. Also, given the existence of so many VMVPDs already, blocking a 12th entrant in the form of a VMVPD, as discussed above, would most likely simply result in those subscribers going to other VMVPDs. That is not a particularly attractive outcome for AT&T given the low margins on its DIRECTV NOW product.

98. Prof. Shapiro claims that AT&T and Comcast have a "common interest" in blocking VMVPDs.[141] However, he does not claim that the transaction will better align the interests of the companies, only that it will provide AT&T and Comcast with the ability to act upon those interests. Prof. Shapiro fails to recognize important ways in which the interests of AT&T and Comcast differ, particularly with respect to VMVPDs. In particular, as I discussed in my prior report, AT&T is heavily invested in mobile broadband, while Comcast is heavily invested in fixed (landline) broadband.[142] As I discussed in my prior report, VMVPDs are experimenting

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140 Shapiro Report, p. 40.

141 Shapiro Report, p. 85.

142 Carlton Report, p. 111.

with a range of differentiated offerings.[143] A VMVPD that offered a mobile-oriented service would be attractive to AT&T as a means of enhancing demand for its mobile broadband services, while a VMVPD that focused on ultra-high definition 4K content intended to be used over fixed broadband would be attractive to Comcast. Indeed, Comcast already offers Sling TV and Netflix directly on its set top boxes.[144] AT&T does not offer fixed broadband in the great majority of its video services footprint so it has a greater incentive than Comcast to be interested in the promotion of a VMVPD that focuses on mobile. Thus, AT&T would have less incentive to support fixed broadband oriented VMVPDs, but more incentive to support mobile oriented VMVPDs, and vice versa for Comcast. Also, even where AT&T has fixed broadband, it is generally slower than Comcast, so even there, AT&T is more focused on mobile. Some VMVPDs are also geographically limited (e.g., Spectrum TV), and again AT&T and Comcast's interests relative to VMVPDs would be different as their own geographic footprints are different.

99. Nor does Prof. Shapiro explain how AT&T and Comcast would overcome the practical difficulties of coordination, even if they were to agree that they wished to do so. I pointed out in my initial report that staggered contracts mean that any changes cannot be jointly implemented at the same time. One would have to do so and hope that the other one would follow suit, in some cases years later.[145] Prof. Shapiro acknowledges this to be the case, but suggests the firms could still coordinate for new VMVPDs.[146]

100. I also pointed out that the content that each firm owns post-merger would be quite different, making the costs and benefits of any alleged strategy to limit OVD access to content vary across these types of content, hindering prospects for coordination.[147] That is, the costs to AT&T and Comcast of withholding content will differ substantially, as will the potential benefits

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143 Carlton Report, pp. 55-57.

144 Carlton Report, p. 25.

145 Carlton Report, p. 111.

146 Shapiro Report, note 304.

147 Carlton Report, pp. 111-112.

given differences in VMVPDs' business plans. Prof. Shapiro provides no explanation as to how the parties would resolve these differences.

101. The difficulties are magnified further by the dynamic nature of the video content and distribution markets. Both markets are changing rapidly, as I have discussed, and changes in either market can have differential impacts on AT&T and Comcast, particularly in light of the differences in the content holdings and the distribution services and footprints. As I have noted in my textbook, if firms are selling identical products that can facilitate coordination, but that is not the case here.[148]

102. Prof. Shapiro suggests that AT&T and Comcast have frequent communications, facilitating coordination, and that it would be simple for the firms to detect a defection from coordination because the firms can easily observe whether a VMVPD is carrying Turner or NBCU content or not.[149] The presence of communications in no way addresses the industry dynamics and differences in incentives that I have described above, nor does it have anything to do with the merger. AT&T already negotiates regularly with NBCU, which is owned by Comcast, which negotiates with Turner. There already is communication among the entities that Prof. Shapiro claims will coordinate post-merger but according to Prof. Shapiro, they are unable to coordinate now despite the communications. I have already explained that withholding of Turner content is impossible to many current and future VMVPDs because of AT&T's contractual commitment, so observation of carriage is largely moot. That observation also offers no ability whatsoever to monitor with respect to any other terms and conditions.

103. Prof. Shapiro suggests that the presence of MFNs may provide a means of monitoring prices, but he mischaracterizes the effects of existing MFNs.[150] An MFN would only inform AT&T and Comcast if a VMVPD were to get better terms than AT&T and Comcast were

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[148] Carlton Report, p. 111.

[149] Shapiro Report, pp. 85-86.

[150] Shapiro Report, p. 86.

receiving, and Prof. Shapiro does not claim any VMVPD would be offered better terms with or without the merger. Hence, this would not be a useful monitoring device for coordination.

104. Overall, Prof. Shapiro's claim for coordination rests on the assumption that both AT&T and Comcast likely benefit if VMVPDs disappear. If correct, that of course is true pre-merger as well as post-merger. But he never shows that the coordination strategy to harm VMVPDs that he posits is likely post-merger and that it makes economic sense for AT&T and Comcast, particularly given the different interests of AT&T and Comcast and in light of the competitive facts of the marketplace.

105. The potential costs of such a strategy can be seen by looking at Prof. Shapiro's projections as to the development of VMVPDs. Prof. Shapiro cites projections that VMVPDs will grow from 4% now to 21% of U.S. households by 2022.[151] There are two implications regarding the reliability of Prof. Shapiro's methodology that follow from this projection. First, Prof. Shapiro ignores the constraining effect of the growth in VMVPDs on his estimate of a 0.19% increase in prices in video distribution. Second, attempting to withhold Turner content from additional entrants offers little in the way of potential gains but has substantial risk that Turner will not be present in that 21% of the market. Not all VMVPDs carry Turner even today. If Turner makes it more difficult for new VMVPDs to obtain Turner, that will encourage entrants to try business models that do not involve Turner, just as some VMVPDs have already done. If those VMVPDs are successful, Turner risks losing access to a large portion of television subscribers. For example, if a quarter of VMVPD subs in 2022 did not take Turner, that would mean Turner was foregoing serving roughly 6.8 million households, which at current rates would cost Turner roughly [redacted] per year in foregone revenues.[152]

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151 Shapiro Report, p. 81.

152 Prof. Shapiro cites an AT&T projection that VMVPDs will account for 21% of 130 million US households in 2022. *See* ATT-LIT-00969150, AT&T, Entertainment Group update, John Stankey, 2017, at 155 (cited by Prof. Shapiro on p. 81). Assuming that 25% of the VMVPD subs do not take Turner results in Turner foregoing service to 6.8 million US households (= 21% x 25% x 130 million US households). In 2017, Turner's affiliate

X. CONCLUSION

106. In Prof. Shapiro's submission in support of the DIRECTV/Fox transaction, he expressed the same types of concerns that I have articulated here—that the bargaining theory as stated always indicates upward pricing pressure, that the benefits of the merger, including double marginalization, should not be downplayed, that other constraints should not be dismissed, and that the predictions of the bargaining theory were inconsistent with actual industry experience and should not be taken seriously without substantially more empirical support. Here is what Prof. Shapiro said in that case.

> First, his bargaining theory proves too much. According to Professor Rogerson's version of the bargaining theory and vertical coordination, *every* (even partial) vertical ownership acquisition would lead to a significant danger of programming price increases by changing the threat point of the (partially) vertically integrated programmer. Coupled with his downplaying of the benefits of elimination of double marginalization and other efficiencies and his dismissal of the program access rules and the other constraints on anticompetitive coordination, his theory would seem to approach *per se* illegality for all partial vertical acquisitions by all cable programmers. This *per se* approach is also suggested by the fact that he does not provide any evidence that integrated cable programmers actually have previously acted in accordance with his concerns. (Alternatively he provided no explanation of why this transaction would lead to higher prices in this matter despite the fact that such an outcome has not previously been observed.) In the light of the significant vertical acquisitions that have occurred in this industry, we believe that Professor Rogerson would need to provide considerably more empirical evidence before the Commission should place any significant weight on his bargaining theory.[153]

107. In this case, Prof. Shapiro engages in the same activities that he criticized then: he advocates for the bargaining model, downplays the benefits of the merger, including double marginalization, dismisses other constraints, ignores relevant empirical evidence, and does not show that there is a statistical basis for his claim of harm.

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revenue and advertising revenue per month per subscriber was [redacted]. *See* Turner_Rate_Sub_Rev updated - 2010-Nov 2017_V2_1.2.18.xlsx; 2011-2017 Oct YTD Advertising Revenue by Network.xlsx. Thus, the total foregone revenues would be around [redacted] per year (= [redacted] x 6.8 million x 12).

153 Shapiro DIRECTV/Fox Reply Report, pp. 28-29.

108. Prof. Shapiro makes a number of errors in his estimation, and correcting those errors yields predictions of net benefit for the merger even using his flawed model. Even if Prof. Shapiro's estimates are taken as correct, he still predicts a net price increase of only 0.19% (less than 1%) of the average consumer price in video distribution, with a decline in the DIRECTV price to consumers. When one considers the other fundamental errors and omissions from Prof. Shapiro's theory and its implementation including his failure to confront the evidence on past vertical integration events, the logical flaw in his model because of its omission of the AT&T contractual commitment, and his failure to account for existing contracts and current margin data, the conclusion is inescapable. Prof. Shapiro has failed to demonstrate that there is likely to be a substantial lessening of competition in video distribution. Instead, the merger is likely to benefit consumers.

Dennis W. Carlton

Dennis W. Carlton

<u>February 26, 2018</u>

Date

APPENDIX A: MATERIALS RELIED UPON

Court Documents

Complaint, *United States of America v. AT&T, Inc., DIRECTV Group Holdings LLC, and Time Warner Inc.,* Case No. 1:17-cv-02511 (RJL), November 20, 2017

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APPENDIX B: TECHNICAL APPENDIX

Analysis of Comcast/NBCU Integration

Panel Regressions with DIRECTV and DISH data

109. To evaluate the effect of the NBCU integration event on DIRECTV and DISH jointly with panel regressions, I analyze prices paid by DIRECTV (DISH) for NBCU networks and other networks in January 2010 and January 2017 ([redacted]) using the following regression specification:[154]

$$\log(P_{i,t}) = \beta_1 D_{i,t}{}^{NBCU} + I_{DTV} + I_{DTV}(\beta_2 \log(Inv_{i,t}) + \beta_3 Rat_{i,t} + \alpha_i + D_{2017})$$

$$+ \ I_{DISH}(\beta_4 \log(Inv_{i,t}) + \beta_5 Rat_{i,t} + \alpha_i + D$$ [redacted] $$) + \varepsilon_{i,t}$$

Where:

- $\log(P_{i,t})$ is the natural logarithm of the affiliate fee (per subscriber, per month) for network *i* in year *t*.
- $D_{i,t}{}^{NBCU}$ takes the value 1 if the network is an NBCU network in 2017 ([redacted]) for DIRECTV (DISH) observations.
- I_{DTV} and I_{DISH} are indicator variables for DIRECTV and DISH observations respectively.
- $log(Inv_{i,t})$ is the natural logarithm of the programming investment; I use a three-year moving-average of programming investment to account for the fact that a network's price in any given year may be affected by investments in prior years. These data are published by SNL Kagan.

154 DISH's first new contract with NBCU after the Comcast-NBCU merger was signed in [redacted] which allows me to use the data from [redacted] to analyze the effect of the merger on DISH's prices.

- $Rat_{i,t}$ is the Nielsen prime time ratings variable for network i. As with programming investments, I use a three year moving-average of ratings to account for the fact that a network's price in any given year may be affected by the ratings in previous years.
- α_i is a network fixed effect, an indicator variable for each network which accounts for network-level, time-invariant unobservable characteristics for each network.
- D_{2017} is an indicator variable for 2017 for DIRECTV observations; D_{2014} is an indicator variable for [redacted] for DISH observations.

110. Following the approach in the Carlton Report, the regressions are based on the largest 50 networks in the DIRECTV and DISH data in terms of total affiliate fee revenue (across all MVPDs) in 2010 (2011).[155] Likewise, the regressions are weighted using each network's total affiliate revenues (across all MVPDs) in 2010 (2011) obtained from SNL Kagan. The standard errors in all regressions are clustered by the owner of the network. The results are reported in Table 1 of this Report.

111. Table 4 below shows the results using only DISH data for the largest 50 networks (weighted and unweighted, with and without ratings) that are analogous to the DIRECTV results reported in the first row of Table 15 in the Carlton Report. In no case is the estimated coefficient on vertical integration positive and statistically significant, as the Plaintiff's theory of harm implies.[156]

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155 See Carlton Report, note 195, for the top 50 network selection.

156 This conclusion is unchanged if I use the top 100 networks.

Table 4: Effect on Network Affiliate Fees of the Vertical Integration of Comcast/NBCU, Panel Data Regression – DISH Results

	(1)	(2)	(3)	(4)
	With Ratings		Without Ratings	
	Weighted	Unweighted	Weighted	Unweighted
Est. Impact (approx. pct. effect)	0.027	-0.010	0.019	0.015
Standard Error	(0.030)	(0.021)	(0.018)	(0.025)

Notes:

Standard errors in parentheses, clustered by owner.

* p<0.05, ** p<0.01

Top 50 networks are based on the largest 50 networks in DISH data in terms of the affiliate fee revenue in 2011 (see backup materials for networks excluded from top 50).

Dependent variable is the natural logarithm of network's affiliate fee per sub per month. Independent variables include a variable measuring the impact of vertical integration for the Comcast/NBCU event, network and year fixed effects, natural logarithm of the 3-year moving average of programming expenses. Regressions with ratings include 3-year moving average of prime time ratings; regressions use as weights the network's total affiliate revenues 2011 for DISH.

Sources: DISH: Rates [redacted]. SNL Kagan "TV Network Summary: Financial and Ratings," pulled January 11, 2018.

Cross-Sectional Regressions with DIRECTV and DISH data

112. To evaluate the effect of the NBCU integration event on DIRECTV and DISH jointly with cross-sectional regressions, I analyze prices paid by DIRECTV (DISH) for NBCU networks and other networks in January 2017 (January [redacted]) using the following regression specification:

$$\log(P_i) = \beta_1 D_i^{NBCU} + I_{DTV} + I_{DTV}(\beta_2 log(Inv_{i,2017}) + \beta_3 Rat_{i,2017} + \beta_4 Age_i + \beta_5 Genre_i)$$
$$+ I_{DISH}(\beta_6 log(Inv_{i}\text{[redacted]}) + \beta_7 Rat_{i}\text{[redacted]} + \beta_8 Age_i + \beta_9 Genre_i) + \varepsilon_{i,t}$$

where:

- $log(P_i)$ is the natural logarithm of the affiliate fee for network i in 2017 for DIRECT observations and in [redacted] for DISH observations.
- D_i^{NBCU} is the indicator variable for NBCU networks.
- Age_i is the network's age in months.
- $Genre_i$ are indicator variables for a network's genre: "Arts & Entertainment", "Family/Kids", "Film", "General/Variety", "International/Ethnic/Foreign Languages" (e.g., Bet), "Music", "News", "Niche Networks" (e.g., Comedy Central, Syfy, Food and HGTV), "Sports", and "Women's" (e.g., Lifetime)

113. All other variables are the same as defined above. I include multiple ratings variables in this specification to capture as much ratings-related variation in the cross-section as the data permit.[157] The results are reported in Table 2 of this Report.

114. Table **5** below shows results using only DISH data (weighted and unweighted) that are analogous to the DIRECTV results reported in the first row of Table 16 in the Carlton Report. In no case is the coefficient on vertical integration positive and statistically significant as the Plaintiff's theory of harm implies.[158]

Table 5: Effect on Network Affiliate Fees of the Vertical Integration of Comcast/NBCU, Cross Sectional Regression – DISH Results

	(1) Weighted	(2) Unweighted
Est. Impact (approx. pct. effect)	-0.197	-0.038
Standard Error	(0.098)	(0.120)

Notes:
Standard errors in parentheses, clustered by owner.
* p<0.05, ** p<0.01
Top 50 networks are based on the largest 50 networks in DISH data in terms of the affiliate fee revenue in [redacted] (see backup for networks excluded from top 50)
Dependent variable is the natural logarithm of network's affiliate fee per sub per month. Independent variables include a dummy variable for NBCU networks, natural logarithm of the 3-year moving average of programming expenses and 3-year moving averages of rating variables (prime time rating, 24 hours rating, natural logs of prime time and 24 hours delivery), dummy variables for network's genre as reflected in SNL Kagan, and network's age in months. Regressions use as weights network's total affiliate revenues in [redacted]
Sources: DISH: Rates [redacted]. SNL Kagan "TV Network Summary: Financial and Ratings," pulled January 11, 2018.

157 See Carlton Report, note 200.

158 This conclusion is unchanged if I use the top 100 networks.

Analysis of DIRECTV/Fox Integration

Panel Regressions with SNL Kagan Data

115. I analyzed the effect of the integration of Fox with DIRECTV following the methodology used in the Carlton Report. I used SNL Kagan data from 2002 through 2009 for this analysis and implemented the following regression specification:

$$\log(P_{i,t}) = \beta_1 D_{i,t}{}^{Fox} + \beta_2 log(Inv_{i,t}) + \beta_3 Rat_{i,t} + \alpha_i + D_t + \varepsilon_{i,t}$$

where:

$\log(P_{i,t})$, $log(Inv_{i,t})$, $Rat_{i,t}$, and α_i are the same as defined in the panel specification above.

- $D_{i,t}{}^{Fox}$ is the integration variable. Because of the staggered nature of the contracts and hence the gradual roll-off assumption discussed above, this variable takes on incremental values ranging between 0 and 1; it takes a value of 0 for 2002 and 2003, 0.2 for 2004 (first year of integration), 0.4 for 2005, 0.6 for 2006, 0.8 for 2007, 0.83 for 2008, and 0.63 for 2009 (Fox disintegrated with DIRECTV in February 2008).
- D_t is an indicator variable for each year.

116. The results in Table 6 below (weighted and unweighted, with and without ratings) show that in no case is the coefficient on vertical integration positive and statistically significant.[159] Thus, as with the other integration and disintegration events analyzed in the Carlton Report and this Report, I find no statistical support for Plaintiff's theory that vertical integration leads to higher content prices.

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159 These results are based on the largest 50 networks; my conclusion is unchanged if I use the top 100 networks.

Table 6: Effect on Network Affiliate Fees of the Vertical Integration of DIRECTV/Fox, Panel Data Regression

	With Ratings		Without Ratings	
	Weighted	Unweighted	Weighted	Unweighted
Est. Impact (approx. pct. effect)	-0.054	-0.039	-0.066	-0.069
Standard Error	(0.107)	(0.117)	(0.089)	(0.077)

Notes:
Standard errors in parentheses, clustered by owner.
* p<0.05, ** p<0.01
Top 50 networks are based on the largest 50 networks in SNL Kagan data in terms the affiliate fee revenue in 2002 in SNL Kagan data (see backup materials for networks excluded from top 50).
Dependent variable is the natural logarithm of network's affiliate fee per sub per month; Independent variables include a variable measuring the impact of vertical integration of DIRECTV/Fox event, network and year fixed effects, and natural logarithm of the 3-year moving average of programming expenses; regression with rating also include the 3-year moving average of prime time rating. Regressions use as weights network's 2002 total affiliate revenues (across all MVPDs) obtained from SNL Kagan data.
Sources: SNL Kagan "TV Network Summary: Financial and Ratings," pulled January 11, 2018.

Analysis of Viacom Loss at Suddenlink

117. Prof. Shapiro analyzes the effect on Suddenlink of Viacom's loss in October 2014 by computing changes in Suddenlink's total subscribers, new subscribers, and disconnects from before to after the Viacom loss, attributing the changes in these three metrics entirely to the Viacom event. He uses a combination of the results from his three regressions to arrive at a long term departure rate of 9.4%.[160] However, Prof. Shapiro completely ignores the trend in the MVPD industry as a whole which also shows an accelerated decline after the Viacom event. See Figure 2 of this report. Thus, by ascribing industry-wide changes in MVPD subscribership to the Viacom event, Prof. Shapiro overestimates his long term departure rate. When I simply account for industry-wide changes in Prof. Shapiro's three regressions, the long term departure rate falls to 4.8%.

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160 Shapiro Report, p. 128.

118. Prof. Shapiro used the following regression specification to estimate the new subscribers effect from the blackout, which is the primary driver of his results:[161]

$$New\ Subs^{Suddenlink} = \beta_0 + \beta_1 t + \beta_2 D^{Viacom} + \beta_3 (t \times D^{Viacom}) + m_{\mathrm{i}} + m_{\mathrm{i}} \times D^{Viacom} + \varepsilon$$

where:

- "t" is the time trend for the pre-loss period.
- D^{Viacom} is an indicator variable for the post-loss period.
- $t \times D^{Viacom}$ is an interaction term of the time trend and the post-loss period.
- m_{i} are seasonal dummies for months of the year (i = 2 … 12).

119. To account for industry-wide changes in new subscribers, I ran the following regression which replaces the dependent variable in Prof. Shapiro's specification by the ratio of Suddenlink's new subscribers to other MVPDs' new subscribers.[162] Thus, the estimate of the effect of Viacom's loss on Suddenlink now accounts for the overall industry trend that is unrelated to the Viacom loss.

$$\frac{New\ Subs^{\ Suddenlink}}{New\ Subs^{Other\ MVPDs}} = \beta_0 + \beta_1 t + \beta_2 D^{Viacom} + \beta_3 (t \times D^{Viacom}) + m_{\mathrm{i}} + m_{\mathrm{i}} \times D^{Viacom} + \varepsilon$$

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161 Prof. Shapiro uses four parameters to calculate the long term departure rate: "d", which is the departure rate in the first year caused by the loss of content; "x", which is the loss of new connects (which he also terms new subscribers) rate; a discount rate (5.75%); and "c", which is the annual churn rate (which Prof. Shapiro estimates for Suddenlink as 28.9%). Shapiro Report, Appendix D.

Prof. Shapiro's regressions on total subscribership and disconnects are used in the calculation of his "d" parameter that measures the departure rate during the first year caused by the loss of content. His new subscribers regression is used in the calculation of his "x" parameter that measures the loss of new connect rate due to the loss of content.

162 I used Prof. Shapiro's dataset to generate the variable for other MVPD's new subscribers which is the sum of industry new subscribers less Suddenlink's new subscribers. I do not necessarily endorse the accuracy of his dataset or his methodology.

120. Prof. Shapiro estimates an equation not just for new subscribers, but also for total subscribers and disconnects in order to estimate the blackout effect. He uses similar specifications to his specification above to estimate his total subscribers and disconnects regressions. I, therefore, re-estimate Dr. Shapiro's total subscriber and disconnects regressions after replacing the dependent variable with the ratio of Suddenlink's subscribers to other MVPD subscribers and the ratio of Suddenlink's disconnects with other MVPD disconnects, respectively. Using these corrected estimates for the Viacom effect and using Prof. Shapiro's methodology, the estimate for "d" changes from 1.5% to 1.9%, while the estimate for "x" changes from 10.4% to 5.0%, reducing Prof. Shapiro's estimate of long term departure rate from 9.4% to 4.8%.[163]

121. As a sensitivity check using an alternate functional form, I also estimate a log-linear model that is run on a stacked dataset that adds one observation for other MVPDs to the Suddenlink observation for each month. The regression specification is as follows:

$$\begin{aligned}\log(New\ Subs) = {} & \beta_0 + \beta_1 t + \beta_2 D^{Viacom} + \beta_3\left(t \times D^{Viacom}\right) + m_{\mathrm{i}} + m_{\mathrm{i}} \times D^{Viacom} \\ & + \beta_4 D^{Suddenlink} + \beta_5 t \times D^{Suddenlink} + \beta_6 D^{Viacom} \times D^{Suddenlink} \\ & + \beta_7\left(t \times D^{Viacom} \times D^{Suddenlink}\right) + m_{\mathrm{i}} \times D^{Suddenlink} + m_{\mathrm{i}} \times D^{Viacom} \\ & \times D^{Suddenlink} + \varepsilon\end{aligned}$$

where all the variables are the same as defined above and $D^{Suddenlink}$ is an indicator variable for Suddenlink observations.

163 Prof. Shapiro bases his estimate of "x" on the cumulative new subscriber loss at 12 months, although he also reports the figure for 27 months, which is slightly higher. Shapiro Report, Figure 21 and Appendix D. It is unclear why he uses the estimate at 12 months rather than 27 months. After correcting for the industry trends, "x" is lower at 27 months than at 12 months. If I had used the value of "x" at 27 months for this calculation, I would calculate an overall departure rate of 3.4%.

122. Using these corrected estimates for the Viacom effect and using Prof. Shapiro's methodology, I calculate that the estimate for "d" is 1.6%, the estimate for "x" is 5.5%, and the long-term departure rate is 5.1%.[164]

164 Again, if I had used the value of "x" at 27 months, I would calculate an overall departure rate of 4.6%

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