**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

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

EXPERT REPORT OF CARL SHAPIRO

2 February 2018

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1. Qualifications and Assignment

1.1 *Qualifications*

I am Carl Shapiro, Professor of the Graduate School at the Haas School of Business and the Department of Economics at the University of California at Berkeley, where I have been on the faculty since 1990. My curriculum vitae is attached as Appendix A.

I am an economist who has been studying antitrust, innovation, and competitive strategy for over 30 years. I have written a number of widely cited papers relating to the antitrust analysis of mergers, including my 1990 paper with Joseph Farrell in *American Economic Review,* "Horizontal Mergers: An Equilibrium Analysis," and my 2010 paper in *Antitrust Law Journal*, "The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years." My book with Hal Varian, *Information Rules: A Strategic Guide to the Network Economy*, has received critical acclaim for its application of economic principles to the information economy and has been widely read by managers and adopted for classroom use.

I have considerable experience with the application of economics for the purpose of enforcing the antitrust laws. I served during 1995–1996 and again during 2009–2011 as the Deputy Assistant Attorney General for Economics in the Antitrust Division of the U.S. Department of Justice. During 2009–2010, I also served on the working group responsible for updating the Horizontal Merger Guidelines. The Horizontal Merger Guidelines describe the approaches that the Department of Justice and the Federal Trade Commission use when evaluating whether and when mergers between competitors may harm competition.[1]

During 2011–2012, I had the honor of serving as a Senate-confirmed Member of the President's Council of Economic Advisers ("CEA"). The CEA, an agency within the Executive Office of the President, is charged with offering the President objective economic advice on the formulation of economic policy. The CEA bases its recommendations and analyses on economic research and empirical evidence, using the best data available to support the President in setting our nation's economic policy.

I have served on several occasions as an expert witness or consultant to the Antitrust Division or the U.S. Federal Trade Commission (FTC). Many of those engagements involved the evaluation of proposed or consummated mergers. I have also consulted or served as an expert witness on numerous antitrust matters, including mergers, for private companies in a wide range of industries. I am being compensated for my work on this case at a rate of $900 per hour. This compensation is unrelated to the outcome of this matter.

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[1]   Department of Justice and Federal Trade Commission, "Horizontal Merger Guidelines," August 2010, §1, available at http://www.justice.gov/atr/public/guidelines/hmg-2010.pdf.

1.2 *Assignment*

I have been asked by the Antitrust Division of the U.S. Department of Justice (DOJ) to evaluate the likely competitive effects of AT&T's acquisition of Time Warner.

1.3 *Materials Relied Upon*

My work on this matter relies on my professional training, my teaching, my research, my experience serving in government, and my experience consulting for private parties and government agencies. With the help of support staff, I have identified, examined and analyzed numerous documents and pieces of testimony relevant to this matter along with a number of data sources. 18.Appendix C includes a complete list of the data and materials that I have relied upon to form the opinions described in this report.

2. Summary of Opinions

At this time, I have reached the following conclusions:

- AT&T competes against other suppliers to distribute video programming to consumers, through AT&T's DIRECTV ("DTV") and U-verse TV services. This competition takes place in a relevant product market for "Multichannel Video Distribution." The leading suppliers in this market are Multichannel Video Programming Distributors ("MVPDs"), which include cable television companies such as Comcast and Charter, satellite broadcasters DTV and Dish, and offerings from telephone companies such as AT&T's U-verse service and Verizon's Fios service. The Multichannel Video Distribution market also includes Virtual MVPDs such as DIRECTV NOW and Sling TV that deliver their video packages over the internet. AT&T also competes in a somewhat broader relevant product market for "All Video Distribution" that also includes Subscription Video-on-Demand Services, ("SVODs") such as Netflix and Amazon Prime. Like Virtual MVPDs, SVODs deliver their video content over the internet but SVODs do not offer significant live sports or live news programming.

- Competition in the Multichannel Video Distribution market and in the All Video Distribution market takes place in many distinct geographic markets, defined below as "Local Footprint Overlap Zones." Together, these Zones cover the entire United States. For reasons explained below, my overall conclusions do not depend on precisely how these Zones are defined.

- AT&T and its rivals in the Multichannel Video Distribution market compete on the quality of their offerings. A key aspect of quality is the suite of programming that each supplier offers to its customers. AT&T and its rivals also compete on price. The price and quality that AT&T chooses for its MVPD service are substantially influenced by the competition it faces from rival MVPDs and Virtual MVPDs.

- An important component of a video distributor's ability to compete on price is its cost of obtaining the necessary rights to distribute video programming. The more a video

distributor pays to obtain these rights, the higher the price it will charge consumers for its video distribution service, all other things being equal.

- Time Warner controls a bundle of "Turner Content" and a bundle of "HBO Content," both of which it currently licenses broadly to AT&T and to other MVPDs. The Turner Content and the HBO Content are important to MVPDs for two reasons. First, an MVPD service that does not offer one or both bundles will be of lower quality than the service offered by rivals that do offer the content. Second, the cost of each bundle is large enough to be a significant portion of the MVPD's cost of programming, and hence to have a significant impact on the price that the MVPD charges consumers for its service.

- After acquiring Time Warner, AT&T would have the ability and incentive to negotiate higher per-subscriber, per-month ("PSPM") fees for the Turner Content from rival video distributors such as Comcast, Charter, and Dish. The mechanism by which this would happen is through the bargaining that takes place between Turner and MVPDs, as explained in some detail below. Put simply, after the merger AT&T will account for a cost of licensing the Turner Content to AT&T's MVPD rivals that the pre-merger Turner did not, namely that access to the Turner Content will make those rivals stronger competitors to DTV and U-verse. This higher cost will lead to a higher price when the Turner Content is licensed to Dish, Comcast, Charter, and AT&T's other MVPD rivals. Put differently, the merger would likely raise the programming costs of AT&T's MVPD rivals. This would weaken their ability to compete against AT&T and thus substantially lessen competition. These effects will arise over time as Turner negotiates new carriage agreements with MVPDs.

- AT&T's MVPD rivals would likely pass through to their subscribers, in the form of higher subscription fees, a large portion of the higher programming fees that they would pay post-merger for Turner Content. Significantly higher subscription fees directly harm consumers and reflect the substantial lessening of competition that the merger would cause.

- After acquiring Time Warner, AT&T would also have the ability and incentive to impose new restrictions on the ability of rival MVPDs to offer HBO as an inducement to attract new subscribers and to retain existing ones. AT&T would have this incentive because it is costly for AT&T when a rival MVPD induces a subscriber to switch away from AT&T's MVPD service. This consideration was absent prior to the merger when HBO negotiated with MVPDs and made decisions about how MVPDs could use HBO for promotional purposes.

- The merger would also likely give AT&T an incentive to lower at least some DTV and U-verse TV subscription fees. This is because attracting additional DTV and U-verse subscribers through a lower price would increase the total number of consumers who view the Turner Content. Prior to the merger, this effect is absent because AT&T does not receive Time Warner's profit from the Turner Content. In contrast, after the merger AT&T's profits will include margins from any new DTV and U-verse subscribers to the Turner Content. Accounting for these margins provides AT&T with an added incentive to attract new viewers of the Turner Content by reducing DTV and U-verse subscription

prices. Economists refer to this effect in a vertical merger as the elimination of double marginalization ("EDM").[2] Economists recognize that this pro-competitive EDM effect can be large enough in some vertical mergers that the net effect of the merger on consumers is favorable. However, that is likely not the case for the AT&T/Time Warner merger.

- The reason this pro-competitive EDM effect is limited in this case is that the Turner Content is already available to almost all MVPD subscribers. A decrease in DTV's or U-verse TV's prices would therefore have a relatively modest impact on the number of households with access to the Turner Content. This implies that the incentive created by the elimination of double marginalization is relatively small in the AT&T/Time Warner merger. The proposed AT&T/Time Warner merger is an *atypical* vertical merger in this important respect. Thus, the harm to MVPD subscribers in the United States caused by the higher fees paid by rival MVPDs for the Turner Content is likely to exceed the benefits to these subscribers created by the elimination of double marginalization.

- As the two largest MVPDs in the country, AT&T and Comcast share an interest in protecting their MVPD businesses from Virtual MVPD entrants. After the merger, AT&T and Comcast would each control video programming that is highly valuable to these new competitors. Thus, the merger would create a real danger that AT&T and Comcast would restrict access to the Turner Content and NBCUniversal content in order to slow the entry and growth of competing Virtual MVPDs.

My analysis at this stage does not account for efficiencies that may be associated with AT&T's acquisition of Time Warner, other than the elimination of double marginalization. In general, antitrust economists do not credit claimed merger synergies unless those efficiencies are: (1) likely to be realized following the merger, (2) merger-specific, and (3) not associated with anti-competitive reductions in output or service.[3]

3. The Merging Parties

3.1 *AT&T*

AT&T is the largest telecommunications company in the world, measured by revenues.[4] Headquartered in Dallas, Texas, AT&T sells video, internet, voice, and data services to

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[2] EDM refers more specifically to an effect from a vertical merger that arises from a post-merger alignment in the incentives of the upstream and downstream firms. To the extent that, pre-merger, the downstream firm does not take into account the negative effects of increasing its price on the upstream firm's sales and profits, a merger between the two firms would tend, all else equal, to create an incentive to lower the downstream price.

[3] *See, e.g.,* Horizontal Merger Guidelines, §10, "Efficiencies."

[4] AT&T, "Company Overview," last accessed Jan. 12, 2018, https://about.att.com/sites/company_profile ("We are the world's largest communications company by revenues.").

consumers and businesses through its fixed wireline, wireless, and satellite network.[5] AT&T reported over $163 billion in revenue in 2016.[6]

AT&T is the largest pay TV provider in the United States, serving over 25 million customers through three video businesses: DIRECTV, U-verse, and DIRECTV NOW.[7] DIRECTV, which AT&T acquired in 2015, provides video service via satellite technology to over 20 million subscribers throughout the entire United States, making it the largest satellite provider of TV entertainment.[8] U-verse video service, which is provided over fixed wireline connections through Internet Protocol Television ("IPTV") technology, had close to 4 million subscribers.[9] DIRECTV NOW service, an internet-based streaming video service launched in November 2016, has somewhat over 1 million subscribers.[10]

AT&T also provides broadband and internet services to approximately 13 million residential subscribers, using its wireline network.[11] Furthermore, AT&T is the country's second largest provider of wireless voice and data services, with over 138 million subscribers.[12]

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[5]   AT&T Inc. SEC 10-K for 2016, at 1, available at
      https://www.sec.gov/Archives/edgar/data/732717/000073271717000021/ye16_10k.htm.

[6]   AT&T 2016 Annual Report, at 10, *available at* https://investors.att.com/~/media/Files/A/ATT-IR/financial-
      reports/annual-reports/2016/att-ar2016-completeannualreport.pdf.

[7]   AT&T Inc. SEC 10-Q for period ending Sep. 30, 2017, available at https://investors.att.com/financial-
      reports/sec-filings (listing over 21.3 million U.S. satellite and over-the-top video subscribers and over 3.7 million
      U-verse video subscribers). SNL Kagan, "Operator Subscribers by Geography," last accessed Apr. 24, 2017,
      available at https://platform mi.spglobal.com/web/client?auth=inherit#industry/mediaCensusWrapper?ReportID=f3c5f1a5-
      6d6a-4bbb-8ccc-f3a3d8567c9f.

[8]   AT&T Inc. SEC 10-Q for period ending Sep. 30, 2017, at 28, available at https://investors.att.com/financial-
      reports/sec-filings (reporting 20.6 million satellite subscribers). AT&T Inc., "AT&T Completes Acquisition of
      DIRECTV" (press release, Jul. 24, 2015), available at
      http://about.att.com/story/att_completes_acquisition_of_directv html.

[9]   AT&T Inc. SEC 10-Q for period ending Sep. 30, 2017, at 24, available at https://investors.att.com/financial-
      reports/sec-filings.

[10] AT&T Inc. SEC 10-Q for period ending Sep. 30, 2017, available at https://investors.att.com/financial-
      reports/sec-filings. ("As consumers continue to demand more mobile access to video, we provide streaming
      access to our subscribers, including mobile access for existing satellite and U-verse subscribers. In November
      2016, we launched DIRECTV NOW, our newest video streaming option that does not require either satellite or
      U-verse service (commonly called over-the-top video service)."); AT&T Inc., "DIRECTV NOW Has 1 Million
      Reasons to Celebrate 1 Year of Service" (press release, Dec. 5, 2017), available at
      http://about.att.com/story/directv_now_1_million.html.

[11] AT&T Inc. SEC 10-K for 2016, at 5, available at
      https://www.sec.gov/Archives/edgar/data/732717/000073271717000021/ye16_10k.htm. ("High-Speed
      Internet—We offer broadband and internet services to 12.9 million residential subscribers. Our IP-based
      technology provides more advanced high-speed internet services.").

[12] AT&T Inc. SEC 10-Q for period ending Sep. 30, 2017, at 24, available at https://investors.att.com/financial-
      reports/sec-filings (reporting 138.8 million domestic wireless subscribers).

3.2 *Time Warner*

Time Warner Inc. is a media company that principally operates television networks and a film and television studio.[13] Headquartered in New York City, Time Warner creates and licenses a variety of video content, including TV shows, TV networks and movies, to multichannel video programming distributors, broadcasters, and theatrical exhibitors, among others, which in turn make this video content available to consumers.[14] Time Warner's corporate strategy is "to become the world's leading video content company."[15] In 2016, Time Warner reported over $29 billion in revenue.[16]

Time Warner has three business divisions: (1) Turner Broadcasting System, Inc. ("Turner"); (2) Home Box Office, Inc. ("HBO"); and (3) Warner Bros. Entertainment.[17] Time Warner reported 2016 revenue of $11.3 billion for Turner, $5.9 billion for HBO, and $13 billion for Warner Bros.[18] Time Warner also owns the CW broadcast network in a joint venture with CBS Corporation.[19]

3.2.1 Turner Content

Turner licenses substantial video programming content to video programming distributors, or MVPDs for short, as I discuss later. Turner's television networks include TNT, TBS, CNN,

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[13] Time Warner, "Company: A Leader in Innovation for More than 100 Years," last accessed Jan. 12, 2018, available at http://www.timewarner.com/company. ("Time Warner Inc., a global leader in media and entertainment with businesses in television networks and film and TV entertainment, uses its industry-leading operating scale and brands to create, package and deliver high-quality content worldwide on a multi-platform basis.").

[14] Time Warner Inc. SEC 10-Q for period ending Sep. 30, 2017, at 2-3 available at http://ir.timewarner.com/phoenix.zhtml?c=70972&p=irol-sec.

[15] Time Warner, "Company: A Leader in Innovation for More than 100 Years," last accessed Jan. 12, 2018. http://www.timewarner.com/company. ("Several years ago, we set out a strategy to become the world's leading video content company.")

[16] Time Warner Inc. SEC 10-K for 2016, at 5, available at http://phx.corporate-ir net/External.File?t=1&item=UGFyZW50SUQ9NjYzMzAxfENoaWxkSUQ9Mzc1NjcxfFR5cGU9MQ==.

[17] Time Warner Inc. SEC 10-Q for period ending Sep. 30, 2017, at 1-2, available at http://ir.timewarner.com/phoenix.zhtml?c=70972&p=irol-sec.

[18] Time Warner Inc. SEC 10-K for 2016, at 42-43 available at http://phx.corporate-ir net/External.File?t=1&item=UGFyZW50SUQ9NjYzMzAxfENoaWxkSUQ9Mzc1NjcxfFR5cGU9MQ==.

[19] Warner Bros, "The CW Television Network," last accessed Jan. 12, 2018. https://www.warnerbros.com/studio/divisions/television/cw-television-network. ("THE CW TELEVISION NETWORK launched in 2006 as America's fifth broadcast network, with programming targeting younger viewers, a demographic highly sought after by advertisers. A joint venture between Warner Bros. Entertainment and CBS Corporation, The CW broadcasts a five-night, 10-hour primetime lineup, Monday through Friday.")

HLN, Cartoon Network/Adult Swim, Turner Classic Movies, truTV, and Boomerang.[20] I refer to the packages of video programming that Turner licenses to MVPDs as "Turner Content."

Time Warner generates revenues from Turner Content principally by licensing its networks to MVPDs for a per subscriber license fee and by selling advertising on those networks.[21] In 2016, Turner earned approximately $5.2 billion in revenues from licensing Turner content to distributors.[22] In the third quarter of 2016, Turner earned margins higher than most other major cable networks.[23] Turner networks are popular with consumers, and there is no close substitute for the Turner Content as a whole. Turner Content includes 6 of the 40 most popular networks.[24] Turner's news network, CNN, for instance, is the highest rated news network in the Nielsen rankings for 18–49-year olds.[25] CNN reaches over 91% of all households with MVPD subscriptions.[26] Most of Turner's other networks also have household penetration rates between 85% and 90%.[27] Turner's networks are popular because they deliver diverse content that appeals

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[20] Time Warner, "Turner," last accessed Jan. 12, 2018, available at http://www.timewarner.com/company/operating-divisions/turner. ("Adult Swim, TBS, TNT and Cartoon Network rank among basic cable's top 10 networks among adults 18–49."); Time Warner Inc. SEC 10-K for 2016, at 3–4, available at http://phx.corporate-ir net/External.File?t=1&item=UGFyZW50SUQ9NjYzMzAxfENoaWxkSUQ9Mzc1NjcxfFR5cGU9MQ==. ("For the year ended December 31, 2016, Turner's TBS, TNT and Adult Swim were three of the top five primetime advertising-supported cable networks among adults 18–49 in the U.S., and Adult Swim was the top advertising-supported cable network in total day among adults 18–34 in the U.S.").

[21] Time Warner Inc. SEC 10-K for 2016, at 7, available at http://phx.corporate-ir net/External.File?t=1&item=UGFyZW50SUQ9NjYzMzAxfENoaWxkSUQ9Mzc1NjcxfFR5cGU9MQ==. ("Turner generates revenues principally from licensing programming to affiliates that have contracted to receive and distribute the programming to subscribers, the sale of advertising on its networks and the digital properties it owns or manages for other companies, and the license of its original programming and its brands and characters for consumer products and other business ventures.").

[22] TWI-LIT-00559018, at 049.

[23] TWI-LIT-00823099-115, at -106.

[24] TWI-LIT-00559018, at 048 (citing Nielsen viewership data);ATT-DOJ2R-03541555-595, at -562 (citing DTV internal viewership data).

[25] Time Warner Inc. SEC 10-K for 2016, at 7, available at http://phx.corporate-ir net/External.File?t=1&item=UGFyZW50SUQ9NjYzMzAxfENoaWxkSUQ9Mzc1NjcxfFR5cGU9MQ==. ("As of December 2016, CNN reached 92.3 million domestic television households as reported by Nielsen."); Time Warner Inc. Reports Third-Quarter Earnings Release for 2017, available at http://ir.timewarner.com/phoenix.zhtml?c=70972&p=quarterlyearnings, at 1. ("CNN also maintained its strength as the #1 news network among adults 18–49 in both primetime and total day, and had its most-watched third quarter ever among total viewers.").

[26] Time Warner Inc. SEC 10-K for 2016, at 7, available at http://phx.corporate-ir net/External.File?t=1&item=UGFyZW50SUQ9NjYzMzAxfENoaWxkSUQ9Mzc1NjcxfFR5cGU9MQ==. ("As of December 2016, CNN reached 92.3 million domestic television households as reported by Nielsen."). *See* Figure 19.

[27] *See* Figure 19.

to a broad base of consumers. AT&T, for example, believes that the Turner networks are strong in four important content categories: general, news, kids, and movies.[28]

Turner networks also air popular sports programming. High-profile, live sports programming generates significant subscription and advertising revenue for the Turner Content, most notably for TNT and TBS.[29] Turner has entered into a number of long-term contracts giving Turner the rights to distribute certain popular sports programming. Turner's current contracts give it the right to distribute the National Collegiate Athletic Association's ("NCAA") Men's Division I Basketball Tournament—known as "March Madness"—through 2032; selected regular season and playoff games for the National Basketball Association ("NBA") through 2025; selected regular season and playoff games for Major League Baseball ("MLB") through 2021; and selected tournaments from the Professional Golfers' Association ("PGA"), including the PGA Championship and Ryder Cup, through 2019.[30]

Live sports are a key component to Time Warner's competitive strategy.[31] Broadcasting popular sports has enabled Turner to secure high ratings for its networks, which has translated into significant increases in annual affiliate fees.[32]

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[28] ATT-DOJ2R-03541555-595, at -562.

[29] Time Warner Inc. SEC 10-K for 2016, at 6, available at http://phx.corporate-ir net/External.File?t=1&item=UGFyZW50SUQ9NjYzMzAxfENoaWxkSUQ9Mzc1NjcxfFR5cGU9MQ== ("Turner's sports programming helps drive value across its networks in the form of higher affiliate fees, ratings and advertising rates as well as more promotional opportunities.")

[30] Time Warner Inc. SEC 10-K for 2016, at 4, 6, available at http://phx.corporate-ir net/External.File?t=1&item=UGFyZW50SUQ9NjYzMzAxfENoaWxkSUQ9Mzc1NjcxfFR5cGU9MQ==. ("Turner's sports programming features licensed programming from the National Basketball Association ('NBA') through the 2024–2025 season, Major League Baseball ('MLB') through 2021, The National Collegiate Athletic Association (the 'NCAA') for the Men's Division I Basketball Tournament through 2032, and the Professional Golfers' Association ('PGA') through 2019.").

[31] TWI-02624264-275, at -273. ("We have invested heavily in 'must have' content, including premium sports rights and originals."); TWI-00000215-230, at -224. ("Sports content will remain a staple of the TNT and TBS programming lineups. Sports has been instrumental in achieving our recent affiliate renewals and delivering meaningful audiences of scale that advertisers seek.").

[32] TWI-02535298-309, at -307. (CEO John Martin: "And so if you look at the NBA playoffs, the NCAA championship and the Major League Baseball playoffs, a disproportionate amount of our sports are either playoff or tournament play, which is must-have."); TWI-02535298-309, at -307. ("And let's face it, the sports is one of the big reasons why we [Turner] are able to extract the type of affiliate rate increases that we are."); TWI-00000215-230, at -224. ("And as we approach affiliate renewals this year, these sports rights provide us with the base of must-watch content that should enable us to achieve our targeted rate increases."); TWI-02624264-275, at -272. (In 2016, Turner Sports had the "second most-viewed college basketball game in the history of cable television," the "most-viewed NBA regular season coverage across cable television" and TBS's "most-viewed [MLB] postseason coverage of all time"); Turner, "2017 MLB Postseason Drives Audience Increases Across All Turner Platforms," last accessed Jan. 30, 2018, available at https://www.turner.com/pressroom/united-states/turner-sports/mlb-tbs/2017-mlb-postseason-drives-audience-increases-across ("Overall, TBS's 2017 MLB Postseason coverage led the network to win the night eight times across all of cable television in primetime.").

Both AT&T and Time Warner consider Time Warner's networks to be highly valuable.[33] This importance is also reflected in Time Warner networks' share of AT&T's content spending. In 2017, Time Warner networks, including Turner Content, accounted for ▉ of AT&T's content expenditure.[34] As Figure 1 shows, this is just below the corresponding figure of ▉▉▉ content, just above ▉▉ content, and a much larger proportion of AT&T's content spending than any other programmers.

Figure 1: Proportion of AT&T's Content Expenditure by Programmer (2017)

Programmer	% 2017 programming costs
Disney	███
Time Warner	███
FOX	███
NFL	███
NBCUniversal (Comcast)	███
Viacom	███
CBS	███
Discovery	███
Other	███
Total	**100%**

Source: ATT-LIT-00761143, 62. Due to rounding, items in programming cost add up to more than 100%.

Other distributors also consider Turner's networks important as they compete for subscribers.[35]

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[33] TWI-02624264-275, at -272–273. ("Our portfolio consists almost entirely of 'must have' networks. … We have also invested heavily in 'must have' content, including premium sports rights and originals."); TWI-00000215-230, at -224 ("And as we approach affiliate renewals this year, these sports rights provide us with the base of must-watch content that should enable us to achieve our targeted rate increases."); ATT-DOJ2R-01057101-152, at 141 ("With the 'must-have' content of TW such as the large Warner Bros. film library and cable channels like CNN, TNT, TBS, HBO, Cartoon Network, etc., Google would be able to drive viewership to its platforms (online and mobile) and thus drive advertising revenue. In addition, Google could also create a library for a video store or subscription service."); ATT-DOJ2R-01172976-3003, at -2986 (HBO has "key original programming"); ATT-DOJ2R-02954709-750, at -722. ("Secure NFLST as the sports anchor along with key 'must-have' sports content (i.e., ESPN, Fox and Turner sports properties, league content, marquee RSNs)"); ATT-DOJ2R-02563373-387, at -378. (Time Warner has "Three of the top five basic cable networks," "'Must have' premium sports rights," and "World's #1 premium cable network.").

[34] *See* ATT-LIT-00761143, at -204. In October 2017, AT&T estimated that Turner Content accounted for approximately ▉ of AT&T's programming content spend ▉▉ billion of approximately ▉▉. billion). *Id.*, at -149, -153, and -156.

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Turner is also important for the success of Virtual MVPDs.[38] Turner considers its content to materially affect a Virtual MVPD's ability to attract and retain subscribers.[39] In an internal 2016 document, Turner ranked the importance of its networks for attracting customers as exceeding that of CBS, Viacom, Scripps, and a host of other network groups. The Turner networks ranked behind only the other major broadcasters, Disney, Fox, and NBCUniversal.[40]

3.2.2 HBO Content

HBO has approximately 43 million subscribers, of which over 1.5 million subscribers view content through HBO's over-the-top streaming service, HBO NOW.[41] HBO earns revenue principally by licensing two premium pay TV services—HBO and Cinemax—to MVPDs.[42]

HBO is widely recognized as "the leading premium pay [TV] network in the U.S." because of its large number of recently released top grossing films and the quality of its award-winning original

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[39] Rodrigo Orihuela and Gerry Smith, "YouTube Made a 'Big Mistake' Omitting CNN from Its Online TV Service, Turner Says," *Bloomberg Technology* (Mar. 1, 2017), available at https://www.bloomberg.com/news/articles/2017-03-01/youtube-made-big-mistake-omitting-cnn-from-bundle-turner-says (Turner CEO John Martin states "It's hard to imagine an attractive package without Turner.")

[40] TWI-01478361-375, at -372.

[41] Time Warner Inc. HBO Exhibit 3c-1 and 3c-2.

[42] Time Warner Inc. SEC 10-K for 2016 Annual Report, at 6 (Feb. 23, 2017) available at http://phx.corporate-ir net/External.File?t=1&item=UGFyZW50SUQ9NjYzMzAxfENoaWxkSUQ9Mzc1NjcxfFR5cGU9MQ==. ("Home Box Office owns and operates leading multichannel premium pay television services, HBO and Cinemax. Its businesses consist principally of premium pay television and OTT services domestically and premium pay, basic tier television and OTT services internationally, as well as home entertainment and content licensing.").

programming, including series like *Game of Thrones*.[43] HBO has exclusive long-term contracts for the rights to show during the "premium window" the theatrical releases created by three of Hollywood's six major film studios—Time Warner's Warner Bros. studio, Twentieth Century Fox, and Universal Studios, as well as Summit Entertainment.[44] In contrast, Showtime does not have contracts with any major movie studios.[45] The HBO brand is also very well established.[46]

HBO substantially leads Showtime and Starz along multiple metrics, including subscribership, brand affinity, viewership hours, and profits.[47] While the premium networks category as a whole has recently seen steep declines, HBO has largely defied this trend.[48] Between 2013 and 2016, its number of hours viewed per month per paying AT&T subscriber stayed relatively flat while hours for Showtime and Starz dropped ▇▇▇▇▇▇▇ respectively.[49] HBO also has not seen a decline in its subscribership or profits, which CEO Richard Plepler holds out as the best metric

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[43] June 2017 Update on Execution of Time Warner's Strategy, TWI-08192643-690, at -671-674. ("HBO remains the leading premium pay network in the U.S. and retains advantages in terms of its scale, global reach, distinctive original programming, long-term theatrical output deals, and brand. … Licensed theatrical films remain a key component of HBO's programming strategy as they comprise nearly 80% of HBO's linear schedule and viewing and over 70% of HBO's viewing across all platforms. In any given year, the films under HBO's output contracts typically represent approximately half of the top grossing films."); TWI-05039860-872, at -860. ("In 2015, HBO continued to have more subscribers, revenue and profits than Showtime and Starz combined and more than six times the adjusted operating income of Netflix.").

[44] June 2017 Update on Execution of Time Warner's Strategy, TWI-08192643-690, at -674 ("HBO will continue to maintain its strong slate of recently released theatrical programming through its exclusive output agreements with its major studios. Its output agreements with Fox, Universal and Summit are all secured into ▇▇▇▇ ▇▇▇▇ in addition to retaining exclusive movie rights to Warner Bros.' films.").

[45] Deposition of Michele Barney, Jan. 12, 2018, at 263: 9-18.

[46] HBO has referred to the "power of the HBO brand." TWI-06444858, at slide 29.

[47] TWI-02704384, Stephan Boulton-Wallace email to Simon Sutton, et al. July 18, 2016 ("Comcast HBO subscribers rate HBO significantly higher than subscribers of other premium channels rate those channels—across the board. They value HBO more in dollar terms, are more satisfied with HBO, rate HBO highest as the channel they would pick (if they could only pick one), and for Best Series and Best Movies."); ATT-DOJ2R-01230834-911, at -895, 2016 Altman Vilandrie study (Altman-Vilandrie study found that HBO was a "must have" for more than 30 percent of respondents, while other premiums were must haves for less than 25 percent of respondents); email from Stephen Boulton-Wallace to Plepler et al., June 21, 2016 (AT&T and DirecTV subscribers rate HBO "significantly higher (roughly 2–3x) than Showtime/Starz"); TWI-00000231-247, at -246. (HBO is on the top tier of networks for brand affinity); ATT-DOJ2R-03061562-569 at -563 (describing HBO as having the "Best brand name, most recognized" with the "overall best collection of content"); TWI-01507824-889, at -859. Richard Plepler HBO Strategy Update to the Board of Directors ("HBO continues to be, by far, the leading premium pay TV network" with "more subscribers, more revenue, and more profits than Showtime and Starz."); TWI-02691160-250, at -224, Doug Shapiro presentation to the Board (HBO is one of the most profitable TV networks in the world, and its profit in 2014 was almost ▇▇ greater than that of Showtime and Starz combined and more than four times that of Netflix); TWI-08007298-309 (Richard Plepler to Board of Directors) (HBO CEO Richard Plepler told the Board in April 2016 that HBO "retains significant competitive advantages over its premium pay television peers in terms of its scale, distinctive programming, and brand.").

[48] ATT-DOJ2R-11672535-554, at -553 (Ops Follow-ups deck) (showing that while Starz and Showtime viewing hours declined ▇▇▇▇▇▇ respectively, from 2013 to 2016, HBO hours declined only by ▇▇—less than a half-hour per month per subscriber); ATT-DOJ2R-10300483, at -508, J. Dyckes email to A.Goodman, Oct. 11, 2016, attaching Hanny Patel slides) (showing declines in premium viewership besides HBO).

[49] ATT-DOJ2R-11672535-554, at -553 (Ops Follow-ups deck).

for measuring its success.[50] Plepler favors these metrics because HBO's business model is based on quality over quantity of hours. The key is not "that people are watching the *most* hours, but that they want to be there regularly to see the *best* hours," and Plepler sees as "a distinction with an important difference" for a brand-based subscription service not reliant on advertising.[51] HBO's preeminence has persisted unabated even as SVODs such as Netflix have entered and grown.[52] Indeed, HBO regards these services as "complementary." HBO has found that households with SVOD subscriptions are more likely to subscribe to HBO than those without.[53]

HBO's prices and profit margins significantly exceed those of Showtime and Starz.[54] At retail, HBO cost $15–$18 per subscription per month in 2016, while other premium networks sold for $9–$15 (typically on the lower end) and SVODs for $8–$12.[55] HBO's wholesale rates are also much higher—often nearly double—than those of other premium networks.[56] AT&T in particular is willing to pay more for HBO than it is for other premiums.[57] Furthermore, MVPDs typically keep a much smaller portion of HBO's revenues than they do for other premium networks. DirecTV's 2016 margins were ▮▮▮ for HBO versus ▮▮▮▮▮ for Showtime and Starz.[58] Despite its significantly higher price tag for consumers and lower margins for MVPDs, HBO continues to be the leading premium network by subscriber count.[59]

4. The Structure of the Video Programming Industry

As the first step in my assessment of the competitive effects of the proposed merger between AT&T and Time Warner, I now discuss the structure of the video programming industry. This industry is commonly called the "pay TV ecosystem," which reflects the interrelationships

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[50] Deposition of Richard Plepler, May 10, 2017, at 101:12–102:10.

[51] Plepler Dep., at 101:12–102:10.

[52] Plepler Dep., at 98:10–99:14; *see also* TWI-01507824-889, at -859, June 2015, Briefing Book for Board Strategy Session (HBO overindexes in SVOD households, suggesting they are complementary).

[53] Plepler Dep., at 98:10–99:14; see also TWI-01507824-889, at -859, June 2015, Briefing Book for Board Strategy Session (HBO overindexes in SVOD households, suggesting they are complementary).

[54] TWI-02691160-250, at -224, Doug Shapiro presentation to the Board (HBO is one of the most profitable TV networks in the world, and its profit in 2014 was almost ▮▮▮ greater than that of Showtime and Starz combined and more than four times that of Netflix).

[55] As of 2016, HBO was priced between $14.99 and $17.99, while Showtime and Starz were each priced between $8.99 and $15. ATT-DOJ2R-11672535-554, at -549 (Ops Follow-ups deck). Today, a standard Netflix subscription is $7.99 for standard definition and $10.99 for high-definition, *See* Netflix, last accessed Feb. 2, 2018. https://www.netflix.com/#this-is-netflix., and Hulu Plus was priced at $7.99 with commercials or $11.99 without them. *See* Hulu, last accessed Feb. 2, 2018. https://signup.hulu.com/plans.

[56] In, 2016 DIRECTV's average costs were ▮▮▮ for HBO ▮▮▮ for Showtime, and ▮▮▮ for Starz plus Encore. ATT-DOJ2R-11672535-554, at -549 (Ops Follow-ups deck). TWI-02709766-838, at -766 (Charter, AT&T/DTV, and Comcast pays for HBO ▮▮▮▮▮, respectively).

[57] Barney Dep., at 270: 8-13.

[58] ATT-DOJ2R-11672535-554, at -550 (Ops Follow-ups deck) (showing HBO margin at ▮▮▮ and Starz and Showtime margins at ▮▮▮.

[59] ATT-DOJ2R-11672535-554, at -550 (Ops Follow-ups deck).

among the firms that create, bundle, and distribute video content.[60]

The pay TV ecosystem operates at three levels: video content creation (e.g., movie and television production studios), video content aggregation (e.g., basic and premium cable networks), and video content distribution (e.g., satellite video providers and cable companies).[61]

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[60] ATT-DOJ2R-08413268-276, at -271 ("The scale of DTV/ATT gives us the deepest content relationships in the industry. And as we are well aligned with the content providers with regards to maintaining a healthy pay-tv ecosystem."); ATT-DOJ2R-15242708-724, at -713 ("The scale created by AT&T's pending acquisition of DirecTV gives it significant presence in the rapidly evolving $300B video ecosystem"); TWI-00000200-214, at -202 ("Our strategy addresses underlying concerns – Improve value of pay TV ecosystem to consumers by combining best features of linear and SVOD"); TWX 2016 Annual Report, at 41 ("To address these changes, the Company's strategy over the past few years has focused on strengthening its position within the traditional TV ecosystem, enhancing the value of traditional multichannel video service subscriptions for consumers and affiliates and the value of television advertising for advertisers, and pursuing new opportunities outside the traditional TV ecosystem.").

[61] ATT-DOJ2R-03317825-830 ("The U.S. video industry is defined as the set of companies that create, aggregate and distribute video content to consumers in the U.S. … The industry value chain breaks down into 3 major steps – content creation, content aggregation and content distribution."); ATT-DOJ2R-09693472-556, at -483 ("Pay TV providers pay for programmed channels from content providers, which purchase programming from content producers"); ATT-DOJ2R-00628481-531, at -500 ("The way cable works is that a cable network group, such as Discovery or Viacom, will send signals for its group of networks to a satellite uplink facility, which will transmit the signals via satellite to various MVPD's around the county. Those MVPDs then combine other cable signals with broadcast feeds to form the Pay-TV package.").

Figure 2. Structure of the Video Programming Industry
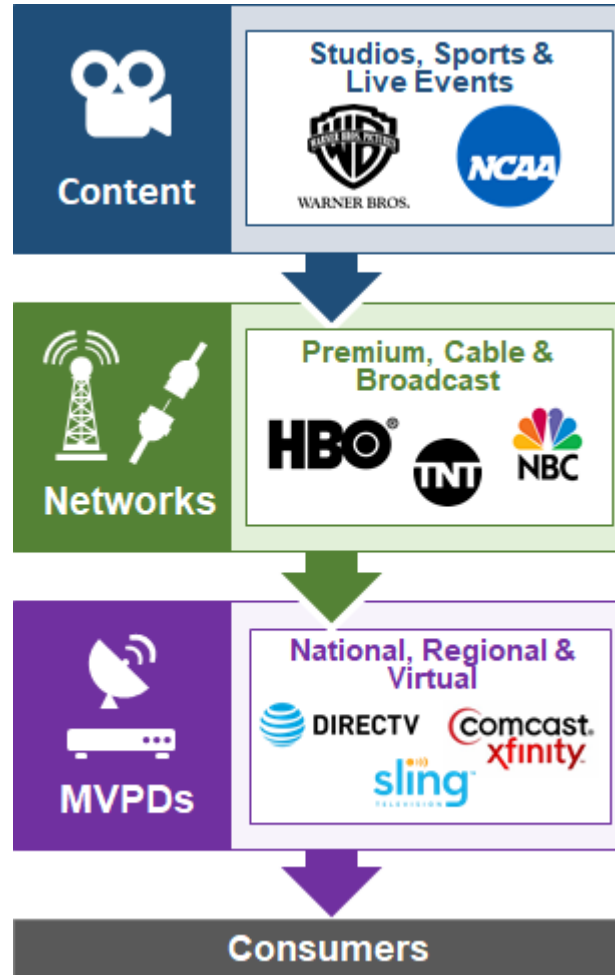
Americans watch a lot of television, and they pay a lot to have video programming delivered into their homes for viewing.[62] MVPDs earned an estimated $117.7 billion in subscription revenues during 2016,[63] and online video distributors earned an additional $20.7 billion in revenues.[64] Video content aggregators made an estimated $52.4 billion in affiliate revenues in 2016.[65]

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[62] ATT-DOJ2R-03317825-830 ("The industry generated approximately $300B in revenues and approximately $60B in profits during 2013.")

[63] SNL Kagan, "Multichannel Video Revenue Sets Course for Slide in 10-Year Outlook," (Dec. 12, 2017), available at
https://platform.mi.spglobal.com/web/client?auth=inherit#news/article?KeyProductLinkType=2&id=42903087.

[64] SNL Kagan, "The State of Online Video Delivery," 2017 ed., at 4, last accessed Oct. 20, 2017, available at
https://platform.mi.spglobal.com/web/client?auth=inherit#news/docviewer?id=42338608.

[65] SNL Kagan, TV Network Industry Benchmarks, last accessed Jan. 3, 2017, available at
https://platform.mi.spglobal.com/web/client?auth=inherit#industry/TvNetworkIndustryBenchmarks.

4.1 *Video Content Creators*

The process to deliver programming to households generally starts with professional production of video programming by television studios. There are six major studios: Warner Brothers, Universal Pictures, 21st Century Fox, Sony Pictures Entertainment, Walt Disney Studios, and Paramount.[66] These large studios and other smaller studios create original television programming.[67]

4.2 *Video Content Aggregators*

Video content aggregators acquire rights to exhibit video programming from content creators and bundle that programming into packages for distribution. They present these packages to consumers as a sequence of programming that is either scheduled to air either at a set time ("linear programming") or available to view on an on-demand basis ("non-linear"). The packages of "linear programming" are generally (and confusingly) known as "networks."[68] There are three different kinds of television networks: broadcast TV networks (e.g., ABC and NBC), basic cable networks (e.g., TNT and MTV), and premium cable networks (e.g., HBO and STARZ).[69]

- Broadcast TV networks are networks that feature a variety of news, sports and entertainment. Broadcast TV networks are typically carried by cable companies and also offered free "over-the-air" on Federal Communications Commission (FCC)-licensed spectrum through local affiliates to consumers.[70] WTTG, Fox 5 in Washington, D.C., is an example of local affiliate that airs a broadcast network's programming. The major national networks—ABC, NBC, CBS, and FOX—send various programming, such as morning and evening news and prime time and late night shows, to hundreds of local

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[66] ATT-DOJ2R-00829143-148, at -143 ("The industry has six major studios."). This number may reduce to five with the announcement of Disney's purchase of Fox's film and television studios. Disney, "The Walt Disney Company To Acquire Twenty-First Century Fox, Inc., After Spinoff of Certain Businesses, for $52.4 Billion In Stock" (press release, Dec. 14, 2017), available at https://thewaltdisneycompany.com/walt-disney-company-acquire-twenty-first-century-fox-inc-spinoff-certain-businesses-52-4-billion-stock/.

[67] ATT-DOJ2R-00829143-148, at -143-44 ("These six studios create both filmed entertainment content as well as content for television."); ATT-DOJ2R-12338339, slide 12 ("Six primary content producers supply the majority of TV programming to broadcast networks," specifically CBS Television Studios, ABC Studios, Fox Television Studios, Universal Television, Warner Brothers Television, and Sony Entertainment Television Studios).

[68] ATT-DOJ2R-00829143-148, at -144 (Programmers "license content from numerous content creators and aggregate it into a bundle for sale directly to consumers over the open internet, or more commonly, in the form of a 'network' that is sold to video distributors for resale to consumers as part of a broader pay TV offering.").

[69] ATT-LIT-04395234, at -236 ("There are three different types of networks within the network category – basic cable networks, premium cable networks and broadcast TV networks.").

[70] ATT-LIT-04395234, at -236 ("Broadcast networks are different from cable/premium networks in that they are broadcast over the air on spectrum licensed by the FCC. Content is broadcast over antennas in each market that are owned/operated by broadcast stations. Many of these stations are owned by the broadcast networks, but many are independent stations that are contractually obligated to broadcast content of their network 'affiliate.'").

affiliates to distribute with locally produced programming, such as local news, and other content over the public airwaves to approximately 15 million households.[71] Broadcast TV networks reach the vast majority of their customers through carriage agreements with MVPDs.

- Basic cable networks tend to be more specialized channels that offer 24-hour, linear programming, often dedicated to a particular genre like sports, news, cartoons, or movies.[72] Examples include ESPN, which focuses on live and recorded sports events; CNN, which primarily offers 24-hour news coverage; and Cartoon Network, which airs animated content and programming for children during daytime hours.

- Premium networks offer programming without advertisements and feature movies airing shortly after theatrical release, as well as original movies and shows such as *The Sopranos* and *Game of Thrones*.[73] Examples of premium networks are HBO, Showtime, and Starz.

Video content aggregators that focus on linear programming (also known as "programmers") earn revenue from their networks through a mix of advertising and subscription payments.[74] This mix varies widely across these networks. Broadcast networks offer programming free to consumers with antennas, but generate revenue by selling advertising spots to marketers and through retransmission fees paid to their affiliated stations by video content distributors.[75] Likewise, basic cable networks charge a PSPM fee, called an "affiliate fee," to video content distributors for the right to carry the network in the bundles of channels that they offer to subscribers.[76] Premium cable networks earn revenue through affiliate agreements, but not from

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[71] ATT-DOJ2R-00628481-531, at -495 ("Broadcast television is the oldest form of television distribution in the world and has been a mainstream form of content distribution in the US since the 1950's. … About 15mm homes in the US receive that signal for free, using a private antenna."). Distributors also pay broadcasters to retransmit their networks as part of a pay TV package.

[72] ATT-DOJ2R-00628481-531, at -500 ("The way cable works is that a cable network group, such as Discovery or Viacom, will send signals for its group of networks to a satellite uplink facility, which will transmit the signals via satellite to various MVPD's around the county. Those MVPDs then combine other cable signals with broadcast feeds to form the Pay-TV package. In return [for] the rights to distribute those channels to its customers, MVPD's pay the cable network groups affiliate fees."); ATT-DOJ2R-12338339, at slide 3 (separating pay TV channels into categories including General Interest, News, Kids and Sports).

[73] ATT-DOJ2R-00628481-531, at -502 ("Premium networks have existed since the early 80's, when HBO first got its start as a channel specializing in movies that air more quickly after theatrical release than on basic cable networks or broadcast (called the Premium Pay window).").

[74] ATT-DOJ2R-00628481-531, at -490 ("The TV business model is relatively straight forward. There are two primary forms of revenue: affiliate fees and advertising.")

[75] 47 C.F.R. § 76.64.); ATT-DOJ2R-00628481, at -492 (graphically displaying the "Retrans" fees that MVPDs pay to broadcast affiliates).

[76] ATT-DOJ2R-00628481-531, at -490 ("Affiliate fees … are paid by cable, satellite and telecom companies to TV networks for the right to redistribute those networks as part of a Pay-TV package.").

advertising.[77] In 2016, video content aggregators in total generated revenue of over $118 billion, split mainly between advertising and affiliate revenue.[78]

A handful of large, publicly traded video content aggregators own the majority of the top basic cable networks.[79] Due to the concentration of network ownership, the majority of affiliate fees are earned by a small number of video content aggregators with popular networks.[80] Figure 3 below lists top video content aggregators and the main basic cable networks that they own:[81]

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[77] The primary premium networks are HBO and Cinemax (Time Warner), Showtime and The Movie Channel (CBS), Starz/Encore (Lionsgate) and EPIX (MGM). ATT-DOJ2R-12338339, at slide 3.

[78] SNL Kagan, U.S. TV Network Industry Benchmarks, last accessed Jan. 3, 2017.

[79] ATT-DOJ2R-12338339, at slide 3; ATT-DOJ2R-00628481-531, at -494 ("The top 5 companies control ~70% of both affiliate fees and national advertising").

[80] ATT-DOJ2R-00628481-531, at -493 ("When all is said and done, the market for national advertising and affiliate fees is controlled by very few companies. … Affiliate fee share is dominated by those companies with sports and general entertainment networks ([Disney, Time Warner, Fox and NBCU])."); ATT-LIT-00761143, at slide 62 (showing concentration of AT&T's 2017 content spend on top programmers).

[81] ATT-LIT-04395234, at -235 The top six players—The Walt Disney Company, Time Warner, 21st Century Fox, Viacom, NBC Universal and Discovery—generate ~65% of content aggregator revenue and close to ~75% of profits.").

Figure 3. Basic Cable Networks Owned by
Large Content Aggregators

Content Aggregator	Major Basic Cable Networks
Turner	TBS, TNT, CNN, Cartoon Network/Adult Swim, TruTV, HLN, TCM
NBCUniversal	USA Network, MSNBC, CNBC, The Weather Channel, Bravo, E!, Syfy, NBCSN
The Walt Disney Company	ESPN, Disney Channel, Freeform, Disney Junior, Disney XD
21st Century Fox	Fox News, FX, Fox Sports 1, National Geographic Channel, Fox Business Network
Viacom	Nickelodeon/Nick At Nite, Comedy Central, MTV, VH-1, Spike, BET, CMT, TV Land
Discovery Communications	Discovery Channel, Investigation Discovery, Animal Planet, TLC, OWN
AMC Networks	AMC, IFC, BBC America, WE tv
Scripps Networks	HGTV, Travel Channel, Cooking Channel, Food Network, DIY Network
A&E Networks[82]	A&E, Lifetime, History, LMN

Source: ATT-LIT-00985676 - 699, at 683-697. SNL Kagan, "Cable Network Ownership, 2016," available at
https://platform.mi.spglobal.com/web/client?auth=inherit#news/docviewer?id=36980113; TWI-LIT-00559018-098, at 048.

To license these basic cable networks, video content aggregators negotiate affiliate agreements
with distributors, typically every three to seven years. As discussed below, these affiliate
agreements are complex contracts that include multiple negotiated terms, including price, length,
penetration, tier placement, channel placement, and digital rights.[83] These affiliate agreements
typically have escalator clauses that call for affiliate fees to increase automatically over time.[84]
The fees paid by MVPDs for programming have been growing significantly faster than the rate
of inflation, as depicted in Figure 4.

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[82] A&E Networks is a joint venture owned by the Walt Disney Company (50%) and Hearst Communications
(50%).SNL Kagan, "Cable Network Ownership, 2016", available at
https://platform.mi.spglobal.com/web/client?auth=inherit#news/docviewer?id=36980113.

[83] ATT-DOJ2R-00628481-531, at -502 ("Affiliate deals are complicated and involve a number of variables other
than simply price and length of term. … Example of negotiable terms may include: - Pricing – Length of
contract – Additional carriage of mid-tier nets – Advertising allotments – Channel placement – Digital rights")

[84] ATT-LIT-04395234, at -236 ("[Cable network] per subscriber fees are negotiated every 3-5 years and have
guaranteed price escalation clauses built into them."); ATT-DOJ2R-00628481-531, at -490-91 ("They are
contractually obligated, long-term in nature and have annual inflators built in. Affiliate fees are paid on a per
subscriber, per month basis, so as long as subscribers remain flat, revenue will grow by the contractually
obligated annual inflator amounts. … Annual Affiliate Fees = Fee/mo. X 12 X Subs.").

Figure 4. Growth in Programming Fees vs. Growth of the Consumer Price Index: 2009–2016

Source: SNL Kagan, "Cable Industry Overview 2017," available at
https://www.snl.com/web/client?auth=inherit#news/docviewer?id=40857390.
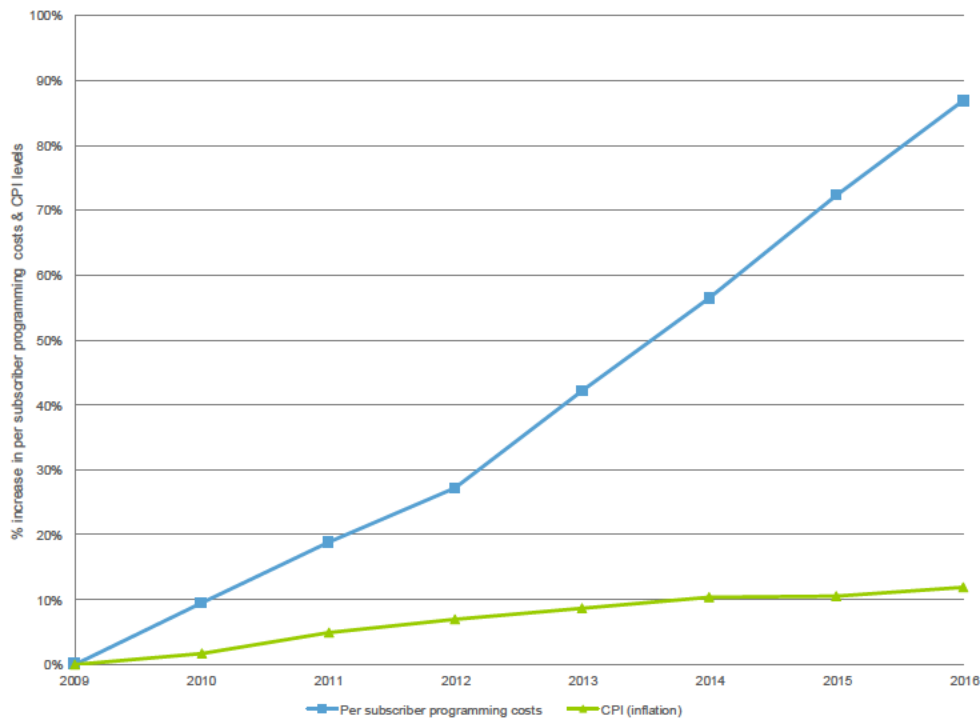
The affiliate fees earned by video content aggregators depend in large part on how much consumers value having access to the content they are licensing.[85] Networks with highly rated programming are very valuable to distributors as they compete for subscribers, which enables the owners of these networks to charge higher affiliate fees than owners of less popular networks. A video content aggregator can also gain wider carriage for its less popular networks by licensing

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[85] ATT-LIT-04395234, at -236 to -237 ("The key bases of competition in networks are a combination of scale and 'must have' content. ... For both cable networks and OTT players, must have content is a key driver of profitability. A network with only one or two hit shows can still extract meaningful affiliate revenue from distributors."); ATT-DOJ2R-09693472-556, at -492 ("A majority of 'must-have' content is held by a small number of owners … Top 6 Content Providers own over ~87% of 'must-have' content … The Top 6 content providers hold 31 of 40 must-have channels, granting them significant bargaining power"); ATT-DOJ2R-12338339, at slide 13 ("The highest quality content continues to be increasingly valuable"); ATT-DOJ2R-04180576-637, at -580 ("Pay TV Operators (MVPDs) … - Robust Live TV channel lineup, including 'must have' locals, entertainment, sports and news networks. (e.g. CBS, FX, ESPN, CNN, etc.)"); CHR2-DOJ-00000120715-734, at -715 ("The evolution of media favors scale players with must have sports content and broadcast reach."); ██ ATT-DOJ2R-09693472-556, at -492 ("Pay TV Providers must carry all 'must-have' content"). Deposition of David Levy, Jan. 17, 2018, at 129:24–130:11 ("And having quality premium sports as well as originals and acquired and everything else helps us have conversations about [] rate increases with our distributors.").

them together with its more popular networks.[86]

In addition to having the original broadcast of hit shows or highly rated live news programming, a leading reason a cable network demands high rates is the broadcasting of premium sports events.[87] Live sports events of both the professional and college variety are the most watched content on television, enabling programmers to charge the highest fees for sports content.[88] For example, Disney's sports network, ESPN, commands the highest affiliate fees among basic cable networks, estimated at nearly four times more expensive than the second place network, Turner's TNT.[89] Live sports events are important to programmers because they are more likely to be

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[86] ATT-LIT-04395234, at -236 to -237 ("Individual networks with high relative share in the genre in which they compete (e.g., sports, women's, family) make the network indispensable for pay TV distributors. As such the network can extract higher per subscriber fees from distributors."); ATT-DOJ2R-09693472-556, at -485 ("Demand for linear, live content, especially the Top 40 highest viewed channels ('must-have'), is the main reason why Pay TV providers have dominant share of revenue relative to alternative video providers"); TWI-02624264, at -273 ("In fact, of all programmer groups, Turner has the highest proportion of our nets among top 40."); TWI-08192643-690, at -647 ("As discussed with the Board last summer, we continue to focus on a few overarching strategic goals, including: 1) capturing share of affiliate and advertising revenue by expanding the distribution of our networks on bundles both inside and outside the traditional TV ecosystem, while improving the value of consumer experience of pay TV").

[87] ATT-DOJ2R-02003153-224, at -204-206 ("Live sports is holding the cable ecosystem together."); ATT-DOJ2R-02954709-750, at -724 ("ESPN & Turner sports services represent must-have content."); ATT-DOJ2R-07956271-277, at -277 ("'Must have' premium sports rights—NBA, MLB, NCAA."); TWI-01977720-724, at -720 ("Distribution: Premium sports drives value across linear networks—and enhances the must-have status of our network.").

[88] FCC Comment, filed by coalition including AT&T and DTV, Ex Parte Notice on Revision of Program Access Rules, MB Docket No. 12-68, at 2–3 (Sept. 25, 2012) ("The Commission and the courts have repeatedly recognized that live sports programming is highly valued by consumers, critical to competition, and impossible to replicate."); FCC Comment, filed by AT&T, Reply Comments on Revision of PA Rules, MB Docket No. 12-68, at 10–11 (Jan. 14, 2013) ("[T]he record contains plenty of evidence that such sports programming is inherently non-replicable, highly valued, and time-sensitive, whether televised regionally or nationally."); FCC Comment, filed by DirecTV, MB Docket No. 12-68, at 8–9 (Dec. 14, 2012) ("The characteristics that make RSNs critical to viewers (and thus ideal tools for anticompetitive acts) are related not the fact that they are 'regional' but rather to the fact that they carry 'sports'—i.e., programming that is non-replicable and for which there is no close substitute."); ATT-DOJ2R-01499214, at slide 8 ("Sports is the most watched and most valuable programming on TV (for live TV affiliate fees and advertising) Sports is must have live programming—bell-we[]ther content"); ATT-DOJ2R-01508519, at slide 11 ("Sports & Live Events attract most viewers."); TWI-00000215-230, at -216 ("Premium sports drove ratings, higher advertising revenues, and affiliate fees"); Levy Dep., at 160:11–20 ("Sports tends to be watched live. People don't watch the Super Bowl on Monday. They tend to watch it on Sunday when the event is there. So those live ratings hold up very well relative to other programming that people tend to wait on or binge or change their viewing habits to watch them."); SNL Kagan, "Economics of Basic Cable Networks," 2017 ed., at 65, available at https://platform.mi.spglobal.com/web/client?auth=inherit#news/docviewer?id=43044623&KeyProductLinkType =2 ("Our analysis shows that six of the top 10 cable networks with the highest license fees per subscriber are either entirely dedicated to sports or have some sports coverage").

[89] SNL Kagan, "Economics of Basic Cable Networks," 2017 ed., at 66 , available at https://platform.mi.spglobal.com/web/client?auth=inherit#news/docviewer?id=43044623&KeyProductLinkType =2 (estimating 2016 PSPM fee for ESPN at $7.04 and TNT at $1.84). TWI-LIT-00536725, at -732 ("Based on the current affiliate rate strategy, TNT will be the most expensive general entertainment network in 2018, trailing only ESPN, and TBS will be comparably priced to the broadcast networks").

watched live.[90] When commercials are not skipped, advertisers find the content more valuable.[91] Indeed, in 2016 talking points for a public presentation, Time Warner noted that "Premium sports programming drives audience and ratings growth, and continues to add value because consumers watch the product live across all screens."[92] Further, licensing rights to broadcast premium sports are expensive and scarce, as the rights to top sporting events like the NFL, NCAA basketball tournament, and the Olympics are under contract for extended periods.[93]

4.3 *Video Content Distributors*

Video content distributors obtain the rights to distribute video programming, including programming that has been aggregated into broadcast, basic cable and premium cable networks. Most American households access video programming by paying a monthly subscriber fee to a company that delivers many channels of video programming to their residence. These companies are called MVPDs.[94] Most MVPDs, along with their video product, also offer high-speed data and fixed line telephone services to subscribers. These services are offered both separately and in bundles. In 2016, the average PSPM fee charged by MVPDs offering these

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[90] ATT-DOJ2R-03221029-070, at -037 ("Live sports is the last bastion of appointment TV and continues to deliver top ratings, viewers and ad dollars - Sports costs continue to increase at higher rates than other programming (cable sports growing at 11%; RSNs at 8% between 2011–2015 - Buyers competing for 'must have' sports programming - Supply of 'premium' product is relatively fixed, causing prices to increase at extraordinary rates and secondary product to take on new relevance"); Merriam Webster, "Appointment TV" (visited Dec. 7, 2017), available at https://www.merriam-webster.com/dictionary/appointment%20TV ("television programming that people make time to watch at the time of its original broadcast because they have a strong desire to see what will happen or be done or said.").

[91] ATT-DOJ2R-01226345-393, at -348 ("Even with possible 'chinks in the armor' for live entertainment (e.g., LA Dodgers), live sporting events and special event productions (e.g., Grammys, Oscars) are still being consumed by younger generations and appear to be the only live content with staying power / less susceptible to time-shifting … Special Event Productions: Similar to live sports, certain live event productions (e.g., award shows) offer comparably high value / 'must have' content as well as strong customer following, largely complementary to sports viewership(e.g., Dick Clark Productions)"); ATT-DOJ2R-02003153-224, at -154 ("Live sports content is a key barrier to cord cutting.").

[92] TWI-02624264-275, at -273; *Id.* at -268 ("Television is the most effective option for advertisers to convey their message.").

[93] TWI-02535298-309, at -301 ("So at Turner alone, our programming spend is about $4 billion, about $1.5 billion of that is sports and the rest of it is spread around all our other networks."); TWI-08192643-690, at -670 ("Across the industry, most of the remaining top sports rights are locked up into the next decade, so our focus is on monetizing the existing rights, investing to grow Bleacher Report even faster, growing our eSports presence, and evaluating investments in the few top-tier sports rights (e.g., NFL Thursday Night Football) that may become available.") ███ ██ TWI-LIT-00536725, at 737 ("The NBA, and possibly a Thursday night NFL package, are the only major sports rights that will be coming available in the next 7 years").

[94] 47 U.S.C. § 522(13) ("'multichannel video programming distributor' means a person such as, but not limited to, a cable operator, a multichannel multipoint distribution service, a direct broadcast satellite service, or a television receive-only satellite program distributor, who makes available for purchase, by subscribers or customers, multiple channels of video programming").

three services ranged from $120 to $160.[95] For the same year, gross margin on video offerings was about 50%.[96]

Some households subscribe to an online video service by paying a monthly fee to a company that offers video programming that is delivered through a high-speed internet connection. These companies are called online video distributors ("OVDs"). They also are known as over-the-top ("OTT"), services, because they operate "over the top" of a broadband internet connection provided by a third party. OVDs fall into two main categories based on their business models: Virtual MVPDs ("vMVPDs") and SVODs. I now discuss each category of video content distributor.

4.3.1 MVPDs

MVPDs deliver multichannel video programming to households over dedicated cable and telephone networks and via satellite.[97] They include cable companies, telephone companies (telco) and direct broadcast satellite ("DBS") providers. Cable, DBS, and telco firms license broadcast, basic cable, and premium cable networks from video content aggregators, bundle those channels together, and sell them to consumers as a pay TV package.[98] MVPDs offer a variety of pay TV packages to subscribers. These pay TV packages can include anywhere from a dozen to several hundred basic cable networks, broadcast networks, several premium cable networks, and thousands of video-on-demand titles.[99]

As of the first quarter of 2017, approximately 94 million households in the United States subscribed to an MVPD service.[100] After recent consolidation, a handful of major MVPDs serve

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[95] ALT-00004943 and ALT-00010561; *CID_DOJ_Nov16TOoFeb17*; Comcast Exhibit 2.48-9; Cox-00022128; MC 000019 and DOJ-ATTTWX-EMAILS-014266; VZ-DATA3-000004.

[96] SNL Kagan, "Cable Industry Overview," 2017 ed., at 9.

[97] Unlike other content distributors, MVPD control the transmission path by which their programming reaches subscribers. ATT-DOJ2R-00829143-148, at -146 ("Content distribution is the sale of video content to consumers through proprietary infrastructure. The most common type of video content distribution is Pay TV. Pay TV distributors such as cable operators (e.g., Comcast), satellite providers (e.g.,Dish) and Telcos (e.g., AT&T U-verse) sell consumers bundles of video content through their coax, satellite and/or FTTN/FTTP architectures."). *See also* FCC, In re Sky Angel U.S., LLC, Order, DA 10-679 (Apr. 21, 2010) at ¶7, available at https://apps.fcc.gov/edocs_public/attachmatch/DA-10-679A1_Rcd.pdf.

[98] ATT-DOJ2R-00628481-531, at -500 ("The way cable works is that a cable network group, such as Discovery or Viacom, will send signals for its group of networks to a satellite uplink facility, which will transmit the signals via satellite to various MVPD's around the county. Those MVPDs then combine other cable signals with broadcast feeds to form the Pay-TV package.").

[99] FCC 18th Annual Video Competition Report, at ¶17 ("[T]he major MVPDs offer hundreds of linear television channels, thousands of non-linear VOD programs, as well as pay-per-view (PPV) programs."); FCC 18th Annual Video Competition Report, at ¶44, Table III.A.3 (Examples of MVPD Video Packages and Prices).

[100] SNL Kagan, U.S. Multichannel Industry Benchmarks, last accessed January 29, 2018, available at https://www.snl.com/web/client?auth=inherit#industry/multichannelIndustryBenchmarks. After many consecutive years of growth, MVPD subscription totals have declined in recent years.

the majority of subscribers in the United States.[101] Comcast, Charter, Cox, and Altice are the four largest cable companies. AT&T/DIRECTV and Dish are the two DBS providers. AT&T's U-verse and Verizon's FIOS are the two largest telco providers of MVPD service. Nationally, of the approximately 94 million MVPD subscribers, cable accounts for 54%, DBS for 34%, and telcos for 12%.[102] Figure 5 lists the number of subscribers served by these major MVPDs, as of December 2016.

Figure 5. Subscriber Counts for Leadings MVPDs

MVPD	Subscribers
AT&T/DirecTV	24,349,039
Comcast	21,387,389
Charter	16,708,245
DISH	10,909,981
Verizon	4,381,683
Cox	3,740,777
Altice	3,400,291
Mediacom	767,932
Other MVPDs	9,058,551
Total	**94,703,888**

Source: AT&T Exhibit 2.a.7.201612 ██████████████████████████████

████████████ ; SNL Kagan, "Operator Subscribers by Geography, last accessed Apr. 24, 2017.

Most households in the United States have three competing choices of MVPDs that serve their location: a cable company and the two DBS companies.[103] The two DBS operators, DIRECTV and DISH, offer MVPD service nationwide, although not every residence can receive satellite broadcasts.[104] Most consumers have only one cable MVPD option, as cable companies have

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[101] ATT-DOJ2R-00829143-148, at -146 ("The top five players account for approximately 75% of total revenue."). Outside of the largest MVPDs, hundreds of smaller cable and telephone company serve much smaller numbers of subscribers. FCC 18th Annual Video Competition Report, at ¶18 ("Fourteen cable MVPDs and three telephone company MVPDs (CenturyLink, Consolidated Communications, Cincinnati Bell) each had over 100,000 video subscribers.   In addition, there are hundreds of smaller cable and telephone company MVPDs that serve significantly smaller numbers of subscribers.").

[102] SNL Kagan, "Economics of Basic Cable Networks," 2017 ed., at 6, available at https://platform.mi.spglobal.com/web/client?auth=inherit#news/docviewer?id=43044623&KeyProductLinkType=2.

[103] FCC 18th Annual Video Competition Report, at ¶21 and Table II.A.2 (estimating that 99% of households have access to three MVPDs).

[104] FCC 18th Annual Video Competition Report, at ¶20 ("We assume that DBS is available to all housing units although we recognize that in reality physical features (e.g., tall buildings, terrain, and trees) prevent some housing units from receiving DBS signals, so our estimates slightly overstate the availability of DBS.").

franchise service areas that generally do not overlap.[105] In some geographic areas, a telco MVPD other than AT&T or a cable company "overbuilder" like RCN offers consumers a fourth competing MVPD.[106]

U.S. households pay MVPDs over $100 billion annually in subscription fees for access to pay TV packages.[107] The pricing of those pay TV packages by MVPDs is based primarily on content costs and competitor pricing.[108] As I discuss below, because content costs increase every year, with annual price escalators in many affiliate agreements, MVPDs generally raise their prices every year.[109] Competitor pricing limits an MVPD's ability to raise its prices, because too great a price differential will lead to subscriber losses.[110]

Nonetheless, as Figure 6 shows, since 2000, video-only subscription fees (or, Average Revenue Per User ("ARPU")) have consistently gone up faster than inflation, as measured by the Bureau of Labor Statistic's consumer price index.

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[105] FCC 18th Annual Video Competition Report, at ¶21 ("As a general rule, cable MVPDs exist in non-overlapping franchise areas and as a result generally do not compete directly with one another for the same subscriber, so most consumers have access to only one cable MVPD.")

[106] FCC 18th Annual Video Competition Report, at ¶21 ("At the end of 2015, we estimate that 17.9 percent of homes had access to four competing MVPDs, down from 38.1 percent in 2014 as a result of the acquisition of DIRECTV by AT&T.).

[107] SNL Kagan, "Multichannel Video Revenue Sets Course for Slide in 10-Year Outlook," (Dec. 12, 2017), last accessed Jan. 10, 2018.

[108] ATT-DOJ2R-01077240 (AT&T Entertainment CFO to CMO: "When we consider pricing and rate changes I think this it is important to compare competitive market value. If we can figure out a way to make the triple play more about mobile broadband or be more targeted where we have comparable speeds I think we should either be taking more share or improving margins with our current offers and given what the customer can get from the competition."); ATT-DOJ2R-02348106-244, at -127 ("330 basis point decline in video margins due to limited pricing flexibility and increasing content costs"); ATT-DOJ2R-01276363-376, at -365 ("Content Value & Video Pricing: As content costs continue to rise, low cost digital native content begins to emerge and the video value chain compresses, how should EG price and package its video service?"); ATT-DOJ2R-04202753-768, at -757 ("Guiding Principle for 2017 Price Increase. 1. Aim to cover programming cost increases through price increases"); ATT-DOJ2R-05082428-441, at -429 ("DISH, TWC, and Cox announced higher percentage increases relative to DIRECTV - Providers continue to cite high programming costs as reason for increases").

[109] Deposition of Mitchel Farber, Jan. 5, 2018, at 74:22-75:7; 77:11-79:21.

[110] ATT-DOJ2R-06968923-9030, at -953 ("Most lost IPTV Customers who dropped U-verse TV service because of a competitive offer cite the competitor offered a lower monthly price."); ATT-LIT-01102903-930, at -918 (expressing concern that AT&T's prices are higher than the "Video Reference Price" of $30–$40 and that "we need to rerate some of our linear video base to acquisition pricing to protect our market share"); ATT-DOJ2R-06409736-736 (February 2016 email exchange where an AT&T pricing executive stated that he did not expect AT&T to get as many new subscribers because "Comcast will match our pricing moves and bundle component changes which will dampen any lift assumptions we make based on the currently competitive environment"); ATT-LIT-00257878-909, at -880 (October 2017 presentation prepared for incoming AT&T Entertainment CEO John Donovan stating that "Price/Value is the dominant driver of video churn"); ATT-DOJ2R-06375193-206, at -194-196 (2016 Price Increase Analysis presentation comparing AT&T's price increases to its competitors, including DISH, Comcast, and Cox) Farber Dep., at 80:7–17.

Figure 6. Growth in Video ARPU vs.

Growth of the Consumer Price Index: 2000–2016

Source: SNL Kagan, "Cable Industry Overview 2017," available at
https://www.snl.com/web/client?auth=inherit#news/docviewer?id=40857390.
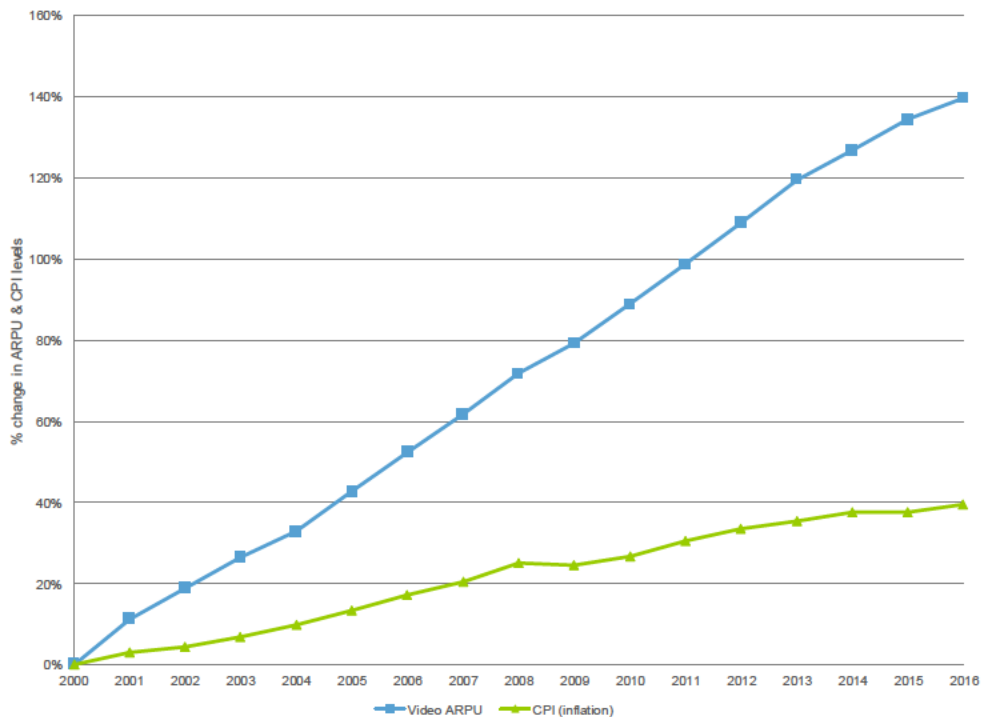
Many industry participants, including AT&T and Time Warner, predict that the pay TV
ecosystem will remain highly profitable for MVPDs. As AT&T CFO John Stephens explained
at a December 2017 investor conference, AT&T believes "the satellite business and the linear
TV business is going to be here for a long time."[111] In a July 2017 presentation, the CEO of
AT&T Entertainment Group, John Stankey, described traditional video as having a "relatively
long runway, despite changing market" with "attractive economics" and a "proven business
model."[112] In a comparison with the traditional MVPD model, Stankey also calls out the business
model for online video distribution as having "virtually no monetization proof points."[113]
Likewise, Turner's preparation for the annual television industry meetings on the upcoming
season in 2016 noted that the pay TV "Industry Distribution Ecosystem [Can] Support Higher

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[111] "AT&T's Management Presents at UBS Global Media and Communications Brokers Conference," (Dec. 5,
2017) available at https://seekingalpha.com/article/4129862-ts-t-management-presents-ubs-global-media-
communications-brokers-conference-transcript?part=single.

[112] ATT-LIT-01321385-431, at -419.

[113] ATT-LIT-01321385-431, at -419.

Affiliate Fees," in part because "MVPD's video businesses are very profitable and broadband is growing faster and even more profitable."[114]

4.3.2 Virtual MVPDs

Recent years have seen the emergence of a new type of video content distributor called a Virtual MVPD. Virtual MVPDs offer MVPD-like pay TV packages, with bundles of linear networks as well as on-demand content, that are delivered via the internet.[115] Some of these Virtual MVPD services, notably DIRECTV NOW and DISH's Sling TV, are offered by MVPDs. Other Virtual MVPD services, notably Sony's PlayStation Vue and Google's YouTube TV, are offered by other large media and technology companies.

One tactic that some Virtual MVPDs have adopted is to offer a smaller package of linear networks, also known as a skinny bundle.[116] For a lower price than the common MVPD bundle, which contains hundreds of channels, Virtual MVPD subscribers who pick a skinny bundle have access to fewer channels.

There are currently three leading Virtual MVPDs: Sling, DIRECTV NOW, and Sony Vue. As of December 2017, Sling has about ▮▮▮▮▮▮ subscribers,[117] DIRECTV NOW has about 1 million subscribers.[118] Sony Vue had roughly ▮▮▮▮▮ subscribers in December 2016.[119] Note that each of the top five MVPDs in Figure 5 above has more subscribers than all of these Virtual MVPDs combined.

4.3.3 Subscription Video on Demand Services

SVOD services offer subscribers access to on-demand streaming content through an internet website or a user application in exchange for a recurring subscription fee. Unlike MVPDs and Virtual MVPDs, SVODs do not generally offer live linear programming networks. Instead, they

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[114] TWI-02624264-275, at -272–273.

[115] Evolution Digital, "Are Emerging Virtual MVPDs Real Competition to Cable Operators" (blog), June 29, 2016, https://evolutiondigital.com/are-emerging-virtual-mvpds-real-competition-to-cable-operators ("New delivery systems, from DIRECTV (now part of AT&T) and DISH/Sling TV to PlayStation Vue, are also increasingly challenging the traditional cable business model. This is largely through the introduction of the so-called "skinny" bundle. The "skinny" bundle has been brought to the market by MVPDs as a way to win back consumers who were ditching their cable services in favor of streaming Video on Demand platforms at a fraction of the price. These slimmed-down, live streaming offers use the open Internet as an alternative to older delivery mechanisms.").

[116] For example, Sling's packages start at 25+ channels and go up to 45+ channels before add-ons and premium channels. *See* ATT-VOL-00000965-983, at -974. Currently, DirecTV's smallest MVPD package includes 150+ channels. *See* DirecTV Official Site, last accessed Jan. 11, 2018, available at https://www.directv.com/.

[117] ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

[118] "AT&T Chief Financial Officer Discusses 2018 Priorities at UBS Conference, (Dec. 5, 2017), available at http://about.att.com/story/att_chief_financial_officer_discusses_2018_priorities_at_ubs_conference.html ("AT&T announced earlier today that its over-the-top video service, DIRECTV NOW, passed the 1 million subscriber mark.") DIRECT NOW is not profitable for AT&T. Farber Dep., at 173:16-22.

[119] ▮▮▮▮▮▮

offer deep libraries of television shows and movies, as well as original or exclusive programming, for on-demand streaming and binge watching.[120]

Netflix, Hulu, and Amazon Prime Video are the most popular SVODs. Netflix has over 54 million subscribers.[121] Hulu is a joint venture of Time Warner, Disney, Comcast, and Fox and has about ▮▮▮▮▮ subscribers.[122] Amazon Prime Video is a subscription service offered by Amazon and is available both as part of the company's Amazon Prime service and as a standalone offering.[123] In the first quarter of 2017, SVOD revenues were nearly $8.5 billion, excluding Amazon Prime.[124]

4.3.4 Other Video Distribution Services

Some video content aggregators offer separate, direct-to-consumer OTT versions of their content for subscribers to access on demand without a pay TV package. HBO was the first premium network to make its services available in a standalone service, HBO Now. Other premium cable networks, notably Showtime and STARZ, followed HBO in offering OTT versions of their services.[125] CBS has launched a service called CBS All Access that streams both live CBS

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[120] In one notable exception, Amazon Prime Video, an SVOD service, signed a one-year contract to offer live sports programming, Thursday Night Football games, to subscribers in 2017. A.J. Perez, "Fox Joins NBC, CBS by Bidding for NFL's 'Thursday Night Football' Package," *USA Today*, Jan. 22, 2018, available at https://www.usatoday.com/story/sports/nfl/2018/01/22/fox-joins-nbc-cbs-bids-nfl-thursday-night-football-package/1054812001 ("Amazon paid $50 million to carry the games in 2017 and Twitter had the streaming rights in 2016.").

[121] Netflix 2017-Q4 Financial Statements (Jan. 22, 2018), available at https://ir.netflix.com/static-files/082b8ff6-b091-4c19-97a7-6b17a37316ab.

[122] ▮▮▮▮▮▮▮▮; "Time Warner Joins Hulu as Equity Owner and Signs Affiliate Agreement for New Hulu Live-Streaming Service to Carry Turner Networks," Press Release (Aug. 3, 2016) ("Time Warner joins The Walt Disney Company, 21st Century Fox, and Comcast in the joint venture."), available at www.hulu.com/press/time-warner-joins-hulu-as-equity-owner-and-signs-affiliate-agreement-for-new-hulu-live-streaming-service-to-carry-turner-networks/.

[123] FCC 18th Annual Video Competition Report, at ¶132 ("Amazon Prime Video is a subscription service that provides commercial-free, instant streaming to thousands of movies and television shows Consumers can subscribe to Prime Video by purchasing the company's Amazon Prime service for $99 per year. In 2016, Amazon gave consumers who do not subscribe to Amazon Prime the option to subscribe solely to its OVD service, Prime Video, on a standalone basis for $8.99 per month.)".

[124] TWI-08192643-690, at -655 ("At the end of the first quarter of 2017, there were nearly 120 million aggregate SVOD subscriptions in the U.S (up from approximately 100 million in the first quarter of 2016), generating nearly $8.5 billion in revenue (excluding Amazon Prime")).

[125] Adam Epstein, "Following HBO and Showtime, Starz Has Launched a Standalone Streaming App of Its Own," *Quartz*, Apr. 5, 2016, available at https://qz.com/655305/following-hbo-and-showtime-starz-has-launched-a-standalone-streaming-app-of-its-own/; Jeff Baumgartner, "Showtime Unleashes Stand-Alone OTT Service," *Multichannel News*, July 7, 2015, available at http://www multichannel.com/news/next-tv/showtime-unleashes-standalone-ott-service/391985.

programming and original content not available on CBS.[126] Another programmer, Disney, also plans to launch its own OTT service that will focus on ESPN and other Disney-owned content.[127]

4.4 *Competition Among Video Content Distributors*

Each MVPD competes against other MVPDs and against Virtual MVPDs to provide residential households with live, linear video programming. MVPDs compete to attract and retain subscribers of pay TV service in numerous ways, including pricing, programming, equipment, picture quality, and bundling the pay TV service with broadband internet access and telephone service.[128]

MVPDs compete actively on price, in part by offering promotional prices to acquire new subscribers.[129] MVPDs also offer price discounts to prevent subscribers from leaving, or "churning," to another video distribution service.[130] An MVPD that lacks popular content would be at a significant competitive disadvantage. According to one AT&T document, "Demand for linear, live content, especially the Top 40 highest viewed channels ('must-have'), is the main reason why pay TV providers have dominant share of revenue relative to alternative video providers."[131]

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[126] FCC 18th Annual Video Competition Report, at ¶163 ("CBS All Access allows users to watch CBS programming live online, as well as to access a library of CBS premium content, for a monthly subscription of $5.99 with commercials, or $9.99 for ad-free viewing.").

[127] Todd Spangler, "Disney's Streaming Disruptive Is Its New Netflix-Style Strategy, Really?" *Variety*, Aug. 9, 2017, http://variety.com/2017/digital/news/disney-espn-subscription-streaming-disruptive-netflix-1202520600/.

[128] FCC 18th Annual Video Competition Report, at ¶40 ("MVPDs may seek to differentiate themselves from one another as a means to gain a competitive advantage over competitors. Such tactics for differentiation include equipment technology, pricing, discounts for new subscribers, responses to increased programming costs, bundles, skinny video packages, TV Everywhere rights, integration of OVD services with MVPD packages, alternative OVD services for consumers who do not subscribe to an MVPD's traditional video services, Wi-Fi hotspots, and digital technology.").

[129] ATT-DOJ2R-01079631-642, at -637; Farber Dep., at 29:19-30:19. ATT-DOJ2R-04439699-729, at -703–704; ATT-DOJ2R-02497788-818, at -792–793; ATT-LIT-01159733-760, at -737–738; ATT-DOJ2R-04851920-978, at -927; Deposition of Lee Nusbaum, Jan. 23, 2018, at 150:15–17 ("[]Comcast aggressively responds to Verizon"). *See also* ██

[130] *See* Farber Dep., at 33:5-15, 37:11-21, 85:18-24; ATT-LIT-00257878-909, at -882 (John Donovan, "DTV Retention Update," Presentation for the incoming head of AT&T's distribution group, Oct. 26, 2017, stating "We have historically addressed churn with significant credit spend increases."); Deposition of Vince Torres, Jan. 12, 2018, at 60:12–22 ("So we would look at whether or not we were seeing changes in—in churn in a— within particular segments, and then we would vary the amount of credit that we would give—give the customers at different points in time."). ATT-DOJ2R-01079631-642, at -642 (proposed action plan to address churn includes increase of retention offers from $5 to $15 in Spectrum and Comcast markets and $5 to $10 elsewhere). *See also* ATT-LIT-00162482-492, at -486 (AT&T, "Reactive Retention Strategy" (presentation outlining retention strategy "evolving from large macro segments to personalized price points" Nov. 6, 2017).

[131] ATT-DOJ2R-09693472-556, at -477.

In recent years, MVPD subscribership leveled off and then declined slightly as Virtual MVPDs and SVODs have offered consumers a lower-priced means of watching video programming. The advent of these OVDs has caused some cord-cutting, where consumers drop their pay TV package entirely and rely solely on video programming provided over the internet. Some consumers have also engaged in "cord-shaving," where consumers reduce their pay TV subscription to a less-expensive package.

Online video distribution is very likely to continue to grow significantly in the coming years, as internet connections become faster and as the streaming of video content to mobile devices grows. However, based on recent experience and industry projections, any resulting decline in the popularity of pay TV packages will occur quite gradually.[132] According to AT&T, the pay TV ecosystem "is structurally well-protected with content owners holding the majority of supply and traditional MVPD distributors owning the majority of scale."[133]

5. Market Definition

The Complaint alleges that the transaction will have adverse competitive effects in two product markets: (1) the distribution of video programming by MVPDs and Virtual MVPDs (the "Multichannel Video Distribution" market) and (2) all forms of distribution of professionally produced, full-length video programming subscription services to residential customers (the "All Video Distribution" market).

The Complaint further alleges that the relevant geographic markets within which to evaluate the competitive effects of the proposed transaction are local areas across the country where consumers have the same video programming options available to them.[134]

In this section, I use standard antitrust analysis tools to determine whether these candidate markets identified in the Complaint qualify as relevant product markets.

5.1 *Relevant Product Market*

5.1.1 Candidate Multichannel Video Distribution Market

My primary method of testing whether the Multichannel Video Distribution market is a properly defined relevant market is the Hypothetical Monopolist Test ("HMT"). The HMT is the standard test that has been used by antitrust economists for some 35 years to determine whether a candidate relevant market is indeed a proper antitrust market. The HMT has been used in cases

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[132] AT&T Investor Briefing, Q3 2017 AT&T Earnings, slide 8 (at 20.8 million subscribers in Q3-2016 and 20.6 million in Q3-2017,DIRECTV subscribership essentially unchanged from 2016 to 2017).

[133] ATT-DOJ2R-02503958-988, at -959; *see also Id.* at 960 ("The $100B+ pay TV ecosystem is still well-protected… MVPD Revenues still account for more than half of U.S. video revenue, while OTT still accounts for only 6%").

[134] Complaint, at ¶30.

involving allegations of monopolization or restrictive agreements and in cases involving vertical mergers, as well as in cases involving horizontal mergers.[135]

Section 4.1.1 of the current Horizontal Merger Guidelines describes the HMT as follows:

> The Agencies employ the hypothetical monopolist test to evaluate whether groups of products in candidate markets are sufficiently broad to constitute relevant antitrust markets. The Agencies use the hypothetical monopolist test to identify a set of products that are reasonably interchangeable with a product sold by one of the merging firms.
>
> The hypothetical monopolist test requires that a product market contain enough substitute products so that it could be subject to post-merger exercise of market power significantly exceeding that existing absent the merger. Specifically, the test requires that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future seller of those products ("hypothetical monopolist") likely would impose at least a small but significant and non-transitory increase in price ("SSNIP") on at least one product in the market, including at least one product sold by one of the merging firms. For the purpose of analyzing this issue, the terms of sale of products outside the candidate market are held constant.

The SSNIP size is usually taken to be 5%.[136] As the Merger Guidelines explain, the HMT methodology focuses on price because price can often be quantified, and "not because price effects are more important than non-price effects."[137]

In other words, the test asks whether a monopoly, or a cartel of all the sellers, in the candidate relevant market would likely raise price as a result of having eliminated competition.

Economists have developed a method for implementing the HMT for a candidate relevant market based on two variables: (1) the percentage margin between price and incremental cost, $M = \frac{P-C}{P}$, where P is the prevailing price and C is the incremental cost, and (2) the "recapture rate," R, which is defined as the share of the sales lost by one supplier, when it alone raises its price, that are "recaptured" by other suppliers in the candidate market. This method relies on the economist's normal assumption that each firm sets its price to maximize profits.[138] According to this method, the HMT is satisfied if

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[135] Competitive Impact Statement, *U.S. v. Google Inc,* , No. 1:11-cv-00688 (D.D.C. Apr. 4, 2011), at 7, available at https://www.justice.gov/atr/case/us-v-google-inc-and-ita-software-inc; Complaint, *U.S. v. Comcast Corp.*, No. 1:11-cv-00106 (D.D.C. Jan. 18, 2011), ¶44, available at https://www.justice.gov/atr/case-document/complaint-68.

[136] Horizontal Merger Guidelines, § 4.1.2.

[137] Horizontal Merger Guidelines, § 4.1.2.

[138] This method is described in Michael Katz and Carl Shapiro, "Critical Loss: Let's Tell the Whole Story," *Antitrust*, Spring 2003, Daniel O'Brien and Abraham Wickelgren, "A Critical Analysis of Critical Loss Analysis," *Antitrust Law Journal,* 2003, and Joseph Farrell and Carl Shapiro, "Improving Critical Loss Analysis," *The Antitrust Source*, 2008. The formula in the text, which is from Proposition 1A in Farrell and Shapiro (2008), applies in a symmetric situation with single-product firms, when demand is linear in price for small changes from the pre-merger price. Farrell and Shapiro (2008) also explain how to handle relaxations in

$$R > \frac{2S}{M+2S}.$$

where S is the size of the SSNIP. The HMT is more likely to be satisfied, other things equal, the larger is the recapture rate and the larger is the price/cost margin are.

Now expressing the variables in percentages, with $S = 5$, this becomes

$$R > \frac{10}{M+10}.$$

For the margin, I use AT&T's average margin on its U-verse and DTV services, which is about ███.[139] See 18.Appendix I for the details explaining how this figure was calculated using data from AT&T. With this margin, a group of products will satisfy the HMT if the recapture rate is at least $\frac{10}{\text{███}10}$, which is equal to 25%.

As applied to the candidate Multichannel Video Distribution market, the HMT asks whether a single firm controlling all distribution of video programming by MVPDs and Virtual MVPDs in a specified geographic region would charge significantly higher prices to the households located in that region than those households are currently paying.

The HMT is satisfied for this candidate market if the recapture rate for DTV is at least 25%. In other words, the HMT is satisfied for this candidate market if, when DTV raises its subscription price a small amount, at least 25% of the subscribers it loses would switch to other MVPDs and Virtual MVPDs.

Documentary evidence from AT&T and other MVPDs clearly shows that this recapture rate is far greater than 25%. These documents show that recapture rate is more than 70%–80%.[140] This implies that the Multichannel Video Distribution product market passes the HMT and is a relevant product market. In other words, applying the HMT, I find that the video distribution services offered by MVPDs and Virtual MVPDs are sufficiently distinct from other products and services that customers in a given geographic region would be meaningfully harmed by the

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these assumptions. My conclusion regarding the relevant market does not rely on the assumptions of symmetry or linearity. Four litigated mergers where this formula has been used and accepted include *United States v. H&R Block, Inc.,* 789 F. Supp. 2d 74 (D.D.C. 2011); *United States v. Bazaarvoice, Inc.,* No. 13-cv-00133-WHO, 2013 WL 792643 (N.D. Cal. Mar. 4, 2013); *FTC v. Staples, Inc.,* 15-cv-02115 (D.D.C. May 17, 2016); and *United States v. Aetna, Inc.* No. 1:16-cv-01494-JDB (D.D.C. Jan. 23, 2017).

[139] *See* Appendix I for margin computation. Because I do not have access to accurate price data from AT&T, I use AT&T's cost data and internal documents that provide subscriber lifetime value estimates to derive prices and percentage margins. The resulting margin estimates are lower than what some AT&T documents suggest. *See* ATT-LIT-01315433-455. If the margins are higher, my calculations are likely to underestimate anticompetitive merger effects.

[140] *See* ATT-DOJ2R-06969063, (Nov. 2015); ████████████████████████████ ████████████. These documents show that some fraction of subscribers leave for a no-pay TV option. They do not consistently clarify what is included in the no-pay TV option. For instance, it appears that switching to a Virtual MVPD or switching out with the intention to return to a pay TV option within a few months is also referred to as no-pay TV. Subscribers switching to these options are staying within the candidate market. Accounting for them would increase the recapture rate I described above.

complete elimination of competition among all MVPDs and Virtual MVPDs in their region. That elimination of competition would significantly harm consumers, notwithstanding the presence of non-linear alternatives such as Netflix, Amazon, and Hulu.

Considerable additional evidence supports the conclusion that MVPDs and Virtual MVPDs compete most closely with each other and are distinct from other forms of video distribution. In particular, there is broad industry recognition that the distribution of video programming by MVPDs and Virtual MVPDs is a distinct product.[141] Industry analysts typically track subscribership separately for MVPDs and Virtual MVPDs and for SVODs.[142] For example, Nielsen, the most prominent media market analytics firm, measures television ratings separately for "content and ads delivered within the traditional live/linear TV model" and content delivered on demand.[143] The Federal Communications Commission (FCC) has also recognized in the context of its merger analysis that the distribution of multichannel video services by MVPDs is a relevant market.[144] This implies that MVPDs and Virtual MVPDs together also are a relevant

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[141] TWI-06449206, at 6 (January 2014 presentation distinguishing Turner's linear revenue from its digital revenue); TWI-02315046-072, at -052 (May 2016 Credit Suisse report contrasting "on-demand/library viewing," which "consumers may rationally subscribe to . . . in addition to their existing cable/DBS/telco video package" with "live streaming product[s]," which are "substitutes for MVPD subscriptions"); ATT-DOJ2R-01957020-023, at -020–021 (October 2016 Barclays report distinguishing between the on-demand online video models of Netflix and Amazon Prime and the "skinny linear model" of service like Sling because the on-demand services "lack[] key live non time-shifted programming, especially live sports"); TWI-06394889-900, at -890-891 (March 2015 Barclays research report stating that households with SVOD subscriptions "still need[] to subscribe to a MSO bundle to access premium content, especially sports," and that the emergence of virtual MVPDs may lead some of these households to "start peeling away from the MSO bundle altogether"); TWI-07794908-910 (May 2016 BTIG analysis discussing competition among MVPDs and virtual MVPDs); Charter SEC 10-K for 2016, at 11–12 ("We have viewed online video services [like Netflix] as complementary to our own video offering . . . . As the proliferation of online video services grows, however, services such as DirecTV Now and potential forthcoming services such as Hulu Live, and new direct to consumer offerings, could negatively impact the growth of our video business."); TWI-LIT-00559018, at 050-052 (showing "Multi-channel universe", "Virtual MVPD landscape" and "Dueling Ecosystems" of MVPD Ecosystem and SVOD "Engagement Ecosystem").

[142] ATT-LIT-00910685-765, at -757 (2017 report by TDG estimating the market share of "Legacy MVPD" households and "Virtual MVPD" households); ATT-LIT-01252709-762, at -730 (Sept. 2016 UBS report showing Virtual MVPDs as part of "pay TV"); Leichtman Research Group, Research Notes 3Q 2017, at 6, available at http://www.leichtmanresearch.com/research.html (last accessed Oct. 10, 2017); *see also* Nielsen, National TV Toolbox Online Help Release 7.3.4, at 13-258 (Aug. 29, 2016), available at http://en-us.nielsen.com/sitelets/cls/documents/npower/National_TV_Toolbox_Online_Help7-3-4.pdf (last visited Jan. 30, 2018) (distinguishing between "linear" and "non-linear" telecasts); TWI-07914669-722, at -696 (September 2016 UBS report describing MVPDs and Virtual MVPDs as both part of "pay TV"); ██████████████

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[143] *See* Nielsen, "Total Content Ratings," available at http://www.nielsen.com/us/en/solutions/capabilities/total-content-ratings.html (last accessed Jan. 30, 2018).

[144] *Charter/ TWC FCC Order* at 68, ¶146 (finding that multichannel video programming service as offered by all MVPDs is a relevant product market); *ATT-DIRECTV Order,* 30 Rcd at 9159-60, ¶68 (same); *Comcast-NBCU Order*, 26 FCC Rcd at 4255-56, ¶40 (same); *News Corp.-Hughes Order*, 19 FCC Rcd, at 501, ¶53 ("For the

product market. Furthermore, evidence from MVPDs distinguish between the distribution of video programming by MVPDs and Virtual MVPDs and the distribution of content by other kinds of platforms, like SVODs.[145] Many AT&T documents identify MVPDs and Virtual MVPDs as offering closer substitutes for its own services than SVODs.[146]

5.1.2 Candidate All Video Distribution Market

As applied to the candidate All Video Distribution market, the HMT asks whether a single firm controlling all distribution of professionally produced video programming to residential customers in a specified geographic region would charge significantly higher prices to the households located in that region than those households are currently paying.

Since the candidate All Video Distribution market is broader than the Multichannel Video Distribution market, the recapture rate calculated for the All Video Distribution market is at least as large as the recapture rate calculated for the Multichannel Video Distribution market. Therefore, since the HMT is satisfied for the Multichannel Video Distribution market, the HMT also is satisfied for the All Video Distribution market.

Considerable evidence again corroborates the results of the HMT. AT&T itself regularly distinguishes among, on the one hand, content for MVPD, virtual MVPD, and SVOD distribution and, on the other hand, content for different types of distribution. For example, AT&T Entertainment Group CEO John Stankey testified that professionally produced content "is

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purpose of analyzing the competitive effects of the transaction before us we may again safely presume that the relevant downstream product market is no broader than the MVPD market.").

[145] ATT-LIT-00245816-846, at -824 (August 2017 Video Deep Dive presentation describing competition from traditional MVPDs and Virtual MVPDs, including that "Live TV OTT Presents Viable Alternative for Part of the Market"); ATT-LIT-01317780-787, at -785 (November 2017 presentation reporting 3Q 2017 video and broadband results, including AT&T's MVPD and Virtual MVPD competitors); TWI-08192643-690, at -651 (June 2017 management update to Time Warner board describing "Pay TV Video Subscribers" as traditional TV subscribers and Virtual MVPD subscribers);ATT-DOJ2R-06632076, at 8 (October 2016 AT&T presentation titled "Video Marketing Overview," comparing "Niche Products (Complementary)" like Netflix and Hulu with "Bundled Products (Substitute)" like Sling and PlayStation Vue); ATT-DOJ2R-01289420-473, at -467 (distinguishing between "substitute" services like Sling and "complement" services like Netflix and Amazon Prime); CHTR-SUBP-001892, at 8 (May 2017 strategy presentation comparing programming lineups and prices across Charter's MVPD and Virtual MVPD competitors).

[146] ATT-DOJ2R-06579475, at 8 (describing SVODs Netflix and Hulu as complementary and Virtual MVPDs Sling and Playstation Vue as substitutes); ATT-DOJ2R-SPEC19-011095-114, at -109 (noting that "Internet delivered video remains fairly complementary to Pay-TV, with 70–75% of streamers also having Pay-TV subscriptions"); ATT-DOJ2R-01289420-473, at -454 (An assessment of "Competitive Benchmarks: Sub Volume & Churn" identifying SVODs as complements and vMVPD Sling TV as substitute); ATT-DOJ2R-02362482-517, at -487 ("OTT continues to serve largely as a complement to, rather than substitute for, traditional pay-tv"); ATT-DOJ2R-01411742-746, ("Netflix is broadly adopted and is a complement to MVPD services."); ATT-DOJ2R-01983250-337, at -257 ("OTT is additive to the ecosystem."); *Id.* at 10 ("OTT complements pay TV, expands pie."); ATT-DOJ2R-SPEC19-011095-114 (70%–75% of internet video streamers also have a Pay-TV subscription); ATT-DOJ2R-13200468-503, at 471-472 (AT&T Marketing Update predicts that Virtual MVPDs will capture about 12% of households by 2021, while conventional MVPDs lose about 12%); ATT-DOJ2R-12896135-139 (J. Britton email lists "implications of a robust OTT virtual MVPD marketplace," including "Drives TV Prices down," and reduces "MVPD leverage in a programming dispute").

done at a higher level of caliber that brings a certain advertising quality to it that you might not see in a digital native content like what you might find on YouTube or elsewhere."[147]

Numerous documents corroborate Mr. Stankey's testimony. For example, AT&T consults industry data on "professionally produced content" when looking at market trends.[148] AT&T regularly tracks competition with other distributors of professionally produced content: MVPDs, Virtual MVPDs, and SVODs.[149] Time Warner likewise monitors its performance compared to other aggregators of professionally produced content.[150]

5.2 *Relevant Geographic Markets*

As discussed below, consumers throughout the United States will feel the effects of the proposed merger between AT&T and Time Warner. However, these effects will vary from one geographic region to another, based on which MVPDs serve that region and their market shares within that region. For that reason, it is useful and informative to divide the country into a number of local geographic markets for the purpose of reporting the competitive effects of the proposed transaction. However, the precise boundaries of these geographic markets are immaterial for my analysis, since my estimate of harm to consumers caused by the merger does not depend materially on how these boundaries are drawn, so long as one accounts properly for differences in competition in different geographic areas, which requires sufficient granularity.

As described in the Horizontal Merger Guidelines, geographic markets may be defined for both the Multichannel Video Distribution product markets and for the All Video Distribution product market based on the locations of customers.[151] The two key conditions necessary to define geographic markets based on the location of customers are satisfied here: (1) suppliers can identify a customer's location and set its price based on that location, and (2) customers cannot

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[147] Deposition John Stankey, Dec. 20, 2016, at 71:6–72.25.

[148] ATT-DOJ2R-12344056-377, at -153 (citing SNL Kagan data on "professionally produced content"); ATT-DOJ2R-01271965-990, at -967 (2014 Nielsen report introducing its "Total Audience Rating" service to capture viewership across more devices and stating that "consumer demand [for watching on new devices] is not changing the appetite for quality, professionally produced content").

[149] ATT-DOJ2R-01930503-533 (tracks offerings from Verizon Fios, Dish, Comcast, TWC, Optimum, Charter, and Cox); ATT-DOJ2R-00047075, at 3, 8 (charting the value offered by other MVPDs as the "competitive environment") ATT-DOJ2R-01455527-543 (DIRECTV's 2015 Competitor Snapshots: AT&T U-verse, Cablevision, CenturyLink, Charter, Comcast, Cox, Dish, Time Warner Cable, Verizon Fios, and certain OTT offerings); ATT-DOJ2R-02384314-315 (periodic email tracking media and analyst coverage of online video services); ATT-DOJ2R-00529792-795 (OTT & TVE Competitive Landscape" includes MVPDs and certain OVD offerings); ATT-DOJ2R-00529655-671, at -656-661 (tracking performance of other MVPDs); ATT-DOJ2R-02503958-988 (2014 informational deck evaluating the OTT threat from various providers, such as Netflix, Amazon, Dish, and others).

[150] TWI-07655636-701, at -640 (Board briefing document describing increasing competition between traditional television networks and Netflix, Amazon, and Hulu); TWI-07769531, at 2–3 (July 2015 Budget Planning & Trending Analysis in which Turner compared its revenue and other metrics against its "cable media peers," including other aggregators of professionally produced content like Disney, Fox, Scripps, and NBCUniversal).

[151] *See* Horizontal Merger Guidelines §4.2.2 ("When the hypothetical monopolist could discriminate based on customer location, the Agencies may define geographic markets based on the locations of targeted customers.").

engage in arbitrage by purchasing video distribution services from a location other than their residence. Both conditions are satisfied here because MVPDs deliver video content to residential customers over physical transmission paths—cable and telephone wires or satellite dishes physically connected to customers' homes—and maintain direct relationships with residential customers.[152] Even Virtual MVPDs and SVODs, which deliver video programming to consumers over the internet, can discriminate based on customers' locations.[153]

Because any given consumer is served by an identifiable set of video programming distributors, competition among distributors varies from one geographic region to another based on which set of distributors is serving that region. As explained below, the competitive effects of the proposed merger in a given geographic region depend on the market shares of the various MVPDs and Virtual MVPDs in that region.

As I explain below, the predicted impact of the merger on consumers is driven by the competitive overlap between DTV and rival MVPDs. So long as one tracks these competitive overlaps at a sufficiently granular level, as I have done by collecting detailed data by zip code, one can correctly identify the MVPD rivals that compete against DTV. Using these data, I am

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[152] *See In re: Sky Angel U.S., LLC*, No. 10-679 ¶ 7 (D.D.C. Apr. 21, 2010) (finding that Sky Angel did not meet the statutory definition of MVPD because it did not make available "channels" of video programming, as the term "channel" under the Commission's rules "appear[s] to include a transmission path as a necessary element of a 'channel'"). The FCC has since considered whether to broaden the definition of MVPD to include distributors that make available multiple streams of video programming "regardless of the technology used to distribute the programming," but no final rule change has been adopted. *See In re Promoting Innovation and Competition in the Provision of Multichannel Video Programming Distribution Services*, Notice of Proposed Rulemaking, MB Dkt. No. 14-261, at ¶ 1 (Dec. 17, 2014). According to AT&T's projections, most U.S. households will continue to purchase video programming services through traditional MVPDs that deliver that programming through physical transmission paths. ATT-DOJ2R-07497279, at 11.

[153] Virtual MVPDs typically limit the local channels available to a given subscriber based on that subscriber's home address. *See* "Error Message 70 – Blackout," *DIRECTV NOW* (last accessed Dec. 29, 2017), available at https://help.directvnow.com/hc/en-us/articles/213233483-Error-Message-70-Blackout ("Channel lineups are based on the account holder's billing address and determined by zip code."); "FAQ – Available Locations," *YouTube TV* (last accessed Dec. 26, 2017), available at https://support.google.com/youtubetv/answer/7068923 (describing how a consumer can check if YouTube TV service is available to them by entering their zip code); "Setting and Updating Your Home Location for Your Hulu with Live TV Subscription," Hulu (Nov. 8, 2017) (last accessed Dec. 26, 2017), available at https://help.hulu.com/en-us/setting-home-location-for-hulu-live-tv ("In order to access Hulu with Live TV, you will need to verify the location of your home internet network within 30 days of signing up."). For certain content, including many sports, the ability to watch is limited by the viewer's physical location, even if the viewer would have access to the sports content in question if they were viewing at home. *See* "Error Message 70 – Blackout," *DIRECTV NOW*, *supra* ("[Some of] our agreements with sport leagues and associations restrict us from airing events near where a game is locally broadcast. In other cases, national networks like ESPN and TNT retain exclusive distribution rights to an event. If a national network has the national rights to broadcast a sports game, DIRECTV NOW customers who live in the home team's area may not be able to watch with their DIRECTV NOW subscription."); "FAQs-Blackouts," *Sony PlayStation Vue* (last accessed Dec. 29, 2017), available at https://www.playstation.com/en-us/network/vue/faq/introduction/#blackouts ("Rightsholders do not permit sports content to be transmitted in some areas."); ATT-DOJ2R-11106255-260 (DTV executives, noting that with Sony's vMVPD packages, subscribers in DMAs where local broadcast stations are included "cannot cho[o]se" skinny packages; they can only purchase more expensive packages because Sony's service "just like [DTV's] satellite service, is tethered to a single physical location.").

able to group together zip codes into "Local Footprint Overlap Zones." I construct these zones by aggregating all subscribers within each Designated Market Area ("DMA") where residents have access to video offerings from the same set of MVPD competitors.[154] With this definition, there are 1,174 Local Footprint Overlap Zones in the United States.[155]

For expositional purposes, I report many of my results at the DMA level, aggregated up from the Local Footprint Overlap Zone level. DMAs are a standard way of breaking the country into regions in this industry. There are 210 DMAs in the United States, each containing, on average, roughly 200 zip codes and 6 Local Footprint Overlap Zones, though the DMAs vary quite a bit in size.[156] For example, the Washington, DC DMA, the seventh largest in the country, contains 679 zip codes with video subscribers and 11 Local Footprint Overlap Zones.[157] As of December 2016, the major MVPDs in the Washington, DC DMA are Comcast, Cox, DirecTV, DISH, and Verizon, though their footprints do not overlap everywhere.[158] Figure 7 below depicts the different Local Footprint Overlap Zones within the Washington, DC, DMA.

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[154] "Local Footprint Overlap Zones" are defined using the largest five cable based MVPDs, Verizon, and the combined group of all other non-satellite based MVPDs. Satellite based companies are not used to define these zones because they are, with few exceptions, available in all regions of the country. Because there are many small cable companies, overbuilders, and telcos across the U.S., these are combined into the collective "Other MVPDs" for Zone definition. Both Verizon and Other MVPDs must have at least five percent share of subscribers in a zip code to be considered a relevant competitor in that zip code. The set of zip codes, within a DMA, with the same set of relevant competitors are aggregated to create a Local Footprint Overlap Zone. The "Other MVPDs" category consists of about 760 cable companies, overbuilders, and telcos. These Other MVPDs account for about nine million video subscribers. SNL Kagan, "Operator Subscribers by Geography," last accessed Apr. 24, 2017.

[155] There are about 1,300 zip codes (in total containing about 40,000 video subscribers) that do not map into a DMA and therefore do not map into a Local Footprint Overlap Zone. These subscribers account for less than 0.05% of all MVPD subscribers.

[156] Nielsen, "Local Television Market Universe Estimates," available at http://www.nielsen.com/content/dam/corporate/us/en/public%20factsheets/tv/2016-local-television-market-universe-estimates.pdf. DMA is a registered mark of The Nielsen Company. AT&T also tracks cable footprint at a granular level of zip codes. *See* ATT-LIT-00761143, 68.

[157] SNL Kagan, "Media Geographic Relationships," available at https://platform.mi.spglobal.com/web/client?auth=inherit#news/docviewer?id=36812807. DMA is a registered mark of The Nielsen Company.

[158] Exhibit 2.a.7.201612; Comcast Exhibit 2.48-9; Cox-00022128; DISH-ATT-00006714; VZ-DATA3-000004.

Figure 7. Pay-TV Options by Local Footprint Overlap Zone
Washington DC Designated Market Area
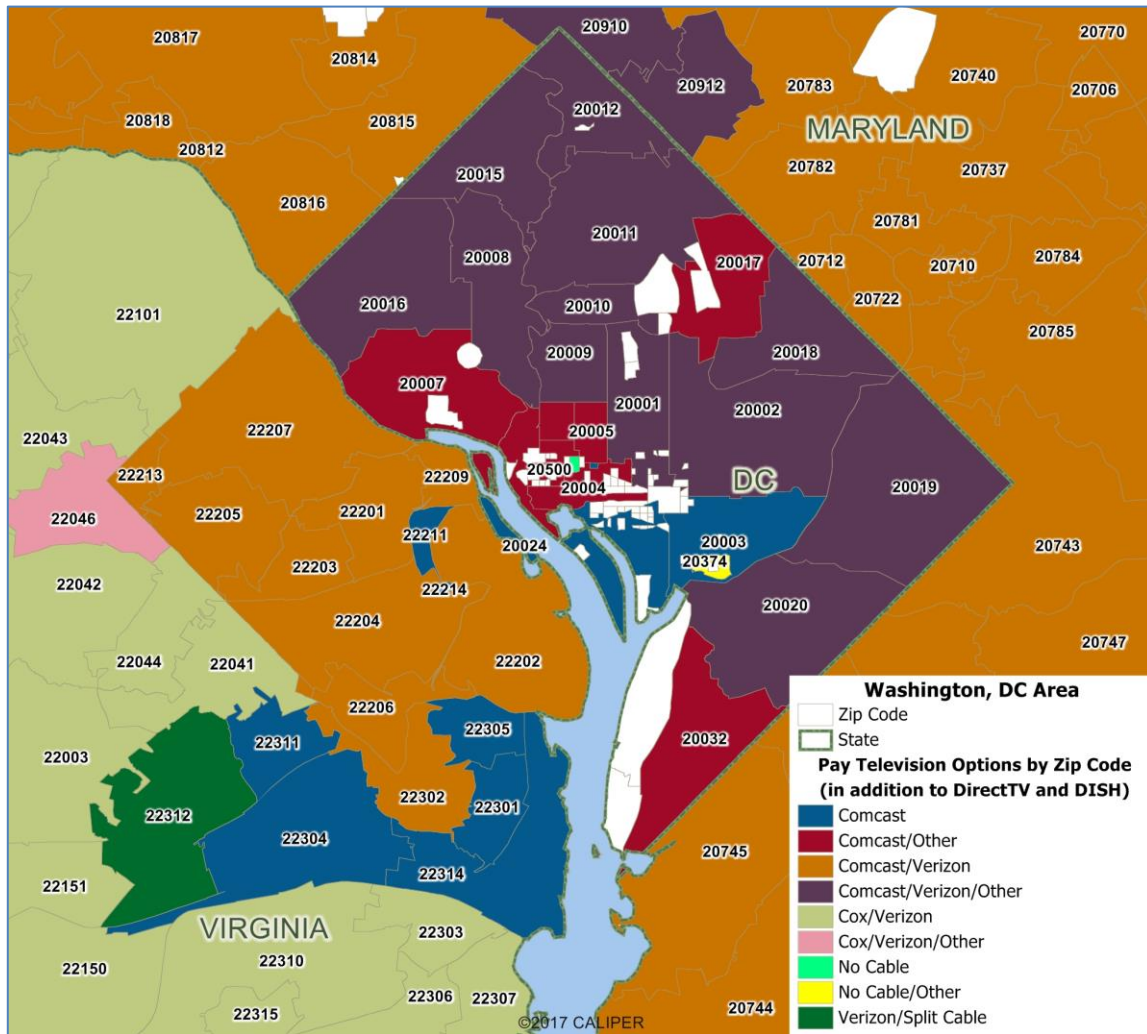
Note: Zip codes designated as "unique," which are zip codes assigned to a particular business organization, are not graphed on this map. These may include government buildings, universities, etc.

6. Antitrust Concerns with the Proposed Transaction

On October 22, 2016, AT&T and Time Warner announced a transaction allowing AT&T to purchase Time Warner for $108.7 billion, including the assumption of debt.[159]

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[159] AT&T, "AT&T to Acquire Time Warner" (press release, Oct. 22, 2016), available at http://about.att.com/story/att_to_acquire_time_warner html ("This purchase price implies a total equity value of $85.4 billion and a total transaction value of $108.7 billion, including Time Warner's net debt.")

The proposed transaction would combine one of the leading video content aggregators, Time Warner, which controls the Turner Content and HBO Content, with one of the leading MVPDs, AT&T, with its DTV, U-verse, and DIRECTV NOW video distribution services.

The proposed transaction would unite two firms that currently stand in a buyer-seller relationship, with AT&T purchasing from Time Warner the rights to distribute the Turner Content and the HBO Content. In the language of antitrust economics and competitive strategy, the proposed transaction is thus a *vertical merger*.

The fundamental effect of the proposed transaction would be to give AT&T control over the Turner Content and the HBO Content. As a result, for the purpose of predicting the competitive effects of the proposed transaction, the two central economic questions are the following:

1. **How will AT&T's post-merger incentives regarding the use of the Turner Content and the HBO Content differ from Time Warner's pre-merger incentives?**

2. **How would any such difference affect downstream competition?**

Antitrust economists have studied vertical mergers extensively. They have developed a set of methods to help answer these questions and thus to help assess proposed vertical mergers.[160] My analysis here utilizes this body of work and applies established methods to the fact pattern arising in this case. Before delving into the details of that analysis, it is useful to identify the primary economic issues that arise when evaluating the proposed merger between AT&T and Time Warner.

I have identified two primary antitrust issues associated with the proposed merger.[161]

First, AT&T will have a post-merger incentive to use the Turner Content and the HBO Content strategically to disadvantage video content distributors that compete against AT&T. This contrasts with the pre-merger situation, in which Time Warner generally benefits from vigorous competition among MVPDs and has no fundamental reason to favor or disfavor any one MVPD over others.

Following the economics literature on vertical mergers, I refer to this concern as the *Raising Rivals' Costs* theory of harm to competition resulting from the proposed merger. This label captures the idea that the post-merger AT&T, as the owner of DTV and U-verse, will benefit if

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[160] For general discussions of how antitrust economists analyze vertical mergers, *see* Michael H. Riordan and Steven C. Salop, "Evaluating Vertical Mergers: A Post-Chicago Approach," *Antitrust Law Journal,* 1995; Michael H. Riordan, "Competitive Effects of Vertical Integration," in *Handbook of Antitrust Economics,* Paolo Buccirossi ed. (Washington, DC: ABA, 2008). For a recent description of the central economic issues that arise in vertical mergers and a proposal for enforcement guidelines, *see* Steven C. Salop and Daniel P. Culley, "Revising the US Vertical Merger Guidelines: Policy Issues and an Interim Guide for Practitioners," *Journal of Antitrust Enforcement*, 2016, no. 4, 1-41.

[161] In the end, these antitrust concerns must be weighed against possible pro-competitive efficiencies resulting uniquely from the proposed transaction. I discuss such possible efficiencies below, including the elimination of double marginalization.

its downstream rivals, such as Charter and Dish, are forced to pay higher affiliate fees for Turner Content and thus have higher costs, or lose access to the Turner Content altogether. AT&T benefits because it competes directly against Charter and Dish, and competition from them is "softer" if their costs are elevated. AT&T benefits when its rivals are weakened because it faces less competitive pressure and thus can profitably charge higher downstream prices. In a 2013 strategy document, DTV explicitly recognized that owning programming content would enable it to affect negotiations with rivals, increase leverage of its programming partner, and capture subscribers from rivals.[162]

Under the Raising Rivals' Costs theory of harm, a direct effect of the merger would be to raise the costs of AT&T's downstream rivals. Predictably, these video content distributors will pass through their higher costs in the form of higher subscription fees, harming households that purchase pay TV packages. While it is not an essential part of my analysis, I discuss below the likely harm to final consumers as higher MVPD costs are passed through to households that purchase pay TV packages. Harm to final consumers depends on the rate at which changes in the programming costs borne by MVPDs are passed through to subscription fees.

Second, the merger will create a danger that AT&T and Comcast will coordinate to withhold their content from rival Virtual MVPDs in order to slow down the growth of these Virtual MVPDs and thus protect AT&T's and Comcast's MVPD profit margins. I refer to this concern as the *Coordinated Effects* theory of harm to competition resulting from the proposed merger.

Under the Raising Rivals' Cost theory of harm, the merger would cause AT&T to raise the cost of certain Time Warner content to Dish, Charter, and other video content distributors, weakening them as competitors to DTV and U-verse. Under the Coordinated Effects theory of harm, the merger would cause AT&T and Comcast to jointly withhold content from rival Virtual MVPDs, or restrict their access to content, weakening them as competitors to DTV and U-verse. Under either theory, the primary concern is that AT&T will use its control over the Time Warner content to weaken competition from its video content distribution rivals and thus lessen harm competition in the distribution of video content to residential households in the United States.

Sections 7–13 analyze the Raising Rivals' Costs theory of harm as regards the Turner Content. Section 14 analyzes AT&T's incentives to lessen competition through the control of HBO Content. Section 15 analyzes the Coordinated Effects theory of harm. Section 16 addresses entry, and Section 17 addresses merger synergies. Lastly, Section 18 addresses AT&T's arbitration proposal.

7. Negotiations Between Video Content Aggregators and MVPDs

In order to study how the proposed merger will affect the terms on which the Turner Content and the HBO Content are licensed to MVPDs and Virtual MVPDs, it is important to first understand

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[162] ATT-DOJ2R-03159246-259, at 258 (By acquiring content producer or programmer, "Take greater advantage of competitors' carriage disputes by prolonging negotiations when beneficial: Increase DIRECTV-owned networks' leverage in negotiations, Convert competitors' subscribers".).

generally how the terms and conditions on which video content aggregators license their content to video content distributors are set.

7.1 *Video Content Aggregators and MVPDs Bargain over Affiliate Fees*

Aggregators of video programming bargain with MVPDs over the terms and conditions at which their programming will be made available to MVPDs. A programmer and an MVPD typically sign a multi-year contract that gives the MVPD the right to distribute the programmer's content to the MVPD's subscribers. The central monetary term in most of these contracts (including Turner's) is the PSPM price that the MVPD pays to the programmer for each subscriber who will have access to the programmer's content.[163] Other terms are also important, including what percentage of the MVPD's customers receive the programming (the penetration rate).

The evidence indicates 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. This is clearly true for the Turner Content, which is widely carried and distributed by MVPDs: over 91% of MVPD subscribers have access to Turner Content and the remaining 9% generally subscribe to service tiers comprised of a small number of broadcast and public access channels.[164]

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. Thus, the focus of my analysis is on the terms and conditions that Turner and these MVPDs will negotiate for carriage of Turner Content, and how those terms will change due to the merger.

7.2 *The Nash Bargaining Model*

My analysis is based on an economic model of bargaining between programmers and MVPDs. I apply this model to the bargaining between Turner and MVPDs before and after the merger.

Bargaining theory is a standard tool in merger analysis. Section 6.2 of the Horizontal Merger Guidelines, "Bargaining and Auctions," explicitly discusses the use of bargaining theory to analyze mergers.[165] Former Deputy Assistant Attorney General Aviv Nevo explained in greater

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[163] These contracts between major programmers and MVPDs are quite detailed and complex, and they do contain other financial terms and conditions. Also, in some cases, notably the contract between HBO and AT&T, the operative PSPM fee ████████████████████

[164] *See* Figure 19. Cable companies generally must offer a "basic service tier" that contains at least local broadcast stations and any public, educational, or governmental programming required by the local state or municipality. *See* 47 C.F.R. 76.901. A Turner analysis from October 2016 indicates that the small number of subscribers who do not receive access to Turner channels are often part of "lifeline" and "economy" tiers. *See* TWI-LIT-00519219, at 10.

[165] Horizontal Merger Guidelines, August 2010, §6.2.

detail how antitrust economists use bargaining theory to study mergers.[166] Bargaining theory has also been used to evaluate the likely effects of a vertical merger between an MVPD and a programmer. In 2010, the FCC relied heavily on bargaining theory in its review of the merger between Comcast and NBCUniversal.[167] Bargaining theory was also used to analyze competitive effects in several mergers recently challenged in court by the Federal Trade Commission.[168]

I employ the standard model of bargaining that economists use in a wide range of settings, namely the "Nash Bargaining" model, which goes back to a seminal 1950 article on bargaining by Nobel Laureate John Nash.[169] The Nash Bargaining model generates specific predictions about the negotiated outcome in situations where two parties negotiate and there are gains from trade, meaning that the total pie to split will be larger if they reach a deal than if they do not.

To illustrate the basic concepts that I employ, it is useful to start with a simple example. Suppose that a Buyer and a Seller are negotiating over a specific item, such as a house, a car, or a piece of fine art. There is some maximum amount that the Buyer is willing to pay for this item. We call this amount the Buyer's Maximum Price ("Buyer Max"). The Buyer Max depends on the alternatives available to the Buyer if no deal is reached with this Seller. In my example, suppose the Buyer Max is $10. The Buyer Max will be $10 if the Buyer's best alternative to cutting a deal with the Seller is to purchase a comparable item from another seller for $10. Likewise, there is some minimum amount that the Seller is willing to accept for this item. We call this amount Seller' Minimum Price ("Seller Min"). In my example, suppose the Seller Min is $6. The Seller Min will be $6 if the Seller's best alternative to cutting a deal with the Buyer is to sell this item to another buyer for $6. There are gains from trade if (but only if) the Buyer Max is larger than the Seller Min. In that case, the gains from trade are equal to the difference between the Buyer Max and the Seller Min. In my example, the gains from trade are $4.

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[166] Aviv Nevo, "Mergers that Increase Bargaining Leverage," Remarks at the Stanford Institute for Economic Policy Research, Jan. 22, 2014. https://www.justice.gov/atr/file/517781/download.

[167] Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc., for Consent to Assign Licenses and Transfer Control of Licensees, Memorandum Opinion and Order (2011). Jonathan B. Baker, "Comcast/NBCU: The FCC Provides a Roadmap for Vertical Merger Analysis," *Antitrust* (Spring 2011).

[168] *Federal Trade Commission and Commonwealth of Pennsylvania v. Penn State Hershey Medical Center and Pinnacle Health System*, No. 16-2365 (3d Cir. 2016); *Federal Trade Commission and State of Illinois v. Advocate Health Care Network, et al.,* No. 15 C 11473 (7th Cir. 2016); *Federal Trade Commission; State of Idaho, Plaintiffs, v. St. Luke's Health System, Ltd.; Saltzer Medical Group, P.A.* (9th Cir. 2015) ("The court found that St. Luke's would 'exercise its enhanced bargaining leverage from the Acquisition to charge more services at the higher hospital-based billing rates."; "And so bargaining leverage is a function of the relative strength of the insurer and the provider. Bargaining leverage consists largely of the ability to walk away. A buyer has leverage if he has acceptable alternatives to a seller driving a hard bargain. Stripped of acceptable alternatives, the buyer's leverage disappears. Economists have an acronym for this process called BATNA—the best alternative to a negotiated agreement."). *Federal Trade Commission v. Promedica Health System, Inc.,* No. 3:11 CV 47 (N.D. Ohio 2011) (hospital merger enjoined where increased bargaining leverage would lead to higher prices);

[169] John Nash, "The Bargaining Problem," *Econometrica*, 1950.

In this setting, the simplest version of the Nash Bargaining model predicts that the Buyer and Seller will agree on a price that equally splits the gains from trade.[170] The assumption of equal bargaining parameters, which corresponds to an equal split of the gains from trade as described above is justified for a number of reasons. First, there is a significant and growing body of evidence from the behavioral economics literature for equal division.[171] Second, Nash's original paper proposing the Nash bargaining solution proposes equal division of the gains from trade.[172] Third, the Nash bargaining solution has been shown to correspond to other models of bargaining, notably Rubinstein's alternating offer model.[173] That model demonstrates that the way in which the two parties split the gains from trade depends on the time discount rates of the buyer and seller. The players split the gains from trade nearly equally when their discount rates are nearly equal.[174] Put differently, players split the gains equally when they are equally patient. Large firms like AT&T, Time Warner, and Comcast/NBCU are likely to be similarly patient during negotiations and, therefore, likely to have similar discount rates. In practice, the relative discount rates can be approximated by a relative measure of the cost of capital for the two negotiating parties. Indeed, when I follow industry practice, and use the weighted average cost of capital ("WACC") to approximate the discount rates of different MVPDs,[175] I find that AT&T and any of its rival MVPDs would split the gains from trade equally or nearly equally.[176]

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[170] Unless there is clear evidence suggesting otherwise, assuming that the gains from trade are split 50/50 is a reasonable and practical working assumption. However, if one is not willing to make that assumption, then using the Nash Bargaining framework to predict the level of the negotiated price can be difficult, unless one has evidence regarding how the gains from trade are split. One of the virtues of the methodology I am using is that my findings relate to the effect of the merger on the negotiated price, not the pre-merger or post-merger level of that price standing in isolation.

[171] Alvin E. Roth and Michael W. K. Malouf, "Game-Theoretic Models and the Role of Information in Bargaining," *Psychological Review*, 1979; Alvin E. Roth, Vesna Prasnikar, Masahiro Okuno-Fujiwara, Shmuel Zamir, "Bargaining and Market Behaviors in Jerusalem, Ljubljana, Pittsburgh, and Tokyo: An Experimental Study," *American Economic Review*, 1991; Camerer, Colin and Richard H. Thaler, "Anomalies: Ultimatums, Dictators and Manners," *Journal of Economic Perspectives,* 1995.

[172] John Nash, "The Bargaining Problem," *Econometrica*, 1950.

[173] Ariel Rubinstein "Perfect Equilibrium in a Bargaining Model," *Econometrica*, **50**, 97-110, 1982; Binmore, Ken, Ariel Rubinstein, and Asher Wolinsky "The Nash Bargaining Solution in Economic Modeling," *Rand Journal of Economics*, 17, 176-188, 1986.

[174] Ariel Rubinstein, "Perfect Equilibrium in a Bargaining Model," *Econometrica*, 1982; Drew Fudenberg and Jean Tirole, *Game Theory*, MIT Press, Cambridge, MA, 1991.

[175] Federal Communications Commission, *In re: General Motors Corp. and Hughes Electronics Corp. Transferors, and The News Corp. Ltd., Transferee, No. 03-124 (FCC 03-330)* (Dec. 19, 2003), at 161–62.

[176] I rely on documents from MVPDs and Time Warner to determine the WACC used in the normal course of business. Time Warner's WACC is about ▇▇ (TWI-LIT-00093064-068). AT&T's WACC ranges from ▇▇ (ATT-DOJ2R-01999322-333, at -329) to ▇▇ (ATT-DOJ2R-02365216-230, at -228); ▇▇ AT&T also estimates ▇▇ as the WACC for the whole industry (ATT-DOJ2R-01411972-2035, at -2007). Using this information, I calculate the implied bargaining parameters comparing Time Warner's WACC to the WACC of MVPDs. These bargaining parameters fall in the range of ▇▇▇▇ for Time Warner and ▇▇▇▇ for MVPDs. For example, comparing ▇▇ from Time Warner to ▇▇▇▇▇ gives an implied parameter for Time Warner of ▇▇, while ▇▇▇

In my example, since the gains from trade are $4, this means that the negotiated price will leave each of them with a benefit of $2 from the deal (half of the total gains from trade of $4). This in turn implies that the two parties agree to trade the item at a price of $8. At that price, the deal creates benefits for the Buyer of $2, since the Buyer pay $8 for an item that the Buyer was willing to purchase for $10. Likewise, at that price, the deal creates benefits for the Seller of $2, since the Seller receives $8 for the item that the Seller was willing to sell for $6. Figure 8 depicts this example.

Figure 8. The Nash Bargaining Solution for Price
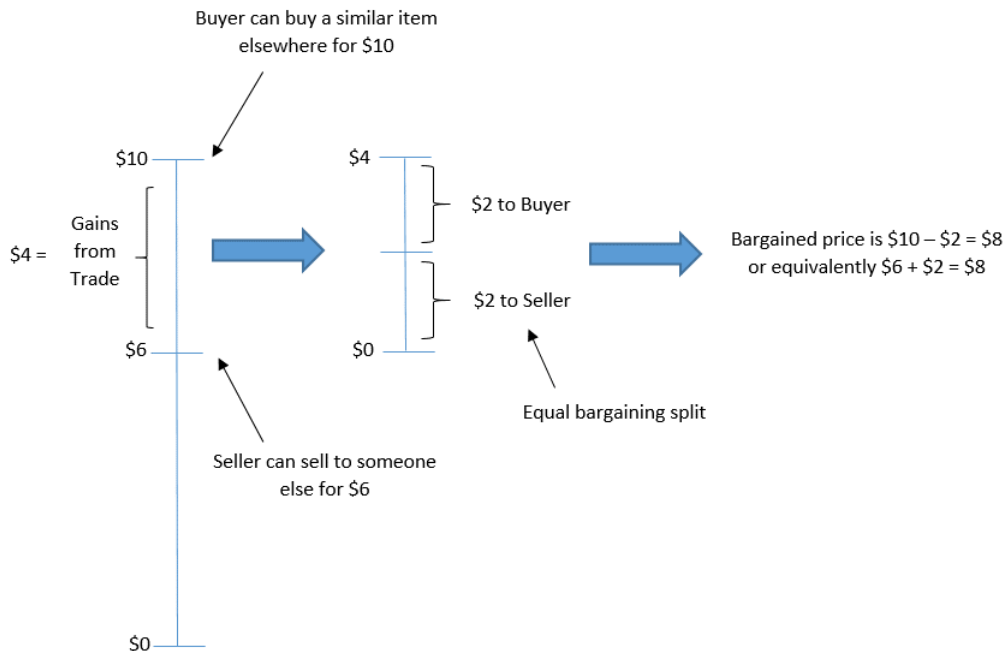
The Buyer Max and the Seller Min are the key inputs into the Nash Bargaining model. They are central to my analysis below. As noted, these key inputs reflect the alternative options available to the Buyer and the Seller. The fundamental economic idea here is that the Buyer Max and the Seller Min are determined by the best option available to each of them if no deal is reached between these two parties. When bargaining theory is taught to students, the Buyer Max is often described as being based on the Buyer's "best alternative to a negotiated agreement," ("BATNA"), and likewise for the Seller. In intuitive terms, the more attractive is the Buyer's best alternative to purchasing this item from the Seller, the lower will be the Buyer Max, and the lower will be the negotiated price (assuming there are still gains from trade). Likewise, the more attractive is the Seller's best alternative to selling this item to the Buyer, the higher will be the Seller Min, and the higher will be the negotiated price (assuming there are still gains from trade).

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implied parameter is ▮▮▮ (computed as, ▮▮▮▮▮). This evidence is clearly consistent with an equal or nearly equal split between negotiating parties. However, I perform a sensitivity analysis to examine the impact on MVPD cost increases if the split were 40/60 or 60/40 in Turner's favor. Because, as I describe in later sections, the harm is proportional to the bargaining parameter, the move away from a 50/50 split by 20% (i.e., from 0.5 to 0.6 or from 0.5 to 0.4) increases or decreases my estimate of the anticompetitive effects by 20%.

A central prediction of bargaining theory is that when the Buyer Max changes, or the Seller Min changes, the negotiated price will adjust in a predictable way. The key economic concept that I apply in my quantitative analysis below relating to the Turner Content is as follows:

An increase in the Seller's Minimum Price results in a higher negotiated price.

To illustrate this basic economic concept, suppose that we alter the example above so that the Seller Min rises by $1, from $6 to $7. This would occur, for example, if the Seller's best alternative to selling to the Buyer improved, so the Seller could get $7 from another buyer rather than just $6. How does this change alter the price negotiated between the Buyer and the Seller?

When the Seller Min rises from $6 to $7, the gains from trade fall from $4 to $3. Since there are still positive gains from trade, the Nash Bargaining model continues to predict that the Buyer and Seller will reach a deal. Splitting the $3 gains from trade equally, the negotiated price will be $8.50. At this price, each party benefits by $1.50 from cutting a deal with the other, as depicted in Figure 9.

Figure 9. An Increase in the Seller's Minimum Price
Causes the Negotiated Price to Rise
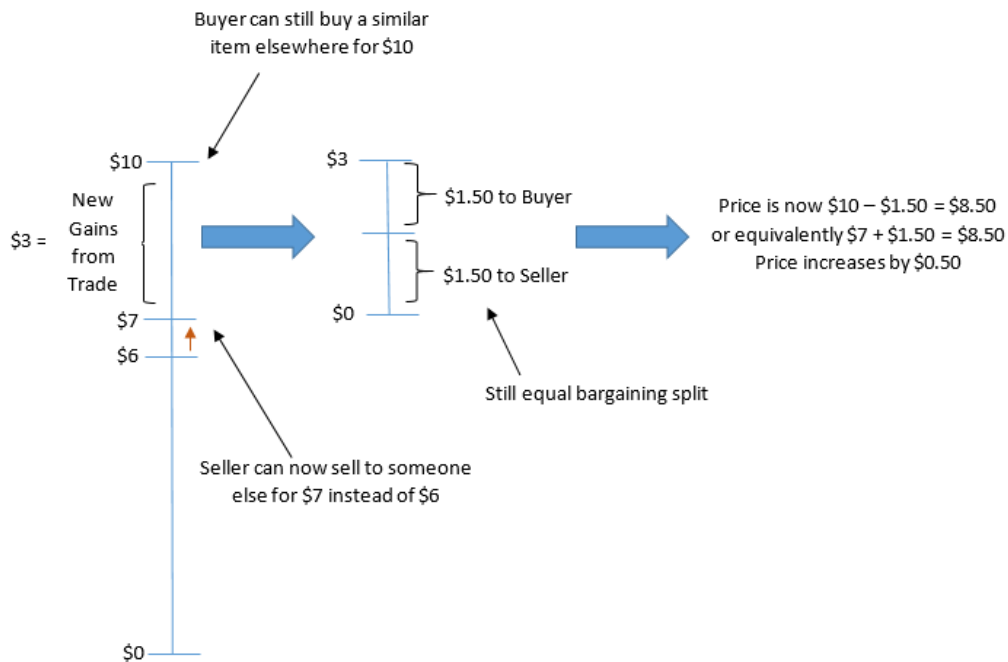
The idea that the negotiated price will go up if the Seller Min goes up is very general and quite intuitive. The seller with better outside options is in a stronger bargaining position. This is why the car dealer says that he can easily and quickly sell the car in question to another buyer, because demand is high for this model.

In my example, the negotiated price rose by $0.50 as a result of the Seller Min going up by $1. These specific numbers reflect a more general prediction flowing from the Nash Bargaining

model: when the gains from trade are split 50/50, the negotiated price goes up one-half as much as the Seller Min. While that specific "one-half" number depends on the standard Nash Bargaining assumption that the Buyer and Seller split the gains from trade equally, the conclusion that the negotiated price goes up when the Seller Min goes up is extremely general does *not* depend on that assumption. In my example, if the Seller receives 40% of the gains from trade, rather than 50%, then the negotiated price would initially be $7.60 (giving the Seller $1.60 of the $4 gains from trade) and would rise to $8.20 if the Seller Min rises by $1 (giving the seller $1.20 of the $3 gains from trade).[177] In this modified example, a $1 increase in the Seller Min causes the negotiated price to rise by $0.60.[178]

7.3 *The Nash Bargaining Model Is Appropriate Here*

The economic theory of bargaining in general, and the Nash Bargaining model in particular, are appropriate economic tools to use in the current case.

First, the evidence clearly shows that programmers and MVPDs bargain over PSPM fees.[179]

Second, the evidence clearly shows that both programmers and MVPDs assess the effects of not reaching an agreement when forming their bargaining positions.[180] This is what the economic literature on bargaining in general, and the Nash Bargaining model in particular, predict.

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[177] If the seller gets 40% of the gains from trade, then the negotiated price rises by $0.60 for every dollar that the seller's walk-away payoff goes up.

[178] The ratio of the increase in the negotiated price to the increase in the Seller Min is equal to the Buyer's share of the gain from trade. This is 40% in the example just given.

[179] ATT-DOJ2R-08389087–088; ATT-DOJ2R-02846719–724, ATT-DOJ2R-03541555-595, at -557 and 568; Deposition of Breece Breland, Jan. 19, 2018, at 44-45 ("Q. Turner bargains with distributors to license its networks; true? A. True. Q. That bargaining involves back-and-forth negotiations about the terms and conditions of renewal agreements. Correct? A. Correct. Q. Those negotiations can be long processes. Fair? A. Fair. Q. They can involve the exchange of multiple redlined contract drafts? A. Yes, they can. Q. Involve the exchange of multiple term sheets. Fair? A. Fair. Q. In that bargaining, both sides are trying to get the best deal they can. True? A. True."); TWI-LIT-00488721-834, at 754 ("Affiliate fees (payments from distributors for the carriage of networks) are the main driver of growth for U.S. cable networks. The increasingly challenging outlook for domestic multichannel subscriber growth has intensified the competition for rate increases. In this environment, popular networks with broad reach and distinctive original and major sports programming command the most leverage in negotiating with affiliates.").

[180] *See, e.g.*, ATT-DOJ2R-05131058; ATT-DOJ2R-11095247, at 3; and ATT-DOJ2R-02680654–664, at -664. COMATT-COM-00016447-455; TWI-01497240; TWI-LIT-00535515, at slide 24 (Turner Budget/Long Range Plan with "Go Dark Analysis"); Breland Dep., at 182:19-23 ("Q. When negotiating with distributors, does Turner consider its alternatives to doing a deal? A. Meaning if we can't reach an agreement? Yes, we do."); *Id*. at 202 ("Q. Turner analyzes the effect of going dark on its business. Correct? A. Probably as a random course or a normal course of business, yes."); Breland Dep., at 204-05 ("Is this an example of the go-dark analysis that Turner produces in the ordinary course in thinking about blackouts? A. Yes. You always prepare for "What if this happens?" Blackouts had become so common at this time. Have to answer if we go off the air, what does it cost us on a daily, weekly, monthly basis? … Q. … Turner will analyze its lost revenue and incurred costs in the event of a blackout for a certain length of time? [A.] We're trying to understand, if we go dark, what markets are affected and what's the revenue impact for us, yes.")

Third, the documentary evidence and testimony in this case clearly demonstrate that bargaining outcomes in the presence of gains from trade are affected by the payoffs to the programmer and the MVPD in the event that they do not reach an agreement.[181]

7.4 *Bargaining Outcomes and Vertical Integration*

The general principle that the negotiated price will rise when the Seller Min goes up has important implications for the analysis of the proposed merger between AT&T and Time Warner. As I now explain, this very general and intuitive economic idea implies that the merger will cause an increase in the price that Turner negotiates for the Turner Content with any video content distributor that competes against DTV. For illustrative purposes, I describe how the merger will alter the negotiations between Turner and Dish, but the very same ideas apply to Turner's negotiations with any other video content distributor that competes against DTV.

The Nash Bargaining model predicts that the Turner fees paid by Dish will rise because AT&T's post-merger Seller Min for the Turner Content licensed to Dish will be higher than Time Warner's pre-merger Seller Min for the Turner Content licensed to Dish.

AT&T's post-merger Seller Min is higher than Time Warner's pre-merger Seller Min because AT&T bears a cost when licensing the Turner Content to Dish that Time Warner did not bear: access to the Turner Content makes Dish a stronger competitor to DTV and thus reduces DTV's profits. This core economic idea does not depend on the precise way in which the gains from trade between Turner and Dish are split. Indeed, my prediction that the merger will raise the price negotiated between Turner and MVPDs that compete against DTV holds *regardless* of how the gains from trade are split between Turner and those MVPDs.

Below, using the available data, I quantify these effects as they pertain to the Turner Content licensed to the various MVPDs and Virtual MVPDs that compete against DTV.

There are previous instances of vertical integration (or disintegration) between video content aggregators and video content distributors in this industry. The effects these transactions had on programming fees could, in principle, offer a way to test the predictions of bargaining theory in this industry. I identified four possibly relevant transactions. None of these involves the same scope of integration and likelihood of impacting consumers nationwide as the current transaction. However, the limited evidence available from these transactions provides some support for the predictions from my bargaining model.

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[181] ATT-DOJ2R-03541555-595; ██████████████████████████████████████
██
██████████████; Torres Dep., at 184:1–185:14 (stating that DirecTV did not consider dropping Disney content, which "would have likely required changes to our business" because of the "potential churn impact"); ATT-DOJ2R-15795985-6001 (presentation to DirecTV's board about a renewal of Disney's contract showing that an "Economic Impact Study shows ██████ in lost value for a long-term drop of Disney content).

The first two transactions involve FOX and DIRECTV. FOX and DIRECTV integrated in 2004.[182] That transaction was limited in its scope as FOX acquired only a 34% partial ownership interest in DIRECTV and DIRECTV's national share of subscribers was only 13%, so the likelihood of fee increases was small.[183] FOX divested its stake in DIRECTV in 2008. As part of its analysis of another vertical transaction, Comcast/NBCUniversal, FCC carried out a retrospective analysis of the FOX-DirecTV (News Corp.-Hughes) transaction and found that fee increases predicted by the bargaining model were in line with actual fees during the roughly five-year period that FOX and DIRECTV were vertically integrated. The FCC concluded that evidence from past vertical transactions shows that "vertically integrating a video distributor and a national cable programmer leads to higher programming prices to rival MVPDs".[184]

The third transaction took place in 2009 when Time Warner separated from Time Warner Cable ("TWC"). That transaction does not make for a good test case because the impact on programming fee from the transaction predicted by the bargaining model is quite low. At that time, TWC had a 10% to 12% national share of MVPD households, less than half of DTV's share in 2016.[185] As a regional incumbent cable company, TWC had a very limited overlap with other MVPDs and thus a far lower incentive to charge them higher fees.

The fourth transaction involves Comcast's integration with NBCUniversal in 2011. The FCC relied on a bargaining model in its review of that transaction. That model predicted that programmer fees would increase for Comcast's rivals.[186] However, the Comcast/NBCUniversal transaction is not very informative for the purposes of testing predictions in the current case, for two main reasons. First, as was true of TWC, as a regional MVPD, Comcast had little or no incentive to increase NBCUniversal affiliate fees charged to MVPDs not present in Comcast's footprint. Comcast primarily competes against DTV, DISH, and Verizon. This makes it more difficult to detect a merger-induced price increase in the data.[187] Second, Comcast's post-merger behavior has been regulated by an FCC order. While the FCC order is an imperfect replacement

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[182] I provided testimony before the FCC on behalf of News Corp., the owner of FOX, and GM/Hughes, the owner of DIRECTV at that time. FCC, *In re General Motors Corp., Hughes Elecs. Corp., and The News Corp. Ltd.,* MB Docket 03-124 (FCC Jan. 14, 2004).

[183] Report submitted on behalf of GM/Hughes and News Corporation by Steven C. Salop, Carl Shapiro, David Majerus, Serge Moresi, and E. Jane Murdoch, "New Corporation's Partial Acquisition of Vertical Foreclosure Claims", Jul. 1, 2003, at ¶112.

[184] Federal Communications Commission, *In re Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc., For Consent to Assign Licenses and Transfer Control of Licensees* (Jan. 20, 2011), at ¶¶51–52.

[185] Deposition of Jeffrey Bewkes, May 4, 2017, at 68–69.

[186] Federal Communications Commission, *In re Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc., For Consent to Assign Licenses and Transfer Control of Licensees* (Jan. 20, 2011), at ¶¶39–47.

[187] Expiration of the Comcast consent decree in September 2018 will allow one to better measure the impact of the Comcast/NBCUniversal merger on the NBCUniversal programming fees paid by the MVPDs that compete against Comcast.

for competition, the ongoing oversight faced by Comcast presumably has had some impact on Comcast's ability to increase NBCUniversal's programming fees.

7.5 *Two Additional Incentives to Raise Turner Fees*

My quantification of merger effects, described in the sections below, is based purely on the idea that disagreement is less costly for Turner post-merger There are two additional reasons the merger may raise the fees that Turner charges to MVPDs that compete against DTV. For simplification purposes, I do not include these in my quantification of merger effects but I describe them below.

The first reason is that higher Turner fees as charged to Dish (for example) will benefit DTV. This effect arises because DTV benefits when Dish passes through the higher Turner fees in the form of higher subscription prices and thus loses some subscribers, a portion of whom choose DTV instead. The post-merger AT&T will account for this when bargaining with Dish, which gives AT&T an additional incentive to increase Turner's fees to Dish.[188] For instance, in the pre-merger world Time Warner might have preferred a higher penetration rate to an increase in fees, but after the merger it will have an added incentive to push for higher fees, since that benefits AT&T's distribution business even without a blackout. Accounting for this effect would increase the predicted anticompetitive effects of the merger regarding the fees for the Turner Content.

The second reason is that there is an additional benefit to DTV, not accounted for in my analysis, when the Turner Content is no longer available on a rival MVPD. Lacking the Turner Content, the rival MVPD will be more dependent on other video content aggregators, giving it less leverage when negotiating fees, further elevating that MVPD's costs and weakening it as a rival to DTV.

Since my quantification below does not account for these two effects, the dollar measures of harm relating to the Turner Content that I obtain below are likely to be underestimates.[189]

8. Key Input Variables for the Turner Bargaining Model

I now explain how I estimate the effect of the proposed merger on the fees that will be negotiated for the Turner Content. I am able to quantify the effect associated with an increase in AT&T's Seller Min when licensing the Turner Content to video distributors that compete against DTV, as described in Section 7.2. I do not quantify the two additional effects noted in Section 7.5.

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[188] This effect is above and beyond the one discussed in the previous section and quantified below. The effect I am able to quantify results from an increase in Turner's Seller Min in negotiations with Dish (for example). The separate effect identified here results from the benefit that DTV receives when the Turner fees charged to Dish go up.

[189] Similarly, these estimates do not account for any incentive that AT&T may have to slow the entry and growth of Virtual MVPDs. *See infra* § 15.

More specifically, I now explain my method for estimating by how much the merger will raise AT&T's Seller Min when negotiating a license for the Turner Content with a video distributor that competes against DTV.[190] In this analysis, a failure to reach an agreement means that the gains from trade are not realized.[191] That is, Turner programming is not available on the MVPD and Turner loses the associated affiliate fee and advertising revenue.[192] Below, in Section 18, I address the offer that AT&T has made to enter into binding arbitration with video content distributors over the Turner Content in certain situations.

The increase in Turner's Seller Min when negotiating with an MVPD due to the merger is equal to the impact on DTV's profits when the Turner Content is made available on that MVPD.

Three key variables determine the magnitude of this effect:

1. *The Turner Subscriber Loss Rate*: The rate at which the rival MVPD would lose subscribers over time if it could not offer the Turner Content.

2. *The DTV Diversion Ratio*: The proportion of the subscribers leaving an MVPD, if that MVPD could not offer Turner Content, that would shift to DTV.[193]

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[190] The proposed merger involves Turner, the Seller in these negotiations, and thus affects the Seller Min. The proposed merger does not involve Dish, or other Buyers in these negotiations, and thus does not directly affect the Buyer Max.

[191] My analysis assumes that Turner's other contracts remain unchanged.

[192] The proposed merger would cause Turner to be owned by a firm that is vertically integrated into video content distribution, and thus would cause the FCC's Program Access Rules to apply to Turner. In a presentation to the DOJ on June 23, 2017, AT&T and its retained economists claimed that these rules could create countervailing bargaining power for rival MVPDs potentially offsetting the increased bargaining leverage Turner would gain through the merger. *See* "Memorandum for the Department of Justice: Analysis of Theoretical 'Content Foreclosure' Issues" (June 23, 2017), at 49–50. However, the FCC has acknowledged that its Program Access Rules do not prevent a vertically integrated programmer from pursuing a strategy of raising prices to all of its rival distributors in a non-discriminatory way. *See* Comcast Order, 26 FCC Rcd. 4238, ¶49 ("Comcast could pay the same fees as its MVPD rivals or could choose to pay the highest fee that NBCU charges a competing MVPD. Therefore, our program access rules, which address discriminatory pricing, inadequately address the potential harms presented by the increased ability and incentive of Comcast-NBCU to uniformly raise Comcast's rivals' fees."). In addition, it is difficult under the FCC's rules for a complaining MVPD to establish that the MVPD affiliated with the programming in question has exerted "undue influence" over the terms on which that programming has been made available to the complaining MVPD. *See* Expert Report of Professor Simon J. Wilkie, Feb. 2, 2018, ¶¶48–49. Lastly, according to Professor Wilkie, the FCC has never granted a temporary standstill order, which would provide an MVPD with access to the programming during a bargaining impasse, and the FCC considers a standstill to be extraordinary relief. *Id.*, ¶51. This indicates that the FCC's Program Access Rules, as applied to post-merger negotiations between Turner and MVPDs, are unlikely to protect rival MVPDs from Turner's increased bargaining leverage. *Id.*, ¶9.

[193] Here, for ease of discussion, I refer to AT&T's U-verse and DTV platforms together as DTV. For the merger effect calculations, I estimate two sets of diversions: one from rival MVPDs to U-verse and another from rival MVPDs to DTV.

3. *DTV's Contribution Margin*: The difference between DTV's PSPM subscription fee and the incremental cost to DTV of serving one more subscriber. [194]

I rely on the documents and data produced in the discovery to arrive at my best estimates of these three variables.

The predicted increase in Turner fees resulting from the merger is directly proportional to each of these variables. That is, as the value of each of these three variables increases, the predicted price for Turner Content increases proportionally, all else equal.

8.1 *The Turner Subscriber Loss Rate*

The Turner Subscriber Loss Rate is defined as the share of subscribers that a rival MVPD would lose if it were to stop carrying the full suite of Turner networks on a permanent basis.[195]

When an MVPD loses access to content on a temporary or permanent basis, it loses subscribers for two distinct reasons: (1) some fraction of that MVPD's *existing* subscribers drop their subscription because they no longer have access to Turner content, and (2) some fraction of that MVPD's *prospective* subscribers do not subscribe because the MVPD in question no longer offers the Turner Content. For a permanent loss of content, it is the latter effect that is critical. This is because existing subscribers are likely to react to the loss of their favorite programming within a relatively short period. In contrast, the MVPD's loss of new subscribers would continue indefinitely, as DTV recognizes. The importance of the ongoing loss of prospective subscribers (the loss of "gross adds") is illustrated by a DTV document that analyzes the impact on DTV of a long-term loss of Disney content. That document estimates that a ▉ subscriber loss rate due to a one-year loss of Disney programming would grow into a ▉ loss rate if the Disney programming were to remain off DTV's platform for six years.[196]

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[194] As in the case of diversion estimation, I estimate two sets of contribution margins: one for U-verse and another for DTV.

[195] In the bargaining between an MVPD and a programmer, the MVPD's Buyer Max can be approximated as the difference between the value that the MVPD derives from carrying the programmer's content and the value that it derives from not carrying that content. This difference is best reflected in the impact that the permanent loss of a programmer's content would have on the MVPD's subscriber counts and thus its profits. By contrast, looking at how a temporary loss of the content would affect the MVPD would only capture the value to the MVPD of being able to offer the programming over a short period of time, not the total value to the MVPD of the programming.

[196] ATT-DOJ2R-13614468, at slide 14. Slide 14 of this 2014 document shows that DTV estimated it may lose about ▉▉ existing subscribers and about ▉▉ prospective subscribers (gross adds) in the first year if it were to not carry Disney Content. According to DTV's subscriber data, DTV had a monthly average of about 18.7 million subscribers in 2014. These figures suggest that DTV expected that it may lose ▉ of its subscribers within one year of losing Disney Content. In 2014 (year the document was created), according to DTV's own data, DTV added about 4.1 million new subscribers. DTV's annual churn rate was about ▉▉ This information, combined with DTV's calculation that the annual number of new subscribers will go down by ▉▉, results in DTV's total subscriber count, 6 years after Disney drop, of ▉▉ The six-year loss rate of ▉ can be calculated as follows: ▉▉▉▉▉-

A key feature of bargaining situations is that each side considers what would happen if a deal were not to be reached. Indeed, large MVPDs often do this exact kind of analysis before negotiations begin. Because there are so clearly large gains from trade in these situations, however, a deal at some price is virtually guaranteed and firms do not always estimate the long term effects of a blackout. A number of MVPD documents discussed below either (1) focus on a short-run effect of not carrying Turner content, which results from subscribers disconnecting during a blackout resulting from a short-term negotiation dispute between the MVPD and Turner, or (2) do not consistently account for the loss of prospective subscribers due to the loss of Turner Content. Documents subject to these shortcomings thus tend to understate the loss of share that would result from a permanent loss of Turner Content. For that reason, I expect that the subscriber loss rates implied by these documents are below the true rate, and thus do not provide an unbiased estimate of that rate.

As I explain below, the ███████████████████████████████████████ ███████████████████ █ ███████████████████ ██ ███ ████████████████████████████ For my analysis of the merger effects, I consider the impact on both existing and prospective subscribers and use the lower end of the two ranges in this document to arrive at my estimate of Turner Subscriber Loss Rate. I make a downward adjustment to this rate to allow for possible countermeasures that an MVPD may apply to mitigate subscriber loss over time.[198] Below I discuss Turner Subscriber Loss Rates suggested by some of the documents in more detail.

The documents from MVPDs that estimate the loss of subscribers associated with the absence of some or all of the Turner networks for a relatively long period of time report a range between ████████████[199] The low end of this range of estimates, 4.8%, has two severe shortcomings for

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██
████████████████████████████████

[197] ████████████████████████

[198] There are a range of countermeasures that an MVPD might deploy in response to a loss of programming. ██████ ████████████████████████████████████ ██

[199] ████████████████████████████████ ███████████████████████████████ ████████████████████████████ ███████████████████████████████ ██████████████████████████████ ████████████████████████████████ █████████████████████████████████ █████████████████████████████████ ███████████████████████████████ ████████████████████████████████ ATT-DOJ2R-03541555-595, at -571 (Based on a nine-day actual blackout of another programmer (Viacom), a DTV document estimates that DTV is likely to lose ████ of subscribers after an eight-week loss of Turner Content. This document also suggests that the rate of loss of new subscribers is about ███. I compute this as

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the purpose of estimating subscriber loss. First, it accounts for the loss of only half of the Turner networks—critically, it does not account for the loss of two of the four most viewed Turner networks, TBS and Adult Swim/Cartoon Network.[200] Second, it does not consider the impact of a loss of programming beyond nine months. These considerations indicate that the actual Turner Subscriber Loss Rate substantially exceeds ███.[201]

The Charter document that I described above was prepared for Charter by an outside consultant. Unlike some of the other documents, it contains a detailed analysis of subscriber losses for a number of programmers, including Turner. Crucially, it models the impact of the loss of Turner Content on prospective subscribers as well as current subscribers. This document, like most others, does not explicitly estimate the impact on incoming subscribers of a prolonged loss of Turner Content. However, using the lower end of the range for both the loss of existing and prospective subscribers from this document, I estimate the long-term Turner Subscriber Loss Rate to be 10%.[202] This 10% estimate is also consistent with a second source of evidence, namely the analysis by various firms of the impact of content losses on Virtual MVPDs. These analyses estimate that not carrying Turner Content can reduce the subscriber demand for online platforms by 9%–27%.[203] Because these documents consider the impact of losing the Turner Content on Virtual MVPDs rather than MVPDs, I put less weight on them when analyzing Turner's negotiations with MVPDs, but their consistency with my estimate is notable.

████████████████████████████ is the number of lost adds over an eight-week period and ████████ is the number of gross adds according to DTV's own subscriber data for about the same period.); ██. However, because the document seems to rely entirely on viewership statistics, I put less weight on it with respect to determining the true Turner subscriber loss rate.)

[200] Time Warner Inc. SEC 10-K for 2016, at 5, available at http://www.timewarner.com/sites/timewarner.com/files/downloads/twx_2016_annual_report.pdf ("For the year ended Dec. 31, 2016, Turner's TBS, TNT and Adult Swim were three of the top five primetime advertising-supported cable networks among adults 18–49 in the U.S., and Adult Swim was the top advertising-supported cable network in total day among adults 18–34 in the U.S.").

[201] ██ but I do not rely on them here because I lack sufficient clarity on the circumstances surrounding the creation of the documents. I may rely on these analyses after deposition testimony is taken or additional documents are produced.

[202] *See* Appendix D for the computation. Using information from the same ████████ document, to account for the impact of countermeasures, I adjust the 10% Turner Subscriber Loss Rate down to about ███ of its value. This adjustment results in a 9% subscriber loss rate.

[203] TWI-01478361-375 at -372. (Turner change in demand of ████ and ████ base Virtual MVPD demand, resulting in a ████ reduction in base package demand.) TWI-01478503-564, at -526. (Amazon Virtual MVPD change in demand with Turner versus without Turner implies a ████ reduction in demand.) TWDC-ATT-TW-00012410-458, at -455. (Shows a ████ change in demand from removing Turner from base packages and ███ is the base percent of households. This results in a ███ reduction.) HULU-0006254-353, at -284-285. (Shows base case content demand and change in demand from loss of Turner content. The implied change in demand is ████ for Hulu non-subscribers and ████ for Hulu subscribers.)

In addition to the documentary evidence, I also looked for past instances in which an MVPD did not have access to Turner Content for a prolonged period. Such an event would have allowed me to empirically estimate the impact on subscribers of losing the Turner Content. While I could find no such event, I did find a prolonged blackout involving Viacom Content. Suddenlink, an incumbent cable company operating in portions of 17 states, dropped the full suite of Viacom networks in October of 2014. Suddenlink did not carry Viacom Content for a relatively long period of time, about 35 months.[204]

Figure 10 shows that the prolonged loss of Viacom Content had a significant impact on Suddenlink's subscriber base. The orange line in the graph that begins after the vertical black bar (the start date of the Viacom blackout) reflects the predicted number of subscribers that Suddenlink would have had if there were no loss of Viacom content. The grey dots show the actual number of subscribers that Suddenlink had in each period and the dashed green line reflects a linear trend fitted across these actual subscriber counts. The difference between the two lines is the Viacom subscriber loss rate measured over a roughly two-year period. This loss continues to grow for the duration of the dispute and highlights the importance of the prospective subscriber effect.

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[204] Suddenlink's loss of Viacom Content began on October 1, 2014, and ended in mid-August 2017. Mike Farrell, "Suddenlink, Viacom Negotiations Reach Impasse: 24 Networks Set to Go Dark Tonight," *Multichannel News,* Sep. 30, 2014, available at http://www.multichannel.com/news/news-articles/suddenlink-viacom-negotiations-reach-impasse/384319;Mike Farrell, "Viacom Channels Return to Suddenlink," *Multichannel News*, Aug. 23, 2017, available at http://www.multichannel.com/news/networks/viacom-channels-return-suddenlink/414788; "Altice SA's CEO Michel Combes in Q2 2017 Results Earnings," call transcript, July 28, 2017, available at https://seekingalpha.com/article/4092092-altice-sas-atus-ceo-michel-combes-q2-2017-results-earnings-call-transcript?part=single.

Figure 10. Continuing Subscriber Loss at Suddenlink
Due to Loss of Viacom Content
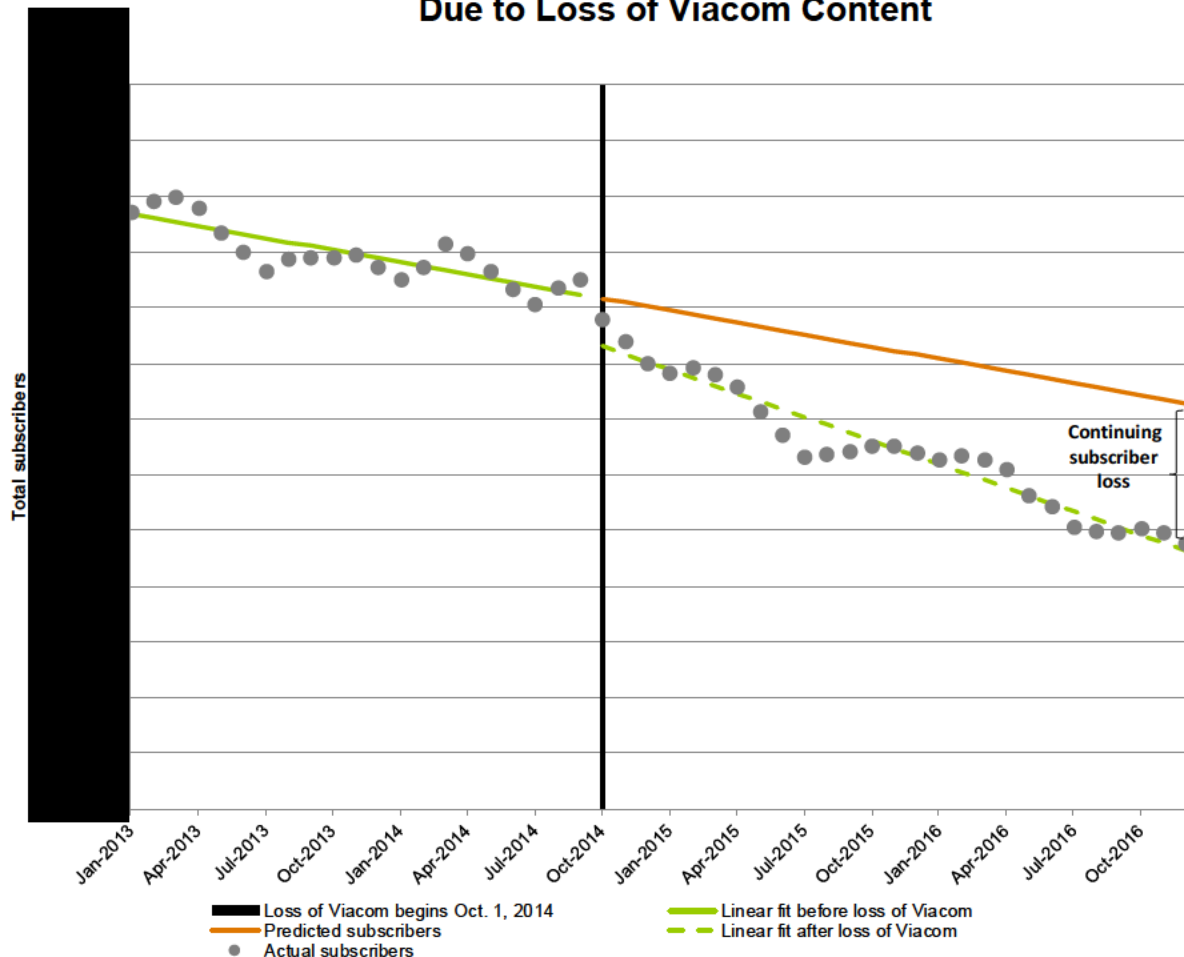
I estimate that Suddenlink's Viacom Subscriber Loss Rate over a 27-month span was roughly ███.[205] An analysis of Suddenlink's new subscriber growth during this period further shows that the cumulative number of new subscribers was reduced by about ███.[206] This estimate is also within the range of estimates for Viacom in the ███ document described above.[207]

These subscriber losses account for any strategies (countermeasures) that Suddenlink employed during this period to mitigate the effects of the Viacom blackout.[208]

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[205] While Suddenlink did not carry the content for over 35 months, I have subscriber data for only 27 of those months.

[206] *See* Appendix F for an explanation of the methodology I use to calculate Suddenlink's Viacom Subscriber Loss Rate.

[207] ████████████████████

[208] ███

Suddenlink's experience during the Viacom blackout further supports my use of 10% as the low-end estimate for Turner. Information from trade analysts and evidence from both third parties and DTV confirm that Turner content is more valuable than Viacom content.[209] Thus, it is likely that the loss of Turner Content would cause an MVPD to lose more than 10% of its subscribers over time.

A long-term Turner Subscriber Loss Rate of 10% is also consistent with the results of a survey designed and performed by Professor John Hauser.[210] Professor Hauser's survey shows that 12.2% more respondents would switch away from their current provider in the event of a permanent Turner blackout than would do so in the absence of a such a blackout. Professor Hauser's survey examines the behavior of current subscribers and does not account for the loss of prospective subscribers over an extended period. Therefore, his results may understate the loss of share that would result from a permanent loss of Turner Content.

The evidence from MVPD documents, analyses by Virtual MVPDs, Suddenlink's experience from losing access to the Viacom content, and Professor Hauser's survey evidence all suggest that the Turner Subscriber Loss Rate is higher than 10% and could be as high as 16%.[211]

In practice, the subscriber loss rate associated with a collection of content is the single most meaningful measure of the commercial value of that content. The Turner Subscriber Loss Rate measures the importance of the Turner Content to video content distributors. The evidence indicates that this rate is significant. My best estimate of the Turner Subscriber Loss Rate, based on the extensive evidence presented in this section, supports the assertion in the Complaint that the Turner Content has market power.[212] This metric also lines up with other metrics used to assess market power. If other available content were a very close substitute for the Turner Content, then the Turner Subscriber Loss Rate would be very low. Likewise, if other available content were a very close substitute for the Turner Content, then the affiliate fees Turner is able to obtain from MVPDs would also be very low.

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[209] *See* ATT-DOJ2R-03541555-595, at -557. ("Our negotiating position [with Turner] is not as strong relative to the Viacom deal", "Going dark may be our strongest leverage, but the impact will be greater than Viacom"); TWI-01478361-375, at -372. ("Removing Turner from the base package causes demand to drop as much as FOX & NBCU and more than every other network except ABC/Disney");

[210] Expert Report of John R. Hauser, Sc.D., Feb.2, 2018. The survey presented approximately 1,600 pay TV subscribers with a scenario involving a choice between their current Pay TV service and two alternatives. Respondents were given a description of the costs involved in switching providers, including the need to call their current provider and having a service technician come to their homes, as well as certain retention offers from their current provider. Respondents were randomly assigned to four equal-sized groups and reviewed group-specific scenarios in which Turner channels were (1) permanently blacked out on their current provider, (2) blacked out for one month, (3) blacked out for one week, or (4) not blacked out at all.

[211] My adjustment for mitigating strategies applied by MVPDs will reduce this estimate to 14% (calculated as 16% × 88%).

[212] Complaint, at ¶24.

8.2 *The DTV Diversion Ratios*

The DTV Diversion Ratio for a given MVPD consists of two components: (1) diversion from that MVPD to U-verse and (2) diversion from that MVPD to DTV. Both of these diversion ratios vary from one MVPD to another. An MVPD that competes more directly against U-verse and DTV will have a higher DTV Diversion Ratio, other things equal.

I use MVPD market shares to derive the diversion ratios to U-verse and to DTV. I estimate the DTV Diversion Ratio for each MVPD by using subscriber market shares in each Local Footprint Overlap Zone level and by assuming that substitution within each Local Footprint Overlap Zone is proportional to these shares.[213] This common assumption is implied by certain standard consumer demand models and is supported by DTV's own documents.[214] However, there is some evidence from other documents that a cable provider (such as Comcast) may be a closer substitute to a telco (such as AT&T's U-verse or Verizon's FIOS) than a DBS provider, and likewise that the two DBS providers (DTV and DISH) may be closer substitutes to each other.[215] Even if this were the case, it would not likely make a meaningful difference to my overall estimates of competitive effects. The reason is that there are two countervailing effects that arise if diversion is not proportional to market share. First, AT&T owns both a telco service, U-verse, and a DBS service, DTV, so a decrease in diversion to DTV is likely to be offset by an increase in diversion to U-verse. So, for example, if a Comcast subscriber is less likely to switch to DTV than implied by proportional diversion, then she is also more likely to switch to U-verse than would be implied by proportional diversions.[216] Second, lower diversions to DTV from cable providers are likely to be somewhat offset by increased diversions to DTV from DISH, the only other DBS provider.

Figure 11 summarizes the diversion ratios calculated on a national basis from MVPDs and Virtual MVPDs to U-verse TV and to DTV.[217] In my calculations, I adjust these diversions downward to account for the fraction of subscribers that, in response to the loss of Turner Content, decide to drop their MVPD subscription altogether (i.e., choose an "Outside Good").[218]

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[213] *See* Appendix J for an explanation of the diversion calculation.

[214] Robert Willig, "Merger Analysis, Industrial Organization Theory, and Merger Guidelines," Brookings Papers on Economic Activity: Microeconomics, 1991; Gregory J. Werden and Luke M. Froeb, "The Effects of Mergers in Differentiated Products Industries: Logit Demand and Merger Policy," *Journal of Law Economics and Organization*, 1994. ATT-DOJ2R-06969063; ATT-DOJ2R-00529674-685.

[215]

[216] Nevertheless, I consider a sensitivity in which I use estimates of diversion ratios available from the two largest cable providers, Charter and Comcast, instead of proportional diversions. I assume proportional diversions for the remaining MVPDs in this sensitivity. These adjustments do not make a significant impact on my harm estimates. A brief description of these results is in footnote 226 and the details are in the backup to my report.

[217] These diversion ratios are calculated as the weighted-average of the Local Footprint Overlap Zone-level diversion ratios, where the weight for a Zone is the percentage of the rival MVPDs' subscribers in that Zone.

[218] The impact of accounting for diversion to options outside the MVPD ecosystem can be seen as equivalent to introducing a new Outside Good option in my diversion calculations. When the diversions are proportional to share this introduction has the effect of reducing diversions to all other MVPD options, including diversions to U-verse and DTV. The smaller this diversion to Outside Good (i.e., fewer the number of subscribers dropping

I also assume that subscribers diverted to DTV and U-verse TV in each Local Footprint Overlap Zone choose video packages in the same proportion as do the existing subscribers of DTV and U-verse TV in that Zone.

Taking into account the extent of competition at the local level, diversions to DTV from rival MVPDs, with the exception of Verizon, range from 36% to 51%. For Virtual MVPDs, the similar estimate is around 25%. For U-verse these diversions range from about 1% to 11%.

For ease of discussion, I present the diversion estimates in Figure 11 at the national level. For my merger effect calculations, however, I rely on more precise estimates calculated at the Local Footprint Overlap Zone level. For example, about 89% of all subscribers in the "Washington DC – Comcast/Verizon/Other" Zone are served by four MVPDs: Verizon, Comcast, DTV, and DISH. DTV has about 8% share of subscribers in this Zone while Comcast has a share of about 50%. Assuming that diversion is proportional to share, and not accounting for switching to the Outside Good, I compute that about 16% of subscribers that switch from Comcast in this Zone would switch to DTV.[219]

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their MVPD subscription in response to loss of a programmer's content), the smaller the reduction in my calculated diversions to U-verse and DTV.

[219] This can be calculated as $8\% \div (100\% - 50\%) = 16\%$.

Figure 11: Diversion Ratios by MVPD and Virtual MVPD
(Before Adjustment for Outside Good)

MVPD	Diversion to U-verse TV	Diversion to DTV
Comcast	10.8%	44.8%
Charter	9.8%	48.1%
Dish	4.2%	39.2%
Verizon	0.0%	13.1%
Cox	9.5%	50.7%
Altice	0.7%	35.9%
Mediacom	1.7%	49.2%
Sling	5.8%	24.2%
Vue	5.9%	23.8%

Source: AT&T Exhibit 2.a.7.201612; ███████████████████████████████
██
████████████████████████████████; SNL Kagan, "Operator Subscribers by Geography,: last accessed
Apr. 24, 2017, available at
https://platform.mi.spglobal.com/web/client?auth=inherit#industry/mediaCensusWrapper?ReportID=f3c5f1a5-6d6a-4bbb-8ccc-f3a3d8567c9f.

8.3 *DTV's Contribution Margin*

To estimate the DTV contribution margin, I rely on AT&T's data on revenues, costs, and lifetime value of subscribers by video package.[220] These data have certain limitations that I discuss in Appendix H to this report. For my calculation of the merger's likely effects, I consider AT&T's margin on both U-verse and DTV products across three service types: video, broadband internet, and fixed voice telephony. Although it is likely that DTV will be able to earn a higher margin on subscribers diverted from rival MVPDs by also selling them AT&T's wireless products, I do not include AT&T's wireless margins in my calculations. This is primarily because I do not have the appropriate data to determine the rate at which new U-verse and DTV subscribers are likely to be upsold on wireless products. To the extent that AT&T is able to upsell new subscribers on wireless products, my calculations tend to underestimate the merger effects.[221]

To estimate the margin that DTV expects to earn on each diverted subscriber, I assume that subscribers who divert to DTV in a given Local Footprint Overlap Zone have overall bundle preferences that are similar to the preferences of the average DTV subscriber in that Local Footprint Overlap Zone. This implies, for example, that if 20% of DTV video subscribers in a given Local Footprint Overlap Zone subscribe to AT&T's broadband internet, then 20% of new

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[220] Backup materials for the presentation of Mark A. Israel, "AT&T/Time Warner Inc. Presentation to U.S. Dept. of Justice Content Foreclosure", Apr. 20, 2017. From Dr. Israel's backup, I rely on *Bundle Product - for Legal team REV (2)_Edited.xlsx* and *Bundle Product - for Legal team REV_Edited.xlsx.*

[221] My margin estimates also do not account for the margins that DTV will earn on its recently introduced DTV NOW service. *See* Appendix I for detail on the calculation of contribution margin.

subscribers diverted to DTV in that Zone would subscribe to a DTV video bundle including broadband internet.

I estimate an implied monthly margin, net of acquisition costs, for each bundle of DTV services. I estimate that the AT&T contribution margin is about ▮ PSPM for an average subscriber. The margin is slightly higher for the bundle of services including U-verse's video offering (▮) than those including DTV's video offering (▮). This is because U-verse offerings are often bundled in packages including broadband service. Because the subscriber choices of bundles and DTV's offerings of services (e.g., broadband internet) can vary by geography, I allow margins to vary based on the combination of services purchased by DTV subscribers in each Local Footprint Overlap Zone.

Figure 12 breaks out these margins by video bundles for both U-verse and DTV. The margins for DTV bundles range from ▮ depending upon the services in the bundle. The margins for U-verse range from ▮ across different bundles.[222] In general, addition of the internet service adds more in margins to a video package than does the addition of a fixed voice telephony service ▮ As shown in the table, a significantly higher fraction of U-verse customers ▮ subscribe to bundles with more than one service than do DTV customers ▮ This also explains the higher average margin earned by U-verse than DTV.

Figure 12. Contribution Margins (Net of Acquisition Costs)
U-verse and DTV, By Video Bundle

Bundle	U-verse		DTV	
	Subscribers	Margins	Subscribers	Margins
Video only	75,913	▮	14,779,927	▮
Video and telephony	94,021	▮	648,904	▮
Video and internet	2,085,325	▮	2,375,928	▮
Video, telephony, and internet	1,979,658	▮	2,309,363	▮
Overall	4,234,917	▮	20,114,122	▮

9. Results from the Bargaining Model: Turner Fees to Rival MVPDs

Applying bargaining theory, the model predicts that the merger will cause a price increase for the Turner Content of $0.76 PSPM. This figure is a weighted average estimate across MVPDs, where the weights are the number of subscribers. Considered separately, large cable providers,

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[222] Backup materials for the presentation of Mark A. Israel, "AT&T/Time Warner Inc. Presentation to U.S. Dept. of Justice Content Foreclosure," submitted to DOJ on Apr. 20, 2017. Material submitted in the backup suggests there is some evidence that AT&T's Video product (IPTV) has a negative lifetime value when sold as a standalone offering. See: *LTV Overview.pdf*. The document does not explain the reason for why AT&T would sell a standalone product that earns negative margins in the long run. Only 0.3% of all AT&T and DTV customers subscriber to this offering. Assigning zero margins to this product do not make a material impact to my overall U-verse margin, decreasing it by less than 50 cents.

Comcast and Charter, experience some of the highest increases in their total fees for the Turner Content: they would face increases of $0.89 and $0.95 PSPM, respectively, spread across their large subscriber bases.[223] Cox, a relatively smaller cable provider, will also face a large increase of $0.96. Verizon, because of its limited overlap with DTV and hence lower diversions to DTV, experiences the smallest PSPM increase, $0.18.[224] The average PSPM increase of $0.76 represents a 16.2% increase in the weighted average fee of $4.71 PSPM that these MVPDs are currently paying for the Turner Content. The $0.76 PSPM increase translates into a total fee increase for the Turner Content of about $48.9 million per month, or $586.6 million per year. Figure 13 breaks down this total fee increase by MVPD.[225]

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[223] My analysis separately evaluates the change in bilateral bargaining between Turner and each of the MVPDs listed in Figure 13. These are the predicted effects once each of the Turner/MVPDs carriage agreements has been renegotiated following the merger. Since the expiration dates of the current contracts are staggered, I would expect the effects of the merger to develop over time. The timing of cost increases to AT&T's MVPD rivals in the near term will depend on when those contracts and most favored nation clauses expire and when AT&T enters into new agreements to license Turner Content to its rivals. The timing of harm to final consumers will further depend on when AT&T's rivals implement their subscription price increases, which typically occur on an annual basis.

[224] The "Other MVPDs" category shown in the figure largely consists of small cable companies, over builders, and telcos. Because I do not have subscriber data from these MVPDs, I estimate the harm for this category as the weighted average of the harm to relatively smaller MVPDs that I do have data from, Altice and Mediacom. To estimate the impact for Virtual MVPDs, I assume that 10% of all Virtual MVPD subscribers also subscribe to an MVPD service. This assumption is supported by ██████████████████ and DIRECTV NOW subscription data provided by DIRECTV. ██████████████

[225] As discussed in a previous footnote, the FCC's Program Access Rules will apply to the Turner Content after the merger. These rules, among other things, are meant to discourage price discrimination against the competitors of a video content distributor who is vertically integrated into programming. As Professor Wilkie has written in his expert report, it is quite difficult for MVPDs to obtain relief under these rules, and different prices can be applied to video content distributors of different sizes. However, to the extent that the rules might be binding on fees that Turner can charge some MVPDs after the merger, the FCC has acknowledged that its Program Access Rules do not prevent a vertically integrated programmer from pursuing a strategy of raising prices to all of its similarly sized rival distributors in a non-discriminatory way. *See* Comcast Order, 26 FCC Rcd. 4238, at ¶49 ("Comcast could pay the same fees as its MVPD rivals or could choose to pay the highest fee that NBCU charges a competing MVPD. Therefore, our program access rules, which address discriminatory pricing, inadequately address the potential harms presented by the increased ability and incentive of Comcast-NBCU to uniformly raise Comcast's rivals' fees."). (The demand by MVPDs for most favored nation clauses might also limit the discriminatory pricing.) The effect of a binding non-discrimination rule on the price effects in the model would simply be to result in higher price increases for some MVPDs and lower increases for others, such that the resulting set of prices does not rule afoul of the rules. I would expect that the average price increase in the face of such a binding non-discrimination rule to be similar to the average price increase that I have calculated.

Figure 13: Predicted Turner Monthly Fee Increases
for Rival MVPDs

MVPD	Turner subscribers	PSPM increase in carriage fee	% increase in PSPM carriage fee	Total change in carriage fee per month ($)
Comcast	18,669,042	$0.89	19.9%	$16,667,223
Charter	14,409,233	$0.95	20.0%	$13,743,575
Dish	10,420,924	$0.73	16.6%	$7,592,570
Verizon	4,381,643	$0.18	3.7%	$791,475
Cox	3,183,534	$0.96	20.0%	$3,070,567
Altice	3,400,015	$0.47	9.7%	$1,584,281
Mediacom	706,332	$0.79	15.0%	$557,140
Other MVPDs	7,446,731	$0.55	10.5%	$4,063,190
Sling (vMVPD)	1,168,737	$0.55	10.3%	$647,195
Playstation Vue (vMVPD)	297,496	$0.55	8.6%	$163,243
Overall	**64,083,686**	**$0.76**	**16.2%**	**$48,880,459**
			Annual Impact	**$586,565,513**

As I stated above, predicted fee increases are proportional to the Turner Subscriber Loss Rate, so if my estimate of the Turner Subscriber Loss Rate is 20% too low (or high), then my estimate of the predicted price increase will likewise be 20% too low (or high).

If the Subscriber Loss Rate were 16% rather than 10%, the same as the high end of the range from the Charter document and about the middle point of the range in the Virtual MVPD documents, the predicted increase in costs would be $76 million per month rather than $48.9 million per month. On an annual basis, the increase in costs would be $912.4 million rather than $586.6 million.[226]

AT&T may argue that some fraction of subscribers diverting due to the loss of Turner Content will not drop their existing broadband connection and may only take up DTV's video offering. A version of this argument has already been offered by one of AT&T's economists.[227] Essentially, the argument is that subscribers diverted from rival MVPDs and Virtual MVPDs will

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[226] As I explained in footnote 216, I also consider a sensitivity to my proportional diversions assumption. Specifically, I use estimates of diversion ratios available from the internal documents of the two largest cable providers, ▮▮▮▮▮▮▮▮▮ I assume proportional diversions for the remaining MVPDs in this sensitivity analysis. Applying these adjustments has only a modest impact on my harm estimates. From the ▮▮▮▮ documents, I derive diversion (before the Outside Good adjustment) to DTV of 33% and to U-verse of 14%. Similarly, from a ▮▮▮ document, I derive diversion from ▮▮▮ to DTV as 44% ▮▮▮▮▮▮▮▮ as 8%. The resulting estimate of harm after these adjustments is about $3.7 million smaller than my baseline estimate of about $49 million, an overall reduction of less than 8%. ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

[227] Mark A. Israel, "Shortcomings of Bargaining-Based Theories of Harm," 13, presentation to DOJ (Jun. 29, 2017).

be lower-margin customers than DTV's existing customer base. AT&T's internal documents, however, do not support this argument. An internal AT&T document shows that during a 2015 DISH-programmer dispute, the subscribers that AT&T gained were high-margin (high lifetime value) subscribers.[228]

Notwithstanding this contradicting evidence, as a sensitivity analysis, I consider the impact that this change would have on my results. Specifically, I estimate the fee increase that the merged firm would achieve if the diverted subscribers choose only DTV's video offering, using the 10% figure for the Turner Subscriber Loss Rate. This estimation yields an overall predicted fee increase for Turner Content that is about 20% lower than that shown in Figure 13: $39.0 million per month instead of $48.9 million per month. These results are shown in more detail in Appendix G.5.

10. Elimination of Double Marginalization and Opportunity Cost

The proposed merger may also create an incentive for DTV to lower its price to subscribers if that lower price would benefit Turner by expanding the number of viewers with access to Turner Content. Prior to the merger, DTV does not account for this potentially positive effect on Turner's profits when setting its price. After the merger, if the resulting expansion of DTV subscribers benefits Turner, then the combined DTV and Turner would find it profitable to decrease price to some degree.

Economists refer to this potential incentive to lower price due to a vertical merger as the Elimination of Double Marginalization ["EDM"].[229] Here, EDM is economically equivalent to a reduction in the merged firm's marginal cost of providing MVPD services. EDM occurs in response to a vertical merger only if the pre-merger contract between the merging parties does not already incentivize the downstream firm to set its price to maximize joint profits. In the current case, the pre-merger contract between Turner and DTV does not appear to incentivize DTV to set its price to maximize the joint profits of Turner and DTV.[230]

The EDM effect occurs post-merger because in setting its price to consumers, DTV will take into account the effect its price has on the profits of Turner. If a lower price by DTV increases Turner's profits because it results in more consumers with access to Turner Content, the merger will create downward pressure on Turner's price. However, if a lower price has no effect on Turner profits because all the new DTV subscribers were cannibalized from other MVPDs that were paying Turner the same per subscriber fee that Turner was pre-merger, there will be no change in Turner profits from a DTV price decrease and thus no EDM effect. This analysis is demonstrated mathematically in Appendix K.

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[228] ATT-DOJ2R-07217762– 766, at -765 ("The incremental gross adds we have gained from the DISH-FOX dispute are over-indexing as Super Low Risk, High Value subscribers (███LTVs). In the Dispute period, Super Low Risk sub volume increased ███ while Low and Mid risk subs decreased.").

[229] EDM is a common element in the antitrust analysis of vertical mergers. See supra note 160.

[230] In contrast, the pre-merger contract between HBO and DTV is much closer to what economists call a "two-part tariff." As a result, the possibility of a meaningful efficiency based on EDM does not arise for the HBO Content.

Therefore, the EDM effect here depends upon a lower DTV price attracting new subscribers who do not already have access to the Turner Content and thus already generating revenue for Turner. There are two possible sources of such subscribers: (1) consumers who do not currently subscribe to an MVPD and (2) MVPD subscribers whose current subscription does not grant them access to Turner Content.

The evidence shows that the effect of a decrease in DTV's price on the profits earned by the Turner Content is greatly moderated by the fact that the vast majority of current MVPD subscribers already have access to the Turner Content. Put differently, if a lower DTV price expands the number of DTV subscribers by attracting only subscribers who already have access to Turner Content via other MVPDs, then there is no EDM effect. Since Turner Content is already very widely distributed to the video subscribers at all of major MVPDs, the EDM effect for Turner in this case is smaller than the EDM effect often seen in vertical mergers in other industries. This is one critical reason why the vertical merger between AT&T and Time Warner is more problematic than many other vertical mergers.

In my estimate of the net effect of the proposed merger on MVPD costs described below, I include the effects of EDM between Turner and DTV by appropriately accounting for the opportunity cost to Turner for subscribers that DTV gains from other MVPDs. In particular, to quantify the EDM effect, I measure the decline in the marginal cost of Turner programming at DTV (accounting for diversion from Turner subscribers at other MVPDs) resulting from the proposed merger.

I estimate that the proposed merger will reduce DTV's marginal cost of Turner Content by $1.20 PSPM.[231] This estimate is computed by taking the difference between the per subscriber rate that Turner earns from DTV and the per subscriber rate that Turner earns from new subscribers that choose DTV as a result of a price decrease. To the extent that some fraction of the new subscribers attracted to DTV by a price decrease are also new subscribers to the Turner Content and thus represent wholly incremental revenue to Turner, there will be a reduction in marginal costs and, therefore, an EDM effect. The higher is this fraction of new subscribers, the higher will be the EDM effect.

In each local market, I estimate the fraction of new DTV subscribers that are likely to be new Turner subscribers. I rely on estimates available in documents to determine this fraction.[232] I compute DTV's marginal cost reduction in each local Zone by multiplying this fraction by the

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[231] EDM captures the merged firm's incentive to lower price to its downstream consumers. I model this as an equivalent marginal cost decrease. Therefore, this $1.20 decrease in DTV's marginal cost is the economic equivalent of DTV's incentive to lower downstream price regardless of whether the nominal fee paid by DTV to Turner (which will be an internal transfer price after the merger) changes as a result of the merger.

[232] ██
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revenue that Turner earns on each DTV subscriber. I then compute the average marginal cost reduction by calculating the average marginal cost reduction at the local Zone level after weighting by DTV's subscriber counts. This calculation yields a DTV marginal cost reduction estimate of $1.20 PSPM.[233]

Multiplying the 24.4 million DTV subscribers with Turner content by the $1.20 PSPM term yields expected savings for DTV of about $29.3 million per month.[234]

The calculation above did not distinguish between DTV subscribers based on the programming package that they purchase from DTV. However, the EDM effect most likely varies significantly across DTV programming tiers, with little or no EDM effect for high-end packages but a meaningful EDM effect for low-end packages. This would be the case if new DTV subscribers of high-end packages who are attracted by a DTV price decrease are very likely to be switching from another MVPD where they already have access to the Turner Content, while new DTV subscribers to a lower-end package who are attracted by a DTV price decrease are more likely to be gaining access to the Turner Content.

11. Net Impact on MVPD Costs

The proposed merger between AT&T and Time Warner would have two countervailing effects on costs of Turner Content to MVPDs: (1) Raising Rivals' Costs: all of DTV's rivals would have higher costs as the merger would cause them to pay higher fees for the Turner Content, and (2) Elimination of Double Marginalization: DTV itself would face lower costs for Turner Content due to the EDM effect. My analysis indicates that the first effect will dominate the second effect and, on net, the fees paid by MVPDs for Turner Content would increase. The net effect on the overall PSPM cost to MVPDs of the Turner Content can be computed as the weighted average change in Turner's PSPM costs for both DTV and its rivals. This weighted average change represents the market-wide net increase in Turner's PSPM fee.

Figure 14 below presents the net effect of the merger on MVPD costs for the Turner Content. The bargaining model predicts increases in Turner fees paid by rival MVPDs of $48.9 million per month. The EDM analysis predicts savings to DTV of about $29.3 million per month. Therefore, the net effect attributable to Turner Content is an increase in MVPD costs of about $19.6 million. Annually, this works out to an increase in MVPD costs of about $235.4 million. In PSPM terms, this effect is equivalent to an increase of about $0.22 in MVPD costs. This corresponds to a 5% increase in the cost to MVPDs (including DTV and its rivals) for Turner Content. This represents a significant increase in the cost of programming to MVPDs and thus a harm to competition.

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[233] For this calculation, I rely on the Charter document's high-end estimate of diversion to the Outside Good of ▨▨▨ However, the same document also provides another lower estimate of the diversion to the Outside Good of about ▨▨▨ That estimate is based on the assumption that a significant fraction of subscribers that retain their broadband internet connection are likely to obtain access to Turner content either through Virtual MVPDs or other means. Using this lower estimate of diversion would yield a lower EDM effect of about $0.85 PSPM. *See* CHTR-CID-012471-569, at -508.

[234] At the lower diversion rate of 12%, the EDM savings would be about $20.8 million per month.

Figure 14. Predicted Net Change in MVPD Monthly Costs for Turner Content Due to the Merger
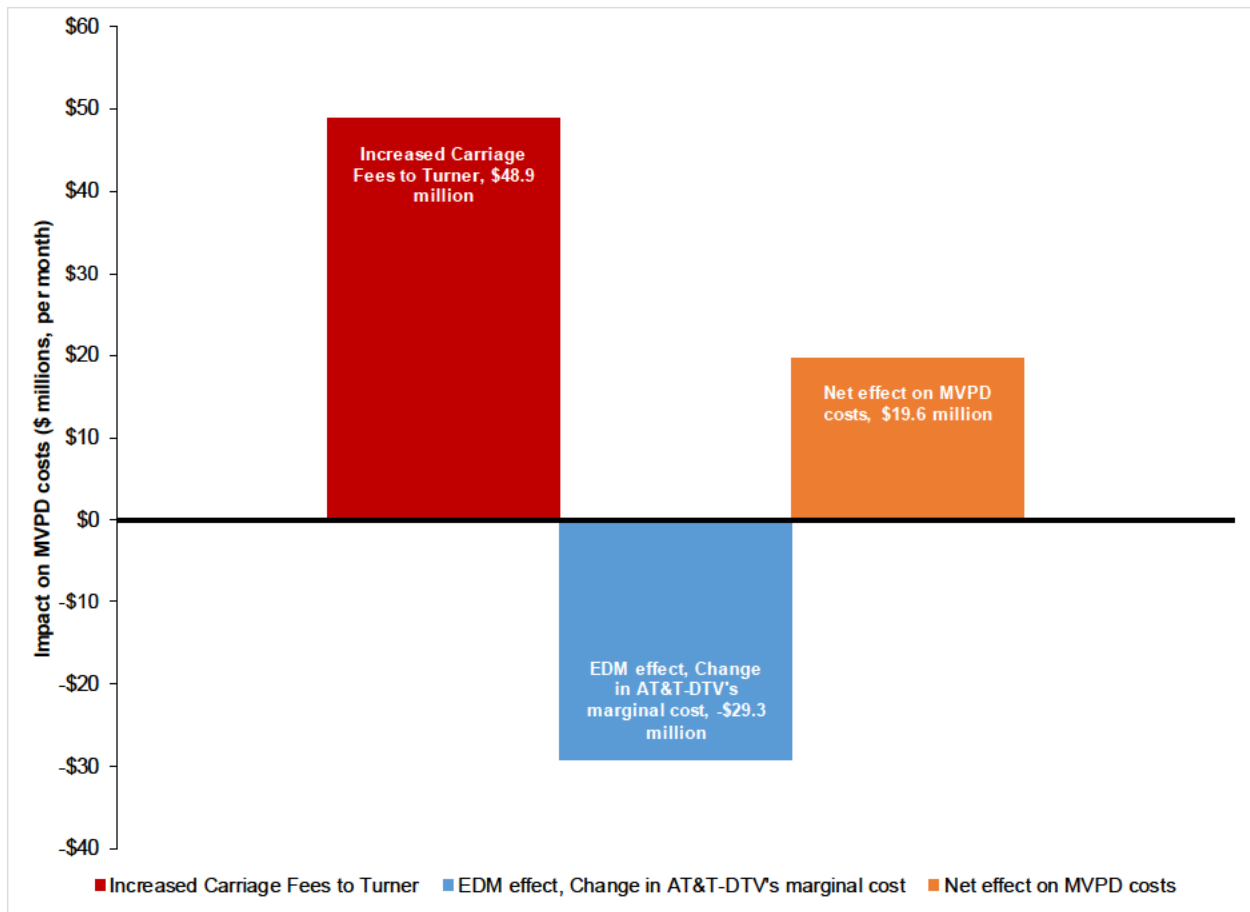
The estimated effects reported above are based on the lower end of the range of anticipated subscriber loss rates. If the Turner Subscriber Loss Rate is 16% (the upper end of the rate from the Charter document) rather than 10%, the bargaining model predicts increase in Turner fees paid by rival MVPDs of $76.0 million per month rather than $48.9 million per month.[235] As the higher subscriber loss rate does not affect the EDM estimate, the result is an overall net increase the cost of Turner content of about $46.8 million per month or $561 million annually.

12. Impact on Consumers

The increase in rival MVPDs' costs of over $48 million per month and the EDM effect of a reduction in DTV's marginal cost of about $29 million will be passed through at some rate to consumers. Depending on the nature of the downstream competition between MVPDs, this rate may be different for cost decreases that DTV would experience due to EDM than for the cost increases that DTV's rivals will experience as a result of the merger. This rate is also affected by the extent of competition in local areas. This is because MVPDs will consider responding not

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[235] *See* Figure 13.

only to their own cost change as a result of the merger, but also to the price changes of their local competitors. The rate at which an MVPD passes through a cost increase in a local area may depend on how strong DTV, the only MVPD facing a cost decrease, is as a competitor in that local area. I consider two alternative ways of estimating the resulting effects on consumers.

For the first and the simplest approach, I use the net effect of $19.6 million that I present in the section above and apply a single pass through rate to that figure. This is equivalent to assuming that the same pass-through rate applies to the cost changes experienced by all of the MVPDs. Documentary evidence from MVPDs suggests that they "aim to cover programming costs through price increases."[236] AT&T has passed through more than ▮▮▮ of content cost increases to its subscribers in recent years.[237] Applying a range of 75%–100% pass-through rates to the cost increases for DTV's rivals and to the cost decreases for DTV implies a range of increased prices to consumers of between $14.7 million and $19.6 million per month, or between $176.5 and $235.4 million a year. There is some limited evidence for a pass-through rate lower than 75%.[238] Applying a pass through rate as low as 50% would imply an increased cost of $117.7 million a year, or $9.8 million a month.

As an alternative approach to evaluate the rate at which MVPD costs are passed through to final consumers, I apply a standard merger simulation model to the downstream local MVPD markets. This model is based on certain assumptions that are generally accepted in the antitrust economics literature.[239] This model of competition among MVPDs in each Local Footprint Overlap Zone follows the common approach of using a logit demand system and solving for equilibrium prices set by the various MVPDs.

This model allows one to account for a change in the merged firm's incentives and the resulting impact on the price that it sets after the merger, after internalizing the reduction in Turner Content's cost to DTV. In other words, this merger simulation model allows one to simultaneously account for the effect of raising rivals' costs and EDM on the prices paid by consumers. This merger simulation model also allows one to explicitly model the different impact that the asymmetric cost changes predicted by the bargaining model will have on the prices set by all MVPDs using an equilibrium model. Furthermore, the merger simulation model accounts for each firm's incentives to pass through its own cost changes and its strategic

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[236] ATT-DOJ2R-06409914, at 3, 6; *see also* ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ ▮▮▮▮▮; ATT-DOJ2R-00009785, at 4, ATT-DOJ2R-01537108, at 11; ATT-DOJ2R-15018109, at 4;ATT-DOJ2R-00036680; ATT-LIT-01325599 at 2.

[237] ATT-DOJ2R-04514757-759 (showing cost and revenue increases corresponding to a ▮▮▮ pass-through in 2016-17 and a ▮▮▮ pass-through in 2015-16); ATT-LIT-01325422 (showing cost and revenue increases corresponding to a ▮▮▮ pass-through for 2018).

[238] ▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

[239] Robert Willig, "Merger Analysis, Industrial Organization Theory, and Merger Guidelines," Brookings Papers on Economic Activity: Microeconomics (1991); Gregory J. Werden and Luke M. Froeb, "The Effects of Mergers in Differentiated Products Industries: Logit Demand and Merger Policy," *Journal of Law Economics and Organization* (1994).

response to the cost changes experienced by rival MVPDs.[240] The model is described in detail in Appendix L.

The inputs to the model consist of Turner's PSPM licensing fees and advertising revenue, subscription prices set by the various MVPDs, MVPD shares in the Local Footprint Overlap Zones, AT&T's price/cost margin in each Zone, and the popularity of the Outside Good.[241] The unknown parameters of the model are calibrated using pre-merger data. The post-merger effects are then estimated under the assumption that DTV is integrated with Turner, using the data and calibrated parameters. After the merger, MVPDs other than DTV experience the cost increases identified in Section 9 above.

This merger simulation model generates a prediction about the impact of the merger on the downstream MVPD subscription prices, and thus on final consumers. The model predicts that consumers will face higher prices amounting to a total of $23.9 million more per month for MVPD services.[242] This figure accounts for both the higher costs borne by DTV's rivals and for the EDM at DTV.

As reported above, the merger would cause rival MVPDs to experience a cost increase of $48.9 million per month. The model predicts that, as a group, these rival MVPDs would pass through 62.8% of these cost increases, causing consumers to pay $30.2 million more per month. As reported above, the merger would also cause DTV to experience a cost decrease of $29.3 million per month. The model predicts that DTV would pass through just 21.7% of this cost decrease, saving consumers $6.3 million per month. On net, consumers would pay $23.9 million more per month. This exceeds the $19.6 million per month estimate using a 100% pass-through rate for all MVPDs. The reason is that the equilibrium pass-through rate in the merger simulation model for the rival MVPD cost increases is larger than for the DTV cost decreases.[243]

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[240] This simulation does not model the price-setting behavior of Virtual MVPDs.

[241] As in the bargaining model, the share of the Outside Good is taken to be roughly 10% in each Zone.

[242] Some customers are expected to leave the market rather than pay the higher prices from the merger.

[243] These results highlight the value of the merger simulation approach. The overall harm implied by this approach is greater than that implied by the application of a flat pass-through rate because the merger simulation captures variations in the competitive situation looking across different local areas, which affects the strategic responses of DTV and its rivals to changes in their costs. In Zones where DTV has a small share, it is likely to pass through a smaller portion of its cost decrease, while rival MVPDs are likely to pass a bigger fraction of their cost increases. This occurs because in such areas, firms with a large share of the market would face a cost increase, leading them to pass through most of that cost increase to consumers. Additionally, as rival MVPDs raise their prices (due to an increase in their costs), DTV will have the incentive to respond by increasing its own price, other things equal. The combined effect will tend to reduce DTV's incentive to pass through its cost decrease. The pattern is supported by Figure 18. Zones with three or four MVPDs see an average increase in prices (and, therefore, harm), while Zones with two MVPDs (one of which is DTV) see an average decrease in price. A stark example of this competitive interaction can be seen in the change in Verizon's price predicted by the merger simulation. As I show above, due to its relatively smaller overlap with DTV, Verizon will see a smaller cost increase. However, Verizon's main rivals, Comcast and Charter, would experience a larger cost increase. As a result, Verizon would have an incentive to pass through a large fraction its small cost increase as well as respond to the price increase of its rivals by increasing its own prices. Between these two effects, Verizon's price increase would be greater than its own cost increase.

Figure 15. Predicted Impact of Merger on Consumers

Using Merger Simulation Model

MVPD	Increase in monthly cost to consumers ($, PSPM)	Increase in monthly cost to consumers ($, Monthly)	Implied pass-through rate
DTV	($0.26)	($6,300,033)	21.7%
Comcast	$0.46	$8,518,582	51.1%
Charter	$0.56	$8,091,395	58.9%
Dish	$0.60	$6,262,127	82.5%
Verizon	$0.26	$1,125,357	142.3%
Cox	$0.22	$744,703	47.0%
Altice	$0.54	$1,719,786	56.0%
Mediacom	$0.60	$423,139	75.9%
Other MVPDs	$0.44	$3,282,323	80.8%
Overall	**$0.27**	**$23,867,378**	**121.7%**
	Annual Impact	**$286,408,538**	

13. Impact on Consumers in Local Areas

I now report these results at the level of DMAs. The net harm to consumers in each DMA is obtained by adding up the net harm in each Local Footprint Overlap Zone in that DMA.

Figure 16 shows the net effect of raising rivals' cost and elimination of double marginalization on an average affected consumer in DMAs with more than one million subscribers. In each of these DMAs, the merger will cause consumers to pay higher prices for MVPD subscriptions. The average affected consumer in each of the remaining DMAs will also see a price increase. As shown in Figure 17, the predicted price increases, when broken out by Zone, show that of the 1,165 Zones, 240 Zones will see either no price increase or a price decrease, on average.[244] These 240 Zones account for a little over 2% of all Turner subscribers.

Figure 18 below shows the pattern of merger effects broken out by Zones and by the number of competitors in those Zones. The Zones predicted to benefit from a price decrease (on average) are typically Zones with fewer subscribers and with fewer competing MVPDs (DTV is one of them and Dish is usually the other). DTV tends to have higher shares in these zones with fewer competitors. All else being equal, subscribers in Zones with more rival MVPDs are likely to observe higher post-merger prices because of the greater impact of the increase in rivals' costs. In contrast, in Zones with two MVPDs (with DTV being one of them), DTV is more likely to

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[244] Of the 1,174 Zones in total, AT&T-DTV is not present in seven Zones, and two zones ("HARRISBURG-LANCASTER-LEBANON-YORK, PA - NOCABLE - VERIZON" and "PROVIDENCE, RI-NEW BEDFORD, MA - NOCABLE - VERIZON") contain virtually just one MVPD (Verizon has a share of 98.5% and 99.1% respectively). I exclude these nine Zones from the post-merger price redange calculations.

have a substantial presence. The rival's ability to pass on cost increases in these Zones is likely limited because its sole competitor enjoys a cost reduction.

Figure 16. Predicted Increase in Annual Costs to Consumers in Major DMAs Using Merger Simulation Model

DMA	Turner Subscribers (millions)	Increase in cost to consumers ($, PSPM)	Increase in cost to consumers ($, monthly)
NEW YORK, NY	5.82	$0.25	$1,457,108
LOS ANGELES, CA	3.50	$0.27	$962,403
CHICAGO, IL	2.54	$0.22	$567,871
PHILADELPHIA, PA	2.47	$0.34	$841,944
BOSTON, MA (MANCHESTER, NH)	2.02	$0.31	$619,099
WASHINGTON, DC (HAGERSTOWN, MD)	1.97	$0.33	$659,885
ATLANTA, GA	1.88	$0.17	$310,279
DALLAS-FT. WORTH, TX	1.84	$0.15	$284,898
SAN FRANCISCO-OAKLAND-SAN JOSE, CA	1.81	$0.19	$350,319
HOUSTON, TX	1.66	$0.10	$162,444
TAMPA-ST. PETERSBURG (SARASOTA), FL	1.47	$0.50	$735,449
DETROIT, MI	1.37	$0.27	$375,125
SEATTLE-TACOMA, WA	1.36	$0.32	$440,193
PHOENIX (PRESCOTT), AZ	1.34	$0.28	$374,115
MIAMI-FT. LAUDERDALE, FL	1.31	$0.15	$195,422
DENVER, CO	1.20	$0.25	$304,134
MINNEAPOLIS-ST. PAUL, MN	1.20	$0.30	$358,439
ORLANDO-DAYTONA BEACH-MELBOURNE, FL	1.19	$0.32	$387,753
SACRAMENTO-STOCKTON-MODESTO, CA	1.12	$0.21	$235,736
CLEVELAND-AKRON (CANTON), OH	1.10	$0.32	$351,295

Figure 17. Merger Effects by Local Footprint Overlap Zone

Merger effect	Number of Zones	% of Zones	% of Turner subscribers	Average price change ($, PSPM)
Price increase	925	79.4%	97.7%	$0.29
No price increase (or a decrease)	240	20.6%	2.3%	($0.16)
Total	**1,165**	**100.0%**	**100.0%**	**$0.27**

Figure 18. Merger Effects by Local Footprint Overlap Zone and Number of Competing MVPDs
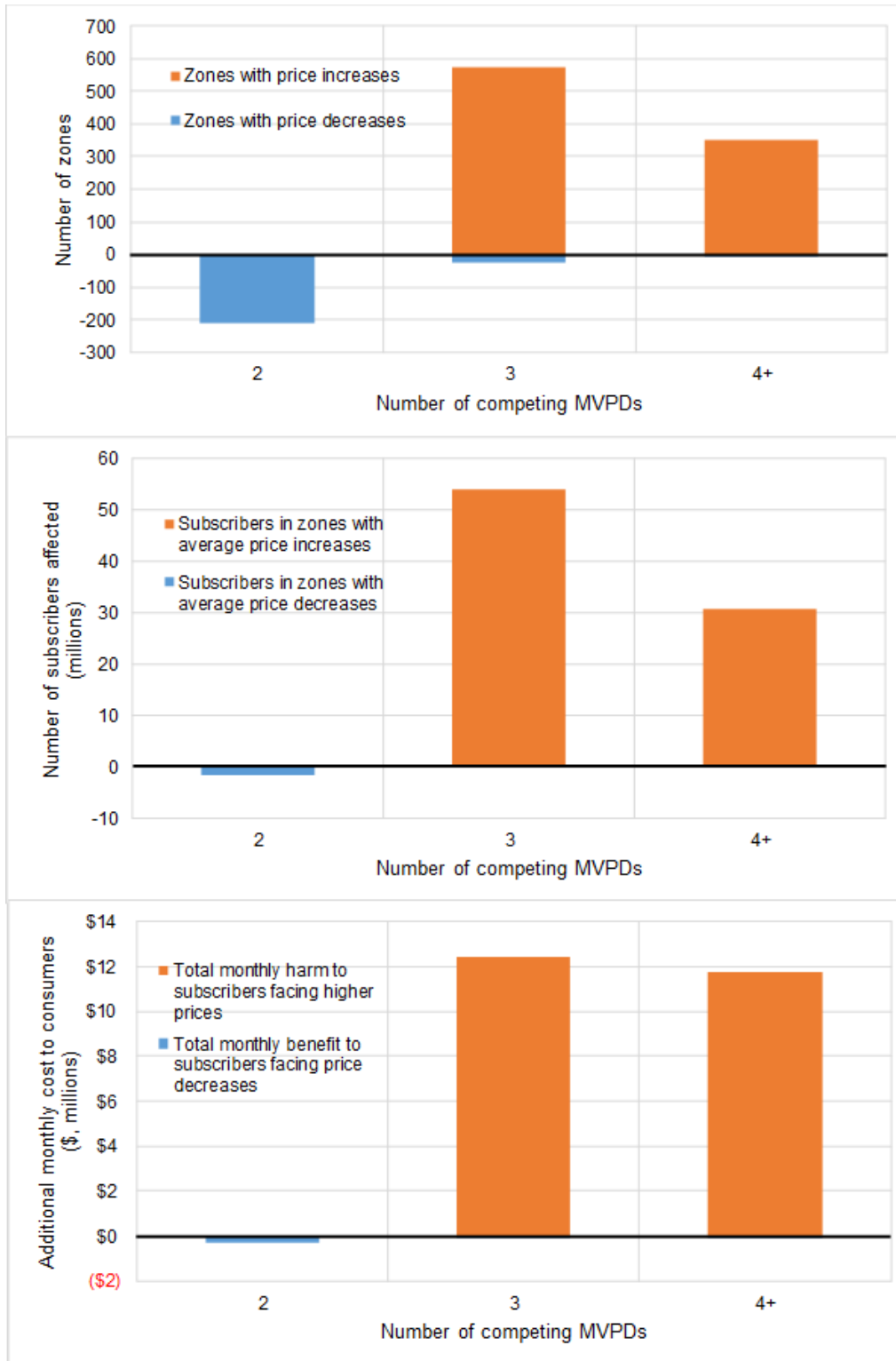
14. Lessening Competition Through Control of HBO

HBO has been an important MVPD tool for retaining and attracting subscribers. Promotional offers that include free or discounted HBO appear to be particularly effective relative to other promotions of similar cost to MVPDs. HBO controls, through its contract with MVPDs, how HBO can be used by MVPDs as a promotional tool. However, AT&T's acquisition of the HBO Content would change the incentive of HBO with regard to its use as a promotional tool by MVPDs who compete against DTV. After the merger, AT&T will be less willing to allow HBO to be used as a tool by AT&T's rivals for retaining or attracting subscribers who might otherwise subscribe to an AT&T MVPD or Virtual MVPD.

14.1 *MVPDs Use HBO to Attract and Retain Subscribers*

HBO's preeminence and "brand halo" makes it an especially effective tool for MVPDs to use to attract and retain subscribers.[245] Of course, when an MVPD is seeking to attract a new customer, it is competing with other MVPDs, either because it is trying to take that customer away from one of its rivals, or because they are competing for a customer currently without MVPD service. Likewise, when seeking to retain a customer, an MVPD is competing with its rivals to whom that customer might switch. HBO has helped MVPDs in these competitive struggles for customers.

HBO has long positioned itself as a tool for MVPDs to grow and maintain their base of video subscribers. Though it is now "long past the point where [it] need[s] to prove [its] worth,"[246] HBO still routinely tells MVPDs how it can help them grow their business[247] and has accumulated extensive evidence from research and case studies that HBO can drive MVPD acquisitions, margins, and market share.[248] Over time, HBO has linked the expanded use of

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[245] ATT-DOJ2R-03061562-569, at 563 (Citing HBO as a "Proven acquisition driver"). *See also* Deposition of Beth Main, Jan. 5, 2018, at 61:11–22 (MVPDs want to use HBO branding and content because it is an "awesome brand" that "helps them sell more of whatever they're trying to sell"). Plepler Dep., at 33: 19 – 34: 20 ("can we continue to keep the halo on our brand quality so that we are and continue to be a very compelling product to sell both here and around the world?").

[246] Main Dep., at 15:4–18 (HBO long past the point of having to prove its worth and now works with MVPDs to grow their video businesses).

[247] Main Dep., at 26:5–10 (pitches to affiliates focus on how they can use HBO to grow video business generally); Deposition of Simon Sutton, Jan. 19, 2018, at 116:6–18 ("We would argue that they could use HBO more effectively in bundles to customers, because we believe customers, if presented at the same price between Starz, Showtime and HBO, will choose HBO over Showtime and Starz to a significant degree."), 81:13–82:17 (HBO used to help grow MVPDs' businesses or ameliorate losses), 112:6–113:25 (HBO will argue with affiliates that HBO increases consumer engagement, reduces churn, helps up-sell customers, and helps attract higher ARPU customers).

[248] TWI-03354255-308 (Schoen presentation to DirecTV, March 2015); TWI-06444858 (Affiliate Pricing and Packaging Strategies, 2016) (outlining successful packaging strategies and results achieved by other MVPDs); TWI-05044779-779 (Email from Beth Main to Tom Woodbury, Simon Sutton, Aulestia Bernadette, and Melissa Barnett, Mar. 02, 2016.) (telling Comcast HBO's "effectiveness in driving sales of other products is well established"); ██

HBO by an MVPD to reduced losses of basic video subscribers, higher product penetration among existing customers, stronger sales of double-play bundles, better market share performance, increased engagement, and attraction/retention of valuable high-ARPU subscribers.[249] HBO presents this research and experience to MVPDs to get them to sell more HBO and relies on it in the ordinary course of business.[250] As a notable example, much of the evidence that HBO had accumulated in the United States as of early 2016 showing the role HBO can play in helping an MVPD succeed was presented to the international side of HBO's distribution business as illustrative of best practices.[251] In one example, referred to both internally and externally, ██████ saw a doubling of the signups for its ██████ bundle of Internet and TV after the addition of HBO to the package.[252] Specifically, after adding HBO to the bundle, ██████ saw 79% more people coming to ██████ from outside the ██████ platform, 169% more people upgrading from broadband-only (who were previously getting MVPD services elsewhere or not at all), and an 83% increase in people taking ██████ as a save offer instead of cancelling their double play package altogether.[253] As recently as fall 2017, HBO has presented affiliates with third-party research showing that HBO is the #1 network in generating interest in skinny bundles (out of broadcast, cable, and premiums), deemed an essential component of such a package by 31% of people surveyed.[254]

██████████████████████████; TWI-01427724-739 (2013 Deal Proposal to SuddenLink); TWI-04032849-863 (HBO/Suddenlink Deal Bundling & Packaging Update, Oct. 2013); TWI-07023190-201 (Packaging HBO and Complementary Products); TWI-01428343-354 (Schoen deck for Charter) (finding HBO among the most convincing reasons to switch to Charter); CHR2-DOJ-00000139562-610; TWI-01426750-750, email from M. Barnett and S. Sutton, HBO, to A. Singer, Charter, Sep. 23, 2015; Main Dep., at 100–113; Deposition of Gina DeSantis, Jan. 4, 2018, at 116:13–118:2; Sutton Dep., at 116:6–18, 81:13–82:17, 112:6–113:25; ATT-DOJ2R-06577463-474.

[249] TWI-06444858, at 3 (Affiliate Pricing & Packaging Strategy deck, Attachment in email from Jane Miller to DeSantis, Feb. 23, 2016); Main Dep., at 100–13; Sutton Dep., at 112:6–113:25 (HBO tells MVPDs that HBO subscriptions increase consumer engagement, reduce churn, help up-sell customers, and help attract higher ARPU customers).

[250] Main Dep., at 98:10–99:15, 101:13–102:11; Desantis Dep., at 35:9–37:21. Main Dep., at 98:10–99:15, 101:13–102:11; Desantis Dep., at 35:9–37:21; TWI-01427805-833, at -832 (December 2016 presentation to Altice, encouraging Altice to "[r]ecapture market share by leveraging HBO in offers to non-Altice customers" and to use HBO to reinforce value of its packaging); TWI-LIT-00455723-724 (recommending approval of a Verizon offer that "could really drive basics over what [Verizon had] been doing"); TWI-LIT-00314008 ("By leveraging the HBO brand in marketing and packaging, as other distributors have done successfully, Altice can drive higher ARPU and recapture video subscriber losses (particularly from Verizon in the Optimum systems.").

[251] Main Dep., at 98:10–99:15, 101:13–102:11; Desantis Dep., at 35:9–37:21.

[252] Main Dep., at 102:12–107:6.

[253] Main Dep., at 102:12–107:6.

[254] TWI-LIT-01011691-753, at -704 (presented to Comcast in September 2017); TWI-LIT-01519813, at -815 (presented to DirecTV Now in February 2017); TWI-02218315-347, at -339 (internal Time Warner presentation by Douglas Shapiro); TWI-LIT-01782050-057, at -053 (template for presentation to independent MVPD accounts).

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AT&T documents and testimony confirm that HBO is a "proven acquisition driver."[255] Survey research by AT&T has shown HBO to be among the most compelling of 16 offer incentives,[256] and found it far more "unique, exciting, and relevant" than offers with NFL Sunday Ticket.[257] AT&T has used HBO to acquire not only video subscribers but also wireless subscribers, and in so doing it has found offers including HBO to be among the most compelling and cost-effective options for getting consumers to switch to AT&T wireless.[258] Meanwhile, other MVPDs have found the ability to offer HBO sufficiently important that they are selling it at a loss or at cost.[259] ▆▆▆▆▆ estimated it would lose hundreds of thousands of subscribers and millions of dollars if it stopped carrying HBO in April 2016.[260] HBO recognizes its value to MVPDs and has leveraged that value in renewal negotiations,[261] even preparing to go dark with major affiliates on several occasions.[262]

Other premium channels, including Showtime and Starz, are also used by MVPDs to attract and retain subscribers, but AT&T regards them as less effective than HBO.[263] HBO likewise asserts

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[255] ATT-DOJ2R-03061562-569, at -563; ATT-DOJ2R-06577463-474, at -446. ("DIRECTV uses HBO & Cinemax to grow the base.")

[256] ATT-DOJ2R-05093787-787 (AltmanVilandrie study of special offers); *see also* ATT-LIT-01137452-481, at -472 (March 2017) (showing that approximately ▆▆ more subscribers chose HBO than chose Showtime during an offer test and noting the "▆▆ [basis points] of churn benefit" after the "HBO Champion Challenger Test").

[257] ATT-DOJ2R-04497120-123, at -123.

[258] ATT-DOJ2R-07185724-725; Torres Dep., at 44:5–49:12.

[259] TWI-07983797 (▆▆▆▆ expected to sell at cost or at a loss); TWI-02326451 (▆▆▆▆ expected to lose money on a la carte sales, looking to make it up via discounts for inclusion of HBO in packages, subject to HBO approval).

[260] ▆▆ .

[261] TWI-05052183 (questioning how far ▆▆▆▆ would go with its containment remained to be seen given how HBO's effectiveness at driving subscribers was so well established); TWI-02056547 (noting in November 2016 that HBO's leverage continued to grow as it waited ▆▆▆▆ out and that HBO was immune to ▆▆▆▆ strategy); TWI-LIT-00670559 (noting ▆▆▆▆ "don't want to go dark, view it as very important to get a deal"); TWI-LIT-00527948 (calling ▆▆▆▆▆ arguments that it could use Netflix "disingenuous" and suggesting that ▆▆▆▆▆ needed to "step up" to the deals HBO had with its newer, digital partners).

[262] In early 2016, HBO threatened to go dark with Charter and spent two months preparing its marketing plans for such an event, TWI-02331024, which would include encouraging subscribers to switch to other providers that did offer HBO. TWI-02325482 at -481, -485, -489 (outlining HBO's marketing plans and creative); TWI-02123649 (discussing plans to rely heavily on Charter's satellite and telco competitors and "pushing consumers to the right distributor" as a "first line of defense"); TWI-02332686 (Charter Takedown Strategy); TWI-07865453 (Affiliate Shutdown Playbook). In March 2017, after a year of negotiations, HBO and ▆▆▆▆ nearly reached an impasse, and HBO sent ▆▆▆▆ what it said was its "clear and final offer" on all issues except ▆▆▆▆▆▆ TWI-LIT-00666520.

[263] ATT-DOJ2R-03061562-569; ATT-DOJ2R-06577463-474, -446. Mar. 7, 2016; ATT-DOJ2R-03032585-586, email from Dan York to M. White, Apr. 3, 2015; ATT-DOJ2R-03018046-052. 7/19/15, D. York (describing Starz content as "essentially 2-3 original series and some crappy deep library movies" and stating that AT&T could program and operate something very close; AT&T does not need both Starz and Epix); ATT-LIT-00229817-820, at -818 (report of 2016 accomplishments of VP over retention, including that "HBO [was] preferred 3x over ShowTime" as a retention offer to tablet customers); ATT-DOJ2R-15856595-598, email from J. Armijo to R. Blood, Aug. 9, 2015 (Epix not an effective save/retention tool); see also (HBO a "proven acquisition driver," Showtime an "acquisition helper").

that when dealing with MVPDs that, "if presented at the same price between Starz, Showtime and HBO, [consumers] will choose HBO over Showtime and Starz to a significant degree."[264] In one HBO survey, 70% of consumers said they would choose HBO and Cinemax over a combination of Showtime and Starz.[265] HBO also considers Netflix to be less valuable to MVPDs as a promotional tool than are HBO subscriptions.[266]

Beyond HBO's absolute effectiveness as a promotional or retention tool, it is typically among the most cost-effective tools available to MVPDs when they seek to attract or retain subscribers. As a result, AT&T views HBO as preferable to more expensive promotional alternatives available to MVPDs, such as cash discounts/credits.[267] Reflecting this, AT&T and Dish have employed HBO in save offers to reduce its reliance on credits and thus reduce its total retention spending.[268] HBO's other advantage over credits is that HBO increases customer engagement, which improves retention by reducing the number of customers who end up at the save desk.[269] HBO can also complement other types of incentives such as DVR and internet upgrades, sometimes by serving a different purpose or by adding value to consumers in a different way.[270]

AT&T and Time Warner have previously argued that ▇▇▇▇▇▇ reduced use of HBO during its last renewal negotiations with HBO refutes the conclusion that HBO is an important marketing tool.[271] However, as I understand this episode, and as discussed immediately below, this assertion is unwarranted. Indeed, this episode illustrates the importance of HBO as a promotional tool.

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[264] Sutton Dep., at 116:6–18.

[265] TWI-LIT-01673692-729, at -727.

[266] Sutton Dep., at 108:12–16 ("Q. So, when you told Comcast that you believe you could add more value to them than Netflix, were you being truthful? A. Yes.").

[267] ATT-DOJ2R-07185724-725 (August 2016 email exchange noting that, although an offer with NFL Sunday Ticket was slightly more effective than a similar HBO offer, the HBO offer was significantly less expensive); ATT-LIT-01133173, at 17 (Feb. 2017) (describing a test of the effectiveness of using HBO as a retention offer instead of bill credits, including "[Credit] spend per caller decreased"; "Overall credit spend decreased," and "Churn benefit at a segment level"); Sutton Dep., at 110:17–24 ("We're saying we have the best product at the best price."); ATT-DOJ2R-06602183-185, at -184 (July 2016 email from William Kuhn [to whom?] stating that AT&T's "[r]etention team is under pressure to lower their costs to retain customers" and that they would rather offer customers free HBO, which is "effectively cheaper for Mark Silk's team than giving out rich credits.").

[268] ATT-DOJ2R-07185724-725; ATT-LIT-01133173-213, at -189; DISH-ATT-00005127, at -128 (referencing "opportunities to leverage HBO in lieu of credit offers").

[269] ATT-LIT-01133171, at 17 ("[E]ngaging customers in premium channels will reduce churn and credit spend while providing valuable content.").

[270] Torres Dep., at 64:23–65:13 (AT&T has used premiums as complement to credits); Main Dep., at 85:7–86:8 (HBO often paired with X1 and/or higher internet speeds because a person who takes one is more likely to take the other).

[271] Letter to Jared Hughes, Department of Justice, from Christine Varney, Oct. 2, 2017.

[REDACTED]

14.2 *HBO Controls How MVPDs Use HBO for Promotional Purposes*

MVPDs use HBO to attract and retain subscribers in a number of ways, many of which are subject to HBO's approval and cooperation either in the carriage agreement HBO signs with an MVPD or on a case-by-case basis.[275] The most prominent way in which MVPDs use HBO for promotional purposes is through offers of free or discounted HBO service. The three-month trial is most common in the industry, but recent years have seen offers of HBO for 12 months or "for life."[276] These trials may be offered on an introductory basis to lure new subscribers, at the "save desk" to retain existing subscribers thinking of leaving, or in upgrade campaigns.[277] The common promotional offers of HBO made by MVPDs are more valuable to consumers than the offers that HBO itself makes for HBO Now. The current promotional offer for HBO Now available on its website is a one-month free trial, versus the three months or longer available as a promotional tool by the MVPDs.[278]

[REDACTED]

[275] HBO agreed to participate in a Verizon FiOS acquisition campaign that specifically targeted "Non-FiOS households." (TWI-03342016-017, email from Kristin Gaudino, HBO, and Verizon, Oct. 6, 2016). HBO agreed to participate in a Frontier acquisition campaign. (TWI-06440727-727, K. Gaudino internal HBO email, Oct. 7, 2016). HBO documented Dish's HBO campaigns and categorized the offers as: acquisition, upgrade, or retention. The acquisition campaigns all list HBO and/or MAX as "wholesale waived." (TWI-06445047-047, 6/15/15, HBO internal email to G.DeSantis re Dish campaigns, with attached spreadsheet).

Similarly, HBO documented DirecTV's HBO campaigns, listing a wholesale offer of free HBO/MAX for three months for acquisition offers. (TWI-03353730-731, email from M. Schmidt to G. DeSantis, June 12, 2015, with attached spreadsheet).

[276] TWI-06441848-849; ATT-LIT-03005206 (describing a promotional offer for certain AT&T wireless plans that includes "HBO for life").

[277] Sutton Dep., at 279:18-280:24, Main Dep., at 29:16-25; Barney Dep., at 178: 13–179: 3.

[278] HBO NOW, last accessed Jan. 30, 2018. https://play hbonow.com; *See* AT&T U-Verse, last accessed Feb. 2, 2018. https://www.att.com/tv/u-verse html. ("Premium channels included at no extra cost for the first 3 months") (last accessed Jan. 31, 2018); *See also* Dish, "TV Packages," last accessed Feb. 2, 2018. https://www.dish.com/programming/packages/. ("Free premium channels for 3 months*** … After 3 mos., you

Use of HBO in promotional offers must be approved by HBO.[279] While some of HBO's carriage agreements authorize select offers subject to detailed parameters, offers or campaigns not contemplated by an MVPD's contract require approval from HBO.[280] MVPDs must also get case-by-case approval from HBO if they intend to use any HBO branding, content, or other intellectual property in their marketing.[281]

In addition to determining whether to allow an offer or use at all, HBO also has discretion on several important items in an MVPD's promotional campaign. For example, HBO may waive some or all of its affiliate fees and/or stipulate to how subscribers accepting these offers will be counted toward floors and benchmarks in the carriage contract.[282] Those two decisions can be pivotal to the viability of an HBO offer for the MVPD. Last, HBO sometimes provides marketing funds to its MVPD affiliates—either pursuant to their carriage agreement or on an ad hoc basis—and must approve all aspects of any campaign or initiative using those funds.[283] Through these mechanisms, HBO can in many cases influence whether and how much HBO is used in acquisition, retention, or upgrade campaigns, which households and which areas are targeted, what tactics are used, and when a campaign may run, among other things.

The importance of HBO's contract terms and subsequent approvals is illustrated by the HBO promotions offered by ▮▮▮▮▮▮▮▮▮ in 2016. In August 2016, ▮▮▮▮▮▮▮ sought to use aggressive HBO offers to acquire new subscribers while also improving the economics of its HBO contract, and it depended upon HBO's cooperation to do so.[284] ▮▮▮▮ contract ▮▮▮▮▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ and includes discounts at certain benchmarks. To meet these marks, ▮▮▮ sought to offer 12 months of HBO to new subscribers with any package priced at $49.99 or above.[285] After some negotiation, HBO approved the offer and stipulated that HBO would ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮.[286] HBO also required that ▮▮▮▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮[287] In the case of ▮▮▮▮▮▮ around the same time, HBO agreed to contribute up to ▮▮▮▮▮▮ in co-op funding toward a ▮▮▮▮▮ acquisition

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will be billed $55/mo. for HBO, Cinemax, Showtime, Starz, and DISH Movie Pack unless you call or go online to cancel.") (last accessed Jan. 31, 2018)

[279] DeSantis Dep., at 17:16–18:10.

[280] Barney Dep., at 168: 7-11. Most major contracts provide for a co-operative marketing fund paid for by HBO, with use subject to mutual agreement. MVPDs also sometimes seek and receive incremental funding from HBO, which grants additional funds based on the expected returns for HBO.

[281] Desantis Dep., at 23:19–24:25; Main Dep., at 58:18–60:10; Sutton Dep., at, 90:19-92:24; Barney Dep., at 165: 24 – 166: 22.

[282] *See, e.g.,* TWI-06443353-4.

[283] Desantis Dep., at 136:7–138:19, 171:4–172:12; Main Dep., at 48:10–49:3, 50:11–54:10.

[284] TWI-07927631-635 (August 2016 email exchange about the "need to drive incremental sub volume" on ▮▮▮▮ platforms with HBO promotional offers).

[285] TWI-06441364-365.

[286] TWI-06441848-849.

[287] TWI-06441848-849.

campaign that would feature HBO and require its creative approval.[288] HBO's approval specified various aspects of ██████ acquisition campaign: ██████ would send ██████ pieces of co-branded direct mail to ██████ households advertising a discounted triple play package with a ██████████████ and HBO for as low as ██ per month.[289]

14.3 *MVPDs Compete Against Each Other Using HBO*

The use of HBO by MVPDs to attract and retain subscribers is a significant dimension along which MVPDs compete. MVPDs routinely monitor their competitors' acquisition offers[290] and concern themselves with maintaining parity or superiority vis-à-vis the competition. When MVPDs see their competitors using HBO in ways they believe are not authorized by their own contract, they often contact HBO seeking parity.[291] When an MVPD sees competitors lower the price of HBO, it may well consider doing so itself.[292] In some cases, MVPDs contact HBO for more information on competitors' rate structures and terms after seeing a new use or pricing of HBO.[293]

While HBO works cooperatively with its MVPD affiliates, HBO also benefits from MVPD competition. Competition between MVPDs has increased the total number of MVPD subscribers with access to HBO as MVPDs have sought to match and beat one another's offers involving HBO.[294] HBO actively encourages this behavior, seeking to generate even more competition among the MVPDs.

One way that HBO foments competition among MVPDs is by presenting MVPDs with evidence that their rivals have succeeded by using HBO and encouraging them to follow suit.[295] HBO has

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[288] TWI-03342016-017; Desantis Dep., at 169:4–172:12.

[289] TWI-03342016-017; Desantis Dep., at 169:4–172:12.

[290] *See, e.g.,* regular offer tracking docs from AT&T, ████████████████████████████ ██████; ATT-LIT-01468432-459.

[291] Main Dep., at 195:1–196:24; Sutton Dep., at 252:17–253:4.

[292] Barney Dep., at 89: 14–90:12; DeSantis Dep., at 90:9–91:18, 93:23–94:19 (discussing TWI-02728504); TWI-02728504 (DeSantis Dep., at Exhibit 3); Main Dep., at 195:1–196:24 12.

[293] DeSantis Dep., at 90:9–91:18, 93:23–94:19 (discussing TWI-02728504); TWI-02728504 (DeSantis Dep., at Exhibit 3).

[294] TWI-05087554 (HBO executives describing a meeting where AT&T requested the ability to offer HBO free for a year because other providers were offering it). *See also* Sutton Dep., at 150: 4–14 ("[S]ometimes, yes, affiliates will say they want to do a similar offer to somebody else; so, it does happen.").

[295] TWI-06444858 (Affiliate Pricing and Packaging Strategies, 2016) (outlining successful packaging strategies and results achieved by other MVPDs; ██ ██ ██████████████ TWI-04032849-863 (HBO/Suddenlink Deal Bundling & Packaging Update, Oct. 2013); TWI-07023190-201 (Packaging HBO and Complementary Products); TWI-01428343-354 (Schoen deck for Charter) (finding HBO among the most convincing reasons to switch to Charter); CHR2-DOJ-00000139562-610; TWI-05044779-779. (Beth Main to Woodbury, Sutton, Aulestia, Barnett) (HBO's "effectiveness in driving sales of other products is well established."); TWI-01426750-750, email from HBO's M. Barnett and S. Sutton, HBO, to A. Singer, Charter, Sep. 23, 2015; Comcast Case study.

commissioned research showing how HBO can be effective for MVPDs in acquisition, upgrades, and retention; HBO sometimes even prods MVPDs to use HBO to help them target rivals' subscribers.[296] In Spring 2015, HBO suggested to Charter that its research with customers of rivals DirecTV and Dish "compellingly show[ed] that there is a clear opportunity for Charter to gain market share" from the DBS firms in its service areas using HBO.[297] Shortly before that, HBO presented similar research to DirecTV, encouraging its more aggressive use of HBO for acquisition and retention.[298]

14.4 *AT&T Will Have an Incentive to Limit Rival MVPDs' Use of HBO*

Following the merger, AT&T will have a diminished incentive to allow HBO to be used by rival MVPDs to attract retain subscribers, since such promotional activities could reduce the number of subscribers that AT&T would otherwise have. AT&T will be able to act on these altered incentives by withholding its approval or cooperation when rival MVPDs seek to use HBO to attract or retain subscribers, and by tightening the contractual limits on how MVPDs can use HBO for promotional purposes.

Today, HBO benefits from spurring competition among MVPDs and is generally agnostic regarding which MVPD its subscribers use to access HBO content.[299] After the merger, given that AT&T does not benefit from greater competition among MVPDs, AT&T's incentive will be to reduce the use of HBO as a MVPD promotional tool. While HBO is today unconcerned with how others affiliates' use of HBO affects DirecTV,[300] post-merger this is unlikely to be the case. After the merger, HBO could, and likely would, immediately begin acting on these changed incentives. Even before HBO renegotiates its carriage agreements with MVPDs, HBO could substantially scale back its approvals for the promotional use of HBO by DTV's rivals. For example, HBO would have the incentive to scale back on its co-op funding for acquisition and retention purposes, steering rival MVPDs to focus instead on upgrade campaigns that benefit HBO without potentially depriving AT&T of a subscriber. HBO could do this through outright refusals or through more subtle means, such as declining to grant fee waivers and refusing to count subscribers who accept promotional offers toward contractual benchmarks. In the ▇▇▇

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[296] TWI-01428343-354, April 2015 (Schoen consulting "HBO Charter Strategy") (presenting Charter with HBO-funded research on DirecTV and Dish customers that "compellingly show[ed] that there is a clear opportunity for Charter to gain market share among Dish and DirecTV subscribers in its service area."); TWI-03354255-308, April 2015 (Schoen presentation to DirecTV on the value of HBO to its subscribers and for retention); TWI-06444858, at slide 16 (presentation for Comcast, attached to email from Jane Miller to DeSantis) ("Recognizing the power of the HBO brand, Comcast leverages HBO to drive its core business goals"; "Using HBO as part of a comprehensive strategy, Comcast creates competitive advantages that yield superior results.")

[297] TWI-01428343-354, April 2015, Schoen consulting "HBO Charter Strategy"; CHR2-DOJ-00000139562-610; *see also* TWI-01426750-750, email from M. Barnett and S. Sutton, HBO, to A. Singer, Charter, Sep. 23, 2015 (telling Charter that their contract structure "positions Charter to capture market share in your franchise areas").

[298] TWI-03354255-308, at slide 27, March 2015.

[299] Plepler Dep., at 140:11–18; Main Dep., at 158:7–23.

[300] Main Dep., at 200:24–201:5; *see also* Plepler Dep., at 140:11–18.

example discussed above, HBO could have insisted on a higher minimum package price to reduce the aggressiveness of ▮▮▮▮ offer.

15. Anti-Competitive Coordination Between AT&T and Comcast

Economists' concerns that a merger may lead to anti-competitive coordinated effects are not limited to the risk of agreements between the merged firm and its rivals that would violate Section 1 of the Sherman Act. As the Horizontal Merger Guidelines state, mergers can also facilitate competitors coalescing around a "common understanding that is not explicitly negotiated" or simply engaging in "parallel accommodating conduct," in which each firm makes unilateral decisions but accommodates other firms by keeping prices high or otherwise refraining from competing vigorously.[301] In other words, "coordinated interaction includes conduct not otherwise condemned by the antitrust laws."[302]

AT&T and Comcast provide MVPD service to a combined 45.7 million households across the country, approximately half of all MVPD subscribers in America.[303] Virtual MVPDs pose a direct threat to their respective MVPD businesses. AT&T and Comcast therefore have a common interest in slowing the growth of Virtual MVPDs that they do not own or control.

Today, with the exception of a few Regional Sports Networks owned by AT&T, only Comcast has content that it can use to restrict Virtual MVPD growth. Specifically, Comcast could use its control of NBCUniversal to keep important content from Virtual MVPDs. The merger will remove this asymmetry between Comcast and AT&T by giving AT&T control over the Turner Content. After the merger, AT&T and Comcast will have a common interest in limiting the growth of Virtual MVPDs and a common means to do so.[304]

In this section, I explain why the proposed merger would create a real danger that the merged firm and Comcast would coordinate to retard the growth of Virtual MVPDs by withholding or restricting their access to important programming.[305] I begin by examining the ways in which

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[301] Horizontal Merger Guidelines §7. Parallel accommodating conduct "includes situations in which each rival's response to competitive moves made by others is individually rational, and not motivated by retaliation or deterrence nor intended to sustain an agreed-upon market outcome, but nevertheless emboldens price increases and weakens competitive incentives to reduce prices or offer customers better terms." *Id.*

[302] *Id. See also* Richard A. Posner, *Antitrust Law* (2d ed. 2001) ("[Merger law] has been in fact the principal method by which the law has sought to deal with collusive pricing that is not considered deterrable by the rule against price fixing."), at 118.

[303] Exhibit 2.a.7.201612; Comcast Exhibit 2.48-9; SNL Kagan, "Operator Subscribers by Geography," accessed Apr. 24, 2017. SNL Kagan, U.S. Multichannel Industry Benchmarks, last accessed January 29, 2018.

[304] A common understanding between AT&T and Comcast would unfold somewhat differently for new Virtual MVPDs than for existing Virtual MVPDs. For new Virtual MVPDs negotiations for programming would occur at the same time. For existing Virtual MVPDs the withholding of content would be staggered and develop over time.

[305] The Comcast/NBCUniversal consent decree focused on the post-merger firm's incentive and ability to withhold content from online video distributors. However, concern about coordinated effects did not arise in the Comcast/NBC Universal merger because the type of coordination considered here requires two large vertically integrated firms, and that merger created just the first such firm.

Virtual MVPDs are threats to MVPDs. Next, I show that MVPD markets are vulnerable to such coordination. I then explain why the merger will create a real danger that AT&T and Comcast will coordinate to withhold or restrict Virtual MVPDs' access to content.

15.1 *Virtual MVPDs Pose a Growing Threat to MVPDs*

Most local video distribution markets have very few MVPD competitors due to the high fixed costs of providing MVPD service.[306] In recent years, these highly concentrated markets have begun to be disrupted by Virtual MVPDs, which can enter at low cost into any local video distribution market that has broadband internet service. Virtual MVPDs have differentiated their products from traditional MVPD service by offering consumers features that MVPDs have long resisted, such as "skinnier" bundles of programming and the ability to initiate and cancel service more easily. Virtual MVPDs also encourage entry by new providers of broadband internet service by providing such entrants with a convenient and low-cost alternative to offering their own MVPD service.[307]

Entry and growth by Virtual MVPDs is adversely impacting the profits of traditional MVPDs like AT&T and Comcast in two ways today. First, Virtual MVPDs are winning customers from MVPDs. AT&T projects that Virtual MVPD subscriptions will grow from 4% of U.S. households in 2017 to 21% in 2022.[308] ███████████████████████████
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Second, and closely related, Virtual MVPDs are putting downward pressure on MVPDs' margins. An internal AT&T white paper states that online video distributors "are prepared to accept lower margins and 'chip away' at higher MVPD industry margins, offering consumers

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[306] *See infra* § 4.3.1. FCC, 18th Annual Video Competition Report, at ¶21 and Table III.A.2 (estimating that only 17.9% of households have access to more than three MVPDs).

[307] A coalition of competitive broadband providers has explained that "for most competitive service providers, the increasingly high cost of video programming is a principal barrier to broadband investment. To win customers and support the investment in their existing and future networks, broadband providers today must offer subscribers access to linear programming. . . . Without having to supply video at a loss, COMPTEL members would have additional capital to invest in broadband infrastructure—building out their networks to more communities and providing competition to large broadband Internet access providers." COMPTEL, Petition to Deny, MB Docket No. 15-149 (Oct. 13, 2015). Some small broadband providers have begun considering partnering with Virtual MVPDs rather than offering their own video services. *See, e.g.*, Daniel Frankel, "Sony PlayStation Vue Signs NCTC Distribution Deal," *FierceCable*, Jul. 24, 2017, https://www.fiercecable.com/cable/sony-playstation-vue-signs-nctc-distribution-deal; Daniel Frankel, "Consolidated Becomes First NCTC Operator to Offer FuboTV," *FierceCable*, Dec. 22, 2107, https://www.fiercecable.com/cable/consolidated-becomes-first-nctc-operator-to-offer-fubotv.

[308] ATT-LIT-00969150, at 6.

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video options in a world that was previously serviced only by 2-3 in-market players."[310] AT&T's pricing team has observed that its recent annual price increases have caused greater churn than in previous years, due in part to the emergence of "low-cost OTT options."[311] As a result, they have recommended against imposing additional price increases on the subscriber segments most likely to switch to "low cost OTT substitutes."[312] They have also recommended discounts on certain offerings in order to remain "competitive with prevailing OTT market offers," meaning offers from "any-one who would be a live OTT competitor."[313]

Some traditional MVPDs have chosen to launch their own Virtual MVPD services as a "hedge and necessary insurance policy" against disruption.[314] AT&T, for example, owns DTV Now, and Comcast is a part owner of Hulu, which recently launched a Virtual MVPD service. The owners of such captive Virtual MVPDs face the challenge of growing their Virtual MVPD services without overly damaging their own higher-margin MVPD services. For example, when developing plans for DIRECTV Now, AT&T executives discussed "where to draw the line on features/benefits for [the service] such that we don't aggressively cannibalize DBS" and sought to make the service "as strong as possible without killing the golden goose[.]"[315] Virtual MVPDs that are not affiliated with a traditional MVPD do not face the same dilemma and hence are more responsive to consumer demand and potentially quite disruptive.

Today, the largest Virtual MVPDs that compete with AT&T and Comcast ("competing Virtual MVPDs") are DISH Sling, and Sony Vue, both of which carry the Turner Content and the NBCUniversal content. Sling and Vue will be vulnerable as their contracts expire and they seek to negotiate renewals.

Other Virtual MVPDs do not yet carry both Turner and NBCUniversal content. These Virtual MVPDs will be vulnerable as they negotiate initial rights deals. For example, Google's YouTube TV and CenturyLink Stream are new Virtual MVPDs that launched in 2017. They have secured NBCUniversal but are still pursuing Turner.[316] Google has determined that it needs Turner content in order to be competitive.[317]

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[310] ATT-DOJ2R-01765146-156.

[311] ATT-LIT-01824120, at -939; *see also* ATT-LIT-00232936-940 at 4 ("Conventional cable pressures and emerging OTT pressures continue to drive price increase churn impact higher.").

[312] ATT-LIT-01331278-315, at -287.

[313] ATT-LIT-01102903-930, at -912; *see also* Nusbaum Dep. 114:22-115:2.

[314] ATT-DOJ2R-01253764, at 2.

[315] ATT-DOJ2R-05803762-762.

[316] ▮▮ ATT-LIT-00457438 (showing that YouTube TV and CenturyLink Stream launched in 2017 with NBCUniversal); TWI-LIT-00406155-156 at -156 (attachment to Nov. 20, 2017 email describing negotiations between Turner and YouTube TV as ongoing).

[317] GOOG-DOJATT-00002766-808, at -768 (describing Turner as a "[n]ecessary addition to our base package to remain competitive with Hulu and DirecTV Now").

Further, both AT&T and Time Warner expect a significant number of companies to enter the virtual MVPD space over the next several years.[318] These entrants will be vulnerable as they seek to negotiate initial rights deals for both the Turner Content and NBCUniversal.

The risk to these Virtual MVPDs, both current competitors and potential entrants, is heightened by the approaching expiration of the Comcast/NBCUniversal consent decree in September 2018.[319] ██ ███[320] After the consent decree expires, as an AT&T executive put it, "NBCU can choose not to license content online to some players or may discriminate on price."[321] Further, both ████ and Vue's contracts with Turner will also come up for renewal within one year after the consent decree expires: ██████ Turner deal expires on ████████ ████[322] ████████ after the consent decree, and Sony's deals with both Turner and NBCUniversal are both up on ████ ████[323]

If the proposed merger proceeds, these Virtual MVPDs will have to negotiate their next Turner and NBCUniversal deals with two large vertically integrated companies whose downstream operations are threatened by the growth of Virtual MVPDs, in an industry that is vulnerable to coordination.

15.2 *The MVPD Industry Is Vulnerable to Anti-Competitive Coordination*

Economists consider a number of factors when assessing whether a market is susceptible to anti-competitive coordination. These factors include (1) the number of firms that would be needed for effective anti-competitive coordination, (2) the nature and frequency of communication among these firms, (3) whether these firms mutually recognize that they have a shared interest in anti-competitive coordination, and (4) the ability of one of those firms to rapidly observe

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[318] ATT-LIT-00254049 at Pay TV OTT Provider Summary tab (May 22, 2017, analysis projecting virtual MVPD entry by Amazon, Apple, and others over the next three years); ATT-DOJ2R-01232728-738, at -738 (2016 Emerging MVPD Entrants whitepaper considering Amazon, Hulu, Netflix, Facebook, and Twitter as potential entrants). *See also* TWI-02215404-465 (considering possible Virtual MVPD product by Amazon); TWI-LIT-00561667 (listing status of negotiations with a number of expected entrants as of Jan. 2017).

[319] The decree currently requires Comcast to make NBCUniversal networks available to Virtual MVPDs on terms that are comparable to those received by traditional MVPDs. Consent Decree § IV.A ("At the request of any OVD, Defendants shall provide, for distribution to consumers through a linear feed (plus any associated video-on-demand rights), all Video Programming they provide to any MVPD in the United States with more than one million subscribers, on terms that are Economically Equivalent to the terms on which Defendants provide Video Programming to that MVPD.").

[320] Sling's deal for core NBC Universal content expires on ████████████. COMATT-BOM-00000927, at slides 2–3. CenturyLink Stream's contract for NBCUniversal will expire on ████████████████ ███ ███

[321] ATT-DOJ2R-01496850-852. The executive also noted that after the decree expires, online video distributors "could be looking at different terms for NBCU content" and "Comcast may hold back content" from some online video distributors.

[322] ███████████████████████████████████.

[323] SIENA-06807-845; SIENA-06775-802.

whether the others are continuing to follow the course of action that is in their collective interest, even if an alternative course of action would be more profitable in the immediate term.[324] As I now explain, each of these factors suggests that MVPD markets are quite susceptible to anti-competitive coordination.

15.2.1 Only AT&T and Comcast Are Required for Coordination to Be Effective

Factor (1) suggests a high level of concern about anti-competitive coordination in this case because effective action likely requires coordination between only two firms, AT&T and Comcast, which together control content that is highly valuable to Virtual MVPDs. Market research conducted by Turner found that Turner and NBCUniversal are two of the four most important network groups for Virtual MVPDs.[325] Turner's market research also shows that demand for a Virtual MVPD service would drop by between 9.2% and 17.6% as a result of removing Turner Content, and between 9.2% and 21.6% as a result of losing NBCUniversal Content, depending on the base package.[326]

Virtual MVPD documents confirm the importance of these two programming groups. While ▮▮▮▮ was willing to drop Viacom in order to achieve cost reductions, it views both Turner and NBCUniversal as ▮▮▮▮▮▮▮▮▮▮[327] ▮▮▮▮ views Turner and NBCUniversal (along with Disney and Fox) as being "must-have" content.[328] Google, meanwhile, originally launched its YouTube TV service without Turner, but after eight months concluded that the "lack of Turner is a leading cause of churn."[329] Google now plans to add the Turner networks to its YouTube TV service, describing them as a "[n]ecessary addition to our base package to remain competitive with Hulu and DirecTV Now."[330]

Limited access to both Turner and NBCUniversal content would have a major negative impact on the demand for a Virtual MVPD service. For this reason, only the merged firm and Comcast would need to coordinate to significantly damage competing Virtual MVPDs.

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[324] Horizontal Merger Guidelines, at §7.2 ("Evidence a Market is Vulnerable to Coordinated Conduct"). After this proposed merger, AT&T and Comcast would be the only two vertically integrated MVPDs.

[325] TWI-01527107, at 12 ("Turner drives as much demand to the vMVPD bundle as Fox and NBCU," behind only ABC/Disney).

[326] TWI-04417311, at 8.

[327] ▮▮▮▮▮▮▮▮

[328] ▮▮

[329] GOOG-DOJATT-00000020-041, at -028.

[330] GOOG-DOJATT-00002766-808, at-768. Turner executives recognize the importance of their content to Google and other Virtual MVPDs. *See, e.g.*, TWI-LIT-00364362 (stating that Turner "ha[s] the leverage" over YouTube TV); TWI-01491888 ("[I]t's hard to handicap how many of these services will launch over the next 9-12 months or how our decisions (and those of others) will ignite or diminish the desires of new entrants. It's clear however that we have an opportunity to influence the direction.").

15.2.2 AT&T and Comcast Engage in Frequent and Detailed Communications

Factor (2) suggests a high level of concern about anti-competitive coordination in this case because AT&T and Comcast will inevitably be in regular communications with each other. NBCUniversal is and will remain an important supplier of content to DIRECTV, and Time Warner is and will remain an important supplier of content to Comcast. These buyer-seller relationships necessitate regular communications of a detailed nature between the two firms. This concern is exacerbated by the widespread use of most-favored-nation clauses in contracts between video content aggregators (including Turner and NBCUniversal) and video content distributors (including DTV and Comcast).[331]

There is also a risk that AT&T and Comcast will be able to coordinate through signaling or some other form of indirect or non-explicit communication.[332] Concerns about successful communication of this sort are heightened by allegations that AT&T has been a collusive ringleader in the recent past in a related market.[333]

15.2.1 AT&T Is Aware of Its Common Interest with Comcast

Factor (3) also suggests a high level of concern about anti-competitive coordination in this case. AT&T recognizes that Comcast shares its interest in tempering the threat posed by competing Virtual MVPDs. An AT&T profile of Comcast states that "[w]ith Comcast as parent, NBCUniversal is one of the least disruptive players in the ecosystem" because it has "less

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[331] In fact, documents indicate that Turner and NBCUniversal may already communicate with one another regarding their licensing strategies. *See* TWI-01509145 (email from John Harran to Coleman Breland, both of Turner, stating, "I'm making my progress around the concept of creating new bidders for the SVOD window. This has been both an internal and external exercise including programmers and partner discussions. Comcast needs to be the driver here in an attempt to influence others.");TWI-03464646 (email four days later from Harran to Ron Lamprecht of NBCUniversal, subject line "Windows – TVE Strategy," stating, "Let's connect today or tomorrow if possible. I'm making some progress on my end and we should spend some time reviewing.").

[332] During the FCC's review of the 2015 Charter/Time Warner Cable merger, AT&T expressed concern that Comcast and Charter would coordinate to deprive OVDs of content. Professor Marius Schwartz filed his comments on behalf of AT&T explaining how such signaling could work. *See* Economic Analysis by Dr. Marius Schwartz on behalf of AT&T, "Comments on Dr. Scott Morton's Analysis of Coordinated Foreclosure of OVDs," Nov. 12, 2015. (Specifically, one MVPD "could signal to the other an intent to restrict OVD access to programming through public statements to industry analysts or at other industry events regarding its strategies for online access to content, perhaps under the heading of how it intends to differentiate its pay-TV offerings.") *Id.* at 5. Coordination was more challenging in that case than in the current case because Charter controlled far more limited content.

[333] In 2016, the Department of Justice filed a lawsuit alleging that DIRECTV had improperly shared competitively sensitive information with three of its MVPD rivals regarding negotiations for carriage of SportsNet LA, a network with rights to telecast Los Angeles Dodgers games. Complaint, *United States v. DIRECTV Group Holdings, LLC and AT&T, Inc.,* No. 2:16-cv-08150 (Nov. 2, 2016). The DOJ alleged that DIRECTV was "the ringleader of information sharing agreements with three different rivals that corrupted the Dodgers Channel carriage negotiations and the competitive process that the Sherman Act protects." *Id.* ¶ 2. According to the complaint, DIRECTV's Chief Content Officer Dan York and his counterpart at a competing MVPD agreed to give one another a "heads-up" before launching the network. *Id.* ¶ 48. While AT&T chose to settle that lawsuit and did not admit wrongdoing, the evidence cited in the DOJ's complaint illustrates how information can strategically be shared among MVPD competitors.

impetus to disrupt status quo or negatively impact distributor profit pools."[334] Furthermore, AT&T's business documents explicitly observe that exerting control over important content provides a means of slowing down the growth of competing Virtual MVPDs. Its planning assumptions take into consideration that Comcast's control of NBCUniversal allows it to "slow play" the transition to Virtual MVPDs.[335]

15.2.2 AT&T and Comcast Would Rapidly Detect if the Other Defected

Factor (4) suggests a high level of concern about anti-competitive coordination in this case: AT&T would soon find out if NBCUniversal began licensing its content to a given Virtual MVPD, and Comcast would soon find out if Time Warner began licensing its content to a given Virtual MVPD. Simply observing whether Time Warner's content is offered on the Virtual MVPD would make clear to Comcast whether that content had been licensed, and vice versa.

More than the fact of a license, the terms of any license might also become available to the other integrated firm.

15.3 *The Merger Would Create a Danger That AT&T and Comcast Will Coordinate to Withhold or Restrict Content from Rival Virtual MVPDs*

The merger would create a real danger that AT&T and Comcast would coordinate to withhold or restrict Virtual MVPDs' access to important content in order to retard their growth. Absent the merger there is no such danger, since AT&T has no means to do so.

After the merger, AT&T would determine whether and on what terms the Turner Content will be available to Virtual MVPDs. AT&T would have the ability to increase the price of the networks or condition their availability on restrictive non-price terms, such as a requirement that the Virtual MVPD's bundle not be too "skinny."[338] In making these determinations, AT&T can be

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[334] ATT-DOJ2R-10245805-890, at -843. COMATT-CAM-00002414, slide 11 ("vMVPDs a long-term net negative").

[335] ATT-DOJ2R-05070996, at 24 (referring to Virtual MVPDs as "pay TV OTT").

[336]

[338] Some Virtual MVPD programming agreements include conditions of this kind. *See, e.g.,*
Indeed, DIRECTV itself has required certain programmers to agree not to license their content to Virtual MVPDs that do not meet such criteria. *See* ATT-DOJ2R-08564670-836, at -689-690 (providing AT&T the right to terminate its contract with ⬛ if

expected to consider the extent to which a Virtual MVPD poses a threat to DIRECTV, as well as the impact that a higher price or a restrictive condition would have on the Virtual MVPD's success. Because negotiations are done with Virtual MVPDs individually, AT&T would have the ability to make these decisions on a case-by-case basis.[339]

If the merged firm or Comcast were to withhold content from competing Virtual MVPDs or restrict its availability, the profitability of MVPDs as a group would be increased in at least two ways.[340] First, some MVPD customers who would have otherwise switched to a competing Virtual MVPD would instead remain with their MVPDs. Second, because competing Virtual MVPDs lacking popular content would be less attractive to consumers, MVPDs would also be able to maintain higher prices, offsetting a portion of the margin compression that otherwise would have occurred.

Refusing to license content to competing Virtual MVPDs, however, would not be costless to the merged firm or to Comcast: withholding content from a Virtual MVPD means giving up the affiliate fees and advertising revenue that would have otherwise have been generated by licensing that content to that Virtual MVPD. Refusal to license would only be profitable for the merged firm or for Comcast if its gains from increased MVPD subscribers and higher MVPD margins exceeded its associated loss of licensing and advertising revenues.

In some circumstances it can be profitable for either the merged firm or Comcast to unilaterally foreclose competing Virtual MVPDs. In other circumstances, unilateral foreclosure will not be profitable, but coordinated withholding of both Turner and NBCUniversal content will be.

There are two reasons why it can be profitable for the merged firm and Comcast to coordinate to withhold content from competing Virtual MVPDs even when it is not profitable for either firm to do so alone.

███ licenses any ███████ network to a Virtual MVPD that has more than ███████ subscribers, unless the service has (1) substantial programming from ███ ███████████████████████████████), and (2) either ██████████ services or the number of ███████ services for which DTV has in-home streaming rights, if fewer than ███).

[339] If a Virtual MVPD were to refuse AT&T's terms, the consequences could extend beyond losing these networks alone. ███ ██ ██ ██ ███

[340] I discuss here the likelihood that the merged firm and Comcast would withhold content from independent Virtual MVPDs. Another possibility is that the two firms would charge high rates or impose onerous conditions that would cause some independent Virtual MVPDs to fail. Independent Virtual MVPDs generally pay a large premium for programming (*see* ATT-DOJ2R-01765146-156). The prospect of high content costs has caused some firms to abandon plans to launch Virtual MVPD services entirely (*see, e.g.*, Jessica Toonkel and Lisa Richwine, "Exclusive: Amazon Scraps Bundled Video Service – Sources," Reuters report, Nov. 15, 2017, available at https://www.reuters.com/article/us-amazon-com-channels-exclusive/exclusive-amazon-scraps-bundled-video-service-sources-idUSKBN1DF1HG).

First, Turner and NBCUniversal content are both important to prospective customers of Virtual MVPDs. Indeed, to some extent and for some viewers, they can be substitutes for one another. MSNBC is a substitute, for example, for CNN for some viewers, and vice versa, and both Turner and NBCUniversal have rights to sports programming that attract sports fans. This means that coordinated withholding is especially effective in disarming the threat posed by Virtual MVPDs. In particular, an independent Virtual MVPD may be able to survive the loss of either Turner or NBCUniversal content but not both.[341]

Second, an MVPD withholding content from independent Virtual MVPDs generates what economists call a *positive externality* on other MVPDs.[342] Specifically, withheld content weakens independent Virtual MVPDs, and this benefits all MVPDs. However, a content-withholding MVPD captures only a portion of the total benefit of withholding while paying the full cost. This imbalance can make unilateral withholding of either the Turner Content or the NBCUniversal content unprofitable. In contrast, when the merged firm and Comcast *jointly* withhold content, they capture a larger share of the total benefit of withholding (since they account for roughly fifty percent of all MVPD subs) without changing the cost that either of them must bear. This means that the incentive to jointly withhold content is significantly larger than each individual firm's incentive to withhold content. Each firm can therefore find it profitable to withhold its content from Virtual MVPDs so long as it expects the other to reciprocate.

For these two reasons, coordinated withholding of content can be profitable when unilateral withholding of content is not.

While I am not able to quantify the risk of anti-competitive withholding or restricting of content to Virtual MVPDs created by the merger, 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. While the pre-merger Time Warner could withhold the Turner Content from a Virtual MVPD (at a cost), Time Warner has no MVPD-arm to benefit from the reduction in the growth of independent Virtual MVPDs, so this strategy is unattractive to Time Warner.

In sum, the merger would combine AT&T's incentive to weaken independent Virtual MVPDs with Time Warner's ability to do so. Put differently, the merger would create a partner for Comcast with which it could coordinate to impede the growth of competing Virtual MVPDs that threaten to disrupt the MVPD business model.

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[341] *See* GOOG-ATTTW-00000001, at 22–23 (showing that, in the run-up to launching YouTube TV, Google focused on two alternative approaches: (1) offering the four big broadcast groups, or (2) offering three of the four big broadcast groups, plus Turner). Neither of these approaches would have been possible if Google lacked access to both Turner and NBCUniversal Content.

[342] Economists also would say that withholding content from an independent Virtual MVPD creates a "public good" for all MVPDs, because they all benefit from such withholding. In general, coordination among those who benefit from a "public good" increases the supply of that "public good." Here, the "public good" that benefits all MVPDs is the harm to competition caused when the threat posed by independent Virtual MVPDs is weakened. That "public good" is bad for competition and consumers.

16. Entry

In some cases, entry by new suppliers can deter or counteract the anti-competitive effects of a merger that would otherwise occur. In a horizontal merger where the anti-competitive effects often involve price increases by the merged firm, and perhaps its rivals as well, those very effects tend to make entry more profitable. However, in a vertical merger, the anti-competitive effects need not make entry more profitable and in fact can make entry less profitable. In this important respect, the analysis of entry in cases involving vertical mergers differs substantially from the analysis of entry in cases involving horizontal mergers.

In the current case, there are two types of entry to consider: (1) entry by new video content aggregators and (2) entry by new video content distributors. While either type of entry could in principle be capable of deterring or counteracting the anti-competitive effects of concern, it is not at all clear that those effects, as described above, would encourage either type of entry.

For the reasons given in this section, I have concluded that entry will not be timely, likely or sufficient to protect MVPDs and consumers from the harmful effects of the proposed merger.

16.1 *Entry by New Video Content Aggregators*

One logical possibility is that entry by new video content aggregators would significantly diminish the importance and value of the Turner Content or the HBO Content and thus deter or counteract the harmful effects of the merger identified above. However, the evidence does not support the conclusion that such entry would be timely or likely in response to the predicted Turner fee increases, especially given the difficulty that an entrant would face trying to gain carriage on DTV and U-verse, which together have 25 million subscribers.

Critically, there is no clear reason to expect that the Turner fee increases that I have predicted above, which are based on Turner's enhanced bargaining leverage resulting from the merger, would increase the demand facing a new video content aggregator. Therefore, it is not at all clear that the anti-competitive effects identified above would tend to encourage entry by new video content aggregators. In the bargaining between an MVPD and a new content aggregator, it is not at all straightforward to see how a higher price for Turner Content affects the resulting price.

Over the last five years, Time Warner's Turner division has been able to significantly increase the average per subscriber fees that video content distributors pay for its primary networks. For example, from January 2013 through December 2016, Turner's average per subscriber rates charged to MVPDs increased by ▮▮▮ for CNN, by ▮▮▮ for Cartoon Network, by ▮▮▮ for TNT, and by ▮▮▮ for TBS.[343] Turner was also able to impose significant additional price increases on its distributors for 2017 and beyond.[344] Indeed, Turner's pricing strategy for 2017

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[343] *See* Time Warner Inc., Turner Exhibit 3h.

[344] *See, e.g.*, ATT-DOJ2R-02677531-532, at -532 (Aug. 1, 2016 AT&T-Turner agreement resulting in fee increase (CAGR) of ▮▮▮ annually for 2016–2019 period); *see also* ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ ▮▮ ▮▮▮▮▮▮▮; TWI-02281627-628, at -628 ("Our financial performance has been industry-leading – one of the

and beyond encompasses further significant price increases by imposing "rate resets" on its distributors.[345]

Since these fee increases by Turner have not triggered entry by a major new video content aggregator, it seems quite unlikely that the additional Turner fee increases that I predict will result from the merger would induce such entry, especially given that it is not at all clear that those fee increases would increase the profitability of a new entrant.

Even if there were entry by a new video content aggregator in the near future, it is unlikely that such entry would significantly lessen the importance of the Turner Content to MVPDs, because the Turner Content will continue to include certain unique, valuable programming for the foreseeable future. As noted, Turner has the multi-year exclusive licensing rights to numerous marquee live events from several of the most popular sports leagues, including NCAA Basketball (through 2032), the NBA (through 2025), MLB (through 2021), PGA of America (through 2019), and UEFA Champions League (through 2021).[346] Similarly, HBO (and some of the Turner networks) obtains much of its valuable programming from Time Warner's Warner Bros. division, which will also be under AT&T's control if the merger takes place.

Netflix and Amazon have increasingly been producing their own original content over the past several years. However, the presence of this new programming has evidently not been sufficient to prevent Turner and other major video content aggregators from significantly raising their affiliate fees over time, including via escalator clauses commonly imposed in existing contracts with MVPDs.[347] As noted, this is due to the unique and valuable content offered by Turner,

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few among our peers to realize margin expansion over the past 5 years – but our recent growth drivers are not sustainable and we're running 'hot.'").

[345] *See* TWI-01483515-518, at -516 (Turner presentation "TCD 2017 Budget 1st Look," Sep. 6, 2016) (Turner "rate strategy" includes "2017 rate resets on TNT ▮▮▮▮) & TBS ▮▮▮▮) for NBA renewal" as well as "2017 rate resets for CNN ▮▮▮▮ & Cartoon ▮▮▮▮ "). *See also* TWI-04588214 (Turner spreadsheet entitled "OFFICIAL All Network Rate Cards 12-31-16" reflecting obtained and proposed rates and rate increases for 2015-2021 period, including rate increases for 2017 of up to ▮▮▮▮ for CNN, up to ▮▮▮▮ for TNT, up to ▮▮▮▮ for TBS, and up to ▮▮▮▮ for Cartoon Network).

[346] Time Warner 2016 Annual Report, at 5 (Feb. 23, 2017) available at http://phx.corporate-ir net/External.File?t=1&item=UGFyZW50SUQ9NjYzMzAxfENoaWxkSUQ9Mzc1NjcxFR5cGU9MQ== ("Turner's sports programming features licensed programming from the National Basketball Association ('NBA') through the 2024–2025 season, Major League Baseball ('MLB') through 2021, The National Collegiate Athletic Association (the 'NCAA') for the Men's Division I Basketball Tournament through 2032, and the Professional Golfers' Association ('PGA') through 2019."); *see also* TWI-02624264-275, at -273 ("We have a very strong portfolio of premium sports content—with long-term agreements with a number of our partners including the NBA, NCAA, MLB and PGA of America."); TWI-01928169-222, at -184 ("The NBA is a crucial part of Turner's broadcast network-lite strategy. . . . the new NBA deal . . . provided crucial leverage given the importance of live sports to cable subs."); Time Warner, "Turner Acquires Exclusive Multi-Platform Rights to UEFA Champions League & UEFA Europa League Beginning with 2018–19 Season," press release, Aug. 17, 2017, *available at* http://www.timewarner.com/newsroom/press-releases/2017/08/17/turner-acquires-exclusive-multi-platform-rights-to-uefa-champions (last visited Dec. 7, 2017) ("Turner and UEFA, the governing body of European football, today announced a three-year multi-platform rights agreement for the exclusive presentation of the UEFA Champions League and UEFA Europa League beginning with the 2018–19 season").

[347] TWI-02609692 (AT&T contract with Turner describing annual rate increases for all of Turner's networks for the ▮▮▮▮▮▮▮▮▮▮); TWI-08090704-780, at 717 (the Turner contract with the NBA lists the annual fee starting at

which is highly desired by consumers, notably live events and sports programming.[348] I therefore do not expect that the presence and growth of Netflix, Amazon, and other creators of video content will be sufficient to deter or counteract the Turner fee increases that I predict would result from the merger between AT&T and Time Warner.

16.2 *Entry by New Video Content Distributors*

A second logical possibility is that entry by new video content distributors would deter or counteract the anti-competitive effects identified above. I regard this as unlikely, for reasons I now explain.

Most importantly, the effects of the merger that I have described primarily involve increasing the costs of AT&T's rival MVPDs and Virtual MVPDs through an increase in the cost of the Turner Content. This will generally have the effect of decreasing the profitability of MVPDs and Virtual MVPDs thus making entry in this segment *less* profitable. In addition, EDM as described above potentially makes AT&T a stronger competitor, which would also tend to reduce the profitability of entry in this segment. For these reasons, the anti-competitive effects of the merger themselves deter rather than invite entry.

In addition to this fundamental point, there are a number of factors that make it unlikely that entry by MVPDs or Virtual MVPDs would be sufficient to prevent the anticompetitive effects from the merger. I describe these first for MVPDs, then for Virtual MVPDs.

16.2.1 Entry by MVPDs

Entry by new MVPDs is very costly and time consuming.[349] Over the last several years, MVPD entry has largely been limited to footprint expansion by existing telco MVPDs, including AT&T's own footprint expansion pursuant to the FCC conditions imposed in connection with

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██████████ for the 2016-17 season, increasing ██ percent annually, and ending at ██████ billion for the 2024–2025 season). *See also* TWI-02604720-730 (AT&T contract with HBO and Cinemax includes revenue target increases of ██ each year).

[348] *See, e.g.,* TWI-02624264-275, at -272–273 ("Our portfolio consists almost entirely of 'must have' networks. . . . We have invested heavily in 'must have' content, including premium sports rights and originals."); *see also* TWI-00000215-230, at -224 ("And as we approach affiliate renewals this year, these sports rights provide us with the base of must-watch content that should enable us to achieve our targeted rate increases."); *see also* ATT-DOJ2R-01057101-152, at -141 (describing Time Warner content assets, including "the large Warner Bros. film library and cable channels like CNN, TNT, TBS, HBO, Cartoon Network, etc." as "must-have" content); *see also* ATT-DOJ2R-01172976-3003, at -2986 (HBO has "key original programming"); *see also* ATT-DOJ2R-02954709-750, at -722 (referring to Turner sports properties as "key 'must-have' sports content"); *see also* ATT-DOJ2R-02563373-387, at -378 (Time Warner has "Three of the top five basic cable networks," "'Must have' premium sports rights" and "World's #1 premium cable network").

[349] Federal Communications Commission, "Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming: Eighteenth Report" (Report DA 17-71, Jan. 17, 2017), at ¶¶25, 32. ("MVPDs must obtain appropriate regulatory authority before providing video services and adhere to numerous rules, which vary depending on whether the entity is a cable or non-cable MVPD. . . . Small MVPDs do not enjoy the negotiating strength of larger MVPDs to acquire programming at lower prices. '); entry is further made difficult by DTV, the largest MVPD, whose strategy is to "fight back against No PayTV Growth" and "Work to make OTT less attractive as a complementary product." *See* ATT-DOJ2R-00036294-298, at 295.

the AT&T/DirecTV transaction. Essentially the only other MVPD entrant has been Alphabet, Inc., which has introduced facilities-based video content distribution services in parts of its Google Fiber footprint, which it began to deploy in 2012.[350] However, Google Fiber has since effectively withdrawn from the video distribution markets and is limiting services in its new footprints to broadband internet access only.[351]

One reason why MVPD entry is so difficult is that smaller MVPDs typically pay more for the right to distribute the most valuable video content than the larger incumbent MVPDs. In fact, this was an obstacle faced by AT&T itself following the introduction of its U-verse MVPD service in 2006.[352]

AT&T-DirecTV's share of overall MVPD subscribers has remained quite stable for the last five years, increasing slightly from 24.3% in Q1-2013[353] to 26.0% in Q3-2017.[354] I have seen no evidence indicating that new entry or expansion by existing MVPDs is likely to significantly affect this share.

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[350] *See* FCC, Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, 18th Report (Jan. 1, 2017), at ¶¶ 34–36.

[351] *See* Google, "Coming Soon—A New Approach in Louisville and San Antonio" (press release, Oct. 4, 2017) (noting that Google Fiber will "focus on providing superfast Internet—and the endless content possibilities that creates—*without the traditional TV add on*") (emphasis added).

[352] *See* ATT-DOJ2R-09693472-556, at -493 (AT&T presentation "Video Content Overview," Nov. 14, 2016) (noting that "[l]ate entry to the Pay TV market has forced Verizon and AT&T to have high programming costs relative to most other major Pay TV providers").

[353] As of Q1-2013 AT&T (U-verse) had 4,754,924 subscribers and DirecTV 19,158,292 subscribers (i.e., 23,913,216 subscribers combined), out of 98,559,755 MVPD subscribers overall. *See* SNL Kagan, "U.S. Multichannel Operator Comparison by Market, Period: 2013Q1" (MVPD subscriber data for AT&T, DirecTV, and other major MVPDs), available at https://www.snl.com/web/client?auth=inherit#industry/operatorComparisonByMarket; SNL Kagan, "U.S. Multichannel Market Subscriber Summary, Period: 2013Q1" (total number of MVPD subscribers); available at https://www.snl.com/web/client?auth=inherit#industry/MarketSubscriberSummary.

[354] As of Q3-2017 AT&T (U-verse) had 3,690,922 subscribers and DirecTV 20,150,703 subscribers (i.e., 23,841,625 subscribers combined), out of 91,668,059 MVPD subscribers overall. *See* SNL Kagan, "U.S. Multichannel Operator Comparison By Market, Period: 2017Q3" (MVPD subscriber data for AT&T, DirecTV, and other major MVPDs); available at https://www.snl.com/web/client?auth=inherit#industry/operatorComparisonByMarket; SNL SNL Kagan, "U.S. Multichannel Market Subscriber Summary, Period: 2017Q3" (total number of MVPD subscribers); available at https://www.snl.com/web/client?auth=inherit#industry/MarketSubscriberSummary.

16.2.2 Entry by Virtual MVPDs

While several Virtual MVPDs have entered the multichannel video distribution market in recent years,[355] and additional entry is likely to occur in the foreseeable future,[356] such entry is unlikely to prevent the competitive harm resulting from the proposed transaction. Growth of Virtual MVPDs is not likely to decrease diversion to AT&T video distribution. Among Virtual MVPDs, DIRECTV Now has about the same share that DTV has among traditional MVPDs.[357]

New Virtual MVPDs, like the existing Virtual MVPDs, will also value the Turner Content and the NBCUniversal Content. They will be vulnerable to the coordinated withholding of that content, or restrictions on the use of that content, by AT&T and Comcast. The incentive to withhold is greater, the larger is the number of subscribers to Comcast and AT&T's MVPD services that these new Virtual MVPD entrants would displace, other things equal.

As an empirical matter, video content aggregators, including Time Warner, continue to charge new Virtual MVPDs significantly higher prices for their content than they charge to the larger, established MVPDs. This makes it more difficult for Virtual MVPDs to compete effectively with DTV.[358] For example, when Turner entered into its initial distribution agreement with Sony in March 2015 related to Sony's Playstation Vue service, it charged Sony "a premium over our aggregate, average industry standard rate of ▮▮ in 2015 and ▮▮ in 2016."[359] Indeed, Turner strategy documents demonstrate that Turner is generally setting rates for new Virtual MVPD

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[355] Since 2015, vMVPD services have been launched, for example, by DISH Network (Sling TV), Sony (Playstation Vue), AT&T (DirecTV Now), Hulu (Hulu with Live TV), Alphabet (Youtube TV), fuboTV, and CenturyLink Stream. *See* Ali Choukeir (2017), "State of US Online Video: Virtual Service Providers," *S&P Global*, Jul. 26, https://www.snl.com/web/client?auth=inherit#news/article?id=41368717.

[356] For example, CenturyLink has recently launched the beta version of its new "CenturyLink Stream" vMVPD service. Luke Bouma, "CenturyLink Just Launched Their Live Streaming Service," *Cord Cutters News,* Jun. 29, 2017, https://www.cordcuttersnews.com/centuryllink-just-launched-live-tv-streaming-service/.

[357] I use Time Warner programmer data—specifically, Turner subscribers on each Virtual MVPD and the network with the highest number of subscribers in November 2017—as a proxy for subscribers to Virtual MVPD services. I use programmer data because I do not have Virtual MVPD subscription data for all Virtual MVPDs past December 2016. The result is a 26% DTV NOW share among Virtual MVPDs and a 28% DTV (U-verse and DTV combined) share among MVPDs.

[358] *See* Time Warner Inc., Turner Exhibit 3h (demonstrating that Turner rates for Sony's Playstation Vue vMVPD service by far exceed Turner's average rates for its traditional MVPD distributors; *e.g.*, Sony PSPM rate for CNN, as of 12/2016, of ▮▮ compared to average rate of ▮▮▮▮ above average); Sony rate for Cartoon Network of ▮▮ compared to average rate of ▮▮▮▮ above average); Sony rate of ▮▮ for TNT compared to average rate of ▮▮▮▮ above average), and Sony rate of ▮▮ for TNT compared to average rate of ▮▮▮▮ above average)).

[359] TWI-00000821 (March 1, 2015 email from Coleman Breland to John Martin and others, summarizing Turner's agreement with Sony for its Playstation Vue service). *See also* Time Warner Inc., Turner Exhibit 3h. (demonstrating that Turner rates for Sony's Playstation Vue vMVPD service by far exceed Turner's average rates for its traditional MVPD distributors).

services that are not affiliated with traditional MVPDs[360]—such as Playstation Vue, and YouTube TV—significantly above rates for its traditional MVPD distributors, including above rates for small MVPDs.[361] Specifically, Turner aims to charge new Virtual MVPDs rates that are

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The merger would give AT&T the ability to reinforce these barriers to entry. AT&T executives recognize that the cost of acquiring content "remains a key hurdle" for Virtual MVPDs and that these entrants "should be prepared to deficit fund their businesses on the uncertain journey to scale."[363] Facing these prospects, some companies have abandoned plans to launch Virtual MVPD services entirely.[364] After the merger, AT&T would control the price that Virtual MVPDs pay for Time Warner content, allowing it to make a potential Virtual MVPD's "journey to scale" all the more uncertain.

AT&T could also use a variety of non-price contractual provisions to create hurdles for Virtual MVPDs. For example, Virtual MVPD carriage agreements sometimes include limits on the number of subscribers that the Virtual MVPD can serve and/or requirements that the Virtual MVPD carry a minimum number of networks (i.e., that it not be too "skinny").[365] DIRECTV itself has required certain programmers to agree not to license their content to Virtual MVPDs that do not meet such criteria.[366] Post-merger AT&T could condition Virtual MVPD access to

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[360] New vMVPD services affiliated with traditional MVPD distributors, such as DISH Network's Sling TV and AT&T's DirecTV Now service, may be able to obtain programming at rates similar to those of their parent companies.

[361] Scott Cannon, "Digital Life: Google Fiber TV Customers Will Be Paying $20 More Each Month," *Kansas City Star,* May 25, 2017, http://www.kansascity.com/news/business/technology/article152575734.html ("Google Fiber blamed the price increase on the cost of buying programming. ... Industry analysts have said Google Fiber's relatively small footprint across the country undercuts its ability to bargain with studios for their programming."); American Cable Association, "Smaller Cable Companies, Larger Programmers Have Long Benefited from Buying Groups Like NCTC," Mar. 24, 2016, available at http://www.americancable.org/smaller-cable-companies-larger-programmers-have-long-benefited-from-buying-groups-like-nctc/ ("Without a buying group like the National Cable Television Cooperative (NCTC), customers of small and medium-sized cable operators would pay higher fees for their television service.").

[362] *See* TWI-01925912, at -913 (email from Coleman Breland to John Martin and David Levy with attached presentation "Affiliate Rate Strategy," May 20, 2016) (Turner offer for Virtual MVPDs, including Hulu, Apple, Amazon, and Youtube, at ██████████

[363] ATT-DOJ2R-01232728-738.

[364] *See, e.g.*, Jessica Toonkel and Lisa Richwine, "Exclusive: Amazon Scraps Bundled Video Service – Sources," Reuters report, Nov. 15, 2017,available at https://www.reuters.com/article/us-amazon-com-channels-exclusive/exclusive-amazon-scraps-bundled-video-service-sources-idUSKBN1DF1HG.

[365] *See, e.g.*, Deposition of Benjamin Pyne, May 4, 2017, at 79:15-18 ("So in our Dish Sling deal, we put a mechanism in at our option that if -- ████████████████████████████
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[366] *See* ATT-DOJ2R-08564670-836, at -689-690 (providing AT&T the right to terminate its contract with Viacom if Viacom ██
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Time Warner Content on similar requirements that limit the competitive threat that these services pose.

Due to the high video content costs already incurred by recent Virtual MVPD entrants, the importance of the Turner Content and the NBCUniversal Content for a new Virtual MVPD,[367] and the relatively limited presence of Virtual MVPDs (compared to MVPDs), entry by Virtual MVPDs will not prevent the anticompetitive effects of the proposed merger identified above.

17. Merger Synergies

In principle, an otherwise anti-competitive merger can sometimes generate synergies to benefit consumers. In order for this to occur, (1) the synergies must be very likely to arise, which requires that they be objectively verifiable and not merely aspirational; (2) the synergies must be merger-specific, which requires that they would most likely not be achieved without the merger or a comparably anticompetitive arrangement; and (3) the synergies must be of the type and magnitude that will offset the merger's anti-competitive effects.

AT&T has asserted some efficiencies, which I briefly discuss here. AT&T asserts that it will be able to reduce the combined company's costs by roughly $1.5 billion per year by 2020.[368] These cost savings include a reduction in the companies' marketing/advertising costs ($548 million);[369] savings in "corporate" costs such as Finance, HR, and Legal ($294 million);[370] and procurement savings in areas including Logistics & Distribution, Risk Management, and Travel ($227 million).[371] Defendants also assert that they will be able to increase their combined operating income by approximately $1.0 billion per year by 2020 through "revenue synergies" that are broadly based on improved targeting of advertising through the use of AT&T's consumer data ($471 million), various cross-selling, bundling, and other strategies ($304 million), and the use

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[367] *See, e.g.*, TWI-04417311, at 8 ("Rubix" study by Lieberman Research Worldwide, finding that the Turner networks drive approximately as much demand to the Virtual MVPD bundle as Fox and NBCUniversal, with the three programming groups tied in this regard only slightly behind Disney). *See also* TWI-01478361-375, at -368 (adopting the "Rubix" findings for purposes of Turner's distribution strategy). *See also* HULU-0006254-353, at -284–285 (August 2016 Hulu analysis finding that demand for Hulu vMVPD "will be heavily impacted" by the availability if Turner networks, among others. Specifically, at the actual $39.99 price point, Hulu projects that excluding Turner would reduce demand by 15 basis points, or 20.8%, for existing Hulu SVOD subscribers and by 12 basis points, or 12.5%, for other consumers.).

[368] *See* Merger Planning – Finance, Version 41, ATT-LIT-01893988-4184 (10/10/2017) -3994, -3996, -4109, and -4110. AT&T has described "Merger Planning Finance, Version 41" as "[t]he company's latest quantification of efficiencies or synergies and their associated costs." Objections and Responses to Plaintiff United States of America's First Set of Interrogatories to Defendant AT&T Inc. (Jan. 4, 2018), at 44. I note that there are other innovation synergies listed in AT&T's interrogatory response, but AT&T has not asserted that these claimed synergies are in any way quantifiable or verifiable.

[369] ATT-LIT-01893988-4184 at -3994, -3996, -4147.

[370] *Id*., at -3994, -3996, -4137.

[371] *Id.,* at -3994, -3996, -4061.

of AT&T's consumer data to improve Time Warner's production, acquisition, programming, and licensing of video content ($232 million).[372]

AT&T has not yet explained which of the claimed synergies should be credited for purposes of a competitive effects analysis, or to what degree. At this point, I have not seen evidence indicating that these synergies are merger specific, verifiable, and of the type and magnitude sufficient to offset the anti-competitive effects of the merger.

AT&T and Time Warner have stated that they plan to put forward expert materials concerning their synergies claims in this litigation.[373] I anticipate that these materials may address issues such as verifiability, merger-specificity, and pass-through of benefits to consumers. I also anticipate that these materials may make clear the degree to which particular efficiencies or synergies are being put forward as offsets to anticompetitive effects.

If AT&T provides more specifics regarding its efficiencies claims, I will likely address those claims in my rebuttal expert report.

18. Arbitration Does Not Eliminate the Incentives Created by the Merger

My analysis above studies the likely effects of the merger as initially proposed, without any regulatory patches. Regulatory patches can alter the effects of a merger but they do not alter the underlying incentives created by the merger, which is what I have analyzed in this report. Regulatory patches also tend to last for a certain number of years, while mergers change industry structure more permanently.

I am aware that AT&T has proposed a behavioral patch in this case, under which certain video content distributors would have the option of invoking binding arbitration if AT&T and the distributor are unable to agree on acceptable terms for the carriage of the Turner Content.[374] As I understand it, AT&T's proposed arbitration offer only covers the Turner networks that were distributed as of November 20, 2017, to MVPDs that had at least 1 million subscribers.[375] Furthermore, AT&T's proposed arbitration offer would expire seven years after the merger is consummated.

AT&T's proposed behavioral patch takes the form of Final Offer Arbitration (FOA), under which Turner and the MVPD in question each submit their offer to the arbitrators before seeing

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[372] *Id*., at -3994. For detail on each category, *see Id*., at -4081 to -4085; -4089 to 4099-; and -4100 to -4107.

[373] Letter from Joshua Lipton, Gibson Dunn, to Peter Schwingler, DOJ, Jan. 9, 2018, at 2 ("each Defendant will be producing a number of witnesses for deposition who were involved in the efficiencies process, as well as producing expert materials relating to efficiencies and synergies.").

[374] GOOG-DOJATT-00002853-853 (Letter from Richard J. Warren, Turner, to Irv Kalick, Google Fiber, Inc., Nov. 28, 2017).

[375] GOOG-DOJATT-00002810-814, of Arbitration Agreement, ¶1 ("At the request of any Video Distributor, Turner shall provide, for distribution to consumers, the Turner Networks that it provided, as of November 20, 2017, to a Video Distributor with more than one million subscribers."). Turner can also refuse to deal with any video distributor that does not already have a linear feed on 8 of top 35 (per Nielsen) channels.

the other's offer. These offers would take the form of a complete carriage agreement, which likely would contain numerous provisions, including contract length, penetration, tier placement, channel placement, and digital rights.[376] After the two offers are submitted, the arbitrator must choose one of the two offers; the arbitrators are not given the ability to ask for revisions to the submitted offers. The arbitrator's decision is supposed to be based on the goal of selecting the option that is closer to "fair market value," although that term is not defined. AT&T's arbitration proposal involves significant limits on discovery.[377] Discovery only occurs after the final offers are submitted and thus can influence the arbitrators' decision but not the submitted offers. And I understand that third-party discovery may be quite limited. Lack of discovery prior to the submission of offers would tend to favor Turner, because the Turner fees charged to other MVPDs would tend to be the most pertinent data in the arbitration.[378]

AT&T's proposed arbitration offer suffers from all of the problems endemic to merger conduct remedies, such as those employed at times by the Department of Justice and the FCC. In addition, AT&T's proposed arbitration offer further suffers because it would not be administered by government officials with deep industry expertise and ongoing involvement in the industry. Even well-funded industry regulators often find it difficult to keep up with changing market conditions, especially in markets experiencing technological change.[379] The arbitrators are likely to find it very difficult to evaluate innovative new distribution arrangements and to accurately identify the rates that would be associated with these arrangements that are comparable and not influenced by the anticompetitive effects of the merger or other manipulation, especially if their ability to engage in third-party discovery is limited.

Arbitrators and regulators tend to rely heavily on privately negotiated agreements as benchmarks to inform their decisions. Benchmarks are necessarily backward looking and will not incorporate innovative changes to the industry. In a situation where market forces would lead to lower rates over time, perhaps due to innovative new video distribution models associated with the growth of Virtual MVPDs and SVODs, benchmarks may adjust slowly, delaying the consumer benefits that would arise in a workably competitive market. The arbitrators' reliance on benchmarks also creates an incentive for participants to game the system by generating agreements to be used as a

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[376] ATT-DOJ2R-00628481-531, at -502 ("Affiliate deals are complicated and involve a number of variables other than simply price and length of term. … Example of negotiable terms may include: - Pricing – Length of contract – Additional carriage of mid-tier nets – Advertising allotments – Channel placement – Digital rights").

[377] GOOG-DOJATT-00002810-814, at -813, ¶C.4 (Arbitration Procedures).

[378] The rates paid by the MVPD for other content would be relevant, but since the Turner Content is very distinct from any other package of content, those rates would tend to be less informative than the rates that Turner was able to charge other MVPDs.

[379] Alyse Gould, "Regulating High-Frequency Trading: Man v. Machine," *Journal of High Technology Law*, 2011 (discussing how the financial and political world has wondered "if the SEC has the ability to keep up with an increasingly technologically advanced market based economy"); Jonathan R. Macey and Maureen O'Hara, "From Markets to Venues: Securities Regulation in an Evolving World," *Stanford Law Review,* 2005 (discussing challenges of SEC regulation in the face of dramatic changes in securities markets based on advanced technology).

benchmark by the arbitrators.[380] This prospect would alter Turner's incentives when negotiating agreements with one video content distributor that could be used as benchmarks in an arbitration with another distributor. For example, while the pre-merger Turner might choose to offer a significant discount to a Virtual MVPD to help facilitate competition among video content distributors, or to expand the number of people viewing the Turner Content, the post-merger Turner may refrain from offering that discount for fear that the discounted rate will then be used as a benchmark in an arbitration between Turner and an MVPD that competes against DTV.

Last, I explain why the underlying incentives created by the merger, which are not altered by AT&T's proposed arbitration offer, will very likely affect the outcome of any FOA. Just as the merger would predictably raise the fees that AT&T will be able to negotiate with MVPDs for the carriage of the Turner Content, so would the merger give AT&T the incentive to raise the Turner carriage fees that it submits to the arbitrators under FOA with an MVPD that competes against DTV.

Appendix M provides an economic model explaining how vertical integration affects the offer that Turner would submit to the arbitrators in an FOA. The offer submitted by Turner under FOA reflects a tradeoff: a higher offer will be more profitable if accepted by the arbitrators, but is less likely to be accepted. As discussed above at length, DTV benefits if Dish, for example, pays more for the Turner Content. Therefore, the merged entity benefits more from raising the Turner fees paid by dish than does Turner alone. This implies that the proposed merger would shift the tradeoff in favor of submitting a higher offer to the arbitrators. In other words, the merger causes "upward offer pressure" on the final offer that Turner submits to the arbitrators.

In summary, the incentives created by the merger for Turner to raise the fees that it charges rival MVPDs (1) remain present under AT&T's proposed arbitration offer and (2) will predictably cause AT&T to submit higher fee requests than would the pre-merger Time Warner.

Carl Shapiro

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Carl Shapiro

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[380] *See* ATT-DOJ2R-03064599 (June 25, 2016, discussion by DirecTV executives of ▓▓▓▓▓▓▓ refusal to grant MFN on online distribution rights against ▓▓▓ due to concerns about creating "marketplace conditions" on which other distributors could rely in potential arbitration); *see also* Deposition of Robert Thun, May 3, 2017, at 288:21–291:2 (discussing ▓▓▓▓▓▓ refusal to grant MFN).

Appendix A. Curriculum Vitae

A.1. Professional Positions

– **Professor of the Graduate School**
Haas School of Business and Department of Economics
University of California at Berkeley, 2018 - present

– **Transamerica Professor of Business Strategy**
Haas School of Business
University of California at Berkeley, 1994 - 2017

– **Professor of Business and Economics**
Haas School of Business and Department of Economics
University of California at Berkeley, 1990 - 2017

– **Senate-Confirmed Member of the President's Council of Economic Advisers**
Executive Office of the President, The White House, 2011-12

– **Deputy Assistant Attorney General for Economics**
Antitrust Division, U.S. Department of Justice, 2009 - 2011

– **Director of the Institute of Business and Economic Research**
University of California at Berkeley, 1998 - 2008

– **Deputy Assistant Attorney General for Economics**
Antitrust Division, U.S. Department of Justice, 1995 - 1996

– **Chair, Economic Analysis and Policy Group**
Haas School of Business
University of California at Berkeley, 1991 - 1993

– **Professor of Economics and Public Affairs**
Woodrow Wilson School of Public and International Affairs and
Department of Economics, Princeton University, 1987 - 1990

– **Research Fellow**
Center for Advanced Study in the Behavioral Sciences
Stanford University, 1989 - 1990

– **Visiting Scholar**
Stanford Law School, Stanford University, 1989 - 1990

– **Assistant Professor of Economics and Public Affairs**
Woodrow Wilson School of Public and International Affairs and
Department of Economics, Princeton University, 1980 - 1987

– **Visiting Fellow**
Institute for International Economic Studies, University of Stockholm, 1986

– **Visiting Assistant Professor of Economics and Public Policy**
Graduate School of Business, Stanford University, 1982 - 1983.

– **Economist**
Bureau of Economics, Federal Trade Commission, Summer 1980

A.2. Education

– Ph.D. Economics, M.I.T., 1981

– M.A. Mathematics, University of California at Berkeley, 1977

– B.S. Economics, M.I.T., 1976

– B.S. Mathematics, M.I.T., 1976

A.3. Publications

– Antitrust in a Time of Populism, *International Journal of Industrial Organization*, forthcoming.

– Horizontal Mergers, Market Structure, and Burdens of Proof, with Herbert Hovenkamp, *Yale Law Journal*, forthcoming.

– How Antitrust Law Can Make FRAND Commitments More Effective, with A. Douglas Melamed, *Yale Law Journal*, forthcoming.

– Whither Antitrust in the Trump Administration?, with Steven Salop, *Antitrust Source*, 2017.

– Patent Remedies, *American Economic Review Papers & Proceedings*, 2016.

– Patent Assertions: Are We Any Closer to Aligning Rewards to Contribution?, with Fiona Scott Morton, *Innovation Policy and the Economy*, National Bureau of Economic Research, 2016.

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– Strategic Patent Acquisitions, with Fiona Scott Morton, *Antitrust Law Journal*, 2014.

– A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents, with Mark Lemley, *Berkeley Technology Law Journal,* 2013.

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– Competition and Innovation: Did Arrow Hit the Bull's Eye?, in *The Rate & Direction of Inventive Activity Revisited,* Josh Lerner and Scott Stern, eds., National Bureau of Economic Research, University of Chicago Press, 2012.

– The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years, *Antitrust Law Journal*, 2010.

– Injunctions, Hold-Up, and Patent Royalties, *American Law and Economics Review*, 2010.

– The Year in Review: Economics at the Antitrust Division: 2009-2010, with Ken Heyer, *Review of Industrial Organization,* 2010.

– Recapture, Pass-Through, and Market Definition, with Joseph Farrell, *Antitrust Law Journal*, 2010.

– Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition, with Joseph Farrell, *BE Journal of Theoretical Economics: Policies and Perspectives*, 2010.

  – Upward Pricing Pressure in Horizontal Merger Analysis: Reply to Epstein and Rubinfeld, *BE Journal of Theoretical Economics: Policies and Perspectives*, 2010.

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– Competition Policy in Distressed Industries, in *Competition as Public Policy,* American Bar Association, 2010.

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– A Tribute to Oliver Williamson: Antitrust Economics, *California Management Review,* 2010.

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– Microsoft: Remedial Failure, *Antitrust Law Journal,* 2009.

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– Improving Critical Loss, with Joseph Farrell, *Antitrust Source,* February 2008.

– Patent Reform: Aligning Reward and Contribution, *Innovation Policy and the Economy,* Adam Jaffe, Josh Lerner, and Scott Stern, eds., National Bureau of Economic Research, vol. 8, pp. 111-156, 2007.

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– Market Definition in Crude Oil: Estimating the Effects of the BP/ARCO Merger, with John Hayes and Robert Town, *Antitrust Bulletin*, Summer 2007.

– Prior User Rights, *American Economic Review Papers & Proceedings,* May 2006.

– Probabilistic Patents, with Mark A. Lemley, *Journal of Economic Perspectives*, Spring 2005.

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– Dynamic R&D Competition, with Gene M. Grossman, *Economic Journal*, June 1987.

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– Equilibrium Unemployment as a Worker Discipline Device: Reply, with Joseph E. Stiglitz, *American Economic Review*, September 1985.

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– Consumer Protection in the United States, *Zeitscrift für die gesamte Staatswissenschaft*, *Journal of Institutional and Theoretical Economics*, October 1983.

– A Theory of Factor Mobility, with Gene M. Grossman, *Journal of Political Economy*, October 1982.

– Optimal Pricing of Experience Goods, *Bell Journal of Economics*, Autumn 1983.

– Consumer Information, Product Quality, and Seller Reputation, *Bell Journal of Economics*, Spring 1982.

– Advertising and Welfare: Comment, *Bell Journal of Economics*, Autumn 1980.

A.4. Working Papers, Research Memoranda, Work in Progress

– Property Rules vs. Liability Rules for Patent Infringement, January 2017.

– Unilateral Effects Analysis After *Oracle,* Roundtable Discussion (multiple participants), *Antitrust Magazine,* Spring 2005.

– The Role of Innovation in Competitive Analysis, Chair's Showcase Program (multiple participants), *Antitrust Source,* July 2005.

– Linux Adoption in the Public Sector: An Economic Analysis, 2003, with Hal R. Varian.

– Competition Policy and Innovation, Prepared for the Directorate for Science, Technology, and Industry, OECD, STI Working Paper No. 2002/11, April 2002, www.oecd.org/sti.

– U.S. Government Information Policy, with Hal R. Varian, prepared for the Office of the Assistant Secretary of Defense (Command, Control, Communications and Intelligence), U.S. Department of Defense, August 1997.

– *Economic Models of Counterfeiting*, with Gene M. Grossman, Report to the U.S. Department of Labor, International Labor Affairs Bureau, January 1988.

A.5. Book Reviews

– Review of *Bandwagon Effects in High-Technology Industries* by Jeffrey H. Rohlfs, in the Journal of Economics, 2003.

– Review of *Will E-Commerce Erode Liberty? Review of Code and Other Laws of Cyberspace*, by Lawrence Lessig, in the Harvard Business Review, May/June 2000.

– Review of *Sunk Costs and Market Structure: Price Competition, Advertising, and the Evolution of Concentration*, by John Sutton, in the Journal of Economic Literature, 1993.

– Review of *Controlling Industrial Pollution: The Economics and Politics of Clean Air*, by Robert W. Crandall, in the Journal of Economic Literature, June 1984, pp. 625-627.

A.6. Other Professional Activities

– Member, Long Range Planning Committee, Antitrust Section, American Bar Association, 2015-2016.

– Member, Foreign Investment, Sectoral Review, and Trade Policy Task Force, Antitrust Section, American Bar Association, 2013- 2015.

– Member, Academic Research Council, Housing Finance Center, Urban Institute, 2013 - present

– Member, Budget and Interdepartmental Relations Committee, Berkeley Division of the Academic Senate, University of California, 2004-2007.

– Member, University of California, Committee on Academic Personnel, 2006-2008.

– Member, Economic Evidence Task Force, Antitrust Section, American Bar Association, 2005-2006.

– Member, Program Committee, American Economic Association Annual Meetings, 2006.

– Member, Market Surveillance Committee, California Independent System Operator, 1997-2000, see http://www.caiso.com/.

– Member, Advisory Board, *Journal of Economic Perspectives*, 1999-2002.

– Member, Advisory Board, *Antitrust and Regulation Abstracts*, 1998-2002.

– Member, Advisory Board, *Journal of Network Industries*, 1999-2001.

– Vice-Chair, Economics Committee, Antitrust Section, American Bar Association, 1995 - 1998.

– Editor, *Journal of Economic Perspectives*, 1993 - 1995.

– President, Industrial Organization Society, 1995 - 1996.

– Member, Defense Science Board Task Force on Antitrust Aspects of Defense Industry Consolidation, U.S. Department of Defense, 1993 - 1994.

– Co-Editor, *Journal of Economic Perspectives*, 1986 - 1993.

– Associate Editor, *Quarterly Journal of Economics*, 1984 - 1987.

– Associate Editor *Rand Journal of Economics*, 1984 - 1986.

– Director, John M. Olin Program for the Study of Economic Organization and Public Policy, Princeton University, 1988 - 1989

– Associate Director, John M. Olin Program for the Study of Economic Organization and Public Policy, Princeton University, 1987 - 1988.

A.7. Honors, Fellowships, and Research Grants

– Economist of the Year, Global Competition Review, 2017

– Susan Bies Lecture on Economics and Public Policy, Northwestern University, 2015.

– Distinguished Fellow, Industrial Organization Society, 2013.

– National Science Foundation Graduate Research Fellowship Program, 60th Anniversary Awardee (one of 60 Awardees selected from over 45,000 Fellows)

– Runner-Up, Teaching Prize, MBA Program, Haas School of Business, U.C. Berkeley, 1999-2000.

– National Science Foundation Research Grant #SES-9209509, Technology Transitions with Network Externalities, 1992-1994, (with Joseph Farrell).

– National Science Foundation Research Grant #SES-8821529, The Evolution of Network Industries, 1989-1991, (with Joseph Farrell).

– Center for Advanced Study in the Behavioral Sciences, Stanford California, Research Fellowship, 1989-1990.

– National Science Foundation Research Grant #SES-8606336, Issues of Industrial Organization in International Trade, 1986-1988, (with Gene M. Grossman).

– Alfred P. Sloan Foundation Research Fellowship, 1985-1987.

– National Science Foundation Research Grant #SES-8408622, Technological Competition and International Trade, 1984-1986, (with Gene M. Grossman).

– National Science Foundation Research Grant #SES-8207337, Signals of Product Quality, 1982-1984.

– National Science Foundation Graduate Fellowship, 1977-1980.

– University of California Fellowship, 1976-1977.

– Phi Beta Kappa and Sigma Xi, M.I.T., 1976.

A.8. Affiliations

– American Economic Association and American Bar Association

A.9. Consulting Activities

– Senior Consultant, Charles River Associates, 1998 – 2009 and 2012 – present

– Principal and Co-Founder, The Tilden Group, LLC, 1996 - 1998.

– Extensive experience working with private parties and government agencies on matters involving antitrust, regulation, and intellectual property.

Appendix B. Testimony of Carl Shapiro During the Past Four Years

1. Determination of Royalty Rates and Terms for Ephemeral Recording and Digital Performance of Sound Recordings (Web IV)

Docket No. 14-CRB-0001-WR (2016-2020)
United States Copyright Royalty Judges, The Library of Congress, Washington, D.C.
Testified in deposition and at the hearing on behalf of Pandora Media, Inc., 2015.

2. Federal Trade Commission, et. al. v. Staples, Inc. and Home Depot, Inc.

Civil Action No. 15-2115-EGS
District of Columbia
Testified in deposition and at trial on behalf of the Federal Trade Commission, 2016.

3. Federal Trade Commission v. Actavis, Inc.

Civil Action No. 1:09-cv-955-TWT
Northern District of Georgia
Testified in deposition on behalf of the Federal Trade Commission, 2016 and 2017.

4. Daniel Grace, et. al, v. Alaska Air Group Inc. et al.

Civil Action No. 16-cv-05165-WHA
Northern District of California
Testified in deposition on behalf of Virgin America, Inc., 2016.

5. Determination of Royalty Rates and Terms for Transmission of Sound Recordings by Satellite Radio and "Preexisting" Subscription Services (SDARS III)

Docket No. 16-CRB-0001 SR/PSSR (2018-2022)
United States Copyright Royalty Judges, The Library of Congress, Washington, D.C.
Testified in deposition and at the hearing on behalf of Sirius XM Radio, Inc., 2016 and 2017.

6. Generics U.K. Limited et. al. v. Competition and Markets Authority

Cases No. 1251-1255/1/12/16
U.K. Competition Appeal Tribunal
Testified on behalf of the Competition and Markets Authority, 2017

7. Federal Trade Commission v. AbbVie Inc. et. al.

Case No. 2:14-cv-5151-HB
Eastern District of Pennsylvania
Testified in deposition on behalf of the Federal Trade Commission, 2017.

8. Steves and Sons, Inc. v. JELD-WEN, Inc.

Case No. 3:16-cv-545-REP
Eastern District of Virginia
Testified in deposition and trial on behalf of Steves and Sons, 2017-2018.

Appendix C. Materials Relied Upon

Discovery

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ALT-00004692.
ALT-00004943.
ALT-00007041.
ALT-00007302.
ALT-00007322.
ALT-00007424.
ALT-00007699.
ALT-00008134.
ALT-00010561.
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CHTR-CID-012611.
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GOOG-DOJATT-00002853.
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SIENA-30918.
SIENA-36356.
SIENA-44650.
ATT-LIT-01317780.

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TTWX-00029557.
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TWI-LIT-00823099.
TWI-LIT-01011691.
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TWI-LIT-01673692.
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    Specification 2.

Depositions

Deposition of Michele Barney, Jan. 12, 2018.
Deposition of Jeffrey Bewkes, May 4, 2017.
Deposition of Breece Breland, Jan. 19, 2018.
Deposition of Gina DeSantis, Jan. 4, 2018.
Deposition of Mitchel Farber, Jan. 5, 2018.
Deposition of Robert Kyncl, May 23, 2017.
Deposition of David Levy, Jan. 17, 2018.
Deposition of Roger Lynch, Apr. 20, 2017.
Deposition of Beth Main, Jan. 5, 2018.
Deposition of Lee Nusbaum, Jan. 23, 2018.
Deposition of Richard Plepler, May 10, 2017.
Deposition of Benjamin Pyne, May 4, 2017.
Deposition of Gregory Rigdon, Nov. 13, 2017.
Deposition of Warren Schlichting, Apr. 20, 2017.
Deposition of Michael Schreiber, Altice, May 10, 2017.
Deposition of John Stankey, Dec. 20, 2016.
Deposition of Simon Sutton, Jan. 19, 2018.
Deposition of Robert Thun, May 3, 2017.
Deposition of Vince Torres, Jan. 12, 2018.

Legal

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Complaint, *United States v. AT&T Inc., DirectTV Group Holdings, LLC, and Time Warner Inc*., No. 1:17-cv-02511 (D.D.C. Nov. 20, 2017).

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Appendix D. Long-Term Subscriber Loss

This Appendix explains how departures of existing subscribers, combined with the loss of prospective subscribers when an MVPD stops carrying a network, together determine the dynamics of the MVPD's subscriber losses and the MVPD's long-term subscriber loss rate. I provide conditions under which the long-term subscriber loss rate is equal to the loss rate for new subscribers.

I start by describing the status quo, before the MVPD stops carrying the network in question. I denote the MVPD's subscriber count before the content loss by N_0. For simplicity, I assume that the number of subscribers to the MVPD is stable at this level prior to the loss of the content in question. The MVPD experiences churn, continually losing some existing subscribers and gaining some new subscribers. I denote the annual churn rate by c, meaning that the MVPD loses a fraction c of its existing subscribers each year. Therefore, each year the MVPD loses cN_0 subscribers. These subscriber losses occur for a number of reasons, such as subscribers moving, finding a better deal, experiencing changing tastes, and experiencing changed financial circumstances. The MVPD also attracts new subscribers. In the status quo steady state, the number of new subscribers attracted to the MVPD per year is also cN_0.

Subscriber Loss Dynamics

I now describe what happens after the MVPD stops carrying the network in question. I denote by d the *departure rate* during the first year caused by the loss of content. This means that, in addition to the normal churn, the MVPD loses dN_0 subscribers during the first year following the blackout as a result of the loss of the content. I assume that the MVPD experiences no additional loss of existing subscribers due to the absence of the content after the first year.

The MVPD also attracts fewer new subscribers as a result of the loss of the content in question. Rather than attracting cN_0 each year, after the loss of content the MVPD attracts $(1 - x)cN_0$ new subscribers each year, where x is the *loss of new connects* rate. This formulation assumes that the loss of new connects is the same, namely xcN_0, every year following the blackout.[381]

We are interested in calculating the number of subscribers at this MVPD each year following the loss of the content in question. Let N_t be the number of subscribers in year t after the loss of the content, and let $L_t = (N_0 - N_t)/N_0$ be the subscriber loss rate as of year t. We have

$$N_1 = N_0 - (cN_0 + dN_0) + (cN_0 - cxN_0) = N_0 - (d + cx)N_0, \tag{1}$$

where $(cN_0 + dN_0)$ is the number of subscribers leaving in the first year including both normal churn and departure due to the blackout, and $(cN_0 - xcN_0)$ is the number of new subscribers added to the MVPD in the first year.

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[381] ATT-DOJ2R-13614468, at slide 14, estimates that the reduction of gross adds after DTV loses Disney content is ▮▮▮▮▮ after one year and ▮▮▮▮▮ after six years. The latter figure is six times the former one.

Note that the subscriber loss rate in the first year is given by

$$L_1 = \frac{N_0 - N_1}{N_0} = d + cx. \tag{2}$$

Following this same logic, we have

$$N_2 = (1 - c)N_1 + c(1 - x)N_0 = (1 - c)(1 - L_1)N_0 + c(1 - x)N_0 \tag{3}$$

$$N_3 = (1 - c)N_2 + c(1 - x)N_0 = (1 - c)^2(1 - L_1)N_0 + ((1 - c) + 1)c(1 - x)N_0, \tag{4}$$

and in general

$$N_t = (1 - c)^{t-1}(1 - L_1)N_0 + c(1 - x)N_0 \sum_{n=0}^{t-2}(1 - c)^n, \quad t \geq 2. \tag{5}$$

This implies that the subscriber loss rate in subsequent years is given by

$$L_t = \frac{N_0 - N_t}{N_0} = x - (x - d - cx)(1 - c)^{t-1}, t \geq 2. \tag{6}$$

In the limit as t gets large, we have

$$N_\infty = c(1 - x)N_0 \frac{1}{1 - (1 - c)} = (1 - x)N_0. \tag{7}$$

$$L_\infty = x. \tag{8}$$

Present Discounted Value of Subscriber Losses

We now evaluate the economic consequences for the MVPD of losing the content in question.

Define $\bar{L}$ as the constant annual subscriber loss rate such that it has the same present discounted value of L_t, $t = 1, 2, ...$ That is,

$$\sum_{t=1}^{\infty} \beta^t \bar{L} = \sum_{t=1}^{\infty} \beta^t L_t, \tag{9}$$

where $\beta < 1$ is the annual discount factor. Solving for $\bar{L}$, using the expressions above, we get

$$\bar{L} = (1 - \beta)(d + cx) + \beta x - \frac{\beta(1 - \beta)(x - d - cx)(1 - c)}{1 - \beta(1 - c)}. \tag{10}$$

$\bar{L}$ is used in Eqn. (18) of Appendix G.

A DTV document implies that without Disney's content, $d = 3.0\%$ and $x = 16.2\%$.[382] AT&T data show that $c = 22.6\%$.[383] Using these parameters, Eq. (10) gives $\bar{L} = 14.2\%$.[384]

My empirical analysis of the Suddenlink-Viacom event shows that $d = 1.5\%$, $x = 10.4\%$, and $c = 28.9\%$. Using these parameters, Eq. (10) gives $\bar{L} = 9.4\%$.

A Charter document estimates that d is ▮▮▮▮▮ and x is ▮▮▮▮▮[385] Charter's data indicate that $c = 27.3\%$.[386] Using these parameters, Eq. (10) indicates that $\bar{L}$ is 10.3% to 16.4%.

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[382] ATT-DOJ2R-13614468 at slide 14 shows that one year after losing Disney's content, DTV will lose ▮▮▮▮▮ existing subscribers. According to AT&T's second request data, DTV has about 18.7 million subscribers in 2014, the year when this document was produced. Therefore, $d = $ ▮▮▮▮▮ $\simeq 3.0\%$. Page 14 also shows that one year after losing Disney's content, DTV will lose ▮▮▮▮▮ According to AT&T's second request data, DTV's normal churn in 2014 is $c = $ ▮▮▮ Therefore, $x = 0$▮▮▮▮▮ $\simeq$ 16.2%. AT&T Exhibit 2.a.7.201401-12.

[383] AT&T Exhibit 2.a.7.201401-12.

[384] Here I am also using $\beta = 1/(1 + 5.75\%)$ based on ATT-DOJ2R-01999322-333, at -329.

[385] CHTR-CID-012471-569, at -488.

[386] *CID_DOJ_Nov16TOoFeb17*.

Appendix E. Turner Penetration Rate by Network

Figure 19: Penetration Rates for Top Turner Networks, December 2016

Network	Penetration rate
CNN	
Cartoon Network/Adult Swim	
TBS	
TNT	
HLN	
truTV	
TCM	
BOOMERANG	

Sources: Time Warner Inc., Turner Exhibit 3c; AT&T Exhibit 2.a.7.201612; ALT-00004943 and ALT-00010561; CID_DOJ_Nov16TOoFeb17; Comcast Exhibit 2.48-9; Cox-00022128; DISH-ATT-00006714; DOJ_Request_Billing_201610_201612; MC 000019 and DOJ-ATTTWX-EMAILS-014266; VZ-DATA3-000004; SNL Kagan, Operator Subscribers by Geography, last accessed Apr. 24, 2017.

Appendix F. Subscriber Loss Rate and New Subscriber Cumulative Loss Rate: Evidence from Suddenlink Loss of Viacom Content

Suddenlink is an incumbent cable company that operates across 17 states. On October 1, 2014, Suddenlink stopped carrying Viacom channels. The loss of Viacom Content lasted about 35 months. I estimate Suddenlink's total subscriber loss rate and new subscriber cumulative loss rate due to the drop of Viacom content.

I estimate the effect of the loss of Viacom on Suddenlink's total subscribers by fitting a linear trend to the subscriber counts for the months before Suddenlink's loss of Viacom Content ("pre period"). Because the linear trend describes Suddenlink's subscriber counts with sufficient precision, I extend this trend to predict Suddenlink's subscribers in the period after the loss of Viacom Content ("post period").[387] I then compare the predicted number of subscribers with the actual number of subscribers in the post period.[388]

After losing Viacom Content, Suddenlink experienced a one-month drop in total subscribers of ███ In addition to this one-time drop, Suddenlink's monthly decline in subscribers steepened resulting in a continuing loss of subscribers during the following months.

Formally, I estimate Suddenlink's subscriber loss rate in two steps. First, I estimate the following econometric model. For each month:

$$Subscribers = \alpha + \beta_1 Date + \beta_2\, 1(Date \geq 2014Oct) + \beta_3(Date \times 1(Date \geq 2014Oct)) + \varepsilon$$

where $1(Date > 2014Oct)$ is an indicator function that takes the value 1 when the observations are from October 2014, or a later date.[389]

Then, using the model's results, I estimate the following ratio that represents Suddenlink's subscriber loss rate due to the loss of Viacom Content:

$$\frac{\hat{\beta}_2 + \hat{\beta}_3 Date_t}{\hat{\alpha} + \hat{\beta}_1 Date_t}$$

As seen in Figure 20, one year after the loss of Viacom, Suddenlink lost ███ of subscribers relative to what it would have had if Viacom had not been dropped. After 27 months, which is the latest the data allow me to estimate, I calculate that Suddenlink lost ███ of subscribers relative to what it would have had. When I include month fixed effects to allow for seasonal

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[387] Applying a linear fit to subscriber counts yields an R^2 of over 0.7. To account for seasonality, I also estimate models with month fixed effects. I present both sets of results.

[388] More precisely, I compare the predicted number of subscribers with the number of subscribers that result after applying a linear fit to the actual subscriber counts.

[389] "Date" is a running count variable of time (in months).

variation in total subscribers, the estimate of subscriber loss one year after the loss of Viacom is 4.8%, while the estimate at 27 months after the loss of Viacom is 6.4%.

Figure 20: Continuing Suddenlink Subscriber Loss Rate Due to Loss of Viacom Content After 12 and 27 Months

Period after loss of Viacom	Subscriber loss rate	
	Linear fit	Including month fixed effects
12 months	███	4.8%***
27 months	███	6.4%***

Source: ALT-00010559-566. *** indicates estimate is statistically significant at the 1% level; ** 5%; * 10%.

To estimate Suddenlink's new subscriber cumulative loss rate I follow a similar methodology. I start by estimating the same econometric model using new subscribers as dependent variable. Then, with the results of model, I calculate the cumulative loss rate as:

$$\frac{\sum_{t=1}^{T}(\hat{\beta}_2 + \hat{\beta}_3 Date_t)}{\sum_{t=1}^{T}(\hat{\alpha} + \hat{\beta}_1 Date_t)}$$

where t denotes months after the loss of Viacom. Figure 21 presents the results after 12 and 27 months of the loss of Viacom Content. Including month fixed effects, the new subscriber cumulative loss rate 12 months after the loss of Viacom Content is 10.4%, and 11.8% after 27 months.[390]

Figure 21. Suddenlink New Subscriber Cumulative Loss Rate Due to Loss of Viacom Content After 12 and 27 Months

Period after loss of Viacom	New subscriber cumulative loss rate	
	Linear fit	Including month fixed effects
12 months	███	10.4%
27 months	███	11.8%

Source: ALT-00010559-566.

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[390] Compared with total subscriber counts, new subscriber counts are affected substantially by seasonality in the data and are not well approximated by a linear fit. Therefore, the results with month fixed effects are more reliable.

Appendix G. The Turner Bargaining Model

This model is designed to study the impact of a merger between Turner and DTV on the carriage fees that Turner negotiates with other MVPDs. In Appendix K, I separately study the impact of the merger on the (internal) carriage fee that the Turner charges to DTV.

I begin by setting up the model and analyzing how carriage fees for the Turner Content are determined prior to the merger between Turner and DTV. I then discuss how those negotiated Turner carriage fees are predicted to change after the merger.

G.1. Notation and Basic Setup

Upstream and downstream merging firms are labeled u and d respectively. At times I will refer to the upstream merging firm as Turner and the downstream merging firm as DTV.

Downstream rivals to DTV are labeled $1, \dots, n$. At times I will use Dish as an example of such downstream firm.

G.1.a. Carriage Fees for Turner Content

Turner negotiates a per-subscriber per-month (PSPM) price w_i with each downstream firm $i \in \{d, 1, \dots, n\} \equiv N$. Prior to the merger, from the perspective of the upstream firm, d is just one of the downstream firms. After the merger, u and d are two divisions within the same integrated firm. I focus here on how the price u charges to the non-integrated downstream firms changes as a result of the merger between u and d.

I take as given the prices charged by all other content owners for carriage on all of the MVPDs.

I assume that Turner incurs a direct cost of c_u PSPM. In addition, I assume that Turner earns PSPM advertising revenue of a_u. I assume these costs and benefits are uniform across all MVPDs and constant over time.

G.1.b. Downstream Demand

The number of subscribers at downstream firm $j \in N$ is denoted by D_j when all downstream firms have u's content.[391] For simplicity, I assume D_j is a constant over time.

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[391] I take each MVPD's set of packages as given. D_i is the number of subscribers on MVPD i with any access to Turner's content. In other words, D_i is the number of MVPD i's subscribers multiplied by Turner's penetration rate on MVPD i.

Define D_j^{-i} as the present discounted value of firm j's subscribers if firm i stops carrying u's content permanently. That is, $\sum_{t=1}^{\infty} \beta^t D_j^{-i} \equiv \sum_{t=1}^{\infty} \beta^t D_{jt}^{-i}$, where β is the common annual discount factor for all firms and D_{jt}^{-i} is firm j's number of subscribers in year t after firm i stops carrying u's content and that firm adjusts its price optimally in response.

G.2. Pre-Merger Bargaining

I now study the bargaining over w_i between upstream firm u and downstream firm i.

G.2.a. Upstream Firm's Profits

The upstream firm's profits when it sells its content to all downstream firms are given by

$$\pi_u = \sum_{j \in N} (w_j + a_u - c_u) D_j. \tag{1}$$

The upstream firm's profits when it sells its content to all but firm i are given by

$$\pi_u^{-i} = \sum_{j \in N \setminus \{i\}} (w_j + a_u - c_u) D_j^{-i}. \tag{2}$$

G.2.b. Downstream Firms' Profits

Downstream firm i has PSPM costs of c_i, *not* including the cost of u's input. This cost includes the cost of all other content and other non-content costs that vary with the number of subscribers, net of the downstream firm's advertising revenue per subscriber.

Downstream firm i's profits when u's content is available to all downstream firms are given by

$$\pi_i = (p_i - c_i - w_i) D_i. \tag{3}$$

Downstream firm i's profits when u's content is available to all other downstream firms but not downstream firm i itself are given by

$$\pi_i^{-i} = (p_i^{-i} - c_i) D_i^{-i}. \tag{4}$$

Here p_i^{-i} is the new profit-maximizing price for downstream firm i when it does not have content from u.

Downstream firm j's profits when u's content is available to all but firm i are given by

$$\pi_j^{-i} = (p_j - c_j - w_j) D_j^{-i}. \tag{5}$$

G.2.c. Subscriber Movements Resulting from Bargaining Breakdown

If bargaining breaks down between upstream firm u and downstream firm i, so u's content is no longer available on i, then the number of additional subscribers for downstream firm j is equal to $-\Delta_j^{-i} \equiv -(D_j - D_j^{-i})$. Note that $D_j^{-i} \geq D_j$.

If bargaining breaks down between upstream firm u and downstream firm i, so u's content is no longer available on i, the number of subscribers at downstream firm i falls from D_i to D_i^{-i}. Denote by $\Delta_i^{-i} \equiv D_i - D_i^{-i}$ the number of subscribers that downstream firm i loses if it no longer can carry u's content, and given its own pricing counter-strategy. Downstream firm i will lose fewer subscribers due to the loss of u's content if downstream firm i lowers its price in response than if it does not adopt this counter-strategy. Denote this price response by $\delta_i \equiv p_i - p_i^{-i}$.

I assume that the number of subscribers lost by downstream firm i when it loses access to u's content is at least as large as the aggregate number of subscribers gained by all of the other downstream firms. That is, $\Delta_i^{-i} \geq -\sum_{j \in N \setminus \{i\}} \Delta_j^{-i}$.

G.2.d. Bilateral Gains from Trade

Using these profit functions, we can write

$$\pi_i - \pi_i^{-i} = (p_i - c_i)\Delta_i^{-i} + \delta_i D_i^{-i} - w_i D_i \tag{6}$$

and

$$\pi_u - \pi_u^{-i} = \left(\sum_{j \neq i} (w_j + a_u - c_u)\Delta_j^{-i} \right) + (w_i + a_u - c_u)D_i. \tag{7}$$

The bilateral gains from trade between downstream firm i and u are

$$\pi_i - \pi_i^{-i} + \pi_u - \pi_u^{-i}$$
$$= (p_i - c_i)\Delta_i^{-i} + \delta_i D_i^{-i} + \left(\sum_{j \neq i} (w_j + a_u - c_u)\Delta_j^{-i} \right) + (a_u - c_u)D_i \tag{8}$$

G.2.e. Pre-Merger Bargaining Outcome

I now calculate the bargaining outcome between u and i over price w_i such that u gets share α of the bilateral gains from trade. If u gets a share α of the bilateral gains from trade between itself and downstream firm i, the following equality must hold.[392]

$$(1 - \alpha)(\pi_u - \pi_u^{-i}) = \alpha(\pi_i - \pi_i^{-i}). \tag{9}$$

Therefore, we have

$$(1 - \alpha)\left(\frac{\sum_{j \neq i}(w_j + a_u - c_u)\Delta_j^{-i}}{D_i} + w_i + a_u - c_u\right)$$
$$= \alpha\left((p_i - c_i)\frac{\Delta_i^{-i}}{D_i} + \frac{\delta_i D_i^{-i}}{D_i} - w_i\right). \tag{10}$$

Solving for the pre-merger negotiated price w_i results in

$$w_i = \alpha\left[(p_i - c_i)\frac{\Delta_i^{-i}}{D_i} + \frac{\delta_i D_i^{-i}}{D_i}\right] - (1 - \alpha)\left[a_u - c_u + \frac{\sum_{j \neq i}(w_j + a_u - c_u)\Delta_j^{-i}}{D_i}\right],$$

where the first square bracket multiplied by D_i is MVPD i's gains from trade without transfers and the second square bracket multiplied by D_i is u's gains from trade without transfers.

With $c_u = 0$, the pre-merger price is then given by

$$w_i = [\alpha(p_i - c_i)]\frac{\Delta_i^{-i}}{D_i} - (1 - \alpha)a_u + \frac{\alpha\delta_i D_i^{-i}}{D_i} - (1 - \alpha)\frac{\sum_{j \neq i}(w_j + a_u)\Delta_j^{-i}}{D_i}. \tag{11}$$

G.3. Post-Merger Bargaining

After the merger, the upstream firm accounts for the profits of its downstream division d. Hence, the merged firm's profits with and without an agreement with downstream firm i are given by

$$\pi_u + \pi_d = \left(\sum_{i \in N}(w_i + a_u)D_i\right) + (p_d - c_d - w_d)D_d, \tag{12}$$

$$\pi_u^{-i} + \pi_d^{-i} = \left(\sum_{j \in N \setminus \{i\}}(w_j + a_u)D_j^{-i}\right) + (p_d - c_d - w_d)D_d^{-i}. \tag{13}$$

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[392] This equilibrium relationship is due in part to Henrick Horn and Asher Wolinsky, "Bilateral Monopolies and Incentives for Merger," *RAND Journal of Economics*, 19(3), 408-419, 1988.. The authors derive the optimal prices that result when an input supplier is simultaneously bargaining with multiple downstream distributors.

After the merger, the gain to the merged firm from an agreement with downstream firm i is

$$(\pi_u + \pi_d) - (\pi_u^{-i} + \pi_d^{-i}) = \left(\sum_{j\neq i}(w_j + a_u)\Delta_j^{-i}\right) + (w_i + a_u)D_i + (p_d - c_d - w_d)\Delta_d^{-i}. \quad (14)$$

G.3.a. Post-Merger Bargaining Outcome

Solving for the negotiated price in the same manner as above gives

$$w_i^* = [\alpha(p_i - c_i)]\frac{\Delta_i^{-i}}{D_i} - (1-\alpha)a_u + \frac{\alpha\delta_i D_i^{-i}}{D_i}$$
$$-(1-\alpha)\left[-(p_d - c_d - w_d)\frac{|\Delta_d^{-i}|}{D_i}\right] - (1-\alpha)\frac{\sum_{j\neq i}(w_j + a_u)\Delta_j^{-i}}{D_i}. \quad (15)$$

Here the first square bracket multiplied by D_i is MVPD i's gains from trade without transfers, the second square bracket multiplied by D_i is the upstream component of the merged firm's gains from trade without transfers and the third square bracket multiplied by D_i is the downstream component of the merged firm's gains from trade without transfers.

G.4. Effect of the Merger on the Negotiated Price for Content

The increase in the negotiated price for u's content resulting from the merger is given by the difference between Eq. (15) and Eq. (11),

$$\Delta w_i \equiv w_i^* - w_i = (1-\alpha)(p_d - c_d - w_d)\frac{|\Delta_d^{-i}|}{D_i}. \quad (16)$$

Let the subscriber loss rate in year t be L_t. That is, $L_t = (D_i - D_{it}^{-i})/D_i$. Denote the diversion ratio from i to d by γ_{id}, a constant over time. Using $\gamma_{id} = (D_{dt}^{-i} - D_d)/(D_i - D_{it}^{-i})$, we get

$$D_{dt}^{-i} - D_d = \gamma_{id}(D_i - D_{it}^{-i}) = \gamma_{id}L_t D_i, \quad (17)$$

and

$$\left|\Delta_d^{-i}\right| = D_d^{-i} - D_d = \frac{(1-\beta)}{\beta}\sum_{t=1}^{\infty}\beta^t D_{dt}^{-i} - D_d$$
$$= \frac{(1-\beta)}{\beta}\sum_{t=1}^{\infty}\beta^t(D_d + \gamma_{id}L_t D_i) - D_d$$
$$= D_i\gamma_{id}\frac{(1-\beta)}{\beta}\sum_{t=1}^{\infty}\beta^t L_t$$

$$= D_i \gamma_{id} \bar{L}, \tag{18}$$

where $\bar{L}$ is the constant annual subscriber loss rate such that it has the same present discounted value of firm i's subscriber loss rate as defined in Appendix D.

Substituting the equation above into Eq. (16) gives

$$\Delta w_i = (1 - \alpha)(p_d - c_d - w_d)\gamma_{id}\bar{L}. \tag{19}$$

G.5. Selected Results

Figure 22: Predicted Turner Monthly Fee Increases for Rival MVPDs (Diverted Subscribers Choose Only DTV's Video Offering)

MVPD	PSPM increase in carriage fee	% increase in PSPM carriage fee	Total change in carriage fee per month ($)
Comcast	$0.68	15.2%	$12,725,662
Charter	$0.74	15.5%	$10,632,134
Dish	$0.61	13.8%	$6,331,227
Verizon	$0.18	3.7%	$791,413
Cox	$0.77	15.9%	$2,436,701
Altice	$0.43	9.1%	$1,474,863
Mediacom	$0.71	13.6%	$503,849
Other MVPDs	$0.48	9.2%	$3,574,310
Sling (vMVPD)	$0.42	7.9%	$493,506
Playstation Vue (vMVPD)	$0.42	6.5%	$124,475
Overall	**$0.61**	**13.0%**	**$39,088,140**

Appendix H. Data

H.1. MVPD Subscriber and Revenue Data

As part of the discovery in this case, I received monthly zip-code level subscriber data from AT&T (including data for U-verse, DTV, and DTV Now subscribers), and eight other major MVPDs (Altice, Charter, Comcast, Cox, Dish, Frontier, Mediacom, and Verizon).[393] I also received data from two other Virtual MVPDs, in addition to DTV Now. These are DISH-owned Sling and Sony-owned Playstation Vue. The subscriber data span the 2013–2016 period for most MVPDs. The exceptions are Charter (data spans mid-2012 through February 2017) and Verizon (data spans August 2015 through January 2017). For Virtual MVPDs, which are recent entrants, the period of data generally ranges from early 2015 to early 2017.

These data include total subscriber counts in each zip code along with information on subscribers' service bundles, bulk versus non-bulk status, and commercial versus residential status.[394] These data also provide additional information by month and zip code, such as count of new subscribers, count of disconnecting subscribers, and average recurring revenue by zip code and subscriber plan type.

For the purposes of my analysis, I limit these data to residential subscribers. Residential subscribers form over 99% of all MVPD subscribers. I also exclude subscribers residing in zip codes located in Puerto Rico and the U.S. Virgin Islands from all analyses.

Because subscriber data in the discovery are limited to major MVPDs listed above, I estimate the total size of other small MVPDs, which include small cable companies, overbuilders, and telcos other than Verizon and U-verse. I refer to this group as "Other MVPD" subscribers, and I rely on data in the public domain to determine the count of these subscribers. Specifically, I rely on the national MVPD subscriber count and zip code level information on Other MVPDs available from SNL Kagan.[395] SNL Kagan estimated that there were close to 95 million MVPD

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[393] The Frontier data appear to have some reporting issues. For example, data report subscribers in zip codes in 206 DMAs out of the 210 DMAs total nationwide. This does not accord with Frontier's annual report, which says Frontier services 29 states and hence a small number of DMAs. Therefore, I do not rely on the zip code assignments in the data. I instead combine Frontier subscribers with other small MVPD subscribers. *See* Frontier Communications SEC 10-K for 2016, at 2, available at http://files.shareholder.com/downloads/AMDA-OJWDG/5917878316x0x967196/67B9C84C-3BAF-40BC-ADE3-F6E05895FF96/FTR_Proxy_and_Annual_Report.pdf).

[394] Bulk subscribers are defined as those subscribers who generally do not purchase their MVPD subscription directly through the MVPD. Instead, they have access to an MVPD through the landlord or manager of the building where they reside. Bulk subscribers comprise about 3% of all subscribers. Comcast Corporation, "Response to the Department of Justice's Civil Investigative Demand No. 28922," Specification 2.

[395] SNL Kagan, "Operator Subscribers by Geography," last accessed Apr. 24, 2017

subscribers in the country, as of 2016, quarter 4.[396] I derive the number of "Other MVPD" subscribers by subtracting the total number of major MVPD subscriber counts (available from the discovery) from the national estimate of MVPD subscriber counts (from SNL Kagan). This results in about 9 million (about 10%) estimated Other MVPD subscribers in the country. To derive zip code level total MVPD subscriber counts I allocate these 9 million Other MVPD subscribers across zip codes where SNL Kagan identifies them as operational. To do so I first determine the ratio in which SNL Kagan identifies Other MVPD subscribers to be allocated across all zip codes. I then multiply the total Other MVPD subscriber count by this ratio to determine zip code level Other MVPD subscriber counts. For most of my analyses I rely on subscriber data from the most recent period, December 2016.

To determine prices or average revenue per user (ARPUs) by MVPD, I eliminate revenue data points that appear to be outliers. Specifically, for my ARPU calculations, I do not include the observations that report negative revenue or revenue that falls below the 1st percentile or above the 99th percentile of the range of revenues reported in each of the MVPDs data (after eliminating negative revenues).[397] I also exclude observations that report revenue less than $10.[398] These outliers represent a small fraction of the data and account for 2% of all observations/subscribers.

AT&T's prices for DTV and U-verse do not appear to be in agreement with AT&T's own documents and public filings.[399] Specifically, I find that monthly ARPUs computed from AT&T's data are underestimates of AT&T's true ARPU. For instance, a January 2017 AT&T internal document shows that AT&T's per subscriber video revenue was about ▮▮▮▮ in 2016.[400] AT&T's revenue data, however, reports video revenue for the same period to be about ▮▮.[401] Therefore, instead of relying on AT&T's own data for prices, I use AT&T's margin data (described in Appendix I below) and cost data to arrive at AT&T's monthly ARPUs.

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[396] *See* , SNL Kagan, "Operator Subscribers by Geography," last accessed Apr. 24, 2017. AT&T and other MVPDs also rely on similar estimates from SNL Kagan. ATT-LIT-00761143, at 68 (AT&T document states 93.8 million Traditional Pay TV subscribers in 2017 citing AT&T Analytics and 95.5 million citing SNL Kagan.) TWI-01478503-564, at -513. (Turner Research presentation states 94.0 million residential multichannel households citing Turner Emerging Media Insights using SNL Kagan data.)

[397] I define the 1st and 99th percentiles within groups of distributor, month, and bundle, weighted by subscriber counts.

[398] I do not exclude less than $10 revenue observations for Virtual MVPDs.

[399] ATT-DOJ2R-15258235 – 300, at -237; DIRECTV, Quarterly Report (Form 10-Q) (Period ending Mar. 31, 2015), at 44. (Document shows ARPU was $105.62 for the last quarter that DTV was an independent firm.)

[400] ATT-DOJ2R-15258235 – 300, at -237.

[401] AT&T Exhibit 2.a.7.201601-12.

H.2. AT&T Cost Data

AT&T produced monthly variable recurring cost and subscriber acquisition cost data for three of its offerings: IPTV/U-verse, DTV, and IPBB (AT&T's broadband product).[402] After supplementing these cost data with additional information from documents, I combine them with estimated margins to derive AT&T's ARPUs in different Local Footprint Overlap Zones.

Because these data do not include AT&T's costs for its VOIP and legacy telephone offering, I rely on AT&T's internal documents to estimate costs for its fixed line telephone offerings.[403]

AT&T produced a single national monthly cost estimate for each of the service categories listed above. For my regional analyses, I allocate these costs to AT&T subscribers in different geographies based on the mix of bundles that these subscribers purchase.[404]

H.3. Turner Subscriber and Revenue data

Time Warner Inc. produced data containing monthly subscriber counts and revenues for each Turner network by MVPD and Virtual MVPD distributor.[405] I use these data to calculate the per subscriber license fee that Turner earns from MVPDs and per subscriber advertising fees that it earns across its different networks.

For my analysis, I compute per subscriber average revenue that Turner earns, across all its networks, from major MVPDs. If all Turner networks had the same penetration on a licensed MVPD's video offering, then this calculation would just simply involve dividing the sum of the subscriber fee and the advertising revenue that Turner earns for all its networks by licensing to an MVPD by the number of that MVPD's subscribers that receive Turner programming. However, due to variation in programming packages available on MVPD video tiers, the subscriber penetration, and, therefore the number of subscribers that receive Turner content, can vary for each Turner network. Thus, to approximate the average per subscriber revenue, I divide the sum of revenues that Turner earns for its full suite of networks from an MVPD by the maximum number of subscribers on any Turner network licensed to that MVPD.[406]

I compute the average monthly Turner licensing fee as the average across all months in the fourth quarter of 2016. This allows me to capture the most recent average fee that Turner earned from MVPDs. For an estimate of Turner's advertising fee, I use the monthly average across all

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[402] AT&T Exhibit 2.b.1.

[403] *LTV Overview.pdf*, at 15. These data are also missing cost information for AT&T's wireless offerings attached to video plans.

[404] For example, if a subscriber has a Double Play bundle with DTV video and IPBB, then I add the cost for DTV and IPBB to get the total cost.

[405] Time Warner Inc., Turner Exhibit 3c, Turner Exhibit 3d, and Turner Exhibit 3e.

[406] This calculation does not include HLN subscribers because HLN is usually provided for free to MVPDs. Time Warner Inc, Turner Exhibit 3d. ("[R]evenue information is not separately reported for HLN, as each Relevant MVPD Service or Relevant OVD Service is provided HLN at no charge if it also carries CNN.")

12 months of 2016. I use the full year (instead of the last month or quarter of 2016) to minimize any impact that seasonality in advertising fee may have on my estimate of Turner's average advertising revenue per subscriber.

Appendix I. Contribution Margins

As I explained in Appendix H above, AT&T revenue data are not well suited for computing prices. This also makes them unsuitable for computation of margins. Therefore, I rely on AT&T's subscriber lifetime value data to derive monthly margins. These data provide, for each U-verse and DTV bundle, monthly churn estimates, subscriber acquisition costs, and lifetime value of an average subscriber to the bundle. The combination of these inputs, along with AT&T's discount factor, allows me to derive the monthly margin, net of subscriber acquisition costs, that AT&T earns on each bundle of services. The methodology that I apply to derive margins from these inputs is consistent with AT&T's internal documents and with how AT&T's own expert derived margins from the same data.[407] Below I provide some more detail on the methodology.

Essentially, lifetime value of a subscriber is the present value of the sum of all monthly profits (after deducting variable costs) that AT&T will earn over the expected lifetime of a subscriber, after netting out subscriber acquisition costs.[408] The expected lifetime of the subscriber in months can be computed as (1 ÷ monthly churn). For example, if the monthly churn is 2%, then it means that each month 2 out of 100 subscribers leave the MVPD. If one were to apply this churn on a fixed number of subscribers at the start of any given month, one would find that on average each customer remains with the MVPD for 50 months, i.e., 1 ÷ 0.02. To compute the lifetime value of a subscriber, one would take the monthly margin and sum it up over the expected lifetime of the subscriber and apply an appropriate discount rate to compute the present value of the monthly stream of margins (AT&T's documents suggest that AT&T applies a monthly discount rate of ▮▮▮▮.[409] In my churn example, one would sum up AT&T's discounted margins for an average subscriber over a 50-month period.

I derive margins for U-verse, DTV, AT&T's fixed line telephony, and AT&T's internet plans.[410] I do not compute margins for DTV Now because it is a new product in its early stages and its prices and acquisition costs do not reflect margins that AT&T would expect to earn over a reasonably long period of time.[411] To derive the monthly margin, net of acquisition costs, I begin with the observation that lifetime value of a subscriber, net of acquisition costs, can be computed as:

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[407] Backup materials for the presentation of Mark A. Israel, "AT&T/Time Warner Inc. Presentation to U.S. Dept. of Justice Content Foreclosure," submitted to DOJ on Apr. 20, 2017. *LTV Overview.pdf.*

[408] See ATT-DOJ2R-05256836, at 2, 8; ATT-DOJ2R-06875326, at 2. Subscriber acquisition costs (SAC) generally include, among other costs, costs of hardware, marketing, processing, and delivery of services to the subscriber.

[409] ATT-DOJ2R-01999322 – 333, at -329. ("Current recommendation is ▮▮▮▮ for 2016"); *LTV Overview.pdf* (Calculations show that to arrive at the lifetime value of the subscriber AT&T applied a ▮▮▮▮ discount rate to monthly margins. This is the same as applying a monthly discount factor of ▮▮▮▮, because discount factor = 1 ÷ (1+discount rate)).

[410] Internet includes both DSL and broadband.

[411] An AT&T internal document suggests that this margin in the near term is likely to be close to ▮. *See* ATT-LIT-01315433-455

$$LTV \ (net \ of \ acquisition \ cost) = gross \ margin \ * \ \frac{(1 - (1 + discount \ rate)^{-t})}{discount \ rate} - acquisition \ cost$$

The above formula takes the average gross margin for a subscriber, applies a discount rate based on the expected lifetime of a subscriber (t, computed as $1 \div$ churn), and subtracts the one time acquisition cost to calculate the net lifetime value of a subscriber.

Taking this net lifetime value of a subscriber as the starting point, one can derive the monthly margin that generates this net lifetime value. Thus, net margin can be computed by inverting the following equation:

$$LTV \ (net \ of \ acquisition \ cost) = net \ margin \ * \ \frac{(1 - (1 + discount \ rate)^{-t})}{discount \ rate}$$

This inversion requires access to data on AT&T's discount factor, lifetime values for its product offerings, and churn across these product offerings. These data are available in AT&T's internal files produced as part of AT&T's expert's submission to DOJ.[412]

Using these data, I begin with the total lifetime value of each bundle. The margins that are relevant for my analysis need to reflect AT&T's profits on one additional subscriber to U-verse and DTV. As a result, the lifetime values that I use to derive margins needs to be net of only variable costs and not fixed costs (i.e., costs that do not vary with subscribers in the short run). The lifetime values in AT&T's data, in additional to variables costs, exclude marketing costs (as part of the overall subscriber acquisition costs), which are more appropriately considered as fixed costs. Therefore, I adjust the lifetime value upwards by the amount of the marketing cost.[413]

The adjusted lifetime value, AT&T's internal discount rate, and bundle-level churn when plugged into the equation above yields margins for each video bundle that are net of subscriber acquisition costs.[414] To compute AT&T's margins on U-verse and DTV offerings at the Local

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[412] Backup materials for the presentation of Mark A. Israel, "AT&T/Time Warner Inc. Presentation to U.S. Dept. of Justice Content Foreclosure", submitted to DOJ on Apr. 20, 2017. From Dr. Israel's backup, I rely on *Bundle Product - for Legal team REV (2)_Edited.xlsx* and *Bundle Product - for Legal team REV_Edited.xlsx*.

[413] Marketing costs are about ▇ for DTV and about ▇ for IPTV. My decision to not consider marketing costs as variable is consistent with AT&T's own submissions. Backup materials for the presentation of Mark A. Israel, "AT&T/Time Warner Inc. Presentation to U.S. Dept. of Justice Content Foreclosure", submitted to DOJ on Apr. 20, 2017.

[414] There are eight bundles in total, four for IPTV and four for DTV. These bundles contain the following services: "video only," "video and broadband," "video and telephony," and "video, broadband, and telephony." ATT-DOJ2R-06875326, at 10. Based on AT&T's internal documents, I assume the same margins for AT&T's broadband and DSL products and for AT&T's VOIP telephone offering and legacy voice product. AT&T data submissions do not separate margins on broadband and DSL products. It appears that AT&T's average margin on broadband products may be slightly higher than on DSL products. However, DSL products account for less than 6% of all AT&T internet subscribers. For simplicity, I apply the broadband margins to both broadband and DSL products. For these calculations, I rely on AT&T's reported lifetime value of an average subscriber to a bundle. Because the lifetime value measure adjusts the gross margins down to reflect the cost of acquiring new subscribers, it may well underestimate the benefit of retaining current subscribers (on whom no such acquisition cost is incurred). If by raising rivals' costs AT&T were to face weakened competitors, it would also find it

Footprint Overlap Zone level, I take a subscriber weighted mean of the net margin across all bundles offered by U-verse and DTV in each Local Footprint Overlap Zone.

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easier to keep existing subscribers from churning. Keeping such subscribers is likely more valuable to MVPDs than gaining new subscribers, and the evidence shows that AT&T factors this into its decision making. ATT-DOJ2R-07320477, 13 ███ .ATT-DOJ2R-07326370 (Shows calculation of dispute losses using San Diego ACV of ██████) ATT-DOJ2R-12999618, at 6 (Shows LTV of ██████ for gross adds and ██████ for Tennis Channel viewers LCV applied to churn). Because I do not have a precise way of estimating how many subscribers AT&T would, due to post-merger conduct, keep rather than gain, I use the acquisition cost adjusted margins for my calculations. To the extent that AT&T gains from retaining existing subscribers, my margin calculation underestimates actual margins.

Appendix J. Diversion Ratios

Diversion ratios are a common antitrust analysis tool used to measure the strength of substitution between different alternatives that consumers may choose from. For example, diversion ratio from product A to product B can be defined as the proportion of subscribers who would switch from product A, in response to an increase in its price or decrease in its quality, and choose product B. Here, I am interested in the proportion of subscribers that would leave an MVPD, if that MVPD could not offer Turner Content, and would shift to DTV. For example, suppose in response to the loss of programming content 100 subscribers would leave DISH. Of these subscribers, if 10 were to switch to DTV, then the diversion ratio from DISH to DTV will be 10% (calculated as, $10 \div 100 = 10\%$).

In order to determine diversion ratios from rival MVPDs to U-verse and DTV, I make a common assumption, implied by standard consumer demand models (such as logit demand), that subscribers leaving a rival MVPD would divert to other alternatives in the proportion of those alternatives' share of subscribers. This assumption is supported by DTV's own documents and has been used in past submissions made by economic experts retained by DTV.[415] In the example above, if DTV has a 20% share among MVPD alternatives, then proportional diversion would imply that 20% of the subscribers leaving DISH would divert to DTV. This diversion can be calculated as follows:

$$Diversion\ from\ DISH\ to\ DTV = \frac{DTV's\ share\ of\ MVPD\ subscribers}{1 - DISH's\ share\ of\ MVPD\ subscribers}. \tag{1}$$

In the example above, I assume that subscribers leaving DISH will necessarily choose another MVPD destination. It is, however, possible that some subscribers, in response to the loss of content, choose to leave DISH and not subscribe to any other MVPD or Virtual MVPD. Such subscribers will be described as choosing the "Outside Good." Not accounting for the Outside Good can overstate diversions between MVPDs. However, to account for the Outside Good, one needs to know either the size of the diversion to it or its share among subscribers and non-subscribers.

To correctly estimate the diversion from rival MVPDs to DTV in each Local Footprint Overlap Zone, I use a Charter document to derive a range of Outside Good diversion estimates.[416] These estimates allow me to derive the share of Outside Good. Once the share of Outside Good is determined, I simply adjust the diversion ratios between MVPDs downwards by assuming diversions proportional to share for the Outside Good as well. The Charter document in question shows that, in Charter's footprint, about ███ to ███ subscribers may switch to the no-video options in response to the loss of Turner Content. This range of diversions to the Outside Good,

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[415] ATT-DOJ2R-06969063; ATT-DOJ2R-00529674-685. In re General Motors Corp., Hughes Elecs. Corp., and The News Corp. Ltd., MB Docket 03-124 (FCC Jan. 14, 2004); Report submitted on behalf of GM/Hughes and News Corporation by Steven C. Salop, Carl Shapiro, David Majerus, Serge Moresi, and E. Jane Murdoch, "New Corporation's Partial Acquisition of Vertical Foreclosure Claims," Jul. 1, 2003, at n. 63; Report submitted on behalf of DIRECTV by Kevin M. Murphy, "Economic Analysis of The Impact of the Proposed Comcast/NBCU Transaction on the cost to MVPDs of Obtaining Access To NBCU Programming", Jun. 21, 2010, ¶51.

[416] CHTR-CID-012471-569, at -508; COMATT-COM-00007385, 8;ALT-00004692, at 3.

along with Charter's share in its footprint, allows me to compute the share of the Outside Good. I use the following calculations to determine the share of the Outside Good.

$$Diversion\ from\ Charter\ to\ Outside\ Good\ (OG) = \frac{Share\ of\ OG\ among\ MVPD\ and\ OG}{1 - Share\ of\ Charter\ among\ MVPD\ and\ OG}. \tag{2}$$

The share term in the denominator can also be expressed as:

$$Share\ of\ Charter\ among\ MVPD\ and\ OG = Charter's\ share\ of\ MVPD * total\ MVPD\ share \tag{3}$$

This can be further simplified to,

$$\begin{aligned}Share\ of\ Charter\ among\ MVPD\ and\ OG \\ = Charter's\ share\ of\ MVPD * (1 - Share\ of\ OG\ among\ MVPD\ and\ OG).\end{aligned} \tag{4}$$

Plugging equation (4) into equation (2) yields the following formula to determine the share of the Outside Good:

$$Share\ of\ OG = \frac{Diversion\ from\ Charter\ to\ OG \times (1 - Charter's\ share\ of\ MVPD\ subscribers)}{1 - Diversion\ from\ Charter\ to\ OG \times Charter's\ share\ of\ MVPD\ subscribers}. \tag{5}$$

Charter's share of MVPD subscribers in its footprint is about ▮▮▮▮ Using the range of ▮▮▮▮ to ▮▮▮▮ diversion estimate results in the share of the Outside Good between 7% and 10%. For my analysis, I use the conservative estimate of 10% and assume that the share of this good remains the same in all Local Footprint Overlap Zones. In each Local Footprint Overlap Zone, I compute a separate measure of diversions from rival MVPDs, after adjusting for Outside Good, to U-verse and DTV.[417]

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[417] I exclude bulk subscribers from my diversion calculations. I include them in the base of subscribers that will be affected by the merger.

Appendix K. Efficiency Gains from Elimination of Double Marginalization

This Appendix provides a model of the efficiency gains from the elimination of double marginalization (EDM) associated with a vertical merger between a programmer and an MVPD.

We derive here an equation allowing us to measure the amount by which the merger between Turner and DTV will lower the marginal cost of the Turner Content at DTV.

K.1. Model Setup

Let there be n MVPDs denoted by $i = 1, \dots, n$, and one programmer denoted by U. Denote the merging MVPD as MVPD #1. For the current merger, MVPD #1 corresponds to DTV and U corresponds to Turner.

The number of MVPD i's subscribers who have access to U's content is denoted by D_i. The programmer receives w_i per subscriber from MVPD i with access to its content, and a_i per subscriber at MVPD i with access to its content from advertising.

The variable profits of MVPD #1 are given by

$$\pi_1 = (p_1 - w_1 - c_1)D_1, \tag{1}$$

where p_1 is its subscription price and c_1 is its incremental per subscriber cost not including w_1.

Assuming that U's marginal cost of additional subscribers is zero, its variable profits are

$$\pi_U = \sum_{i=1}^{n} (w_i + a_i)D_i. \tag{2}$$

After the merger, the merged party chooses p_1 to maximize $\pi_1 + \pi_U$. Taking the derivative of $\pi_1 + \pi_U$ with respect to p_1 gives

$$\frac{\partial \pi_1}{\partial p_1} + (w_1 + a_1)\frac{\partial D_1}{\partial p_1} + \sum_{i=2}^{n} (w_i + a_i)\frac{\partial D_i}{\partial p_1}. \tag{3}$$

We are interested in evaluating this expression at the pre-merger prices. At those prices, the first term in this expression is zero, because MVPD #1 was choosing p_1 optimally before the merger. Therefore, the sign and magnitude of this derivative depends on the second and third terms.

The second term in Eq. (3) captures the idea that lower prices at MVPD #1 will *expand* the number of subscribers at MVPD #1, under the normal assumption that $\partial D_1/\partial p_1 < 0$, and this will generate additional profits for the programmer. This effect gives the merged entity an incentive to lower the price at MVPD #1. This is the core idea behind the elimination of double marginalization.

The third term in Eq. (3) captures the idea that lower prices at MVPD #1 will *reduce* the number of subscribers at all of the other MVPDs, under the normal assumption that $\frac{\partial D_i}{\partial p_1} > 0$ for $i \neq 1$, and this will reduce the programmer's profits from licensing its content to all of those MVPDs. The third terms is thus an *offset* to the second term in Eq. (3).

If $\partial D_1 / \partial p_1 = -\sum_{i=2}^{n} \partial D_i / \partial p_1$ and $w_1 + a_1 = w_i + a_i, \forall i$, then this offset is 100%, causing the expression in Eq. (3) to be zero. In that case, all new subscribers at MVPD #1 come from other MVPDs where they already had access to the content in question. The merger does not generate any incentive for the merged firm to decrease the price at MVPD #1. And, the opportunity cost to the programmer of expanding the number of MVPD #1's subscribers, which comes in the form of fewer viewers of its content at all other MVPDs, is just equal to the benefit to the programmer from expanding the number of MVPD #1's subscribers. In that case, the vertical merger does not generate any EDM effect.

K.2. Impact of a Vertical Merger on Marginal Cost

We now use this basic framework to derive an equation that allows us to estimate the impact of a merger between MVPD #1 and an upstream programmer on the marginal cost to MVPD #1 of the acquired content.

Consider the incentive of MVPD #1 to acquire an additional subscriber by lowering its price. Before the merger, a marginal increase in D_1, the number of subscribers (starting from the pre-merger level) at MVPD #1, has no effect on the MVPD #1's profit, since MVPD #1 was choosing its price (and thus quantity) optimally. After the merger, a marginal increase in the number of subscribers (starting from the pre-merger level) has the following benefit to the upstream firm, and thus to the merged entity:

$$\frac{\partial(\pi_1 + \pi_U)}{\partial D_1} = (w_1 + a_1) + \sum_{i=2}^{n}(w_i + a_i)\frac{\partial D_i}{\partial D_1}. \qquad (4)$$

Here $\partial D_i / \partial D_1$ for $i \neq 1$ is the change in the number of subscribers at MVPD i with access to U's content caused by decrease in p_1 just sufficient for MVPD #1 to gain one subscriber.

Let

$$s_i = \frac{D_i}{\sum_{j=1}^{n} D_j}, \qquad (5)$$

and let

$$\theta = -\sum_{i=2}^{n}\frac{\partial D_i}{\partial D_1}. \qquad (6)$$

Here, θ is the fraction of MVPD #1's new subscribers (due to the decrease in p_1) that previously had access to U's content at another MVPD. We can use $-\theta s_i/(1-s_1)$ to estimate $\partial D_i/\partial D_1$. Using Eqn. (4), the decrease in marginal cost at the merging MVPD can be approximated by

$$(w_1 + a_1) - \frac{\theta}{1 - s_1}\sum_{i=2}^{n}(w_i + a_i)s_i. \tag{7}$$

If $w_1 + a_1 = w_i + a_i$ for $i = 2, \dots, n$, then this expression simplifies to

$$(w_1 + a_1)(1 - \theta). \tag{8}$$

Appendix L. Merger Simulation Model

This model describes a calibrated downstream demand and supply system and merger simulation. The purpose is to explicitly model the effects that the merger will have on downstream MVPD prices using the cost increases that are generated by the baseline bargaining model (see Appendix G).

L.1. Notation and Basic Setup

As in the baseline bargaining model, the upstream and downstream merging firms are labeled u and d, respectively. Furthermore, downstream rivals continue to be indexed by $i \in \{d, 1, \dots, n\}$.

Each of the various different local markets are indexed by m. The set of these local markets served by MVPD i is given by $\mathbb{M}_i$.

L.1.a. Downstream Demand

The demand for MVPD services takes the standard logit form, $D_i = s_{im} M_m$, where s_{im} is the share of households that choose MVPD i in market m. This market has a total number of households given by M_m. The share in turn is given by

$$s_{im} = \frac{\exp(\delta_{im} - \eta_m p_{im})}{1 + \sum_{j \in \mathbb{J}_m} \exp(\delta_{jm} - \eta_m p_{jm})}, \tag{1}$$

Here η_m reflects consumers' disutility of price p_{im}, δ_{im} measures the quality of MVPD i in market m, and $\mathbb{J}_m$ is the set of MVPDs available in that market.

L.1.b. Pre-Merger Downstream Prices

Downstream variable profits of MVPD i are given by

$$\pi_i = \sum_{m \in \mathbb{M}_i} (p_{im} - c_{im} - w_i)\, s_{im} M_m, \tag{2}$$

Here w_i is the per-subscriber fee paid for content and c_{im} is includes all other distributor marginal costs, net of advertising revenue. The profit-maximizing prices are given by

$$p_{im} - c_{im} - w_i = \frac{1}{\eta_m(1 - s_{im})}. \tag{3}$$

L.2. Post-Merger Analysis

After the merger, the downstream firm accounts for the profits of its upstream division u. Thus, the merged firm's combined profits are given by

$$\pi_u + \pi_d = \sum_{j \in \mathbb{J} \backslash \{d\}} \sum_{m \in \mathbb{M}_j} (w_j + a_u - c_u) s_{jm} M_m + \sum_{m \in \mathbb{M}_d} (p_{dm} + a_u - c_u - c_{dm}) s_{dm} M_m, \quad (4)$$

where a_u and c_u are the upstream division's per subscriber advertising revenue and cost, and $\mathbb{J} \backslash \{d\}$ denotes the set of MVPDs excluding firm d.

L.2.a. Post-Merger Downstream Prices

Maximizing the profits of the merged firm with respect to d's prices gives, for each m,

$$p_{dm} + a_u - c_u - c_{dm} = \sum_{j \in \mathbb{J}_m \backslash \{d\}} (w_j + a_u - c_u) \frac{s_{jm}}{1 - s_{dm}} + \frac{1}{\eta_m (1 - s_{dm})}. \quad (5)$$

Other downstream firms' profit maximizing problem remains the same.

L.3. Implementation of the Model

The following data are used to calibrate the parameters in the model: Turner's PSPM licensing fees for each MVPD (w_i), its PSPM advertising revenue (a_u), each downstream MVPDs' price (p_{im}) and share (s_{im}), and AT&T's margin ($p_{dm} - c_{dm} - w_d$). Turner's marginal cost is taken to be zero ($c_u = 0$).

The following parameters in the model are calibrated using the available data:

- η_m (the disutility of price): This is calculated by using AT&T's margins and shares with AT&T's pre-merger first order condition, Eq. (3).

- For each market m, δ_{im} (the quality parameter): δ_{im} is identified by the log linear transformation of the downstream share equation, $\delta_{im} = \ln(s_{im}) - \ln(s_{om}) + \eta_m p_{im}$. This is derived by taking the log of Eq. (1) for s_{im} and for the Outside Good share s_{om} and making a substitution from the equation for $\ln(s_{om})$ into the equation for $\ln(s_{im})$.

- For each market m, c_{im} (the marginal cost of MVPD i): Using the disutility of price calibrated above, for all MVPDs except AT&T, c_{im} is identified by Eq. (3).

Finally, given the cost increases for AT&T's rival MVPDs estimated from the bargaining model, the calibrated demand and profit functions are used to calculate the downstream prices after the merger. Note that the EDM effect is captured in the post-merger competition through Eqs (4) and (5) because AT&T now maximizes the joint profit of its upstream and downstream divisions.

L.4. Results by Local Footprint Overlap Zone

Figure 23. Cost Increases to Rival MVPDs and

Net Consumer Effect in Each Zone

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
NEW YORK, NY - ALTICE - VERIZON	2,473.3	4.8%	$891.4	$510.2
LOS ANGELES, CA - CHARTER	2,106.2	42.5%	$1,010.9	$453.7
CHICAGO, IL - COMCAST	1,748.9	29.9%	$1,026.4	$295.6
PHILADELPHIA, PA - COMCAST - VERIZON	1,582.1	5.8%	$835.1	$619.9
SAN FRANCISCO-OAKLAND-SAN JOSE, CA - COMCAST	1,497.8	27.0%	$924.2	$262.3
HOUSTON, TX - COMCAST	1,323.5	46.7%	$576.2	$127.7
ATLANTA, GA - COMCAST	1,275.4	36.9%	$668.5	$159.3
MIAMI-FT. LAUDERDALE, FL - COMCAST	1,131.3	36.5%	$660.9	$153.7
LOS ANGELES, CA - CHARTER - OTHER	1,064.9	28.4%	$584.8	$421.1
DALLAS-FT. WORTH, TX - CHARTER	995.0	55.7%	$341.8	$105.2
TAMPA-ST. PETERSBURG (SARASOTA), FL - CHARTER - OTHER	990.8	11.5%	$744.7	$540.9
WASHINGTON, DC (HAGERSTOWN, MD) - COMCAST - VERIZON	975.0	9.5%	$412.3	$331.7
BOSTON, MA (MANCHESTER, NH) - COMCAST	825.2	8.1%	$667.2	$127.1
PHOENIX (PRESCOTT), AZ - COX - OTHER	800.6	32.7%	$447.4	$274.8
NEW YORK, NY - ALTICE	768.5	7.9%	$330.3	$19.1
WEST PALM BEACH-FT. PIERCE, FL - COMCAST	746.1	40.7%	$477.7	$175.4
CHICAGO, IL - COMCAST - OTHER	723.3	25.5%	$421.4	$255.5
DENVER, CO - COMCAST	696.1	26.2%	$438.6	$171.3
ST. LOUIS, MO - CHARTER	695.8	42.8%	$342.3	$151.4
CLEVELAND-AKRON (CANTON), OH - CHARTER	645.9	30.3%	$394.3	$182.5
ORLANDO-DAYTONA BEACH-MELBOURNE, FL - CHARTER	644.6	33.6%	$414.5	$180.3
SACRAMENTO-STOCKTON-MODESTO, CA - COMCAST	642.4	35.3%	$337.7	$128.9
SEATTLE-TACOMA, WA - COMCAST - OTHER	639.9	13.0%	$452.9	$261.6
CHARLOTTE, NC - CHARTER	636.2	31.7%	$375.1	$190.9
NEW YORK, NY - COMCAST - VERIZON	608.1	6.7%	$285.8	$231.6
NEW YORK, NY - CHARTER - VERIZON	601.4	6.5%	$307.2	$255.3
SEATTLE-TACOMA, WA - COMCAST	593.1	16.6%	$424.6	$153.8
DETROIT, MI - COMCAST	592.2	30.9%	$339.7	$98.5
DETROIT, MI - COMCAST - OTHER	591.0	22.3%	$337.4	$223.5
MILWAUKEE, WI - CHARTER	580.8	34.8%	$333.1	$137.4
BOSTON, MA (MANCHESTER, NH) - COMCAST - VERIZON	577.7	2.5%	$304.9	$250.8
BALTIMORE, MD - COMCAST - VERIZON	542.7	8.9%	$260.4	$190.6
RALEIGH-DURHAM (FAYETTEVILLE), NC - CHARTER	541.2	31.4%	$320.3	$160.3
CINCINNATI, OH - CHARTER - OTHER	515.6	18.1%	$323.9	$249.3
SAN DIEGO, CA - COX	510.7	34.5%	$296.1	$129.4
DALLAS-FT. WORTH, TX - CHARTER - OTHER	509.2	29.6%	$250.8	$192.4
JACKSONVILLE, FL - COMCAST	494.9	34.3%	$270.1	$73.4
SAN ANTONIO, TX - CHARTER	471.1	41.7%	$229.3	$104.1

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
INDIANAPOLIS, IN - COMCAST	470.5	35.8%	$245.5	$74.6
HARTFORD & NEW HAVEN, CT - COMCAST - OTHER	417.9	8.5%	$310.9	$185.3
NASHVILLE, TN - COMCAST	410.2	32.8%	$229.2	$67.1
MINNEAPOLIS-ST. PAUL, MN - COMCAST	402.3	20.8%	$274.1	$78.9
PITTSBURGH, PA - COMCAST - VERIZON	393.4	6.3%	$205.8	$154.7
GREENVILLE-SPARTANBURG, SC-ASHEVILLE, NC-ANDERSON, SC - CHARTER	387.8	35.9%	$216.0	$109.6
PORTLAND, OR - COMCAST - OTHER	387.4	11.9%	$282.5	$165.6
PHILADELPHIA, PA - COMCAST	375.2	10.0%	$295.1	$63.0
COLUMBUS, OH - CHARTER - OTHER	371.8	33.6%	$192.4	$123.4
NEW YORK, NY - CHARTER - OTHER	367.3	2.7%	$319.1	$165.9
ATLANTA, GA - CHARTER	363.2	39.8%	$186.2	$95.2
SALT LAKE CITY, UT - COMCAST	361.3	29.3%	$212.2	$101.6
BIRMINGHAM (ANNISTON AND TUSCALOOSA), AL - CHARTER	356.6	43.6%	$170.7	$82.4
LOUISVILLE, KY - CHARTER	353.7	32.8%	$206.3	$96.4
FRESNO-VISALIA, CA - COMCAST	336.5	40.4%	$159.4	$56.4
CLEVELAND-AKRON (CANTON), OH - CHARTER - OTHER	336.0	26.0%	$177.7	$139.3
ORLANDO-DAYTONA BEACH-MELBOURNE, FL - CHARTER - OTHER	334.7	23.1%	$225.6	$142.7
MEMPHIS, TN - COMCAST	333.7	42.6%	$153.2	$40.1
DENVER, CO - COMCAST - OTHER	329.0	22.5%	$209.9	$105.1
KANSAS CITY, MO - CHARTER - OTHER	328.0	25.8%	$180.2	$137.6
LAS VEGAS, NV - COX - OTHER	322.7	29.4%	$189.2	$120.4
GREENSBORO-HIGH POINT-WINSTON SALEM, NC - CHARTER	322.6	27.4%	$205.5	$99.9
WASHINGTON, DC (HAGERSTOWN, MD) - COX - VERIZON	319.6	7.7%	$132.2	$126.6
NORFOLK-PORTSMOUTH-NEWPORT NEWS, VA - COX - VERIZON	318.7	9.8%	$173.7	$124.2
BUFFALO, NY - CHARTER	308.0	23.4%	$209.3	$101.3
WASHINGTON, DC (HAGERSTOWN, MD) - COMCAST	303.7	23.2%	$195.2	$74.9
HARRISBURG-LANCASTER-LEBANON-YORK, PA - COMCAST	303.3	18.3%	$209.9	$85.0
DAYTON, OH - CHARTER	301.0	31.7%	$179.7	$81.8
FT. MYERS-NAPLES, FL - COMCAST - OTHER	297.3	20.2%	$191.9	$132.7
AUSTIN, TX - CHARTER	293.5	42.6%	$139.3	$64.1
OKLAHOMA CITY, OK - COX	293.3	33.8%	$170.4	$82.2
PROVIDENCE, RI-NEW BEDFORD, MA - COX - VERIZON	287.4	3.9%	$151.4	$132.5
ROCHESTER, NY - CHARTER	286.2	15.4%	$220.2	$99.6
ALBUQUERQUE-SANTA FE, NM - COMCAST	282.9	36.0%	$147.2	$60.9
PORTLAND, OR - COMCAST	280.4	19.2%	$192.9	$90.9
NEW YORK, NY - COMCAST	271.7	14.8%	$200.2	$42.0

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
ALBANY-SCHENECTADY-TROY, NY - CHARTER	271.4	13.4%	$216.0	$87.7
GRAND RAPIDS-KALAMAZOO-BATTLE CREEK, MI - COMCAST	270.4	26.3%	$167.1	$64.5
COLUMBUS, OH - CHARTER	263.3	31.6%	$154.5	$80.6
RICHMOND-PETERSBURG, VA - COMCAST - VERIZON	261.0	7.1%	$117.7	$98.8
NEW YORK, NY - CHARTER	260.6	10.4%	$216.1	$77.4
MINNEAPOLIS-ST. PAUL, MN - COMCAST - OTHER	257.0	17.8%	$175.7	$88.6
PITTSBURGH, PA - COMCAST	255.7	18.0%	$178.2	$76.3
PALM SPRINGS, CA - CHARTER - OTHER	255.0	25.7%	$144.6	$108.0
HONOLULU, HI - CHARTER - OTHER	254.6	3.7%	$213.6	$124.0
PORTLAND-AUBURN, ME - CHARTER	249.5	14.7%	$193.6	$89.4
GREEN BAY-APPLETON, WI - CHARTER	245.6	29.5%	$151.0	$79.4
LOS ANGELES, CA - COX	244.5	29.6%	$155.1	$65.3
SACRAMENTO-STOCKTON-MODESTO, CA - COMCAST - OTHER	243.3	27.9%	$137.0	$79.4
SAN FRANCISCO-OAKLAND-SAN JOSE, CA - COMCAST - OTHER	242.8	23.0%	$150.5	$76.1
LEXINGTON, KY - CHARTER	242.2	23.4%	$157.3	$99.2
NEW ORLEANS, LA - COX	241.5	34.7%	$139.6	$60.9
SAN DIEGO, CA - CHARTER	240.9	38.7%	$128.3	$46.8
WILKES BARRE-SCRANTON-HAZLETON, PA - NOCABLE - OTHER	239.4	18.9%	$108.7	$61.4
PHOENIX (PRESCOTT), AZ - COX	225.3	32.1%	$131.8	$71.1
TAMPA-ST. PETERSBURG (SARASOTA), FL - CHARTER	224.8	20.0%	$171.2	$79.6
BOSTON, MA (MANCHESTER, NH) - COMCAST - OTHER	222.8	5.9%	$169.9	$101.5
FT. MYERS-NAPLES, FL - COMCAST	210.7	22.5%	$154.7	$56.9
OMAHA, NE - COX - OTHER	210.5	14.2%	$157.4	$96.6
DES MOINES-AMES, IA - MEDIACOM	208.5	36.9%	$95.3	$60.8
TULSA, OK - COX	206.5	28.7%	$128.6	$71.4
WICHITA-HUTCHINSON, KS PLUS - COX	203.8	26.4%	$132.1	$73.1
FLINT-SAGINAW-BAY CITY, MI - CHARTER	202.0	21.5%	$140.9	$80.7
HARLINGEN-WESLACO-BROWNSVILLE-MCALLEN, TX - CHARTER	201.3	30.5%	$119.6	$64.8
TAMPA-ST. PETERSBURG (SARASOTA), FL - COMCAST - OTHER	198.4	13.8%	$140.5	$103.0
RALEIGH-DURHAM (FAYETTEVILLE), NC - CHARTER - OTHER	196.0	24.5%	$122.0	$80.5
SYRACUSE, NY - CHARTER	189.8	14.3%	$147.6	$69.4
PITTSBURGH, PA - COMCAST - OTHER	184.6	17.6%	$113.2	$84.4
FARGO-VALLEY CITY, ND - NOCABLE - OTHER	184.0	16.9%	$87.5	$56.7
CHARLOTTE, NC - CHARTER - OTHER	183.7	32.4%	$89.6	$66.3
GRAND RAPIDS-KALAMAZOO-BATTLE CREEK, MI - CHARTER	181.8	25.1%	$120.3	$67.3
SIOUX FALLS(MITCHELL), SD - NOCABLE - OTHER	180.4	16.6%	$85.3	$53.1

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
FT. SMITH-FAYETTEVILLE-SPRINGDALE-ROGERS, AR - COX	175.1	33.6%	$99.0	$56.3
LAS VEGAS, NV - COX	174.8	30.7%	$106.8	$53.5
GREENSBORO-HIGH POINT-WINSTON SALEM, NC - CHARTER - OTHER	172.7	24.8%	$104.0	$73.2
SOUTH BEND-ELKHART, IN - COMCAST	171.1	28.4%	$100.3	$44.6
TUCSON (SIERRA VISTA), AZ - COX	170.7	28.9%	$104.9	$60.9
MYRTLE BEACH-FLORENCE, SC - CHARTER - OTHER	170.3	9.8%	$120.6	$94.6
WASHINGTON, DC (HAGERSTOWN, MD) - COMCAST - VERIZON - OTHER	169.9	8.3%	$94.2	$65.7
MINNEAPOLIS-ST. PAUL, MN - NOCABLE - OTHER	169.4	29.1%	$71.6	$38.9
PALM SPRINGS, CA - CHARTER	167.6	31.9%	$99.0	$49.4
NEW YORK, NY - ALTICE - OTHER	166.1	6.2%	$74.7	$40.5
COLUMBIA, SC - CHARTER	165.4	35.6%	$92.4	$39.7
RENO, NV - CHARTER	163.6	37.7%	$88.0	$45.5
TRAVERSE CITY-CADILLAC, MI - CHARTER	161.9	20.3%	$114.9	$66.7
NEW YORK, NY - CHARTER - VERIZON - OTHER	161.4	7.0%	$111.6	$70.7
HARRISBURG-LANCASTER-LEBANON-YORK, PA - COMCAST - VERIZON	158.1	9.4%	$85.1	$55.3
PHILADELPHIA, PA - NOCABLE - OTHER	155.8	17.2%	$70.3	$29.3
BOISE, ID - NOCABLE - OTHER	155.1	46.6%	$47.9	$7.9
AUSTIN, TX - CHARTER - OTHER	154.4	30.7%	$87.5	$53.0
MADISON, WI - CHARTER	153.5	26.4%	$100.6	$52.3
LITTLE ROCK-PINE BLUFF, AR - NOCABLE - OTHER	153.1	32.3%	$62.0	$30.1
BOSTON, MA (MANCHESTER, NH) - COMCAST - VERIZON - OTHER	152.5	2.0%	$82.6	$71.0
BATON ROUGE, LA - COX	151.6	31.4%	$93.4	$38.2
GREENVILLE-SPARTANBURG, SC-ASHEVILLE, NC-ANDERSON, SC - NOCABLE - OTHER	150.3	42.5%	$50.2	$14.7
MOBILE, AL-PENSACOLA (FT. WALTON BEACH), FL - MEDIACOM	149.6	49.2%	$53.3	$24.2
NASHVILLE, TN - CHARTER	148.7	38.6%	$75.1	$41.4
NEW ORLEANS, LA - CHARTER	147.4	44.0%	$69.5	$30.4
BAKERSFIELD, CA - CHARTER	147.2	45.8%	$66.5	$31.7
INDIANAPOLIS, IN - COMCAST - OTHER	147.0	29.6%	$76.9	$48.4
COLORADO SPRINGS-PUEBLO, CO - COMCAST - OTHER	144.6	22.2%	$89.9	$49.7
SPRINGFIELD-HOLYOKE, MA - COMCAST	143.0	9.1%	$114.5	$16.0
BALTIMORE, MD - COMCAST - VERIZON - OTHER	142.9	6.8%	$55.7	$54.5
EL PASO, TX (LAS CRUCES, NM) - CHARTER	142.4	41.7%	$68.7	$32.7
DETROIT, MI - CHARTER	140.9	32.0%	$83.8	$39.8
DAVENPORT, IA-ROCK ISLAND-MOLINE, IL - MEDIACOM	140.2	29.3%	$73.0	$50.1
BUFFALO, NY - CHARTER - VERIZON	140.0	8.6%	$68.8	$54.6

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
CEDAR RAPIDS-WATERLOO-IOWA CITY & DUBUQUE, IA - MEDIACOM - OTHER	138.8	19.4%	$75.1	$65.2
KNOXVILLE, TN - COMCAST	138.4	30.0%	$80.5	$32.4
BALTIMORE, MD - COMCAST	138.3	24.1%	$89.1	$24.7
YAKIMA-PASCO-RICHLAND-KENNEWICK, WA - CHARTER	137.7	26.2%	$85.7	$54.5
MOBILE, AL-PENSACOLA (FT. WALTON BEACH), FL - COX	137.3	25.5%	$92.8	$41.2
CHAMPAIGN & SPRINGFIELD-DECATUR, IL - COMCAST	136.8	24.3%	$88.2	$32.1
SAN ANTONIO, TX - CHARTER - OTHER	136.5	32.0%	$70.4	$49.6
MIAMI-FT. LAUDERDALE, FL - COMCAST - OTHER	135.9	33.9%	$62.8	$41.8
MINOT-BISMARCK-DICKINSON (WILLISTON), ND - NOCABLE - OTHER	135.4	14.1%	$66.7	$44.8
BOSTON, MA (MANCHESTER, NH) - CHARTER	135.0	12.0%	$110.9	$37.9
DALLAS-FT. WORTH, TX - ALTICE	135.0	46.4%	$39.8	($3.8)
RICHMOND-PETERSBURG, VA - COMCAST	133.5	34.5%	$69.9	$27.2
INDIANAPOLIS, IN - CHARTER	132.5	40.2%	$69.8	$33.0
PHOENIX (PRESCOTT), AZ - NOCABLE - OTHER	132.3	36.1%	$49.1	$21.5
JACKSON, MS - COMCAST	132.3	43.4%	$60.9	$15.2
MINNEAPOLIS-ST. PAUL, MN - CHARTER	131.5	23.8%	$87.6	$51.7
MONTEREY-SALINAS, CA - COMCAST	130.1	27.7%	$78.9	$28.4
PITTSBURGH, PA - NOCABLE - OTHER	129.6	18.4%	$59.3	$34.1
PHILADELPHIA, PA - COMCAST - OTHER	129.4	16.8%	$82.7	$54.9
SALT LAKE CITY, UT - COMCAST - OTHER	128.1	24.7%	$77.5	$49.5
SAVANNAH, GA - COMCAST	126.9	24.5%	$81.0	$33.1
ALBUQUERQUE-SANTA FE, NM - NOCABLE - OTHER	126.4	31.6%	$51.0	$25.9
HONOLULU, HI - CHARTER	125.5	10.0%	$104.4	$42.2
SALISBURY, MD - COMCAST	122.4	17.3%	$87.9	$25.4
HARTFORD & NEW HAVEN, CT - COX - OTHER	121.4	8.9%	$95.6	$60.7
MINNEAPOLIS-ST. PAUL, MN - CHARTER - OTHER	121.3	19.9%	$75.7	$59.8
CHARLESTON-HUNTINGTON, WV - ALTICE	120.8	21.0%	$48.4	$16.1
LANSING, MI - COMCAST	120.2	27.2%	$74.9	$26.4
PROVIDENCE, RI-NEW BEDFORD, MA - COMCAST	118.4	7.5%	$96.3	$20.3
TOLEDO, OH - CHARTER - OTHER	115.4	23.2%	$58.1	$47.1
CHATTANOOGA, TN - COMCAST - OTHER	115.3	11.3%	$71.3	$59.0
TYLER-LONGVIEW(LUFKIN & NACOGDOCHES), TX - ALTICE	113.3	30.8%	$42.1	$11.5
PHILADELPHIA, PA - COMCAST - VERIZON - OTHER	113.1	6.3%	$55.6	$49.0
KNOXVILLE, TN - CHARTER	112.9	31.3%	$66.8	$37.6
AUGUSTA, GA-AIKEN, SC - COMCAST - OTHER	112.7	23.7%	$63.4	$43.8
WILKES BARRE-SCRANTON-HAZLETON, PA - COMCAST	111.5	19.3%	$76.0	$29.9
BURLINGTON, VT-PLATTSBURGH, NY - COMCAST	110.5	15.5%	$79.0	$39.4

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
SALT LAKE CITY, UT - NOCABLE - OTHER	109.6	33.5%	$44.3	$19.3
GREENVILLE-NEW BERN-WASHINGTON, NC - CHARTER	109.5	22.1%	$76.2	$37.0
CHARLESTON, SC - COMCAST - OTHER	109.1	31.3%	$58.5	$29.5
WILKES BARRE-SCRANTON-HAZLETON, PA - COMCAST - OTHER	108.5	21.7%	$58.6	$44.9
SPOKANE, WA - COMCAST	108.4	18.6%	$74.8	$30.4
NORFOLK-PORTSMOUTH-NEWPORT NEWS, VA - COX	108.1	16.8%	$83.4	$34.4
ANCHORAGE, AK - NOCABLE - OTHER	107.8	13.1%	$52.3	$29.7
ROANOKE-LYNCHBURG, VA - COMCAST	107.7	32.4%	$57.6	$26.3
OKLAHOMA CITY, OK - NOCABLE - OTHER	107.1	39.9%	$39.1	$11.0
ROCKFORD, IL - COMCAST	106.6	17.8%	$73.7	$35.2
SYRACUSE, NY - CHARTER - VERIZON	106.1	5.5%	$62.2	$44.3
TOLEDO, OH - CHARTER	106.1	25.4%	$68.2	$39.2
LINCOLN & HASTINGS-KEARNEY, NE - CHARTER	105.7	14.3%	$79.2	$50.7
PHOENIX (PRESCOTT), AZ - ALTICE	105.6	32.8%	$37.0	$7.0
ALBANY-SCHENECTADY-TROY, NY - CHARTER - VERIZON	104.5	6.0%	$73.9	$37.0
TULSA, OK - NOCABLE - OTHER	104.1	36.6%	$40.1	$14.7
JACKSON, MS - NOCABLE - OTHER	102.4	45.8%	$33.5	$3.2
NASHVILLE, TN - CHARTER - OTHER	102.3	24.2%	$57.8	$45.2
WASHINGTON, DC (HAGERSTOWN, MD) - COMCAST - OTHER	102.0	20.7%	$56.2	$43.4
ORLANDO-DAYTONA BEACH-MELBOURNE, FL - COMCAST - OTHER	101.5	26.4%	$58.0	$37.4
TUCSON (SIERRA VISTA), AZ - COMCAST	101.2	27.6%	$60.9	$23.7
NORFOLK-PORTSMOUTH-NEWPORT NEWS, VA - CHARTER	100.6	30.0%	$61.3	$34.1
SIOUX CITY, IA - NOCABLE - OTHER	99.7	17.9%	$48.9	$33.5
CORPUS CHRISTI, TX - CHARTER - OTHER	99.6	29.7%	$53.0	$38.2
JOHNSTOWN-ALTOONA-STATE COLLEGE, PA - COMCAST - OTHER	99.5	18.5%	$60.2	$45.5
WICHITA-HUTCHINSON, KS PLUS - NOCABLE - OTHER	98.9	19.9%	$46.5	$30.6
GREENVILLE-SPARTANBURG, SC-ASHEVILLE, NC-ANDERSON, SC - CHARTER - OTHER	97.0	37.5%	$42.2	$27.8
HARRISBURG-LANCASTER-LEBANON-YORK, PA - COMCAST - OTHER	96.7	18.6%	$56.5	$43.3
TALLAHASSEE, FL-THOMASVILLE, GA - COMCAST - OTHER	95.4	17.2%	$68.1	$38.3
CINCINNATI, OH - CHARTER	94.7	31.9%	$54.0	$30.8
BEAUMONT-PORT ARTHUR, TX - CHARTER	94.5	25.4%	$60.7	$35.2
MEMPHIS, TN - NOCABLE - OTHER	93.7	41.1%	$31.1	$10.5
HOUSTON, TX - ALTICE	93.5	40.3%	$29.6	$1.8
LITTLE ROCK-PINE BLUFF, AR - COMCAST	93.1	45.0%	$40.4	$9.6
BILOXI-GULFPORT, MS - NOCABLE - OTHER	93.0	41.8%	$29.1	$7.3

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
SACRAMENTO-STOCKTON-MODESTO, CA - NOCABLE - OTHER	92.9	44.8%	$28.7	$7.2
COLUMBUS-TUPELO-WEST POINT-HOUSTON, MS - NOCABLE - OTHER	92.6	42.8%	$30.8	$8.8
MYRTLE BEACH-FLORENCE, SC - CHARTER	92.2	27.0%	$57.5	$33.4
MONTGOMERY-SELMA, AL - CHARTER - OTHER	92.1	15.1%	$61.6	$48.5
JOHNSTOWN-ALTOONA-STATE COLLEGE, PA - NOCABLE - OTHER	91.8	18.4%	$42.8	$27.0
COLUMBIA, SC - CHARTER - OTHER	91.3	26.8%	$52.5	$37.4
LA CROSSE-EAU CLAIRE, WI - CHARTER - OTHER	91.2	15.7%	$59.9	$47.9
FLINT-SAGINAW-BAY CITY, MI - COMCAST	91.2	24.3%	$57.8	$20.3
EUGENE, OR - COMCAST	91.0	10.9%	$70.3	$34.2
DALLAS-FT. WORTH, TX - NOCABLE	90.8	50.1%	$29.3	($18.1)
SHREVEPORT, LA - NOCABLE - OTHER	90.1	39.0%	$33.2	$10.3
WACO-TEMPLE-BRYAN, TX - CHARTER	88.5	32.9%	$50.3	$26.8
HOUSTON, TX - COMCAST - OTHER	87.0	34.7%	$42.5	$23.3
FT. WAYNE, IN - COMCAST - OTHER	87.0	15.4%	$55.4	$41.1
WILMINGTON, NC - CHARTER	86.6	22.7%	$60.8	$24.4
EVANSVILLE, IN - CHARTER	86.3	32.1%	$48.3	$28.6
WASHINGTON, DC (HAGERSTOWN, MD) - NOCABLE - OTHER	86.3	31.5%	$34.0	$17.3
ROANOKE-LYNCHBURG, VA - COMCAST - OTHER	86.2	34.1%	$40.8	$24.6
MEDFORD-KLAMATH FALLS, OR - CHARTER	86.0	25.9%	$55.6	$34.1
KNOXVILLE, TN - COMCAST - OTHER	85.0	26.6%	$49.0	$26.7
PEORIA-BLOOMINGTON, IL - COMCAST	84.5	19.2%	$58.7	$21.9
SPRINGFIELD, MO - MEDIACOM	83.8	43.7%	$33.5	$17.9
SHREVEPORT, LA - ALTICE	83.7	37.8%	$27.5	$3.2
CHATTANOOGA, TN - CHARTER - OTHER	83.1	19.8%	$50.5	$40.5
AMARILLO, TX - ALTICE	82.8	22.0%	$33.8	$13.6
HUNTSVILLE-DECATUR (FLORENCE), AL - COMCAST - OTHER	81.5	25.7%	$44.4	$31.2
GAINESVILLE, FL - COX	81.3	10.5%	$67.5	$32.1
ATLANTA, GA - COMCAST - OTHER	80.5	32.7%	$37.8	$23.5
TRI-CITIES, TN-VA - COMCAST	80.4	24.2%	$50.3	$22.2
ALBANY, GA - MEDIACOM	80.2	25.2%	$43.8	$30.4
LITTLE ROCK-PINE BLUFF, AR - ALTICE	80.1	28.8%	$31.5	$11.0
BIRMINGHAM (ANNISTON AND TUSCALOOSA), AL - NOCABLE - OTHER	79.8	40.6%	$27.2	$9.5
MOBILE, AL-PENSACOLA (FT. WALTON BEACH), FL - COMCAST	79.6	42.3%	$37.4	$8.4
NASHVILLE, TN - COMCAST - OTHER	79.3	21.6%	$44.2	$33.3
KANSAS CITY, MO - COMCAST	79.0	37.1%	$40.3	$12.8
YOUNGSTOWN, OH - CHARTER	79.0	22.0%	$54.8	$26.6

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PHILADELPHIA, PA - NOCABLE - VERIZON - OTHER	78.4	11.7%	$30.4	$18.5
DALLAS-FT. WORTH, TX - NOCABLE - OTHER	78.4	38.7%	$28.9	$9.7
CEDAR RAPIDS-WATERLOO-IOWA CITY & DUBUQUE, IA - MEDIACOM	77.7	24.2%	$43.7	$31.6
KANSAS CITY, MO - NOCABLE - OTHER	77.1	35.5%	$29.0	$13.1
TOLEDO, OH - NOCABLE - OTHER	76.9	25.7%	$30.7	$10.1
EVANSVILLE, IN - CHARTER - OTHER	76.3	20.1%	$45.1	$36.1
SEATTLE-TACOMA, WA - NOCABLE - OTHER	76.2	29.4%	$31.2	$16.9
BURLINGTON, VT-PLATTSBURGH, NY - CHARTER	76.1	19.9%	$53.7	$31.6
BANGOR, ME - CHARTER	76.1	23.3%	$50.6	$29.1
LUBBOCK, TX - ALTICE - OTHER	75.7	34.8%	$24.4	$7.2
SHERMAN, TX-ADA, OK - NOCABLE - OTHER	75.6	34.4%	$30.0	$12.8
ATLANTA, GA - NOCABLE - OTHER	75.3	29.1%	$32.6	$16.7
BATON ROUGE, LA - COX - OTHER	75.2	30.3%	$38.3	$29.2
SANTA BARBARA-SANTA MARIA-SAN LUIS OBISPO, CA - CHARTER	74.7	33.3%	$42.6	$23.9
CHARLESTON, SC - CHARTER - OTHER	74.5	27.6%	$43.0	$29.4
SACRAMENTO-STOCKTON-MODESTO, CA - CHARTER	74.0	40.3%	$36.3	$19.3
NEW YORK, NY - COMCAST - OTHER	72.9	15.8%	$46.5	$32.0
COLORADO SPRINGS-PUEBLO, CO - COMCAST	71.9	34.3%	$38.7	$15.7
ORLANDO-DAYTONA BEACH-MELBOURNE, FL - COMCAST	71.7	28.6%	$43.0	$14.4
LEXINGTON, KY - CHARTER - OTHER	71.1	20.7%	$38.6	$31.1
SPRINGFIELD, MO - NOCABLE - OTHER	70.3	33.7%	$29.4	$9.4
ST. LOUIS, MO - NOCABLE - OTHER	70.1	34.2%	$27.6	$12.4
HUNTSVILLE-DECATUR (FLORENCE), AL - CHARTER	70.0	35.8%	$37.2	$21.2
CHICO-REDDING, CA - COMCAST	69.2	23.3%	$43.4	$23.1
ROANOKE-LYNCHBURG, VA - NOCABLE - OTHER	69.1	35.9%	$26.4	$11.0
MINNEAPOLIS-ST. PAUL, MN - MEDIACOM - OTHER	68.7	25.5%	$34.3	$28.2
BINGHAMTON, NY - CHARTER	68.6	15.8%	$52.4	$24.7
WACO-TEMPLE-BRYAN, TX - ALTICE	68.1	32.2%	$24.6	$5.8
OKLAHOMA CITY, OK - ALTICE	68.1	33.6%	$24.3	$5.9
SPOKANE, WA - NOCABLE - OTHER	67.6	28.9%	$30.2	$13.5
YUMA, AZ-EL CENTRO, CA - CHARTER	67.2	32.1%	$38.3	$21.5
YOUNGSTOWN, OH - CHARTER - OTHER	67.1	20.7%	$37.1	$30.9
WICHITA FALLS, TX & LAWTON, OK - NOCABLE - OTHER	67.0	27.7%	$29.1	$16.3
SHREVEPORT, LA - COMCAST	66.2	41.1%	$31.8	$9.1
LAFAYETTE, LA - COX	66.0	37.0%	$35.6	$18.3
JOHNSTOWN-ALTOONA-STATE COLLEGE, PA - COMCAST	66.0	17.9%	$46.4	$25.5
LAFAYETTE, LA - COX - OTHER	65.7	24.5%	$40.3	$27.9

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WATERTOWN, NY - CHARTER	65.7	18.9%	$47.9	$23.2
PORTLAND, OR - NOCABLE - OTHER	65.6	26.2%	$29.4	$16.7
PANAMA CITY, FL - COMCAST - OTHER	65.4	12.5%	$46.1	$33.8
BIRMINGHAM (ANNISTON AND TUSCALOOSA), AL - COMCAST	65.3	36.1%	$34.9	$11.0
HUNTSVILLE-DECATUR (FLORENCE), AL - CHARTER - OTHER	65.2	24.1%	$36.6	$29.0
MADISON, WI - CHARTER - OTHER	64.9	17.0%	$40.7	$33.8
PADUCAH, KY-CAPE GIRARDEAU, MO-HARRISBURG, IL - CHARTER	64.6	28.8%	$39.0	$24.2
HARTFORD & NEW HAVEN, CT - COMCAST	64.5	10.2%	$50.4	$15.4
ERIE, PA - CHARTER	64.2	20.2%	$45.7	$23.3
CHARLESTON-HUNTINGTON, WV - CHARTER	64.1	25.7%	$40.0	$24.9
PADUCAH, KY-CAPE GIRARDEAU, MO-HARRISBURG, IL - NOCABLE - OTHER	64.1	32.2%	$26.1	$12.6
WILMINGTON, NC - CHARTER - OTHER	63.9	20.2%	$38.4	$30.4
COLUMBUS, GA (OPELIKA, AL) - CHARTER - OTHER	63.6	18.1%	$43.1	$31.6
DENVER, CO - CHARTER	61.9	29.2%	$37.2	$23.0
EUGENE, OR - CHARTER	61.8	22.6%	$39.7	$26.7
WACO-TEMPLE-BRYAN, TX - CHARTER - OTHER	61.7	21.1%	$36.6	$29.0
RAPID CITY, SD - NOCABLE - OTHER	61.6	20.1%	$28.2	$17.5
IDAHO FALLS-POCATELLO, ID (JACKSON, WY) - NOCABLE - OTHER	61.4	33.2%	$25.1	$10.6
CHARLESTON, SC - COMCAST	61.4	36.3%	$32.0	$9.4
BOSTON, MA (MANCHESTER, NH) - NOCABLE - OTHER	61.0	20.1%	$27.1	$14.4
CHARLOTTE, NC - NOCABLE - OTHER	60.8	27.1%	$25.7	$14.6
KANSAS CITY, MO - CHARTER	60.7	32.9%	$34.4	$19.2
DENVER, CO - NOCABLE - OTHER	60.6	38.4%	$22.7	$7.2
MISSOULA, MT - CHARTER	60.5	25.4%	$38.9	$24.4
WHEELING, WV-STEUBENVILLE, OH - COMCAST	60.4	17.6%	$42.3	$19.0
SPRINGFIELD, MO - ALTICE	60.3	28.0%	$23.3	$7.6
WAUSAU-RHINELANDER, WI - CHARTER	59.8	21.3%	$40.8	$26.0
TRI-CITIES, TN-VA - CHARTER - OTHER	58.7	14.6%	$38.1	$31.1
ALBUQUERQUE-SANTA FE, NM - NOCABLE	58.7	43.3%	$22.2	($10.9)
HOUSTON, TX - NOCABLE - OTHER	58.4	43.7%	$19.6	$3.8
LINCOLN & HASTINGS-KEARNEY, NE - NOCABLE - OTHER	58.1	22.9%	$28.1	$15.7
ATLANTA, GA - CHARTER - OTHER	58.0	33.7%	$26.3	$19.2
MACON, GA - COX	57.9	23.8%	$39.2	$21.3
SPOKANE, WA - CHARTER	57.8	26.6%	$34.5	$21.9
ODESSA-MIDLAND, TX - NOCABLE - OTHER	57.0	29.2%	$23.5	$12.9
NEW YORK, NY - NOCABLE - OTHER	56.5	27.1%	$22.4	$9.2

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BEND, OR - NOCABLE - OTHER	56.4	13.3%	$27.7	$17.8
ALEXANDRIA, LA - ALTICE	56.1	27.7%	$21.2	$6.2
CHARLESTON-HUNTINGTON, WV - ALTICE - OTHER	55.4	18.6%	$24.3	$18.0
GREENVILLE-NEW BERN-WASHINGTON, NC - ALTICE	55.2	27.2%	$20.2	$4.0
PORTLAND, OR - CHARTER	55.1	28.6%	$32.8	$20.6
KANSAS CITY, MO - COMCAST - OTHER	54.4	31.0%	$27.4	$16.8
UTICA, NY - CHARTER	54.1	18.3%	$39.6	$20.1
TAMPA-ST. PETERSBURG (SARASOTA), FL - COMCAST	54.1	37.3%	$27.3	$11.6
AUSTIN, TX - ALTICE	54.0	43.8%	$14.4	($4.6)
TERRE HAUTE, IN - NOCABLE - OTHER	53.5	17.8%	$26.8	$18.2
SANTA BARBARA-SANTA MARIA-SAN LUIS OBISPO, CA - COMCAST	52.8	29.2%	$30.6	$14.5
HARRISONBURG, VA - COMCAST	52.6	24.8%	$32.4	$14.9
ROANOKE-LYNCHBURG, VA - COX	52.6	19.6%	$38.4	$19.1
HATTIESBURG-LAUREL, MS - COMCAST	52.4	25.1%	$32.2	$15.5
BALTIMORE, MD - NOCABLE - OTHER	52.2	31.3%	$19.4	$7.2
ABILENE-SWEETWATER, TX - ALTICE	52.1	24.3%	$20.6	$7.3
SANTA BARBARA-SANTA MARIA-SAN LUIS OBISPO, CA - COX	52.0	15.8%	$40.6	$17.2
SAVANNAH, GA - COMCAST - OTHER	52.0	26.3%	$27.0	$19.5
CLEVELAND-AKRON (CANTON), OH - COX	51.9	39.5%	$27.4	$11.4
TOPEKA, KS - COX	51.9	32.0%	$30.8	$16.2
LOUISVILLE, KY - COMCAST - OTHER	51.0	16.5%	$30.7	$24.3
BLUEFIELD-BECKLEY-OAK HILL, WV - ALTICE	50.6	19.6%	$20.5	$6.8
ST. LOUIS, MO - CHARTER - OTHER	50.2	31.8%	$24.7	$18.3
CHARLOTTESVILLE, VA - COMCAST	50.2	17.5%	$34.8	$17.9
HOUSTON, TX - ALTICE - OTHER	49.9	33.8%	$17.9	$8.1
SPRINGFIELD-HOLYOKE, MA - CHARTER	49.6	9.6%	$42.2	$10.6
CHICO-REDDING, CA - CHARTER	49.4	30.2%	$28.5	$17.5
AMARILLO, TX - NOCABLE - OTHER	49.2	22.7%	$24.0	$13.3
TRI-CITIES, TN-VA - CHARTER	49.0	22.5%	$33.3	$19.2
MONTEREY-SALINAS, CA - CHARTER	48.2	44.9%	$19.9	$7.3
MARQUETTE, MI - CHARTER	48.2	23.1%	$33.6	$17.3
ODESSA-MIDLAND, TX - ALTICE - OTHER	48.1	30.7%	$17.2	$9.0
SAVANNAH, GA - CHARTER - OTHER	47.9	20.7%	$28.8	$22.4
SAVANNAH, GA - NOCABLE - OTHER	47.8	28.8%	$20.3	$11.1
MONTGOMERY-SELMA, AL - CHARTER	47.8	17.1%	$34.3	$22.4
HARTFORD & NEW HAVEN, CT - CHARTER	47.6	11.0%	$39.1	$16.7
SAN ANTONIO, TX - NOCABLE	47.1	52.0%	$14.4	($9.2)

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TYLER-LONGVIEW(LUFKIN & NACOGDOCHES), TX - ALTICE - OTHER	47.0	31.4%	$18.5	$9.3
ELMIRA (CORNING), NY - CHARTER	46.9	19.8%	$33.8	$16.2
COLUMBIA-JEFFERSON CITY, MO - MEDIACOM - OTHER	46.8	24.1%	$23.9	$20.1
DES MOINES-AMES, IA - MEDIACOM - OTHER	46.7	26.1%	$24.1	$19.1
MONROE, LA-EL DORADO, AR - COMCAST	46.6	20.8%	$30.3	$16.9
PROVIDENCE, RI-NEW BEDFORD, MA - COMCAST - VERIZON	46.1	2.0%	$27.4	$18.9
WAUSAU-RHINELANDER, WI - CHARTER - OTHER	45.6	17.4%	$29.6	$23.4
JACKSON, TN - CHARTER - OTHER	45.6	18.3%	$25.3	$21.6
AUGUSTA, GA-AIKEN, SC - COMCAST	45.4	30.8%	$25.4	$10.5
MINNEAPOLIS-ST. PAUL, MN - MEDIACOM	45.3	35.6%	$21.1	$13.7
DULUTH, MN-SUPERIOR, WI - CHARTER	45.2	25.9%	$29.8	$16.6
ERIE, PA - NOCABLE - OTHER	45.1	15.8%	$22.0	$14.9
CHICAGO, IL - MEDIACOM	45.1	38.3%	$19.7	$11.8
LOS ANGELES, CA - COX - OTHER	45.0	21.1%	$28.7	$20.3
CORPUS CHRISTI, TX - CHARTER	44.7	37.6%	$23.1	$12.1
ROCHESTER, MN-MASON CITY, IA-AUSTIN, MN - CHARTER	44.2	16.7%	$33.8	$15.9
CHAMPAIGN & SPRINGFIELD-DECATUR, IL - MEDIACOM	44.2	31.3%	$21.9	$14.2
BILLINGS, MT - CHARTER	44.1	20.9%	$31.4	$17.4
PADUCAH, KY-CAPE GIRARDEAU, MO-HARRISBURG, IL - MEDIACOM	44.0	35.9%	$20.0	$11.6
DENVER, CO - NOCABLE	43.7	46.3%	$15.4	($8.2)
AUGUSTA, GA-AIKEN, SC - NOCABLE - OTHER	43.4	32.9%	$17.1	$8.4
MIAMI-FT. LAUDERDALE, FL - NOCABLE - OTHER	43.1	43.2%	$12.5	$0.0
LINCOLN & HASTINGS-KEARNEY, NE - CHARTER - OTHER	43.1	14.7%	$31.2	$22.0
TALLAHASSEE, FL-THOMASVILLE, GA - MEDIACOM	42.8	33.8%	$20.4	$13.1
TOPEKA, KS - NOCABLE - OTHER	42.4	24.5%	$18.9	$11.5
FRESNO-VISALIA, CA - CHARTER	42.2	45.2%	$16.9	$4.2
LOUISVILLE, KY - CHARTER - OTHER	41.0	27.1%	$21.5	$16.7
BURLINGTON, VT-PLATTSBURGH, NY - COMCAST - OTHER	40.8	13.8%	$27.6	$19.8
CHARLESTON-HUNTINGTON, WV - NOCABLE - OTHER	40.7	24.8%	$18.0	$10.9
GRAND JUNCTION-MONTROSE, CO - CHARTER	40.5	6.9%	$33.2	$23.6
LAREDO, TX - CHARTER	40.3	24.5%	$27.1	$12.3
GREENVILLE-NEW BERN-WASHINGTON, NC - ALTICE - OTHER	40.0	18.8%	$16.2	$7.7
MACON, GA - COX - OTHER	39.5	25.9%	$22.9	$17.1
LITTLE ROCK-PINE BLUFF, AR - ALTICE - OTHER	39.0	40.3%	$12.8	$4.7
HARTFORD & NEW HAVEN, CT - NOCABLE - OTHER	39.0	18.4%	$17.7	$9.6
LEXINGTON, KY - NOCABLE - OTHER	38.8	21.7%	$18.5	$11.7
SALT LAKE CITY, UT - NOCABLE	38.8	48.5%	$13.0	($7.6)

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
EL PASO, TX (LAS CRUCES, NM) - COMCAST	38.7	32.9%	$21.9	$9.1
TWIN FALLS, ID - NOCABLE - OTHER	38.6	26.8%	$17.7	$8.7
CLEVELAND-AKRON (CANTON), OH - NOCABLE - OTHER	38.4	19.5%	$17.3	$9.9
GRAND RAPIDS-KALAMAZOO-BATTLE CREEK, MI - CHARTER - OTHER	38.2	22.5%	$23.6	$18.1
OMAHA, NE - NOCABLE - OTHER	38.2	27.5%	$17.0	$9.0
COLUMBUS, GA (OPELIKA, AL) - MEDIACOM - OTHER	38.1	23.5%	$19.1	$16.3
LIMA, OH - CHARTER - OTHER	38.0	9.5%	$26.9	$22.0
PHILADELPHIA, PA - ALTICE - VERIZON	37.8	5.7%	$13.2	$7.8
KNOXVILLE, TN - CHARTER - OTHER	37.8	18.9%	$22.7	$18.6
MONROE, LA-EL DORADO, AR - ALTICE	37.7	21.2%	$16.7	$8.1
LANSING, MI - COMCAST - OTHER	37.7	28.4%	$19.5	$13.0
SAN ANGELO, TX - ALTICE	37.7	7.1%	$18.8	$13.8
LAKE CHARLES, LA - ALTICE - OTHER	37.4	32.5%	$13.0	$6.3
LITTLE ROCK-PINE BLUFF, AR - NOCABLE	37.4	40.4%	$15.0	($6.4)
TALLAHASSEE, FL-THOMASVILLE, GA - COMCAST	37.4	24.6%	$22.4	$13.0
RICHMOND-PETERSBURG, VA - NOCABLE - OTHER	37.4	43.6%	$12.5	$2.8
HUNTSVILLE-DECATUR (FLORENCE), AL - COMCAST	36.9	35.4%	$19.5	$6.5
FT. WAYNE, IN - MEDIACOM	36.4	34.1%	$17.0	$9.6
PEORIA-BLOOMINGTON, IL - COMCAST - OTHER	36.2	19.2%	$23.3	$13.6
CHAMPAIGN & SPRINGFIELD-DECATUR, IL - MEDIACOM - OTHER	35.8	17.6%	$19.2	$16.6
BUTTE-BOZEMAN, MT - CHARTER	35.7	28.5%	$22.3	$12.9
SPOKANE, WA - NOCABLE	35.6	37.5%	$15.1	($6.1)
DETROIT, MI - CHARTER - OTHER	35.6	31.1%	$17.3	$13.0
DALLAS-FT. WORTH, TX - ALTICE - OTHER	35.5	51.5%	$9.0	($0.5)
MONTGOMERY-SELMA, AL - NOCABLE - OTHER	35.5	22.4%	$16.9	$10.3
CHAMPAIGN & SPRINGFIELD-DECATUR, IL - NOCABLE - OTHER	35.4	28.9%	$15.1	$8.2
DOTHAN, AL - CHARTER - OTHER	35.4	25.2%	$20.3	$15.2
RALEIGH-DURHAM (FAYETTEVILLE), NC - ALTICE - OTHER	35.1	25.6%	$13.6	$6.1
MOBILE, AL-PENSACOLA (FT. WALTON BEACH), FL - MEDIACOM - OTHER	34.8	39.1%	$13.7	$7.7
DAVENPORT, IA-ROCK ISLAND-MOLINE, IL - COMCAST	34.1	17.6%	$23.7	$11.7
HARTFORD & NEW HAVEN, CT - ALTICE - OTHER	33.9	7.2%	$15.0	$7.5
BOSTON, MA (MANCHESTER, NH) - CHARTER - VERIZON	33.7	2.9%	$13.5	$16.0
JOPLIN, MO-PITTSBURG, KS - NOCABLE - OTHER	33.7	23.5%	$15.9	$9.3
TYLER-LONGVIEW(LUFKIN & NACOGDOCHES), TX - NOCABLE - OTHER	33.4	37.3%	$12.3	$5.0
BIRMINGHAM (ANNISTON AND TUSCALOOSA), AL - NOCABLE	33.3	56.8%	$8.9	($7.2)
LITTLE ROCK-PINE BLUFF, AR - COMCAST - OTHER	33.2	51.9%	$10.0	$1.6

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PHOENIX (PRESCOTT), AZ - NOCABLE	33.1	50.3%	$10.6	($6.6)
PORTLAND-AUBURN, ME - COMCAST	32.7	12.6%	$24.8	$6.5
SPRINGFIELD, MO - NOCABLE	32.6	37.2%	$13.9	($5.7)
COLUMBUS, GA (OPELIKA, AL) - NOCABLE - OTHER	32.6	34.4%	$12.0	$5.4
BIRMINGHAM (ANNISTON AND TUSCALOOSA), AL - CHARTER - OTHER	32.3	37.2%	$14.1	$8.1
ROCHESTER, MN-MASON CITY, IA-AUSTIN, MN - MEDIACOM - OTHER	32.0	24.3%	$16.3	$13.6
JONESBORO, AR - NOCABLE - OTHER	32.0	19.7%	$14.9	$9.6
CHARLESTON-HUNTINGTON, WV - CHARTER - OTHER	31.9	22.3%	$17.0	$14.0
CHEYENNE, WY-SCOTTSBLUFF, NE - CHARTER	31.8	6.4%	$26.2	$18.5
BOWLING GREEN, KY - CHARTER	31.1	14.2%	$23.8	$13.7
PEORIA-BLOOMINGTON, IL - MEDIACOM	31.0	33.0%	$14.9	$9.5
LAKE CHARLES, LA - ALTICE	30.9	22.3%	$11.4	$0.4
EUREKA, CA - ALTICE	30.8	17.6%	$12.4	$2.5
MACON, GA - NOCABLE - OTHER	30.3	35.9%	$11.7	$4.7
MONROE, LA-EL DORADO, AR - NOCABLE - OTHER	30.3	29.5%	$13.9	$4.0
BALTIMORE, MD - COMCAST - OTHER	30.0	24.7%	$17.2	$10.3
SAN FRANCISCO-OAKLAND-SAN JOSE, CA - CHARTER	29.6	46.4%	$12.4	$5.5
PORTLAND-AUBURN, ME - CHARTER - OTHER	29.6	18.6%	$17.6	$14.5
PADUCAH, KY-CAPE GIRARDEAU, MO-HARRISBURG, IL - NOCABLE	29.2	41.7%	$11.4	($5.3)
EVANSVILLE, IN - NOCABLE - OTHER	29.1	33.3%	$11.9	$5.0
DES MOINES-AMES, IA - NOCABLE - OTHER	29.1	27.8%	$12.5	$7.0
WACO-TEMPLE-BRYAN, TX - NOCABLE	29.0	44.4%	$10.7	($5.4)
PARKERSBURG, WV - ALTICE - OTHER	28.9	9.9%	$13.0	$9.1
YOUNGSTOWN, OH - NOCABLE - OTHER	28.8	14.7%	$13.5	$6.3
HUNTSVILLE-DECATUR (FLORENCE), AL - MEDIACOM - OTHER	28.7	36.6%	$11.6	$8.8
DULUTH, MN-SUPERIOR, WI - MEDIACOM	28.5	33.4%	$13.8	$9.0
SHREVEPORT, LA - NOCABLE	28.0	50.7%	$8.9	($5.4)
SOUTH BEND-ELKHART, IN - MEDIACOM	27.7	36.2%	$12.5	$6.7
PROVIDENCE, RI-NEW BEDFORD, MA - COX	27.7	11.3%	$23.2	$7.7
SACRAMENTO-STOCKTON-MODESTO, CA - NOCABLE	27.7	46.5%	$9.7	($5.4)
ZANESVILLE, OH - CHARTER	27.6	26.3%	$18.2	$7.9
PADUCAH, KY-CAPE GIRARDEAU, MO-HARRISBURG, IL - CHARTER - OTHER	27.3	26.6%	$14.7	$11.2
LAFAYETTE, LA - CHARTER	27.3	38.0%	$14.3	$7.1
COLUMBIA, SC - NOCABLE - OTHER	26.7	45.7%	$8.6	$1.2
INDIANAPOLIS, IN - NOCABLE - OTHER	26.6	39.1%	$9.9	$2.8
COLUMBUS-TUPELO-WEST POINT-HOUSTON, MS - COMCAST	26.5	34.5%	$13.7	$6.1

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WICHITA FALLS, TX & LAWTON, OK - CHARTER	26.4	27.6%	$16.0	$9.8
CASPER-RIVERTON, WY - CHARTER	26.4	9.2%	$21.4	$13.9
JACKSON, TN - CHARTER	26.3	29.1%	$15.9	$9.5
COLUMBIA-JEFFERSON CITY, MO - CHARTER	26.3	32.1%	$14.8	$9.0
ST. JOSEPH, MO - ALTICE	25.8	26.1%	$9.4	$1.1
LAFAYETTE, IN - COMCAST	25.8	19.1%	$17.8	$7.4
JOPLIN, MO-PITTSBURG, KS - MEDIACOM - OTHER	25.6	28.3%	$11.5	$7.2
GREAT FALLS, MT - CHARTER	25.6	20.4%	$17.8	$11.2
TOPEKA, KS - COX - OTHER	25.2	25.6%	$15.4	$10.7
NEW ORLEANS, LA - COMCAST	25.2	44.6%	$11.3	$1.6
ALBANY-SCHENECTADY-TROY, NY - CHARTER - OTHER	25.1	26.5%	$12.3	$9.6
PHOENIX (PRESCOTT), AZ - MEDIACOM - OTHER	25.0	48.9%	$8.4	$3.8
ST. LOUIS, MO - NOCABLE	24.9	51.7%	$7.7	($4.9)
CHARLESTON-HUNTINGTON, WV - COMCAST	24.9	26.3%	$15.2	$7.1
KANSAS CITY, MO - NOCABLE	24.9	45.3%	$9.0	($4.5)
SALISBURY, MD - MEDIACOM	24.8	21.5%	$14.9	$8.7
SIOUX FALLS(MITCHELL), SD - MEDIACOM - OTHER	24.6	15.8%	$13.8	$12.1
HOUSTON, TX - NOCABLE	24.4	52.7%	$7.4	($5.0)
GREENWOOD-GREENVILLE, MS - NOCABLE - OTHER	24.1	41.5%	$8.1	$2.6
SACRAMENTO-STOCKTON-MODESTO, CA - ALTICE	24.1	27.5%	$9.0	$2.4
NASHVILLE, TN - NOCABLE - OTHER	24.0	31.7%	$10.0	$4.6
KNOXVILLE, TN - NOCABLE - OTHER	23.9	25.4%	$10.2	$6.0
PADUCAH, KY-CAPE GIRARDEAU, MO-HARRISBURG, IL - COMCAST	23.8	26.5%	$14.4	$5.9
WILMINGTON, NC - NOCABLE - OTHER	23.8	13.2%	$11.4	$5.6
CHATTANOOGA, TN - COMCAST	23.7	26.2%	$14.1	$7.3
ODESSA-MIDLAND, TX - ALTICE	23.5	27.1%	$9.7	$3.6
BATON ROUGE, LA - NOCABLE - OTHER	23.5	53.2%	$5.9	($0.3)
CLARKSBURG-WESTON, WV - CHARTER	23.4	16.6%	$16.9	$10.8
CLEVELAND-AKRON (CANTON), OH - COX - OTHER	23.4	33.4%	$12.1	$8.2
FAIRBANKS, AK - NOCABLE - OTHER	23.0	20.3%	$10.1	$4.9
ORLANDO-DAYTONA BEACH-MELBOURNE, FL - COX - OTHER	22.8	19.4%	$15.6	$10.4
MACON, GA - CHARTER	22.8	30.6%	$12.9	$7.9
LA CROSSE-EAU CLAIRE, WI - NOCABLE - OTHER	22.5	27.5%	$9.6	$5.5
ATLANTA, GA - NOCABLE	22.4	49.6%	$7.3	($3.8)
VICTORIA, TX - ALTICE	22.3	18.1%	$9.5	$4.2
BINGHAMTON, NY - CHARTER - OTHER	22.2	22.7%	$13.1	$10.1
GREENWOOD-GREENVILLE, MS - ALTICE	22.1	31.1%	$7.8	$1.5

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GRAND RAPIDS-KALAMAZOO-BATTLE CREEK, MI - NOCABLE - OTHER	21.9	37.2%	$8.5	$2.6
RALEIGH-DURHAM (FAYETTEVILLE), NC - NOCABLE - OTHER	21.9	40.0%	$7.9	$2.4
BOWLING GREEN, KY - MEDIACOM - OTHER	21.9	3.0%	$12.0	$8.8
GREEN BAY-APPLETON, WI - CHARTER - OTHER	21.8	25.7%	$11.6	$9.0
DAYTON, OH - CHARTER - OTHER	21.6	16.5%	$14.2	$11.0
CINCINNATI, OH - NOCABLE - OTHER	21.6	27.3%	$9.1	$5.2
AUSTIN, TX - NOCABLE - OTHER	21.5	40.5%	$7.9	$1.7
OMAHA, NE - CHARTER	21.4	19.0%	$14.4	$10.0
HARTFORD & NEW HAVEN, CT - ALTICE	21.4	9.1%	$9.3	$2.2
MERIDIAN, MS - COMCAST	21.4	24.6%	$13.2	$6.5
HARRISBURG-LANCASTER-LEBANON-YORK, PA - NOCABLE - OTHER	21.2	22.8%	$9.3	$5.3
SEATTLE-TACOMA, WA - CHARTER - OTHER	21.1	24.0%	$13.2	$9.3
OKLAHOMA CITY, OK - NOCABLE	21.1	50.2%	$6.8	($4.0)
CHATTANOOGA, TN - CHARTER	21.0	23.8%	$13.3	$8.8
JUNEAU, AK - NOCABLE - OTHER	21.0	10.2%	$10.2	$3.0
TULSA, OK - ALTICE	21.0	28.5%	$8.0	$2.8
WHEELING, WV-STEUBENVILLE, OH - COMCAST - OTHER	21.0	21.1%	$13.1	$8.1
SAN FRANCISCO-OAKLAND-SAN JOSE, CA - MEDIACOM	20.9	38.0%	$9.2	$5.2
LOUISVILLE, KY - NOCABLE - OTHER	20.9	31.1%	$9.0	$3.7
PORTLAND, OR - NOCABLE	20.7	41.2%	$8.2	($3.7)
LANSING, MI - NOCABLE - OTHER	20.7	38.0%	$7.8	$2.6
CLARKSBURG-WESTON, WV - ALTICE	20.6	16.5%	$9.6	$5.4
LA CROSSE-EAU CLAIRE, WI - CHARTER	20.5	26.3%	$12.9	$8.0
PADUCAH, KY-CAPE GIRARDEAU, MO-HARRISBURG, IL - MEDIACOM - OTHER	20.3	29.8%	$9.5	$6.6
DOTHAN, AL - COMCAST - OTHER	20.3	21.8%	$11.9	$8.5
CORPUS CHRISTI, TX - NOCABLE - OTHER	20.2	43.2%	$6.6	$1.9
JACKSON, MS - NOCABLE	20.1	56.5%	$5.4	($3.8)
PORTLAND, OR - CHARTER - OTHER	20.0	20.4%	$12.6	$9.8
TRI-CITIES, TN-VA - NOCABLE - OTHER	20.0	28.0%	$8.4	$4.7
WAUSAU-RHINELANDER, WI - NOCABLE - OTHER	20.0	30.5%	$8.5	$4.1
MEMPHIS, TN - CHARTER	20.0	42.1%	$9.2	$4.7
JACKSONVILLE, FL - NOCABLE - OTHER	19.9	26.8%	$8.7	$5.0
FLINT-SAGINAW-BAY CITY, MI - CHARTER - OTHER	19.9	17.2%	$13.2	$10.0
TRI-CITIES, TN-VA - COMCAST - OTHER	19.8	26.0%	$10.7	$7.3
FT. SMITH-FAYETTEVILLE-SPRINGDALE-ROGERS, AR - ALTICE	19.8	35.2%	$7.8	$1.1
DAVENPORT, IA-ROCK ISLAND-MOLINE, IL - NOCABLE - OTHER	19.7	21.1%	$8.9	$5.5

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JACKSONVILLE, FL - COMCAST - OTHER	19.7	19.5%	$10.1	$7.9
SAN ANTONIO, TX - NOCABLE - OTHER	19.7	43.7%	$7.0	($0.2)
HATTIESBURG-LAUREL, MS - NOCABLE - OTHER	19.7	42.0%	$7.1	$0.9
NASHVILLE, TN - MEDIACOM	19.6	43.2%	$7.7	$3.3
TOLEDO, OH - COMCAST - OTHER	19.6	18.6%	$12.4	$8.4
PRESQUE ISLE, ME - CHARTER	19.5	8.5%	$15.3	$11.3
FRESNO-VISALIA, CA - NOCABLE	19.5	51.3%	$6.1	($4.0)
SALISBURY, MD - MEDIACOM - VERIZON	19.4	10.2%	$9.1	$6.8
SEATTLE-TACOMA, WA - NOCABLE	19.3	48.9%	$6.4	($3.5)
HOUSTON, TX - CHARTER	19.2	56.1%	$6.4	$1.8
DULUTH, MN-SUPERIOR, WI - NOCABLE - OTHER	19.0	27.4%	$8.4	$4.6
SIOUX CITY, IA - MEDIACOM - OTHER	18.9	14.6%	$10.8	$9.6
MONROE, LA-EL DORADO, AR - NOCABLE	18.9	32.6%	$8.7	($2.7)
TRAVERSE CITY-CADILLAC, MI - NOCABLE	18.7	45.9%	$6.7	($3.5)
SACRAMENTO-STOCKTON-MODESTO, CA - ALTICE - OTHER	18.6	31.5%	$7.2	$4.0
JONESBORO, AR - ALTICE - OTHER	18.3	19.6%	$7.6	$4.7
SAN FRANCISCO-OAKLAND-SAN JOSE, CA - NOCABLE - OTHER	18.2	36.3%	$6.4	$2.4
SPRINGFIELD, MO - CHARTER - OTHER	18.1	23.0%	$12.3	$9.6
CEDAR RAPIDS-WATERLOO-IOWA CITY & DUBUQUE, IA - NOCABLE - OTHER	18.1	23.8%	$8.4	$5.1
GAINESVILLE, FL - NOCABLE	18.1	33.3%	$8.3	($3.2)
CHATTANOOGA, TN - NOCABLE - OTHER	18.0	36.8%	$7.0	$2.2
ALBANY-SCHENECTADY-TROY, NY - NOCABLE - OTHER	17.8	27.9%	$7.3	$4.0
MERIDIAN, MS - NOCABLE - OTHER	17.8	30.3%	$7.9	$2.9
COLORADO SPRINGS-PUEBLO, CO - CHARTER	17.7	28.1%	$11.1	$6.5
NORFOLK-PORTSMOUTH-NEWPORT NEWS, VA - MEDIACOM	17.7	46.8%	$6.4	$2.6
LA CROSSE-EAU CLAIRE, WI - MEDIACOM - OTHER	17.7	18.0%	$8.9	$7.5
ABILENE-SWEETWATER, TX - NOCABLE - OTHER	17.4	31.4%	$7.6	$2.4
ROANOKE-LYNCHBURG, VA - NOCABLE	17.2	48.7%	$5.8	($3.4)
HUNTSVILLE-DECATUR (FLORENCE), AL - NOCABLE - OTHER	17.2	36.4%	$6.7	$2.4
NEW ORLEANS, LA - NOCABLE - OTHER	17.1	34.1%	$6.1	$2.0
JOPLIN, MO-PITTSBURG, KS - ALTICE	17.0	27.0%	$7.4	$2.8
WILKES BARRE-SCRANTON-HAZLETON, PA - COMCAST - VERIZON - OTHER	17.0	14.9%	$5.7	$4.4
CHAMPAIGN & SPRINGFIELD-DECATUR, IL - COMCAST - OTHER	16.8	25.0%	$9.8	$6.8
TYLER-LONGVIEW(LUFKIN & NACOGDOCHES), TX - NOCABLE	16.4	45.0%	$6.0	($3.2)
PROVIDENCE, RI-NEW BEDFORD, MA - COX - OTHER	16.3	9.1%	$11.4	$9.2
TULSA, OK - NOCABLE	16.3	43.3%	$6.1	($2.5)

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PEORIA-BLOOMINGTON, IL - MEDIACOM - OTHER	16.2	30.8%	$7.6	$5.7
TALLAHASSEE, FL-THOMASVILLE, GA - NOCABLE	16.2	36.7%	$7.0	($2.9)
LUBBOCK, TX - NOCABLE	16.1	40.0%	$6.5	($3.0)
HELENA, MT - CHARTER	16.0	14.8%	$12.0	$7.8
BILLINGS, MT - NOCABLE - OTHER	16.0	26.1%	$7.2	$4.0
ABILENE-SWEETWATER, TX - NOCABLE	16.0	37.3%	$6.8	($2.9)
COLORADO SPRINGS-PUEBLO, CO - NOCABLE	15.9	49.4%	$5.2	($3.2)
LUBBOCK, TX - NOCABLE - OTHER	15.9	24.7%	$7.7	$3.4
WICHITA FALLS, TX & LAWTON, OK - ALTICE	15.9	34.8%	$6.2	$1.0
RICHMOND-PETERSBURG, VA - NOCABLE	15.8	57.7%	$4.1	($3.4)
CLARKSBURG-WESTON, WV - NOCABLE - OTHER	15.8	20.2%	$8.2	$4.1
BILOXI-GULFPORT, MS - MEDIACOM - OTHER	15.7	45.8%	$4.6	$1.3
ALBANY, GA - NOCABLE - OTHER	15.7	17.5%	$8.2	$5.1
TERRE HAUTE, IN - CHARTER - OTHER	15.7	17.1%	$10.7	$7.8
COLUMBUS, GA (OPELIKA, AL) - CHARTER	15.5	33.3%	$8.7	$5.1
BATON ROUGE, LA - CHARTER - OTHER	15.5	31.5%	$7.6	$5.7
PARKERSBURG, WV - ALTICE	15.4	16.1%	$6.5	$2.7
QUINCY, IL-HANNIBAL, MO-KEOKUK, IA - COMCAST	15.4	15.3%	$10.9	$6.1
CHARLESTON, SC - NOCABLE - OTHER	15.4	32.2%	$6.2	$3.1
DAVENPORT, IA-ROCK ISLAND-MOLINE, IL - MEDIACOM - OTHER	15.4	26.9%	$7.7	$5.9
OTTUMWA, IA-KIRKSVILLE, MO - NOCABLE - OTHER	15.3	13.6%	$8.3	$5.8
CHARLESTON-HUNTINGTON, WV - NOCABLE	15.3	41.9%	$5.9	($2.7)
PANAMA CITY, FL - MEDIACOM - OTHER	15.2	16.9%	$9.1	$7.5
NEW ORLEANS, LA - CHARTER - OTHER	15.0	45.8%	$5.9	$3.2
SOUTH BEND-ELKHART, IN - COMCAST - OTHER	14.9	20.7%	$8.6	$6.4
WACO-TEMPLE-BRYAN, TX - NOCABLE - OTHER	14.8	39.9%	$5.4	$1.4
WICHITA-HUTCHINSON, KS PLUS - COX - OTHER	14.7	22.4%	$9.5	$6.6
HARTFORD & NEW HAVEN, CT - CHARTER - OTHER	14.7	10.0%	$11.6	$7.0
JONESBORO, AR - ALTICE	14.7	19.5%	$6.0	$2.3
GREENVILLE-SPARTANBURG, SC-ASHEVILLE, NC-ANDERSON, SC - COMCAST - OTHER	14.6	21.6%	$7.4	$5.7
CHICO-REDDING, CA - NOCABLE	14.5	38.8%	$6.0	($2.7)
FT. WAYNE, IN - MEDIACOM - OTHER	14.4	25.5%	$7.2	$5.7
GREEN BAY-APPLETON, WI - NOCABLE - OTHER	14.3	38.0%	$5.5	$1.4
GRAND RAPIDS-KALAMAZOO-BATTLE CREEK, MI - COMCAST - OTHER	14.3	22.4%	$7.4	$5.7
CINCINNATI, OH - COMCAST - OTHER	14.3	28.0%	$7.4	$5.0
MANKATO, MN - CHARTER - OTHER	14.2	10.9%	$9.7	$8.0

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
COLUMBIA-JEFFERSON CITY, MO - NOCABLE	14.0	44.0%	$5.2	($2.6)
MYRTLE BEACH-FLORENCE, SC - NOCABLE - OTHER	14.0	30.8%	$5.6	$2.9
YOUNGSTOWN, OH - COMCAST	14.0	22.5%	$9.0	$3.7
COLUMBIA-JEFFERSON CITY, MO - NOCABLE - OTHER	13.8	29.4%	$6.2	$2.7
BLUEFIELD-BECKLEY-OAK HILL, WV - COMCAST	13.7	25.1%	$8.4	$4.2
TERRE HAUTE, IN - CHARTER	13.6	14.7%	$10.2	$6.4
KANSAS CITY, MO - MEDIACOM	13.6	38.2%	$5.9	$3.1
MADISON, WI - NOCABLE - OTHER	13.5	28.3%	$5.8	$3.2
PANAMA CITY, FL - MEDIACOM	13.4	31.1%	$6.8	$4.7
ELMIRA (CORNING), NY - CHARTER - OTHER	13.4	22.0%	$8.4	$6.0
FRESNO-VISALIA, CA - NOCABLE - OTHER	13.3	35.4%	$5.4	$1.4
BAKERSFIELD, CA - MEDIACOM	13.3	47.7%	$4.7	$1.8
PANAMA CITY, FL - COX	13.3	9.3%	$11.3	$4.5
DENVER, CO - CHARTER - OTHER	13.1	24.6%	$8.1	$5.7
BURLINGTON, VT-PLATTSBURGH, NY - NOCABLE - OTHER	13.1	24.9%	$5.8	$3.5
SPRINGFIELD, MO - COX	13.1	20.1%	$8.6	$6.0
TULSA, OK - ALTICE - OTHER	13.0	33.6%	$4.9	$2.1
AUSTIN, TX - NOCABLE	12.8	47.3%	$4.4	($2.3)
MEDFORD-KLAMATH FALLS, OR - NOCABLE	12.8	41.1%	$5.1	($2.3)
LIMA, OH - CHARTER	12.8	14.1%	$9.7	$5.7
BLUEFIELD-BECKLEY-OAK HILL, WV - ALTICE - OTHER	12.7	19.9%	$5.2	$3.1
LOUISVILLE, KY - COMCAST	12.6	22.3%	$7.6	$4.6
SHREVEPORT, LA - COMCAST - OTHER	12.6	45.6%	$4.6	$1.9
NEW ORLEANS, LA - COMCAST - OTHER	12.5	32.2%	$5.6	$3.7
SALISBURY, MD - COMCAST - VERIZON	12.3	7.1%	$7.7	$4.0
MISSOULA, MT - NOCABLE	12.3	38.6%	$5.1	($2.3)
BEAUMONT-PORT ARTHUR, TX - NOCABLE	12.2	40.5%	$4.9	($2.3)
QUINCY, IL-HANNIBAL, MO-KEOKUK, IA - NOCABLE - OTHER	12.2	18.9%	$6.3	$3.6
HARRISONBURG, VA - COMCAST - OTHER	12.1	19.1%	$7.9	$4.3
GREEN BAY-APPLETON, WI - COMCAST	12.0	25.2%	$7.5	$3.7
INDIANAPOLIS, IN - NOCABLE	12.0	50.3%	$3.8	($2.3)
ALBUQUERQUE-SANTA FE, NM - CHARTER	11.9	35.5%	$6.4	$3.7
ALPENA, MI - CHARTER	11.9	6.8%	$10.0	$6.4
RENO, NV - NOCABLE - OTHER	11.9	40.5%	$4.2	$1.3
DULUTH, MN-SUPERIOR, WI - MEDIACOM - OTHER	11.8	20.1%	$6.2	$5.3
SPOKANE, WA - ALTICE	11.8	29.0%	$5.2	$1.2
COLUMBUS, GA (OPELIKA, AL) - MEDIACOM	11.8	31.0%	$5.9	$4.0
PANAMA CITY, FL - COMCAST	11.7	27.9%	$6.5	$3.3

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WILKES BARRE-SCRANTON-HAZLETON, PA - CHARTER - OTHER	11.7	23.6%	$6.9	$5.2
QUINCY, IL-HANNIBAL, MO-KEOKUK, IA - NOCABLE	11.7	30.4%	$5.6	($1.8)
ALBANY-SCHENECTADY-TROY, NY - COMCAST	11.6	15.5%	$8.5	$2.6
CLARKSBURG-WESTON, WV - COMCAST	11.6	15.1%	$8.1	$5.0
JOPLIN, MO-PITTSBURG, KS - COX	11.6	14.3%	$8.7	$5.8
BUFFALO, NY - NOCABLE - OTHER	11.5	31.0%	$4.5	$2.2
ALBANY, GA - MEDIACOM - OTHER	11.4	15.7%	$6.4	$5.6
LAS VEGAS, NV - ALTICE	11.3	49.8%	$3.5	($1.2)
KANSAS CITY, MO - ALTICE	11.3	29.6%	$4.4	$1.5
ROCKFORD, IL - CHARTER	11.2	20.1%	$8.0	$4.2
MOBILE, AL-PENSACOLA (FT. WALTON BEACH), FL - CHARTER	11.2	41.3%	$5.3	$2.7
FT. WAYNE, IN - COMCAST	11.2	26.5%	$6.6	$3.5
BANGOR, ME - NOCABLE - OTHER	11.1	28.7%	$4.6	$2.6
WHEELING, WV-STEUBENVILLE, OH - NOCABLE - OTHER	11.1	29.8%	$4.6	$2.5
LAFAYETTE, IN - COMCAST - OTHER	11.1	18.2%	$7.5	$3.6
LOS ANGELES, CA - NOCABLE	11.1	60.6%	$2.6	($2.6)
NASHVILLE, TN - NOCABLE	11.0	46.5%	$3.9	($2.1)
TRAVERSE CITY-CADILLAC, MI - NOCABLE - OTHER	11.0	33.7%	$4.5	$1.8
PITTSBURGH, PA - COMCAST - VERIZON - OTHER	11.0	6.9%	$5.5	$4.6
NEW YORK, NY - ALTICE - VERIZON - OTHER	11.0	8.4%	$4.5	$3.6
ROCKFORD, IL - MEDIACOM	10.9	30.1%	$5.5	$3.6
BLUEFIELD-BECKLEY-OAK HILL, WV - NOCABLE - OTHER	10.8	20.6%	$5.0	$3.2
LEXINGTON, KY - MEDIACOM - OTHER	10.8	19.4%	$5.4	$3.8
QUINCY, IL-HANNIBAL, MO-KEOKUK, IA - MEDIACOM	10.8	18.9%	$6.5	$4.8
LOS ANGELES, CA - ALTICE	10.7	39.2%	$3.3	($0.0)
LAKE CHARLES, LA - NOCABLE - OTHER	10.7	41.4%	$3.6	$1.2
TALLAHASSEE, FL-THOMASVILLE, GA - MEDIACOM - OTHER	10.7	24.3%	$5.3	$4.2
OMAHA, NE - MEDIACOM	10.6	28.4%	$5.5	$3.7
TWIN FALLS, ID - COX	10.6	16.2%	$8.1	$4.1
MACON, GA - CHARTER - OTHER	10.5	26.0%	$6.3	$4.4
COLUMBUS-TUPELO-WEST POINT-HOUSTON, MS - COMCAST - OTHER	10.5	41.7%	$4.1	$2.0
OMAHA, NE - CHARTER - OTHER	10.5	23.8%	$6.6	$4.4
PANAMA CITY, FL - CHARTER	10.5	27.5%	$6.1	$3.7
LINCOLN & HASTINGS-KEARNEY, NE - NOCABLE	10.4	34.9%	$4.6	($1.6)
MEMPHIS, TN - COMCAST - OTHER	10.4	51.0%	$3.1	$0.6
MADISON, WI - MEDIACOM - OTHER	10.3	28.6%	$4.9	$3.3
BANGOR, ME - NOCABLE	10.3	49.6%	$3.4	($2.1)

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CHICAGO, IL - CHARTER	10.2	36.6%	$5.2	$2.9
LUBBOCK, TX - ALTICE	10.2	21.1%	$4.4	$2.0
BUFFALO, NY - COMCAST - OTHER	10.2	27.6%	$4.8	$3.5
MOBILE, AL-PENSACOLA (FT. WALTON BEACH), FL - NOCABLE	10.2	48.9%	$3.4	($2.1)
DES MOINES-AMES, IA - NOCABLE	10.1	40.2%	$4.1	($1.8)
COLUMBIA, SC - NOCABLE	10.1	52.3%	$3.1	($2.0)
COLUMBIA-JEFFERSON CITY, MO - CHARTER - OTHER	10.1	22.4%	$5.8	$4.7
MADISON, WI - MEDIACOM	10.1	27.2%	$5.3	$2.9
BEAUMONT-PORT ARTHUR, TX - NOCABLE - OTHER	9.9	37.0%	$4.0	$0.7
OTTUMWA, IA-KIRKSVILLE, MO - MEDIACOM	9.9	11.5%	$6.6	$5.2
SYRACUSE, NY - CHARTER - OTHER	9.9	24.2%	$5.9	$4.3
MEDFORD-KLAMATH FALLS, OR - NOCABLE - OTHER	9.8	34.6%	$4.0	$1.4
BILLINGS, MT - CHARTER - OTHER	9.7	20.5%	$5.8	$4.7
TUCSON (SIERRA VISTA), AZ - MEDIACOM	9.7	42.6%	$3.8	$1.5
NEW ORLEANS, LA - NOCABLE	9.7	64.9%	$2.0	($2.5)
RAPID CITY, SD - CHARTER	9.6	22.1%	$6.5	$4.2
PHOENIX (PRESCOTT), AZ - ALTICE - OTHER	9.6	40.3%	$3.3	$1.1
TULSA, OK - COX - OTHER	9.6	43.7%	$3.4	$1.5
RICHMOND-PETERSBURG, VA - COX	9.5	40.5%	$4.7	$2.5
LAFAYETTE, LA - ALTICE	9.4	48.8%	$2.5	($0.5)
CHAMPAIGN & SPRINGFIELD-DECATUR, IL - NOCABLE	9.4	41.8%	$3.7	($1.6)
TERRE HAUTE, IN - MEDIACOM	9.3	22.3%	$5.3	$3.1
MONTGOMERY-SELMA, AL - NOCABLE	9.2	31.2%	$4.4	($1.6)
ROCHESTER, MN-MASON CITY, IA-AUSTIN, MN - NOCABLE - OTHER	9.2	24.7%	$4.1	$2.5
COLORADO SPRINGS-PUEBLO, CO - NOCABLE - OTHER	9.2	38.1%	$3.2	$1.3
PORTLAND-AUBURN, ME - NOCABLE - OTHER	9.1	33.0%	$3.5	$1.7
LOS ANGELES, CA - MEDIACOM - OTHER	9.0	30.0%	$3.8	$2.8
EVANSVILLE, IN - COMCAST	9.0	38.7%	$4.2	$1.8
GREEN BAY-APPLETON, WI - NOCABLE	9.0	47.4%	$3.1	($1.6)
QUINCY, IL-HANNIBAL, MO-KEOKUK, IA - CHARTER	9.0	14.6%	$6.5	$4.7
BUFFALO, NY - CHARTER - OTHER	9.0	29.9%	$5.0	$3.4
ORLANDO-DAYTONA BEACH-MELBOURNE, FL - COX	9.0	29.0%	$5.5	$3.2
COLUMBIA, SC - COMCAST	8.9	45.5%	$3.6	$1.0
MANKATO, MN - NOCABLE - OTHER	8.8	24.3%	$3.8	$2.2
BURLINGTON, VT-PLATTSBURGH, NY - NOCABLE	8.8	44.1%	$3.3	($1.7)
WASHINGTON, DC (HAGERSTOWN, MD) - NOCABLE	8.7	51.3%	$2.7	($1.8)
MINNEAPOLIS-ST. PAUL, MN - NOCABLE	8.7	44.2%	$3.2	($1.4)
GREAT FALLS, MT - NOCABLE - OTHER	8.6	24.2%	$4.1	$2.2

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ELMIRA (CORNING), NY - NOCABLE - OTHER	8.6	22.4%	$3.8	$2.4
KANSAS CITY, MO - MEDIACOM - OTHER	8.6	34.9%	$3.8	$2.2
LOS ANGELES, CA - NOCABLE - OTHER	8.5	25.0%	$3.6	$1.8
BUTTE-BOZEMAN, MT - NOCABLE	8.5	56.3%	$2.3	($1.8)
HUNTSVILLE-DECATUR (FLORENCE), AL - MEDIACOM	8.5	49.1%	$2.9	$1.4
IDAHO FALLS-POCATELLO, ID (JACKSON, WY) - NOCABLE	8.4	36.9%	$3.6	($1.4)
HARRISBURG-LANCASTER-LEBANON-YORK, PA - COMCAST - VERIZON - OTHER	8.3	12.1%	$4.1	$3.1
RENO, NV - CHARTER - OTHER	8.2	16.9%	$4.8	$4.1
CLARKSBURG-WESTON, WV - ALTICE - OTHER	8.2	17.6%	$4.1	$2.8
SHERMAN, TX-ADA, OK - ALTICE - OTHER	8.2	36.5%	$3.0	$1.3
HUNTSVILLE-DECATUR (FLORENCE), AL - NOCABLE	8.2	57.1%	$2.2	($1.7)
BINGHAMTON, NY - NOCABLE - OTHER	8.2	27.5%	$3.4	$1.9
LAS VEGAS, NV - NOCABLE - OTHER	8.1	37.4%	$2.9	$1.2
MERIDIAN, MS - NOCABLE	8.1	38.3%	$3.4	($1.4)
GAINESVILLE, FL - COMCAST	8.1	33.3%	$3.8	$0.5
ST. LOUIS, MO - MEDIACOM - OTHER	8.0	24.9%	$3.8	$2.8
SHERMAN, TX-ADA, OK - ALTICE	8.0	34.0%	$3.2	$0.7
BEAUMONT-PORT ARTHUR, TX - CHARTER - OTHER	8.0	30.8%	$4.0	$2.8
MEMPHIS, TN - NOCABLE	7.9	59.6%	$1.9	($1.8)
FT. SMITH-FAYETTEVILLE-SPRINGDALE-ROGERS, AR - NOCABLE - OTHER	7.9	35.7%	$3.3	$0.4
MEDFORD-KLAMATH FALLS, OR - CHARTER - OTHER	7.9	12.1%	$4.9	$4.3
LOUISVILLE, KY - NOCABLE	7.7	44.7%	$2.8	($1.4)
SHERMAN, TX-ADA, OK - NOCABLE	7.7	35.5%	$3.4	($1.3)
LAFAYETTE, LA - NOCABLE - OTHER	7.7	56.1%	$1.8	($0.3)
MACON, GA - MEDIACOM	7.6	25.6%	$4.1	$2.8
DOTHAN, AL - CHARTER	7.6	31.5%	$4.1	$2.3
OKLAHOMA CITY, OK - ALTICE - OTHER	7.6	35.2%	$2.8	$0.9
GREAT FALLS, MT - NOCABLE	7.6	38.3%	$3.2	($1.3)
OMAHA, NE - NOCABLE	7.6	39.5%	$3.1	($1.2)
ERIE, PA - CHARTER - OTHER	7.6	27.0%	$4.2	$3.0
CINCINNATI, OH - COMCAST	7.6	33.2%	$3.9	$1.9
QUINCY, IL-HANNIBAL, MO-KEOKUK, IA - COMCAST - OTHER	7.6	8.2%	$5.6	$4.0
DULUTH, MN-SUPERIOR, WI - NOCABLE	7.5	48.7%	$2.5	($1.4)
NEW ORLEANS, LA - COX - OTHER	7.5	44.6%	$2.6	$1.4
FT. SMITH-FAYETTEVILLE-SPRINGDALE-ROGERS, AR - NOCABLE	7.5	41.5%	$2.9	($1.4)
PHOENIX (PRESCOTT), AZ - COMCAST - OTHER	7.5	43.0%	$2.8	$1.3

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AMARILLO, TX - NOCABLE	7.4	32.2%	$3.5	($1.3)
YAKIMA-PASCO-RICHLAND-KENNEWICK, WA - NOCABLE	7.3	40.5%	$2.9	($1.3)
TERRE HAUTE, IN - COMCAST - OTHER	7.3	26.5%	$4.0	$2.4
CEDAR RAPIDS-WATERLOO-IOWA CITY & DUBUQUE, IA - NOCABLE	7.3	30.6%	$3.5	($1.1)
NORTH PLATTE, NE - CHARTER	7.3	7.9%	$5.9	$4.2
BLUEFIELD-BECKLEY-OAK HILL, WV - CHARTER	7.3	28.6%	$4.5	$2.4
NASHVILLE, TN - MEDIACOM - OTHER	7.2	13.5%	$3.9	$3.3
WICHITA-HUTCHINSON, KS PLUS - NOCABLE	7.2	39.9%	$2.9	($1.3)
FT. WAYNE, IN - NOCABLE	7.2	45.2%	$2.6	($1.3)
GREENVILLE-NEW BERN-WASHINGTON, NC - MEDIACOM	7.1	44.6%	$2.7	$0.9
TUCSON (SIERRA VISTA), AZ - NOCABLE - OTHER	7.1	28.1%	$3.1	$1.7
ALEXANDRIA, LA - ALTICE - OTHER	7.1	34.0%	$2.9	$1.1
CINCINNATI, OH - NOCABLE	7.0	45.6%	$2.5	($1.2)
MILWAUKEE, WI - CHARTER - OTHER	7.0	29.0%	$3.7	$2.7
RENO, NV - NOCABLE	7.0	50.1%	$2.3	($1.4)
PEORIA-BLOOMINGTON, IL - NOCABLE - OTHER	7.0	32.1%	$2.8	$1.4
ALBANY-SCHENECTADY-TROY, NY - NOCABLE	6.9	53.1%	$2.1	($1.4)
HARRISBURG-LANCASTER-LEBANON-YORK, PA - NOCABLE	6.9	44.8%	$2.5	($1.3)
RALEIGH-DURHAM (FAYETTEVILLE), NC - COMCAST	6.9	43.6%	$2.8	$0.8
TRAVERSE CITY-CADILLAC, MI - CHARTER - OTHER	6.8	25.6%	$4.0	$2.9
MEMPHIS, TN - CHARTER - OTHER	6.8	35.7%	$2.9	$2.0
LANSING, MI - CHARTER - OTHER	6.8	25.5%	$3.9	$2.8
IDAHO FALLS-POCATELLO, ID (JACKSON, WY) - CHARTER	6.8	22.4%	$4.8	$2.3
PITTSBURGH, PA - CHARTER - OTHER	6.8	20.5%	$4.4	$3.1
OMAHA, NE - MEDIACOM - OTHER	6.7	16.5%	$3.7	$3.3
JOHNSTOWN-ALTOONA-STATE COLLEGE, PA - COMCAST - VERIZON - OTHER	6.6	14.6%	$3.6	$2.9
BLUEFIELD-BECKLEY-OAK HILL, WV - NOCABLE	6.6	46.3%	$2.3	($1.3)
LOUISVILLE, KY - MEDIACOM - OTHER	6.5	29.7%	$3.0	$1.7
BILLINGS, MT - NOCABLE	6.5	38.4%	$2.7	($1.2)
MEMPHIS, TN - ALTICE	6.5	35.1%	$2.2	$0.3
GREENVILLE-NEW BERN-WASHINGTON, NC - NOCABLE - OTHER	6.4	42.8%	$2.2	$0.5
HATTIESBURG-LAUREL, MS - NOCABLE	6.4	50.3%	$2.0	($1.2)
KANSAS CITY, MO - ALTICE - OTHER	6.3	35.9%	$2.3	$0.7
FT. SMITH-FAYETTEVILLE-SPRINGDALE-ROGERS, AR - ALTICE - OTHER	6.3	31.8%	$2.5	$1.3
NEW ORLEANS, LA - MEDIACOM	6.3	49.5%	$2.2	$1.1
ST. LOUIS, MO - MEDIACOM	6.2	41.8%	$2.5	$1.4

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EUREKA, CA - CHARTER	6.2	16.5%	$4.6	$2.7
YOUNGSTOWN, OH - COMCAST - OTHER	6.2	23.7%	$3.5	$2.4
WAUSAU-RHINELANDER, WI - NOCABLE	6.2	48.1%	$2.1	($1.2)
CHEYENNE, WY-SCOTTSBLUFF, NE - NOCABLE - OTHER	6.2	6.9%	$3.6	$2.8
MARQUETTE, MI - NOCABLE - OTHER	6.2	30.6%	$2.4	$1.2
MANKATO, MN - COMCAST - OTHER	6.1	11.9%	$4.0	$3.1
JOPLIN, MO-PITTSBURG, KS - MEDIACOM	6.1	31.2%	$3.0	$1.5
WHEELING, WV-STEUBENVILLE, OH - ALTICE	6.1	19.8%	$2.6	$1.2
ROCHESTER, MN-MASON CITY, IA-AUSTIN, MN - CHARTER - OTHER	6.0	25.5%	$3.6	$2.5
SPRINGFIELD, MO - CHARTER	6.0	16.3%	$5.2	$2.3
CHICAGO, IL - NOCABLE - OTHER	6.0	36.6%	$2.3	$0.9
BOSTON, MA (MANCHESTER, NH) - NOCABLE	6.0	66.0%	$1.2	($1.6)
GREENSBORO-HIGH POINT-WINSTON SALEM, NC - NOCABLE - OTHER	6.0	35.9%	$2.3	$1.0
EVANSVILLE, IN - NOCABLE	5.9	44.2%	$2.2	($1.0)
RENO, NV - ALTICE	5.9	15.5%	$2.5	$0.8
PITTSBURGH, PA - NOCABLE	5.9	42.2%	$2.3	($1.1)
COLUMBUS-TUPELO-WEST POINT-HOUSTON, MS - NOCABLE	5.9	55.3%	$1.6	($1.0)
SEATTLE-TACOMA, WA - CHARTER	5.8	31.5%	$3.6	$2.2
SAN DIEGO, CA - MEDIACOM	5.8	56.1%	$1.6	($0.6)
MARQUETTE, MI - CHARTER - OTHER	5.7	21.2%	$3.7	$2.6
FLINT-SAGINAW-BAY CITY, MI - NOCABLE - OTHER	5.7	28.7%	$2.5	$1.1
MACON, GA - NOCABLE	5.6	35.5%	$2.5	($0.9)
SPOKANE, WA - COMCAST - OTHER	5.6	37.9%	$2.2	$0.8
FLINT-SAGINAW-BAY CITY, MI - COMCAST - OTHER	5.5	13.1%	$4.0	$1.9
FT. WAYNE, IN - CHARTER	5.5	23.2%	$3.5	$2.3
OKLAHOMA CITY, OK - COX - OTHER	5.5	41.7%	$2.3	$1.2
SAN FRANCISCO-OAKLAND-SAN JOSE, CA - NOCABLE	5.4	56.2%	$1.5	($1.2)
PROVIDENCE, RI-NEW BEDFORD, MA - CHARTER	5.4	16.8%	$4.1	$1.6
MANKATO, MN - MEDIACOM - OTHER	5.3	22.6%	$2.6	$2.2
COLUMBUS-TUPELO-WEST POINT-HOUSTON, MS - MEDIACOM - OTHER	5.3	50.3%	$1.6	($0.1)
WILKES BARRE-SCRANTON-HAZLETON, PA - COMCAST - VERIZON	5.3	8.2%	$2.0	$1.9
DOTHAN, AL - COMCAST	5.3	32.6%	$2.7	$1.3
ORLANDO-DAYTONA BEACH-MELBOURNE, FL - NOCABLE	5.2	49.5%	$1.7	($1.0)
DAVENPORT, IA-ROCK ISLAND-MOLINE, IL - NOCABLE	5.2	44.4%	$1.9	($1.0)
WASHINGTON, DC (HAGERSTOWN, MD) - COX - VERIZON - OTHER	5.1	7.0%	$2.0	$2.1

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COLUMBUS, OH - ALTICE	5.1	43.9%	$1.6	($0.0)
TOLEDO, OH - COMCAST	4.9	22.7%	$3.0	$1.8
TUCSON (SIERRA VISTA), AZ - NOCABLE	4.9	52.4%	$1.5	($1.0)
GREENVILLE-NEW BERN-WASHINGTON, NC - CHARTER - OTHER	4.8	33.6%	$2.5	$1.6
CASPER-RIVERTON, WY - NOCABLE - OTHER	4.8	13.6%	$2.6	$1.8
PARKERSBURG, WV - CHARTER	4.7	26.1%	$2.9	$1.8
SAN ANGELO, TX - NOCABLE	4.7	14.2%	$2.9	($0.6)
CLARKSBURG-WESTON, WV - NOCABLE	4.7	26.0%	$2.4	($0.6)
CHICAGO, IL - MEDIACOM - OTHER	4.7	28.9%	$2.2	$1.7
WHEELING, WV-STEUBENVILLE, OH - NOCABLE	4.6	39.4%	$1.9	($0.9)
JOPLIN, MO-PITTSBURG, KS - NOCABLE	4.5	32.1%	$2.1	($0.7)
COLUMBIA-JEFFERSON CITY, MO - ALTICE - OTHER	4.5	27.3%	$1.9	$1.0
ORLANDO-DAYTONA BEACH-MELBOURNE, FL - NOCABLE - OTHER	4.5	42.4%	$1.5	$0.4
FARGO-VALLEY CITY, ND - CHARTER - OTHER	4.5	16.8%	$3.2	$2.2
EUGENE, OR - NOCABLE	4.4	33.1%	$2.0	($0.8)
BOWLING GREEN, KY - COMCAST - OTHER	4.4	2.4%	$2.6	$2.3
FLINT-SAGINAW-BAY CITY, MI - NOCABLE	4.4	41.2%	$1.7	($0.8)
ALBANY, GA - NOCABLE	4.3	31.4%	$2.1	($0.7)
ANCHORAGE, AK - NOCABLE	4.3	36.5%	$1.9	($0.7)
MARQUETTE, MI - NOCABLE	4.3	51.5%	$1.3	($0.9)
BANGOR, ME - CHARTER - OTHER	4.3	19.0%	$2.4	$1.9
EL PASO, TX (LAS CRUCES, NM) - NOCABLE	4.3	48.3%	$1.4	($0.9)
KNOXVILLE, TN - NOCABLE	4.3	49.0%	$1.4	($0.9)
WATERTOWN, NY - CHARTER - OTHER	4.3	30.1%	$2.1	$1.6
EVANSVILLE, IN - MEDIACOM	4.3	43.8%	$1.6	$0.5
SAN DIEGO, CA - NOCABLE	4.2	56.5%	$1.1	($0.9)
DETROIT, MI - NOCABLE - OTHER	4.2	17.5%	$1.9	$1.0
JACKSONVILLE, FL - NOCABLE	4.2	44.1%	$1.6	($0.8)
SAVANNAH, GA - MEDIACOM	4.2	22.5%	$2.3	$1.5
SOUTH BEND-ELKHART, IN - NOCABLE - OTHER	4.2	31.9%	$1.7	$0.8
ELMIRA (CORNING), NY - NOCABLE - VERIZON - OTHER	4.1	15.9%	$1.7	$1.1
MACON, GA - COMCAST - OTHER	4.1	35.3%	$1.9	$0.7
ODESSA-MIDLAND, TX - NOCABLE	4.1	34.5%	$1.8	($0.7)
HARTFORD & NEW HAVEN, CT - COX	4.1	12.2%	$3.3	$1.6
RALEIGH-DURHAM (FAYETTEVILLE), NC - NOCABLE	4.1	51.7%	$1.3	($0.8)
TOPEKA, KS - MEDIACOM	4.1	38.3%	$1.8	$0.9
LAFAYETTE, LA - NOCABLE	4.0	66.2%	$0.8	($1.1)

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LAS VEGAS, NV - NOCABLE	4.0	53.2%	$1.2	($0.8)
SPRINGFIELD-HOLYOKE, MA - NOCABLE	4.0	79.9%	$0.3	($1.7)
ALEXANDRIA, LA - NOCABLE	4.0	44.9%	$1.5	($0.8)
PANAMA CITY, FL - NOCABLE	4.0	37.9%	$1.7	($0.7)
SAVANNAH, GA - NOCABLE	3.9	47.3%	$1.4	($0.8)
AMARILLO, TX - COMCAST - OTHER	3.9	27.3%	$2.1	$1.3
LAKE CHARLES, LA - NOCABLE	3.9	61.0%	$0.9	($0.9)
PADUCAH, KY-CAPE GIRARDEAU, MO-HARRISBURG, IL - COMCAST - OTHER	3.8	28.7%	$1.9	$1.3
BURLINGTON, VT-PLATTSBURGH, NY - CHARTER - OTHER	3.8	14.7%	$2.6	$2.0
ROANOKE-LYNCHBURG, VA - ALTICE	3.8	29.4%	$1.4	$0.4
HARRISONBURG, VA - NOCABLE - OTHER	3.8	32.7%	$1.5	$0.7
PORTLAND-AUBURN, ME - NOCABLE	3.8	56.4%	$1.0	($0.8)
SAN DIEGO, CA - NOCABLE - OTHER	3.8	39.1%	$1.4	$0.5
WHEELING, WV-STEUBENVILLE, OH - CHARTER	3.8	32.7%	$2.0	$1.1
DETROIT, MI - NOCABLE	3.8	45.1%	$1.4	($0.7)
NASHVILLE, TN - ALTICE - OTHER	3.8	33.2%	$1.5	$0.7
GRAND JUNCTION-MONTROSE, CO - NOCABLE	3.7	15.0%	$2.3	($0.5)
HARLINGEN-WESLACO-BROWNSVILLE-MCALLEN, TX - CHARTER - OTHER	3.7	31.5%	$1.9	$1.3
BOWLING GREEN, KY - MEDIACOM	3.7	20.3%	$2.1	$0.7
ST. JOSEPH, MO - NOCABLE	3.7	48.9%	$1.2	($0.7)
SIOUX CITY, IA - MEDIACOM	3.7	22.0%	$2.2	$1.6
CASPER-RIVERTON, WY - CHARTER - OTHER	3.7	6.4%	$2.9	$2.3
GREENVILLE-NEW BERN-WASHINGTON, NC - MEDIACOM - OTHER	3.7	38.8%	$1.5	$0.9
GLENDIVE, MT - NOCABLE - OTHER	3.7	14.7%	$1.8	$1.3
MEMPHIS, TN - ALTICE - OTHER	3.7	38.1%	$1.4	$0.5
MACON, GA - MEDIACOM - OTHER	3.6	28.6%	$1.7	$1.2
GREENVILLE-SPARTANBURG, SC-ASHEVILLE, NC-ANDERSON, SC - NOCABLE	3.6	54.3%	$1.1	($0.8)
DOTHAN, AL - NOCABLE - OTHER	3.6	29.6%	$1.6	$0.7
BOSTON, MA (MANCHESTER, NH) - CHARTER - OTHER	3.6	11.3%	$2.3	$2.0
SAN ANGELO, TX - NOCABLE - OTHER	3.6	12.4%	$2.1	$1.3
GREENWOOD-GREENVILLE, MS - NOCABLE	3.6	55.0%	$1.0	($0.7)
INDIANAPOLIS, IN - CHARTER - OTHER	3.6	29.9%	$2.1	$1.4
GREENSBORO-HIGH POINT-WINSTON SALEM, NC - COMCAST	3.6	52.5%	$1.2	$0.0
LIMA, OH - NOCABLE - OTHER	3.6	17.0%	$1.8	$1.2
BOISE, ID - NOCABLE	3.5	41.1%	$1.4	($0.6)
CHARLESTON-HUNTINGTON, WV - COMCAST - OTHER	3.5	27.3%	$2.0	$1.2

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BATON ROUGE, LA - CHARTER	3.5	23.8%	$2.4	$1.2
TERRE HAUTE, IN - NOCABLE	3.4	30.8%	$1.6	($0.5)
WILKES BARRE-SCRANTON-HAZLETON, PA - NOCABLE - VERIZON	3.4	14.6%	$0.7	$0.0
WICHITA FALLS, TX & LAWTON, OK - NOCABLE	3.4	34.4%	$1.5	($0.6)
WILKES BARRE-SCRANTON-HAZLETON, PA - NOCABLE	3.3	47.9%	$1.1	($0.6)
NORFOLK-PORTSMOUTH-NEWPORT NEWS, VA - NOCABLE	3.3	57.3%	$0.9	($0.7)
WILKES BARRE-SCRANTON-HAZLETON, PA - NOCABLE - VERIZON - OTHER	3.3	9.4%	$1.2	$0.9
LAREDO, TX - CHARTER - OTHER	3.2	25.9%	$2.0	$1.2
ROCHESTER, MN-MASON CITY, IA-AUSTIN, MN - MEDIACOM	3.2	29.9%	$1.6	$1.0
CHARLESTON, SC - NOCABLE	3.2	53.5%	$0.9	($0.6)
TRI-CITIES, TN-VA - NOCABLE	3.2	48.5%	$1.1	($0.6)
GRAND RAPIDS-KALAMAZOO-BATTLE CREEK, MI - NOCABLE	3.1	43.6%	$1.2	($0.6)
PALM SPRINGS, CA - NOCABLE - OTHER	3.1	25.6%	$1.6	$0.8
MOBILE, AL-PENSACOLA (FT. WALTON BEACH), FL - NOCABLE - OTHER	3.1	41.3%	$1.2	($0.2)
AMARILLO, TX - ALTICE - OTHER	3.1	17.2%	$1.5	$1.0
COLUMBUS, OH - NOCABLE	3.1	54.4%	$0.9	($0.6)
DOTHAN, AL - NOCABLE	3.1	32.2%	$1.4	($0.5)
YAKIMA-PASCO-RICHLAND-KENNEWICK, WA - NOCABLE - OTHER	3.0	22.3%	$1.4	$0.9
RALEIGH-DURHAM (FAYETTEVILLE), NC - MEDIACOM	3.0	48.0%	$1.1	$0.5
TAMPA-ST. PETERSBURG (SARASOTA), FL - NOCABLE - OTHER	2.9	6.1%	$1.5	$0.7
DAVENPORT, IA-ROCK ISLAND-MOLINE, IL - COMCAST - OTHER	2.9	26.9%	$1.6	$0.8
COLUMBIA-JEFFERSON CITY, MO - MEDIACOM	2.9	39.1%	$1.2	$0.6
EVANSVILLE, IN - COMCAST - OTHER	2.9	34.6%	$1.3	$0.8
RAPID CITY, SD - NOCABLE	2.9	33.1%	$1.3	($0.5)
LAS VEGAS, NV - ALTICE - OTHER	2.9	34.3%	$1.0	$0.4
EUREKA, CA - NOCABLE	2.8	52.3%	$0.9	($0.6)
FT. WAYNE, IN - CHARTER - OTHER	2.8	24.2%	$1.6	$1.1
JOHNSTOWN-ALTOONA-STATE COLLEGE, PA - NOCABLE	2.8	44.6%	$1.0	($0.5)
SIOUX FALLS(MITCHELL), SD - NOCABLE	2.7	27.7%	$1.4	($0.4)
TERRE HAUTE, IN - COMCAST	2.7	23.2%	$1.6	$1.0
NORFOLK-PORTSMOUTH-NEWPORT NEWS, VA - NOCABLE - OTHER	2.7	40.6%	$0.9	$0.3
MACON, GA - COMCAST	2.7	29.5%	$1.4	$0.6
ALEXANDRIA, LA - NOCABLE - OTHER	2.7	33.5%	$1.1	$0.5
JOPLIN, MO-PITTSBURG, KS - COX - OTHER	2.7	17.0%	$1.5	$1.2
NASHVILLE, TN - ALTICE	2.7	46.4%	$0.9	($0.2)

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SHREVEPORT, LA - ALTICE - OTHER	2.7	29.8%	$1.1	$0.6
NORFOLK-PORTSMOUTH-NEWPORT NEWS, VA - CHARTER - OTHER	2.7	44.7%	$1.0	$0.4
ROANOKE-LYNCHBURG, VA - COX - OTHER	2.7	31.7%	$1.1	$0.7
AUGUSTA, GA-AIKEN, SC - NOCABLE	2.7	45.5%	$1.0	($0.5)
SAN ANTONIO, TX - ALTICE	2.7	32.1%	$1.1	$0.2
TOPEKA, KS - NOCABLE	2.7	45.8%	$0.9	($0.4)
MONTGOMERY-SELMA, AL - MEDIACOM	2.6	21.3%	$1.5	$0.8
CHARLOTTESVILLE, VA - NOCABLE	2.6	42.9%	$1.0	($0.5)
LANSING, MI - CHARTER	2.6	27.3%	$1.5	$1.0
COLUMBUS-TUPELO-WEST POINT-HOUSTON, MS - CHARTER	2.6	46.0%	$1.0	$0.3
JUNEAU, AK - NOCABLE	2.6	78.4%	$0.2	($1.0)
GREENSBORO-HIGH POINT-WINSTON SALEM, NC - COMCAST - OTHER	2.6	47.9%	$0.8	$0.0
BLUEFIELD-BECKLEY-OAK HILL, WV - CHARTER - OTHER	2.6	27.9%	$1.4	$1.0
PANAMA CITY, FL - CHARTER - OTHER	2.6	23.0%	$1.4	$0.9
HOUSTON, TX - CHARTER - OTHER	2.6	30.2%	$1.4	$0.9
LA CROSSE-EAU CLAIRE, WI - NOCABLE	2.6	44.0%	$1.0	($0.5)
JONESBORO, AR - NOCABLE	2.5	39.6%	$1.0	($0.4)
ROCKFORD, IL - NOCABLE	2.5	44.3%	$0.9	($0.5)
BATON ROUGE, LA - NOCABLE	2.5	63.8%	$0.5	($0.6)
JOPLIN, MO-PITTSBURG, KS - ALTICE - OTHER	2.5	26.3%	$1.1	$0.7
CHICAGO, IL - NOCABLE	2.4	47.6%	$0.8	($0.5)
SANTA BARBARA-SANTA MARIA-SAN LUIS OBISPO, CA - NOCABLE	2.4	52.6%	$0.7	($0.5)
BAKERSFIELD, CA - NOCABLE	2.4	55.9%	$0.7	($0.5)
ALBANY-SCHENECTADY-TROY, NY - CHARTER - VERIZON - OTHER	2.4	12.4%	$1.3	$1.0
CASPER-RIVERTON, WY - NOCABLE	2.4	21.2%	$1.3	($0.4)
CHICO-REDDING, CA - NOCABLE - OTHER	2.4	24.4%	$1.1	$0.6
YUMA, AZ-EL CENTRO, CA - NOCABLE - OTHER	2.4	35.7%	$0.9	$0.4
SALISBURY, MD - CHARTER	2.3	41.4%	$1.1	$0.6
PEORIA-BLOOMINGTON, IL - NOCABLE	2.3	45.4%	$0.8	($0.5)
MERIDIAN, MS - MEDIACOM	2.3	34.3%	$1.1	$0.7
SPRINGFIELD, MO - COX - OTHER	2.3	21.8%	$1.3	$0.8
ROCHESTER, NY - CHARTER - OTHER	2.3	20.6%	$1.5	$1.1
QUINCY, IL-HANNIBAL, MO-KEOKUK, IA - MEDIACOM - OTHER	2.3	15.8%	$1.4	$1.1
BUFFALO, NY - NOCABLE	2.3	52.8%	$0.7	($0.5)
LAFAYETTE, LA - CHARTER - OTHER	2.2	61.6%	$0.5	($0.2)
MONTEREY-SALINAS, CA - NOCABLE	2.2	50.6%	$0.7	($0.5)

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BIRMINGHAM (ANNISTON AND TUSCALOOSA), AL - MEDIACOM	2.2	52.3%	$0.7	$0.2
RALEIGH-DURHAM (FAYETTEVILLE), NC - ALTICE	2.2	32.9%	$0.8	$0.2
COLUMBUS, GA (OPELIKA, AL) - NOCABLE	2.1	50.0%	$0.7	($0.4)
CHARLOTTE, NC - NOCABLE	2.1	44.9%	$0.8	($0.4)
SYRACUSE, NY - NOCABLE - OTHER	2.1	38.6%	$0.8	$0.3
CLARKSBURG-WESTON, WV - CHARTER - OTHER	2.1	19.7%	$1.1	$0.6
BALTIMORE, MD - NOCABLE - VERIZON - OTHER	2.1	25.4%	$0.5	$0.1
TALLAHASSEE, FL-THOMASVILLE, GA - NOCABLE - OTHER	2.1	37.9%	$0.8	($0.0)
MINOT-BISMARCK-DICKINSON (WILLISTON), ND - NOCABLE	2.0	32.5%	$0.9	($0.3)
NEW ORLEANS, LA - MEDIACOM - OTHER	2.0	56.2%	$0.5	($0.1)
BEND, OR - NOCABLE	2.0	61.9%	$0.5	($0.5)
CLEVELAND-AKRON (CANTON), OH - ALTICE	2.0	30.4%	$0.7	$0.2
LA CROSSE-EAU CLAIRE, WI - MEDIACOM	2.0	23.2%	$1.1	$0.8
EUREKA, CA - NOCABLE - OTHER	1.9	48.6%	$0.6	$0.1
EUGENE, OR - CHARTER - OTHER	1.9	21.1%	$1.2	$0.9
BIRMINGHAM (ANNISTON AND TUSCALOOSA), AL - COMCAST - OTHER	1.9	36.4%	$0.8	$0.4
SOUTH BEND-ELKHART, IN - MEDIACOM - OTHER	1.9	34.3%	$0.8	$0.5
LEXINGTON, KY - NOCABLE	1.8	31.7%	$0.9	($0.3)
OTTUMWA, IA-KIRKSVILLE, MO - MEDIACOM - OTHER	1.8	10.6%	$1.1	$1.0
RICHMOND-PETERSBURG, VA - CHARTER	1.8	48.0%	$0.7	$0.3
GREENWOOD-GREENVILLE, MS - ALTICE - OTHER	1.8	38.7%	$0.6	$0.3
SPOKANE, WA - CHARTER - OTHER	1.8	37.4%	$0.8	$0.3
MADISON, WI - NOCABLE	1.8	36.1%	$0.8	($0.3)
JACKSON, TN - NOCABLE	1.8	49.6%	$0.6	($0.4)
WICHITA-HUTCHINSON, KS PLUS - MEDIACOM - OTHER	1.8	26.3%	$0.9	$0.6
MANKATO, MN - MEDIACOM	1.8	33.0%	$0.9	$0.6
EL PASO, TX (LAS CRUCES, NM) - CHARTER - OTHER	1.8	41.4%	$0.6	$0.2
MERIDIAN, MS - MEDIACOM - OTHER	1.8	37.2%	$0.7	$0.2
GREENVILLE-NEW BERN-WASHINGTON, NC - NOCABLE	1.8	54.4%	$0.5	($0.4)
LAFAYETTE, IN - NOCABLE - OTHER	1.8	44.7%	$0.6	$0.0
OMAHA, NE - COX	1.8	27.1%	$1.1	$0.7
ST. JOSEPH, MO - NOCABLE - OTHER	1.7	32.1%	$0.7	$0.3
RICHMOND-PETERSBURG, VA - COMCAST - OTHER	1.7	45.8%	$0.6	$0.2
AMARILLO, TX - COMCAST	1.7	34.5%	$0.8	$0.3
CORPUS CHRISTI, TX - NOCABLE	1.7	57.3%	$0.4	($0.4)
OTTUMWA, IA-KIRKSVILLE, MO - NOCABLE	1.6	26.7%	$0.8	($0.3)
BOWLING GREEN, KY - CHARTER - OTHER	1.6	15.9%	$0.9	$0.7
BAKERSFIELD, CA - NOCABLE - OTHER	1.6	48.9%	$0.5	($0.0)

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FT. WAYNE, IN - NOCABLE - OTHER	1.6	28.0%	$0.7	$0.3
JACKSON, TN - NOCABLE - OTHER	1.6	29.6%	$0.6	$0.3
GREEN BAY-APPLETON, WI - MEDIACOM - OTHER	1.6	29.2%	$0.7	$0.3
PALM SPRINGS, CA - NOCABLE	1.5	52.6%	$0.5	($0.3)
ALBANY-SCHENECTADY-TROY, NY - COMCAST - OTHER	1.5	18.5%	$1.0	$0.6
BUFFALO, NY - COMCAST	1.5	39.5%	$0.7	$0.3
SALISBURY, MD - NOCABLE	1.5	63.8%	$0.3	($0.4)
TWIN FALLS, ID - NOCABLE	1.5	31.3%	$0.7	($0.2)
NORTH PLATTE, NE - NOCABLE - OTHER	1.5	11.9%	$0.9	$0.4
LOUISVILLE, KY - MEDIACOM	1.4	30.1%	$0.7	$0.1
TOLEDO, OH - MEDIACOM	1.4	32.9%	$0.7	$0.4
MONROE, LA-EL DORADO, AR - COMCAST - OTHER	1.3	34.8%	$0.6	$0.1
CLEVELAND-AKRON (CANTON), OH - NOCABLE	1.3	45.2%	$0.5	($0.2)
SPRINGFIELD, MO - MEDIACOM - OTHER	1.3	32.6%	$0.6	$0.2
ALPENA, MI - NOCABLE	1.3	26.2%	$0.7	($0.2)
TOPEKA, KS - MEDIACOM - OTHER	1.3	29.2%	$0.6	$0.4
JACKSON, MS - COMCAST - OTHER	1.3	60.1%	$0.3	($0.2)
PALM SPRINGS, CA - MEDIACOM - OTHER	1.3	32.6%	$0.5	$0.4
SIOUX FALLS(MITCHELL), SD - MEDIACOM	1.3	20.1%	$0.8	$0.5
NEW YORK, NY - NOCABLE	1.2	68.6%	$0.2	($0.4)
PHILADELPHIA, PA - NOCABLE	1.2	69.8%	$0.2	($0.4)
TAMPA-ST. PETERSBURG (SARASOTA), FL - NOCABLE	1.2	57.2%	$0.3	($0.3)
PHILADELPHIA, PA - NOCABLE - VERIZON	1.2	10.6%	$0.2	($0.1)
FAIRBANKS, AK - NOCABLE	1.2	47.4%	$0.4	($0.2)
BOWLING GREEN, KY - NOCABLE - OTHER	1.2	6.9%	$0.7	$0.5
QUINCY, IL-HANNIBAL, MO-KEOKUK, IA - CHARTER - OTHER	1.2	13.0%	$0.8	$0.7
FRESNO-VISALIA, CA - ALTICE	1.2	25.9%	$0.5	$0.2
RICHMOND-PETERSBURG, VA - COX - OTHER	1.2	38.3%	$0.4	$0.2
ROANOKE-LYNCHBURG, VA - ALTICE - OTHER	1.2	27.3%	$0.5	$0.3
LAFAYETTE, IN - NOCABLE	1.1	56.2%	$0.3	($0.2)
WICHITA FALLS, TX & LAWTON, OK - ALTICE - OTHER	1.1	26.4%	$0.5	$0.2
LOS ANGELES, CA - MEDIACOM	1.1	53.7%	$0.3	$0.0
MYRTLE BEACH-FLORENCE, SC - NOCABLE	1.1	51.5%	$0.3	($0.2)
HARLINGEN-WESLACO-BROWNSVILLE-MCALLEN, TX - NOCABLE	1.1	53.6%	$0.3	($0.2)
ROANOKE-LYNCHBURG, VA - CHARTER	1.1	45.3%	$0.4	$0.2
TALLAHASSEE, FL-THOMASVILLE, GA - CHARTER - OTHER	1.1	32.4%	$0.5	$0.3
YUMA, AZ-EL CENTRO, CA - NOCABLE	1.1	50.7%	$0.3	($0.2)
EUGENE, OR - NOCABLE - OTHER	1.0	24.7%	$0.5	$0.2

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Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
PRESQUE ISLE, ME - NOCABLE	1.0	25.6%	$0.5	($0.2)
HARRISONBURG, VA - NOCABLE	1.0	53.2%	$0.3	($0.2)
GREEN BAY-APPLETON, WI - MEDIACOM	1.0	48.5%	$0.3	($0.0)
ROCHESTER, MN-MASON CITY, IA-AUSTIN, MN - NOCABLE	1.0	41.1%	$0.4	($0.2)
ATLANTA, GA - COX	1.0	29.4%	$0.6	$0.2
FARGO-VALLEY CITY, ND - NOCABLE	0.9	45.2%	$0.3	($0.2)
SPRINGFIELD-HOLYOKE, MA - COX	0.9	7.9%	$0.8	$0.2
SOUTH BEND-ELKHART, IN - NOCABLE	0.9	44.2%	$0.3	($0.2)
GAINESVILLE, FL - CHARTER	0.9	30.2%	$0.5	$0.2
PARKERSBURG, WV - NOCABLE	0.9	45.3%	$0.3	($0.2)
DAYTON, OH - COMCAST - OTHER	0.9	15.4%	$0.5	$0.4
SIOUX CITY, IA - NOCABLE	0.9	30.5%	$0.4	($0.1)
WATERTOWN, NY - NOCABLE	0.9	48.9%	$0.3	($0.2)
WATERTOWN, NY - NOCABLE - OTHER	0.9	26.1%	$0.4	$0.2
MILWAUKEE, WI - NOCABLE - OTHER	0.8	32.8%	$0.3	$0.2
PROVIDENCE, RI-NEW BEDFORD, MA - NOCABLE	0.8	80.3%	$0.1	($0.3)
LANSING, MI - NOCABLE	0.8	40.3%	$0.3	($0.1)
TUCSON (SIERRA VISTA), AZ - COX - OTHER	0.8	36.0%	$0.3	$0.1
YOUNGSTOWN, OH - NOCABLE	0.8	53.6%	$0.2	($0.2)
MIAMI-FT. LAUDERDALE, FL - NOCABLE	0.8	36.0%	$0.4	($0.1)
VICTORIA, TX - NOCABLE	0.8	33.6%	$0.4	($0.1)
COLUMBUS, GA (OPELIKA, AL) - COMCAST - OTHER	0.8	42.2%	$0.3	$0.1
DULUTH, MN-SUPERIOR, WI - CHARTER - OTHER	0.8	53.6%	$0.2	$0.1
WICHITA-HUTCHINSON, KS PLUS - ALTICE	0.8	41.7%	$0.3	($0.0)
MILWAUKEE, WI - MEDIACOM - OTHER	0.7	28.6%	$0.4	$0.3
ERIE, PA - NOCABLE	0.7	33.9%	$0.3	($0.1)
HATTIESBURG-LAUREL, MS - MEDIACOM - OTHER	0.7	38.0%	$0.3	$0.1
MONROE, LA-EL DORADO, AR - ALTICE - OTHER	0.7	29.8%	$0.3	$0.1
KANSAS CITY, MO - COX - OTHER	0.7	31.1%	$0.3	$0.2
CHEYENNE, WY-SCOTTSBLUFF, NE - CHARTER - OTHER	0.7	9.4%	$0.5	$0.4
NORFOLK-PORTSMOUTH-NEWPORT NEWS, VA - COX - OTHER	0.7	44.7%	$0.2	$0.1
SPRINGFIELD-HOLYOKE, MA - NOCABLE - OTHER	0.7	21.7%	$0.3	$0.1
RALEIGH-DURHAM (FAYETTEVILLE), NC - MEDIACOM - OTHER	0.7	53.1%	$0.2	$0.1
HELENA, MT - NOCABLE - OTHER	0.6	17.4%	$0.3	$0.2
CHEYENNE, WY-SCOTTSBLUFF, NE - NOCABLE	0.6	14.7%	$0.4	($0.1)
WILKES BARRE-SCRANTON-HAZLETON, PA - CHARTER	0.6	25.8%	$0.4	$0.2
WICHITA FALLS, TX & LAWTON, OK - CHARTER - OTHER	0.6	28.3%	$0.3	$0.2
SYRACUSE, NY - NOCABLE	0.6	51.6%	$0.2	($0.1)

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
WASHINGTON, DC (HAGERSTOWN, MD) - NOCABLE - VERIZON	0.6	28.2%	$0.1	($0.1)
FT. MYERS-NAPLES, FL - NOCABLE	0.6	58.1%	$0.1	($0.1)
HARLINGEN-WESLACO-BROWNSVILLE-MCALLEN, TX - NOCABLE - OTHER	0.6	41.8%	$0.2	$0.1
HELENA, MT - NOCABLE	0.6	31.6%	$0.3	($0.1)
YOUNGSTOWN, OH - ALTICE	0.6	25.9%	$0.2	$0.0
CHARLESTON, SC - CHARTER	0.5	45.0%	$0.2	$0.1
NORTH PLATTE, NE - NOCABLE	0.5	12.1%	$0.3	($0.0)
PHOENIX (PRESCOTT), AZ - COMCAST	0.5	33.1%	$0.3	$0.1
TOLEDO, OH - NOCABLE	0.5	46.2%	$0.2	($0.1)
GREENSBORO-HIGH POINT-WINSTON SALEM, NC - NOCABLE	0.5	56.9%	$0.1	($0.1)
BILOXI-GULFPORT, MS - NOCABLE	0.5	57.1%	$0.1	($0.1)
ABILENE-SWEETWATER, TX - ALTICE - OTHER	0.5	40.2%	$0.2	($0.0)
BINGHAMTON, NY - NOCABLE	0.5	58.5%	$0.1	($0.1)
MONTEREY-SALINAS, CA - ALTICE	0.5	35.4%	$0.2	$0.0
CLARKSBURG-WESTON, WV - COMCAST - OTHER	0.5	18.0%	$0.3	$0.1
BUTTE-BOZEMAN, MT - NOCABLE - OTHER	0.4	30.2%	$0.2	$0.1
PANAMA CITY, FL - NOCABLE - OTHER	0.4	27.6%	$0.2	$0.0
WILMINGTON, NC - NOCABLE	0.4	60.7%	$0.1	($0.1)
LAREDO, TX - NOCABLE	0.4	55.5%	$0.1	($0.1)
COLUMBIA-JEFFERSON CITY, MO - ALTICE	0.4	46.8%	$0.1	($0.0)
ELMIRA (CORNING), NY - NOCABLE	0.4	43.5%	$0.1	($0.1)
PARKERSBURG, WV - NOCABLE - OTHER	0.3	43.6%	$0.1	($0.0)
MISSOULA, MT - NOCABLE - OTHER	0.3	25.5%	$0.2	$0.1
BOWLING GREEN, KY - NOCABLE	0.3	23.0%	$0.2	($0.1)
WASHINGTON, DC (HAGERSTOWN, MD) - COX	0.3	6.1%	$0.2	$0.1
LOS ANGELES, CA - ALTICE - OTHER	0.3	32.1%	$0.1	$0.0
PITTSBURGH, PA - CHARTER	0.3	24.2%	$0.2	$0.1
HARTFORD & NEW HAVEN, CT - NOCABLE	0.2	53.7%	$0.1	($0.0)
UTICA, NY - NOCABLE	0.2	56.0%	$0.1	($0.1)
PITTSBURGH, PA - NOCABLE - VERIZON	0.2	10.3%	$0.1	$0.0
AUSTIN, TX - ALTICE - OTHER	0.2	30.5%	$0.1	$0.0
NORFOLK-PORTSMOUTH-NEWPORT NEWS, VA - MEDIACOM - VERIZON	0.2	11.3%	$0.1	$0.1
MANKATO, MN - NOCABLE	0.2	55.6%	$0.0	($0.0)
UTICA, NY - CHARTER - OTHER	0.1	21.0%	$0.1	$0.1
PHOENIX (PRESCOTT), AZ - MEDIACOM	0.1	31.4%	$0.1	$0.0
COLUMBUS, OH - NOCABLE - OTHER	0.1	2.1%	$0.1	$0.0
BALTIMORE, MD - NOCABLE	0.1	63.1%	$0.0	($0.0)

Zone	Turner Subscribers (thousands)	DTV Share	Change in Rival MVPD costs per month (thousands)	Net Consumer effect per month (thousands)
ROCHESTER, NY - NOCABLE	0.1	41.8%	$0.0	($0.0)
LIMA, OH - NOCABLE	0.1	46.6%	$0.0	($0.0)
LAREDO, TX - NOCABLE - OTHER	0.1	52.4%	$0.0	($0.0)
MILWAUKEE, WI - NOCABLE	0.1	54.1%	$0.0	($0.0)
SPRINGFIELD, MO - ALTICE - OTHER	0.1	19.7%	$0.0	$0.0
DAYTON, OH - NOCABLE	0.1	68.7%	$0.0	($0.0)
CHATTANOOGA, TN - NOCABLE	0.1	34.7%	$0.0	($0.0)
YOUNGSTOWN, OH - ALTICE - OTHER	0.1	21.1%	$0.0	$0.0
FT. MYERS-NAPLES, FL - NOCABLE - OTHER	0.1	19.0%	$0.0	$0.0
WEST PALM BEACH-FT. PIERCE, FL - NOCABLE	0.1	53.2%	$0.0	($0.0)
NEW YORK, NY - NOCABLE - VERIZON	0.0	21.9%	$0.0	($0.0)
HONOLULU, HI - NOCABLE	0.0	34.0%	$0.0	($0.0)
ATLANTA, GA - COX - OTHER	0.0	37.8%	$0.0	$0.0
LAFAYETTE, LA - ALTICE - OTHER	0.0	34.3%	$0.0	$0.0
SANTA BARBARA-SANTA MARIA-SAN LUIS OBISPO, CA - NOCABLE - OTHER	0.0	19.3%	$0.0	$0.0
BOSTON, MA (MANCHESTER, NH) - COX	0.0	15.4%	$0.0	$0.0
TRI-CITIES, TN-VA - ALTICE - OTHER	0.0	21.6%	$0.0	$0.0
SAN FRANCISCO-OAKLAND-SAN JOSE, CA - ALTICE	0.0	20.7%	$0.0	$0.0
INDIANAPOLIS, IN - MEDIACOM - OTHER	0.0	19.4%	$0.0	$0.0
BALTIMORE, MD - NOCABLE - VERIZON	0.0	38.7%	$0.0	($0.0)
ZANESVILLE, OH - NOCABLE	0.0	65.0%	$0.0	($0.0)
MONTEREY-SALINAS, CA - NOCABLE - OTHER	0.0	42.8%	$0.0	($0.0)
SAN ANGELO, TX - ALTICE - OTHER	0.0	46.6%	$0.0	$0.0
HATTIESBURG-LAUREL, MS - COMCAST - OTHER	0.0	63.1%	$0.0	($0.0)
WEST PALM BEACH-FT. PIERCE, FL - NOCABLE - OTHER	0.0	17.5%	$0.0	$0.0
BOSTON, MA (MANCHESTER, NH) - NOCABLE - VERIZON - OTHER	0.0	20.0%	$0.0	$0.0
CHARLOTTESVILLE, VA - COMCAST - OTHER	0.0	47.5%	$0.0	$0.0
HONOLULU, HI - COX	0.0	23.8%	$0.0	$0.0
CLEVELAND-AKRON (CANTON), OH - ALTICE - OTHER	0.0	24.6%	$0.0	$0.0
SACRAMENTO-STOCKTON-MODESTO, CA - COX	0.0	43.2%	$0.0	$0.0
ZANESVILLE, OH - COMCAST	0.0	38.7%	$0.0	$0.0
MEMPHIS, TN - COX	0.0	48.5%	$0.0	$0.0
HARRISONBURG, VA - ALTICE – OTHER	0.0	21.0%	$0.0	$0.0

Appendix M. Post-Merger Upward Offer Pressure Under Arbitration

This appendix provides a model of final offer arbitration (FOA), in which the arbitrator is constrained to select one of the two offers submitted by the two arbitrating parties. The model explains why the merger would predictably alter the offer submitted by Turner in such arbitration. So long as Turner would submit a different offer after its merger with AT&T than before the merger, and there is some chance that the arbitrator would choose the Turner offer, the outcome of the arbitration (in a probabilistic sense) would be affected by the merger. This appendix also provides conditions under which the merger will cause Turner to increase the offer that it submits to the arbitrator, given the offer that it expects the MVPD to submit.

When deciding what offer to submit, Turner faces a basic tradeoff: a lower offer is more likely to be selected by the arbitrators, but a higher offer will be more profitable if it is accepted. Merging with DTV would alter this tradeoff. In FOA with an MVPD that competes against DTV, the merger with AT&T would cause Turner to increase its submitted offer. The reason is that AT&T benefits when a rival MVPD has higher costs, for reasons discussed extensively in this report.

In modeling FOA, I assume that the arbitrator's decision is uncertain to both parties when they submit their offers. Define $p(o_T, o_i)$ as the probability that Turner assigns to the arbitrator selecting Turner's offer o_T when MVPD i makes offer o_i. Let $\pi_T(o)$ denote Turner's profit when the arbitrator accepts offer o. With these definitions, if MVPD i makes offer o_i, Turner's expected payoff from making offer o_T is given by

$$p(o_T, o_i)\pi_T(o_T) + [1 - p(o_T, o_i)]\pi_T(o_i).$$

Assuming that $p(o_T, o_i)$ and $\pi_T(o)$ are differentiable, Turner's pre-merger profit maximizing offer in FOA, which we denote by o_T^*, will satisfy the following first-order condition:

$$\frac{\partial p(o_T^*, o_i)}{\partial o_T}[\pi_T(o_T^*) - \pi_T(o_i)] + p(o_T^*, o_i)\pi_T'(o_T^*) = 0. \tag{1}$$

We make the mild assumptions that $p(o_T^*, o_i) > 0$, $\pi_T'(o_T^*) > 0$, and $\pi_T(o_T^*) > \pi_T(o_i)$. Therefore, we must have $\partial p(o_T^*, o_i)/\partial o_T < 0$.

After the merger, when submitting its offer, Turner will also care about the payoff to DTV from the offer that is chosen by the arbitrator. Let $\pi_{DTV}(o)$ denote DTV's payoff when the arbitrator accepts offer o. Post-merger, Turner's combined expected payoff from making offer o_T is

$$p(o_T, o_i)[\pi_T(o_T) + \pi_{DTV}(o_T)] + [1 - p(o_T, o_i)][\pi_T(o_T) + \pi_{DTV}(o_T)].$$

Now the first-order condition associated with Turner's optimal offer post-merger evaluated at its pre-merger offer o_T^* is given by

$$\frac{\partial p(o_T^*, o_i)}{\partial o_T}[\pi_T(o_T^*) + \pi_{DTV}(o_T^*) - \pi_T(o_i) - \pi_{DTV}(o_i)] + p(o_T^*, o_i)[\pi_T'(o_T^*) + \pi_{DTV}'(o_T^*)]$$

$$= \frac{\partial p(o_T^*, o_i)}{\partial o_T} [\pi_{DTV}(o_T^*) - \pi_{DTV}(o_i)] + p(o_T^*, o_i)\pi_{DTV}{}'(o_T^*), \tag{2}$$

where the equality follows from the pre-merger first-order condition, equation (1). The pre-merger first-order condition also implies that

$$-\frac{\partial p(o_T^*, o_i)}{\partial o_T} / p(o_T^*, o_i) = \pi_T{}'(o_T^*) / [\pi_T(o_T^*) - \pi_T(o_i)].$$

So long as $\pi_T{}'(o_T^*)/[\pi_T(o_T^*) - \pi_T(o_i)] < \pi_{DTV}{}'(o_T^*)/[\pi_{DTV}(o_T^*) - \pi_{DTV}(o_i)]$, which will be true if π_T is concave and π_{DTV} is convex, the expression in (2) is positive, implying that post-merger Turner would have an incentive to make a higher offer in FOA than Turner did pre-merger.