NOTE: USING EMPIRICAL ANALYSIS TO ASSESS THE ACCURACY OF EXPERT TESTIMONY PREDICTIONS FROM THE AT&T-TIME WARNER VERTICAL MERGER

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INTRODUCTION

The primary goal of antitrust law is to protect competition, and the understanding of how to do so successfully has changed drastically over time since the initial passing of the Sherman Act and Clayton Act. As economics and industrial organization expand their understandings of how to measure efficiencies and costs, courts and federal agencies must expand with them. The Federal Trade Commission and U.S. Department of Justice routinely regulate mergers, both horizontal and vertical, under the Clayton Act. Periodically, it is necessary for the agencies to reevaluate their approach to this regulation.

Most recently, the agencies published their Vertical Merger Guidelines in 2020.[1] However, with new leadership at the FTC and Justice Department, the FTC withdrew support for these guidelines in 2021.[2] The Vertical Merger Guidelines are now being rewritten after only a short two years.[3] The politicization of antitrust has enhanced the inconsistent analysis of vertical mergers, where an increasing desire to regulate them within the agencies has been met with hesitation from the courts.[4]

The AT&T-Time Warner merger was the first major vertical merger challenge brought by either agency since 1979.[5] This case represented a landmark shift in agency regulation by turning the nation's focus back on vertical

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1 Press Release, Fed. Trade Comm'n, FTC and DOJ Issue Antitrust Guidelines for Evaluating Vertical Mergers (June 30, 2020), https://www.ftc.gov/news-events/news/press-releases/2020/06/ftc-doj-issue-antitrust-guidelines-evaluating-vertical-mergers.

2 Press Release, Fed. Trade Comm'n, Federal Trade Commission Withdraws Vertical Merger Guidelines and Commentary (Sept. 15, 2021), https://www.ftc.gov/news-events/news/press-releases/2021/09/federal-trade-commission-withdraws-vertical-merger-guidelines-commentary.

3 Press Release, Fed. Trade Comm'n, Federal Trade Commission and Justice Department Seek to Strengthen Enforcement Against Illegal Mergers (Jan. 18, 2022), https://www.ftc.gov/news-events/news/press-releases/2022/01/federal-trade-commission-justice-department-seek-strengthen-enforcement-against-illegal-mergers.

4 *See* Larry Bumgardner, *AT&T and Time Warner's Vertical Merger: The Court Battle and Political Undercurrent*, 25 J.L. BUS. & ETH. 31, 34 (2019); *see also* Allison Neff, *A Reassessment of Vertical Mergers within the Context of Antitrust Laws: The Time Warner and AT&T Merger*, 44 DEL. J. CORP. L. 121, 125 (2020).

5 Babette Boliek, *Antitrust and High Tech: A Tale of Two Mergers*, 71 EMORY L.J. 933, 940 (2022).

mergers after four decades.[6] The Justice Department worried that this merger would allow the new merged firm to raise its rivals' costs while also inhibiting future innovation.[7] However, the Justice Department lost at trial and again lost on appeal, as the courts found the agency expert had not adequately accounted for either the dynamic nature of the involved industries or the lack of actual evidence of similar behavior in practice.[8]

As the Vertical Merger Guidelines are currently being rewritten and there is minimal recent court precedent regarding vertical mergers, courts and the agencies do not have a clear direction regarding vertical merger regulation. Being four years out from the AT&T-Time Warner merger, there is now relevant data to assess the accuracy of the Justice Department's theories and whether both the United States District Court for the District of Columbia and the United States Court of Appeals for the District of Columbia Circuit were correct in assessing that the procompetitive benefits of the merger outweighed the anticompetitive effects. Understanding how the theories played out empirically can help the agencies in their expert analyses of future vertical mergers. Looking at the case and expert testimony, this paper aims to identify whether the merged firm of AT&T-Time Warner was successfully able to leverage Time Warner's packages to better DirecTV in the television provider market.

First, this paper explains the background of vertical merger analysis, the AT&T-Time Warner case, and the economic theories underlying the agency's decision-making in that case. The background section begins with a history of vertical merger regulation in the United States and how it has changed over time. It starts with the original intent behind antitrust laws and then discusses how and why regulation has expanded from the initial purpose to broader regulation today. There is a brief timeline and comparison of the different merger guidelines that the DOJ and FTC have passed over time.

Then, the paper deconstructs the AT&T-Time Warner case. Primarily, the paper focuses on the decision's seemingly political nature and why this decision by the Justice Department marks a shift in antitrust policy. This section also discusses the timeline of the case and the rationale behind the court opinions in refusing to block the merger. The background section then specifically dissects the theories and empirics found in the economic expert testimony from the Justice Department. It is followed by a brief summary of AT&T-Time Warner's decision to re-divide and specialize, although this will not impact the empirical research.

The next section of the paper will be the empirical analysis. The primary goal is to determine whether the Justice Department's expert was correct in

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[6] Neff, *supra* note 4, at 126.

[7] *See* Complaint, ¶¶ 9, 31, United States v. AT&T, Inc., 310 F. Supp. 3d 161 (D.D.C. 2018) (No. 17 Civ. 2511).

[8] United States v. AT&T, Inc., 310 F. Supp. 3d 161, 194, 217–18 (D.D.C. 2018); United States v. AT&T, Inc., 916 F.3d 1029, 1032–34 (D.C. Cir. 2019).

anticipating that the AT&T-Time Warner merger would negatively impact DirecTV's competitors through raising rivals' costs, allowing DirecTV to unfairly gain subscribers and market share over its competitors. This section explains that the models will use the merger as the independent variable and assess its impact on monthly subscriber count, the dependent variable. The models also account for a variety of economic trend datapoints and events relevant to the cases. The section will explain the set of datapoints, their significance, their relevance, and their source.

Then, this section will present the statistical analysis and the underlying model. There are three regressions to compare, each similarly finding that the merger actually had a statistically significant and negative effect on DirecTV's monthly subscriber count; however, because subscriber count is the only available dependent variable, as opposed to price, the models can only demonstrate a reduced form equilibrium association rather than a demand model with causal interpretation. The paper then presents a sanity-check, comparing the regression analyses to how DirecTV's market share actually changed over time in the television provider market. The market share analysis and graph demonstrate that DirecTV not only lost monthly subscribers but also that this loss came with DirecTV's rivals being able to secure a larger market share.

Following the regression will be an explanation of how to both interpret and apply these results to future vertical merger analysis, as well as how to compare it to the original economic expert testimony. The results of the anecdotal empirical study of the AT&T-Time Warner merger show that the Justice Department may have overlooked the relevance of industry constraints from all layers of the newly merged vertical firm. Another key takeaway is that the more dynamic and innovative an industry is, the less likely anticompetitive conduct will be successful. The intention is that, while only anecdotal, the results of this merger can be used as actual evidence in future vertical merger cases when determining whether the Justice Department or FTC should challenge.

Finally, the paper will conclude with re-emphasizing the importance of proper vertical merger analysis. The Vertical Merger Guidelines are in dispute between those at the agencies, and courts lack direction when analyzing the complex weighing of efficiencies and costs in mergers that do not involve direct competitors. This paper seeks to bring light to some of the many complications in vertical merger analysis and hopefully restart the bipartisan effort to ensure that competition is protected efficiently.

BACKGROUND

I. HISTORY OF VERTICAL MERGER REGULATION

Antitrust laws in the United States began with the Sherman Act in 1890, followed by the Clayton Act in 1914.[9] The DOJ's Antitrust Division and FTC were tasked with regulating competition.[10] Until 1949, the laws at hand only permitted regulation of horizontal mergers.[11] The Celler-Kefauver Amendment of 1950 broadened the Clayton Act to allow agency regulation of vertical mergers, as well as conglomerate mergers or acquisition of assets, all of which were unable to be regulated prior to this amendment.[12] *United States v. Bethlehem Steel Corporation*[13] in 1958 and *Brown Shoe Company v. United States*[14] in 1962 confirmed this reach. These cases where characterized by an overall fear of acquisition between any two companies with some semblance of significant market share and primarily focused on the "size of the market [expected to be] foreclosed" as the result of the vertical merger.[15]

Although *Bethlehem Steel* and *Brown Shoe* are still considered good law, the actual analysis of vertical merger conduct has changed drastically since these early cases. The FTC and DOJ brought only two other significant vertical merger cases in the 1970s.[16] Since then, no major vertical mergers were challenged by either agency until the AT&T-Time Warner merger.[17]

In 1984, the Merger Guidelines included for the first time a section about regulating non-horizontal mergers.[18] It made clear that since the 1970s, the biggest difference between regulating horizontal and vertical mergers were that vertical merger efficiencies were given more weight than horizontal mergers.[19] The guidelines set the standard of only challenging a vertical merger when the projected HHI was over 1800.[20] It also suggested that the primary concerns should be harm to horizontal competitors within the relevant

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[9] 15 U.S.C. §§ 12–27.

[10] *Id.*

[11] Charles J. Steele, *A Decade of the Celler-Kefauver Anti-Merger Act*, 14 VAND. L. REV. 1049, 1050–51 (1961).

[12] 64 Stat. 1125 (1950); 15 U.S.C. § 18.

[13] 168 F. Supp. 576 (S.D.N.Y. 1958).

[14] 370 U.S. 294 (1962).

[15] *Id.* at 328.

[16] *See generally* Ford Motor Co. v. U.S., 405 U.S. 562 (1972); Fruehauf Corp. v. F.T.C., 603 F.2d 345 (1979).

[17] Boliek, *supra* note 5, at 940.

[18] *See* U.S. Dep't of Justice, Non-Horizontal Merger Guidelines, § 4 (1984), https://www.justice.gov/sites/default/files/atr/legacy/2007/07/11/11249.pdf.

[19] *Id.* §4.24.

[20] *Id.* § 4.213.

markets, as well as harm to potential and actual entry.[21] After this, the agencies made no significant movement in their analyses or challenging of vertical mergers for almost forty years.[22]

In 2017, the Justice Department made the first move to challenge a vertical merger once again.[23] After almost four long decades without any change in vertical merger analysis by the agencies or the courts, much speculation was required to keep up with the current economic studies regarding vertical mergers and both their costs and efficiencies. In response to this new desire to again regulate vertical mergers, the DOJ and the FTC released the 2020 Vertical Merger Guidelines.[24] This was the first time the agencies released a formalized guide specific to vertical mergers.[25] It is distinct from the 1984 Non-Horizontal Merger Guidelines because it applies economic policy unique to vertical mergers and addresses how the main concerns of vertical mergers differ from those of other mergers.[26]

In particular, the 2020 Vertical Merger Guidelines laid out the primary costs of vertical mergers as market foreclosure for competitors and the raising of rivals' costs.[27] The second of these was the main theory of harm in the AT&T-Time Warner challenge.[28] These guidelines also demonstrate the efficiencies that need to be accounted for by the courts, such as the elimination of double marginalization, which was one of the main defenses used in the AT&T-Time Warner case.[29] However, in 2021, the FTC withdrew its support for these guidelines when the leadership at the agencies changed.[30]

The 2020 Vertical Merger Guidelines, as well as the AT&T-Time Warner challenge and subsequent withdrawal of the guidelines, rocketed vertical merger regulation into the antitrust limelight, leaving the agencies and courts uncertain of how to analyze vertical mergers. The agencies have little guidance on how and when to regulate vertical mergers under current precedent, but ideally an understanding of how the AT&T-Time Warner merger played out can assist antitrust lawyers by adding another real-world example to their repertoire.

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21 *Id.*§ 4.1.

22 Boliek, *supra* note 5, at 940.

23 *See* Complaint, *supra* note 7; *AT&T*, 310 F. Supp. 3d at 161.

24 *See* U.S. Dep't of Justice & Fed. Trade Comm'n, Vertical Merger Guidelines (2020), https://www.justice.gov/atr/page/file/1290686/download [hereinafter Vertical Merger Guidelines (2020)].

25 *Id.*

26 *See id.* at 2; U.S. Dep't of Justice, *supra* note 18.

27 Vertical Merger Guidelines (2020), *supra* note 24, at 4.

28 Boliek, *supra* note 5, at 940–41; Complaint, *supra* note 7.

29 Vertical Merger Guidelines (2020), *supra* note 24; *AT&T*, 310 F. Supp. 3d at 197–98.

30 Press Release, *supra* note 2.

II. AT&T-TIME WARNER PROCEDURAL HISTORY

On October 22, 2016, AT&T announced its proposed acquisition of Time Warner.[31] The companies' press release described that the new firm would have "extensive customer relationships, world's largest pay TV subscriber base and leading scale in TV, mobile, and broadband distribution."[32] Unsurprisingly, the case garnered global attention, including that of antitrust regulators. However, the Antitrust Division at the Justice Department's Assistant Attorney General Makan Delrahim decided it was not, "a major antitrust problem."[33] However, the tables quickly turned as the Justice Department mobilized to block the merger, noting that the behavioral remedies it had prescribed to prior vertical mergers were difficult to enforce.[34]

The Justice Department filed its complaint on November 20, 2017, officially opening the case for investigation.[35] The United States District Court for the District of Columbia ruled on June 12, 2018, that the "Government's request to enjoin the proposed merger [was] denied," expressing that the Defendants' economic experts were more persuasive than those of the Justice Department.[36] The DOJ appealed the case, which was then affirmed by the United States Court of Appeals for the District of Columbia Circuit on February 26, 2019.[37]

One of the main reasons why the D.C. Circuit sided with the district court was that the Defendants' expert provided an "analysis of real-world data for prior vertical mergers in the industry that showed 'no statistically significant effect on content prices.'"[38] The lack of economic evidence in general of negative effects from vertical mergers dissuaded the court from taking further action in blocking the merger, especially noting that the government's "expert opinion and modeling predicting such increases failed to take into account Turner Broadcasting System's post-litigation irrevocable offers of no-blackout arbitration agreements, which a government expert acknowledged would require a new model."[39] The constantly changing market consisting of television, mobile phones, and other technology was credited as too dynamic for the Justice Department's concerns to be warranted.[40]

These two and a half years involved the first agency regulation of a vertical merger in decades, and although the economics applied by the agency

31 Bumgardner, *supra* note 4, at 33.
32 *Id.*
33 *Id.* at 36.
34 *Id.* at 37.
35 *See generally* Complaint, *supra* note 7.
36 *AT&T*, 310 F. Supp. 3d at 254.
37 *AT&T*, 916 F.3d at 1047.
38 *Id.* at 1031–32.
39 *Id.* at 1031.
40 *Id.* at 1031–32.

expert had incorporated modern economics and a balance between efficiencies and costs, the courts rejected the expert testimony of the agencies, so AT&T and Time Warner officially merged.[41] In a vertical merger challenge specifically, the burden of proof is much higher because there is no presumption of anticompetitive behavior.[42] The Justice Department was unable to meet the bar in this case without a real industry examples of a long-term blackout and evidence of efficient ways to successfully raise rivals' costs to the merged firm's benefit.[43]

Interestingly, after the merger was consummated, Warner Media quickly began "offering consumers bundled entertainment packages . . . driving new customers to sign up for its phone plans" while also increasing the price "for DirectTV Now Service, pushing consumers to downgrade their service for bundled packages."[44] Authors like Neff surmise that this implies that the Justice Department was correct in their analysis, although this evidence was not sufficient to reverse the case in the D.C Circuit.[45]

III. SUMMARY OF THE AGENCY EXPERT REPORT

Dr. Carl Shapiro served as the Justice Department's economic expert throughout this case.[46] Highly qualified, Dr. Shapiro is a professor at both the Graduate School at the Haas School of Business and the Department of Economics at the University of California at Berkeley.[47] He has extensive experience in antitrust economics and has served as an expert for the agencies on multiple occasions.[48] For the purposes of this paper, his testimony is the basis for the analysis and determining whether the Justice Department was able to accurately predict what would occur if the AT&T-Time Warner merger was completed.

Although the Justice Department proposed numerous theories of harm, the primary focus of the investigation and the only issue appealed was whether the AT&T-Time Warner merger would result in raising rivals' costs, "resulting in a blackout."[49] All antitrust cases must start with defining a relevant market, and the proposed market by the Justice Department and Dr. Shapiro was all "distributors of professionally produced, full-length video

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41 *Id.*

42 James A. Keyte, *The AT&T/Time Warner Decision: More Than Meets the Eye*, 33-Sum ANTITRUST 20, 20–21 (2019).

43 Bumgardner, *supra* note 4, at 33.

44 Neff, *supra* note 4, at 128–29.

45 *Id.*; *AT&T*, 916 F.3d at 1047.

46 *See generally* Shapiro Expert Report, United States v. AT&T, Inc., 310 F. Supp. 3d 161 (D.D.C. 2018) (No. 17 Civ. 2511).

47 *Id.* at 1, Appendix A.

48 *Id.*

49 Complaint, *supra* note 7, ¶ 5; *AT&T*, 916 F.3d at 1035–36, 1047.

programming subscription services to residential customers in the United States."[50] In this paper, this market will be referred to as the television provider market.

The Justice Department estimated price increases by measuring:

> 1. *The Turner Subscriber Loss Rate*: The rate at which the rival MVPD [Multichannel Video Programming Distributor] would lose subscribers over time if it could not offer the Turner Content;
> 2. *The DTV* [DirecTV] *Diversion Ratio*: The proportion of the subscribers leaving an MVPD, if that MVPD could not offer Turner Content, that would shift 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.[51]

These variables, which the Justice Department named the Turner Bargaining Model, after being introduced, were input into a model to estimate the harm to consumers.[52] The Turner Bargaining Model is based off of the Nash Bargaining Model, which was derived from the work of economist John Nash.[53] Even with a conversative estimate, Dr. Shapiro predicted consumer welfare would lose hundreds of millions of dollars each year.[54]

The primary theory predicted that AT&T and Time Warner's newly merged firm would have the ability to leverage Time Warner's premium content against DirecTV's competitors.[55] This would allow the firm to withhold Time Warner's content from the rivals unless they pay a much higher price for it, leaving competitors to choose between sacrificing content or paying higher prices, likely passing on those costs to consumers.[56] The Justice Department considers this leverage to be substantial, especially given that Time Warner owns HBO, which includes *Game of Thrones*, as well as the rights to NCAA March Madness and other major networks.[57]

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50 Complaint, *supra* note 7, ¶ 27.

51 Expert Report, at 49–50, United States v. AT&T, Inc., 310 F. Supp. 3d 161 (D.D.C. 2018) (No. 17 Civ. 2511).

52 Trial Brief, at 34, United States v. AT&T, Inc., 310 F. Supp. 3d 161 (D.D.C. 2018) (No. 17 Civ. 2511).

53 *Id.* at 33.

54 *Id.* at 35–36.

55 Boliek, *supra* note 5, at 936.

56 *Id.* at 940–41.

57 Complaint, *supra* note 7, ¶ 4.

If these predictions were correct, DirecTV would be expected to provide its service without the upcharge of using Time Warner's content, as well as being able to ensure consumers access to that content.[58] If the theory is correct that DirecTV therefore would be able to unfairly outcompete its rivals after the merger, the data would likely show that DirecTV gained monthly subscribers and market share in the television provider network after the merger. Dr. Shapiro estimated rivals could lose anywhere from nine to fourteen percent of their monthly customers over time.[59] However, it is important to note that "[e]ven talented economists with access to extensive industry reporting data acknowledge that conclusions in this area are complicated and open to interpretation."[60]

The district court ruled that the industry was too dynamic for this theory to be a valid concern.[61] Judge Leon states clearly in his opinion that the empirical evidence did not properly account for the industry structure and previous natural data.[62] Within the television industry, there is no history of long-term blackouts of Turner networks, and the empirical evidence does not, in Judge Leon's opinion, adequately account for the binding long-term contracts that Time Warner was currently engaged in.[63] Therefore, the district court, affirmed by the D.C. Circuit, suggested that the Justice Department's concerns were unlikely to come true, especially with the ever-changing industries that AT&T and Time Warner are both reliant on and responsive to.[64]

IV. AT&T AND TIME WARNER'S DECISION TO SPLIT UP

As of May 2021, the merged firm of AT&T-Time Warner announced its decision to divest WarnerMedia and focus primarily on the communication business and acquisition of 5G networks for mobile phones, which was AT&T's primary industry before the merger.[65] This came as a result of the T-Mobile-Sprint horizontal merger, which the agencies did not challenge in 2020.[66]

Although this will likely impact any analysis of how the merged firm affected prices as a vertically integrated firm, its effect should be limited in the empirics here if the data is capped after May 2021, when the divestiture was announced.[67] This also reflects a response to AT&T's primary market,

58 Boliek, *supra* note 5, at 936.
59 *Id.* at 941.
60 *Id.* at 942.
61 *AT&T*, 310 F. Supp. 3d at 194, 254.
62 *Id.* at 253–54.
63 *Id.*
64 *Id.*; *AT&T, Inc.*, 916 F.3d at 1047.
65 Boliek, *supra* note 5, at 949.
66 *Id.* at 946–47.
67 *Id.* at 938.

not DirecTV's, which is the television provider market. While AT&T may have moved resources away from DirecTV in response to this merger earlier on, the effect of the merger on the television provider market should still be isolated enough to analyze.

For added security, the paper will not look past the first quarter of 2021, meaning the dataset will only reflect a time period through March 2021 and not any further. However, it is important to note that while this influence is one that was not predicted by the Justice Department, it does correspond with the ongoing industry dynamics alluded to by the defense experts and Judge Leon.[68]

ANALYSIS

I. DATA COLLECTION AND STATISTICS

For the analysis, the primary question is whether AT&T-Time Warner's merger affected DirecTV's ability to gain subscribers and attain a higher market share, as the Justice Department predicted. The DOJ's main theory is that the merger will allow AT&T-Time Warner to raise costs for rival television providers by increasing the cost for those networks to do business with Time Warner.[69] If this prediction is correct, the Justice Department surmises that it would be likely for DirecTV to see an increase in subscribers after the merger, as well as an increase in market share compared to the other cable networks.[70]

For the upcoming analysis, the dependent variable is the monthly subscriber count (Subscribers), and the independent variable is a dummy variable that is equal to "one" only for DirecTV after the merger has occurred (Merger); it is "zero" for all other companies, and "zero" for DirecTV before the merger. The intention is to see whether the merger had a positive impact on the monthly subscriber count for DirecTV because of the merger, affirming the predictions of the Justice Department, while accounting for other factors likely to impact monthly subscriber count to confirm that the change in subscriber count is the result of the merger itself, outside of growth or decline naturally expected from external factors.

To determine whether this growth for DirecTV happened as predicted, this paper will assess the subscriber count and market share over time for all the major cable networks while considering economic trends, relevant events, and the merger's occurrence. This data comes from a variety of sources and spans the time between the fourth quarter of 2016 and the third

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68 *AT&T*, 310 F. Supp. 3d at 254.

69 Complaint, *supra* note 7, ¶¶ 3–5.

70 *Id*., ¶ 5; Boliek, *supra* note 5, at 941.

quarter of 2021. From Statista, quarterly data was pulled for each of the major cable networks, providing the Year, Quarter, Company, and Subscriber Count in millions (Subscribers).[71] These data were combined to create a mass dataset that included the companies DirecTV, Comcast, Charter, Dish, Verizon, Altice, and Mediacom, which account for over sixty-four million subscribers in the most recent quarter, the third quarter of 2021.[72] DirecTV, Comcast, and Charter, better known as Spectrum, are considered the largest three television providers, accounting for over 75% of the television provider market as of the third quarter of 2021, according to the Statista data.[73]

To address variables outside of the merger that may have affected subscriber count, the dataset includes Real Gross Domestic Product (GDP) from the Federal Reserve Bank of St. Louis database.[74] The data is quarterly to match the company data.[75] The Real GDP is measured in billions and is chained to the 2012 dollar and adjusted seasonally.[76] This ensures that the data is consistent over the entire dataset and inflation is accounted for separately. The Real GDP is important to demonstrate the overall flow of wealth in the U.S. economy, as this would affect aggregate demand for all goods, including cable networks.[77] Including GDP should account for any general economic ebbs and flows that would impact monthly subscriber count, isolating the effect of the merger on subscriber count.

Next, because of the Justice Department's fear that Time Warner's ownership of HBO would be a large factor in raising rivals' costs, there were two binary variables created to account for the effect of this ownership. Firstly, HBO producing and releasing new episodes of *Game of Thrones* (GoT) was likely to increase the demand for HBO, and therefore Time Warner products, during this time.[78] *Game of Thrones* stopped airing in the second quarter of 2019, so the binary variable is listed as a "one" before and in that quarter and a "zero" after.[79] HBO Max was launched in the second quarter of 2020, which allowed consumers to purchase HBO separately from their cable packages, potentially lowering demand for specific cable networks.[80] A "one" marks

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71 Julia Stoll, *Pay TV in the United States - Statistics & Facts*, STATISTA (Mar. 31, 2022), https://www.statista.com/topics/1309/pay-tv/.

72 *Id.*

73 *Id.*

74 U.S. Bureau of Econ. Analysis, *Real Gross Domestic Product*, THE FED. RSRV. BANK OF ST. LOUIS (July 1, 2022), https://fred.stlouisfed.org/series/GDPC1.

75 *Id.*

76 *Id.*

77 *Id.*

78 Complaint, *supra* note 7, ¶ 4.

79 IMDB, *GAME OF THRONES* EPISODE LIST (2019), https://www.imdb.com/title/tt0944947/episodes?year=2019.

80 Todd Spangler, *HBO Max Sets Official Launch Date*, VARIETY (Apr. 21, 2020), https://variety.com/2020/digital/news/hbo-max-launch-date-price-streaming-1234585776/; Complaint ¶ 4, United States v. AT&T, Inc., 310 F. Supp. 3d 161 (D.D.C. 2018) (No. 17 Civ. 2511).

the second quarter of 2020 as well as any time after, and a "zero" before that period signifies that HBO Max did not yet exist. *House of the Dragon* began airing in the third quarter of 2022, after our dataset ends, so this does not need to be considered.[81]

Finally, a last set of binary variables was created to account for the impact of the merger's announcement, challenge, success, and end, as well as the potential impact of Covid-19 on overall aggregate demand. The merger was announced in the fourth quarter of 2016 (Merger Announced), the Justice Department challenged the merger in the fourth quarter of 2017 (DOJ Challenged), the DOJ was prevented from blocking the merger in the first quarter of 2019 (DOJ Lost), and finally the merger was then undone in the second quarter of 2021 (Merger Ended).[82] Then, the Covid-19 variable (Covid) considers the first quarter of 2020 as the starting impact of Covid-19 on the U.S. economy.[83] Starting with when each event took place and from then on, each corresponding variable is marked with a "one"; before each event took place, there is a "zero" for that variable.

This set of variables makes up the panel dataset. A panel dataset is a multi-dimensional dataset that covers a variety of variables over time.[84] This is most appropriate in this setting, as the status of the economy, inflation, and population, as well as the timeline of the merger, would affect subscriber count over time and in correlation with one another.[85] A fixed effects model is then applied to identify the trend between the dependent variable and independent variable while accounting for the other constants that likely affected the dependent variable, monthly subscriber count, for all the firms regardless of merger status.[86]

II. REGRESSIONS ANALYZING THE CORRELATION BETWEEN THE AT&T-TIME WARNER MERGER AND SUBSCRIBER COUNT

Using R, the data was input into the fixed effects panel regression model. The first regression uses the monthly subscriber count as the dependent variable and the merger binary variable as the independent variable. The model also includes the Real GDP, which is used to account for how economic trends may have impacted monthly subscriber count. This first regression is shown in Figure 1.1.

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81 IMDB, *HOUSE OF THE DRAGON* EPISODE LIST (2022), https://www.imdb.com/title/tt11198330/episodes?year=2022.

82 Boliek, *supra* note 5, at 938, 952.

83 CONGRESSIONAL RESEARCH SERVICE, COVID-19 AND THE U.S. ECONOMY 1 (2021).

84 Mahbubul Alam, *Panel Data Regression: A Powerful Time Series Modeling Technique*, TOWARD DATA SCIENCE (Feb. 26, 2020), https://towardsdatascience.com/panel-data-regression-a-powerful-time-series-modeling-technique-7509ce043fa8.

85 *Id.*

86 *Id.*

Given this model, the AT&T-Time Warner merger (Merger) was estimated to have a coefficient of -3.34. This implies that the merger actually decreased the subscribers for DirecTV by about 3.34 million subscribers monthly on average. The effect had a p-value of less than 0.001, meaning the effect is statistically significant and the null hypothesis that the merger had no effect on subscribers can be rejected. To reject the null hypothesis that a variable had a statistically significant effect, the p-value must be less than 0.05, and so it is noteworthy that the p-value in this regression is even closer to zero than necessary, demonstrating even more statistical significance.[87] The merger actually had a negative effect on subscribers, according to this model. It is important to note, however, that these data points show a reduced form equilibrium association rather than a full demand model, as many of the variables needed to do the full assessment are unavailable to the public.

Figure 1.1

Variable	Estimate	P Value	Significance
Merger	-3.34	0.00	***
GDP	0.00	0.92	
F-Statistic	112.40		
Adjusted R-Squared	0.90		

The adjusted R-squared indicates how much of the variation in the dependent variable can be associated with the input variables and is measured between zero and one.[88] An adjusted R-squared of 0.90, as produced from this model, can be read as that the variation in monthly subscribers can be ninety-percent accounted for as being from the given input variables.[89] The higher the adjusted R-squared, the more likely it is that the model can act as a helpful predictive tool.[90] The large F-statistic of 112.40 also demonstrates a high likelihood that these results were statistically significant rather than the product of random chance.[91] Given the low p-value, high adjusted R-squared, and high F-statistic, it is statistically likely with the limited data available that the merger had a significant negative impact on monthly subscribers for DirecTV, as shown by the three asterisks.

This regression was repeated twice more to account for other potential variables. The second regression, shown in Figure 1.2, does not consider the

87 Zach, How to Interpret the F-Value and P-Value in ANOVA, STATOLOGY (Aug. 16, 2021), https://www.statology.org/anova-f-value-p-value/.

88 Zach, *How to Interpret Adjusted R-Squared (With Examples)*, STATOLOGY (Mar. 24, 2022), https://www.statology.org/adjusted-r-squared-interpretation/.

89 *Id.*

90 *Id.*

91 Zach, *How to Interpret the F-Value and P-Value in ANOVA*, STATOLOGY (Aug. 16, 2021), https://www.statology.org/anova-f-value-p-value/.

economic trend variable, but instead focuses on the influence of *Game of Thrones*, HBO Max, Covid-19, the merger announcement, merger ending, the challenge to the merger by the Justice Department, and the decision by the D.C. Circuit Court of Appeals to prevent the Justice Department from blocking the merger.

Similarly, the merger was the only statistically significant variable, showing an effect of about -3.45 million subscribers each month. *Game of Thrones*, the merger announcement, and the Justice Department's loss at trial were all positive influences on the subscriber count, though minimally, while the introduction of HBO Max, Covid-19, the end of the merger, and the challenge by the Justice Department all negatively, but insignificantly, impacted the subscriber count. The p-value for the merger was less than 0.001 in this regression, as well, showing that the merger's influence was again statistically significant. In conjunction with the high F-statistic and high adjusted R-squared, this regression demonstrates the same result as the first.

Figure 1.2

Variable	Estimate	P Value	Significance
Merger	-3.45	0.00	***
GoT	0.41	0.68	
HBO Max	-0.50	0.66	
Covid	-0.32	0.88	
Merger Announced	0.94	0.42	
Merger Ended	-0.49	0.67	
DOJ Challenged	-0.11	0.93	
DOJ Lost	0.24	0.90	
F-Statistic	91.72		
Adjusted R-Squared	0.90		

Finally, a third regression, shown in in Figure 1.3, demonstrates the effects of all the variables used thus far together. Similarly, the merger showed a statistically significant effect on monthly subscriber count for DirecTV of about -3.45 million subscribers each month. The Real GDP again had no real effect on subscriber count, while *Game of Thrones* and the merger announcement and a positive, but not statistically significant, impact on monthly subscriber count. HBO Max, Covid-19, the end of the merger, the Justice Department's challenge, and the Department's loss at trial all had an insignificant but negative effect on monthly subscriber count. Again, the p-value, F-statistic, and adjusted R-squared indicate the persuasiveness of this regression, demonstrating that it is likely that the merger between AT&T and Time Warner had a significantly negative effect on the monthly subscriber count for DirecTV.

Figure 1.3

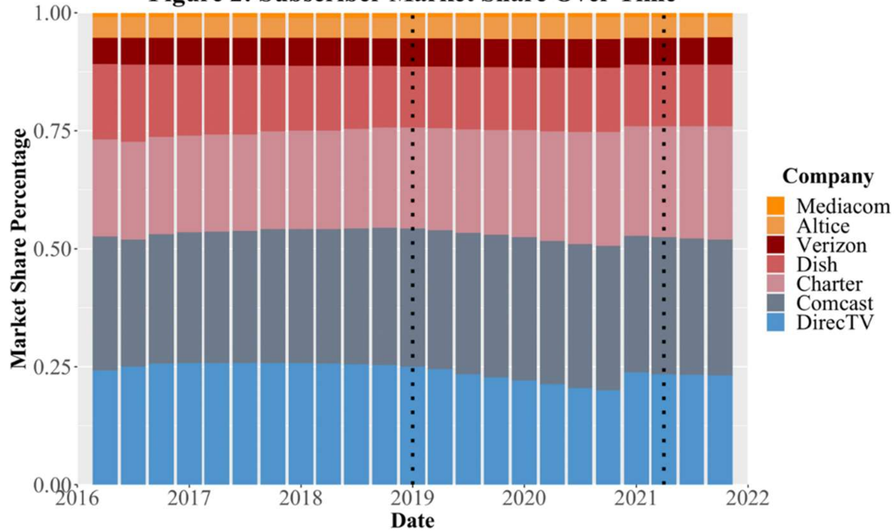
Variable	Estimate	P Value	Significance
Merger	-3.45	0.00	***
GDP	0.00	0.82	
GoT	0.44	0.66	
HBO Max	-0.69	0.63	
Covid	0.03	0.99	
Merger Announced	0.90	0.45	
Merger Ended	-0.43	0.72	
DOJ Challenged	-0.12	0.92	
DOJ Lost	0.74	0.80	
F-Statistic	87.51		
Adjusted R-Squared	0.90		

These results come with a few caveats. Of course, the data was limited to what was discoverable. The actual data used by the experts was obtained through a formal discovery process and is private information, so it is unavailable for public use or research. Because of this, the analysis is not a direct comparison to what was predicted. Rather, the analysis compares the current situation of DirecTV to the overall theory of the Justice Department expert. This limitation also means that the regression simply represents a reduced form equilibrium association rather than a full demand model with causal implications.

Also, as with any economic study, it is impossible to fully know what would have occurred had the merger not been initiated. It is possible DirecTV's subscriber count and market share were always going to decline after 2019. While the study attempts to account for all outside variables, it can never be positive that this effect did not come from a source other than the merger. For example, while Covid-19, HBO Max, and the economic trend variable (GDP) strive to account for movement from television providers to streaming services, there is no definitive variable that can account for these preference changes in the data that were available.

To perform a sanity check and assess how the merger affected DirecTV on a larger scale, one may look at market shares. The market shares over time demonstrate how DirecTV has performed since the merger relative to other television providers. Figure 2 provides a graphic that visualizes the market shares, showing the downward trend in DirecTV's subscriber count. Because the DirecTV market shares are declining after the merger, not just subscriber count alone, one can assume the decline in subscriber count is not solely from a decline in the demand for television providers in general. The subscribers are being captured by the other television providers who are gaining market share, signifying that this negative impact is truly from the merger and the consequences of the conduct by DirecTV.

Figure 2: Subscriber Market Share Over Time



In 2018, the data show that DirecTV had a market share of approximately 26% and was considered the second largest television provider, second to Comcast. By 2019, DirecTV's market share dropped to 25%, while Comcast, Charter, Dish, and Verizon all saw an increase in market share. In 2020, DirecTV's share dropped again to 22%, only rising in 2021 after the merger had ended back to about 24%, still under where it was before the merger was announced.

The regressions and market share analysis demonstrate that the merger was not successful for DirecTV in terms of retaining or increasing total monthly subscribers. While it could have been successful for AT&T-Time Warner in other ways, DirecTV saw a decline in monthly subscribers and market share during the time, departing from the predictions of the expert for the Justice Department. While the DOJ anticipated this merger would specifically be used to increase market control for DirecTV, raising its subscriber count and market share, as well as its profitability, in actuality the merger resulted in a decrease in market power and control for DirecTV. This decline may be related to the merger, and DirecTV's decline was met with its rivals' success in gaining market share and subscriber count.

III. COMPARING THE REGRESSION RESULTS TO THE JUSTICE DEPARTMENT'S EXPERT TESTIMONY

As previously noted, Dr. Carl Shapiro's expert testimony laid out several estimations, all of which suggested that the Justice Department believed the merger between AT&T and Time Warner would harm consumers specifically in the television provider market.[92] The fear that the new merged firm would withhold Time Warner products from DirecTV's competitors drove the case, and the Justice Department assumed that this added leverage to DirecTV's already strong position in the television provider market would allow the company to gain subscribers relative to its rivals while increasing rivals' costs assuming more market share.[93]

Judge Leon in his opinion pointed out that this fear was unwarranted given the industry's dynamic nature to endure constant change and technological development.[94] He, along with the expert team for AT&T-Time Warner, noted that this industry's nature would prevent a stall in innovation as predicted by the Justice Department.[95] The case was decided for AT&T-Time Warner, allowing the vertical merger to consummate without fear of anticompetitive effect.[96]

The data analyzed in this paper show that it is more likely the defense and Judge Leon correctly assessed that the changing technological environment in the telecommunications industry as a whole, as well as the consistency of long-term contracts, were sufficient to prevent any serious threat to the rivals of DirecTV. While this does not mean that the Justice Department's estimations and analyses were invalid or should not have been trusted, it suggests that industry is one of the key factors in antitrust cases. A vertical merger is already significantly less likely to be anticompetitive, as compared to a horizontal merger, and this study concludes that in a dynamic industry, a vertical merger is even less likely to have an anticompetitive influence, regardless of the firm's intention.

Interestingly, the Justice Department most likely did accurately predict AT&T-Time Warner's intentions.[97] Shortly after the firms merged, the newly established firm began bundling practices and changed products in a way that did not benefit most consumers.[98] The practices were intended to benefit the new firm through pushing customers towards new packages with higher pricing.[99] However, although the intentions may align with what the agency expert predicted, the actual data do not show that this conduct in practice actually benefitted DirecTV.

In antitrust and economic theory, a firm has no incentive to maintain anticompetitive practices if these practices do not end up being profitable or beneficial to the company. In the present case, the loss in market share and monthly subscribers indicates that this strategy implemented by DirecTV

92 Complaint, *supra* note 7, ¶¶ 3-7.
93 *Id.*
94 *AT&T*, 310 F. Supp. 3d at 171–73.
95 *Id.* at 173–74.
96 *Id.* at 254.
97 Complaint, *supra* note 7, ¶¶ 3-7; Neff, *supra* note 4, at 128–29.
98 Neff, *supra* note 4, at 128–29.
99 *Id.*

after the merger was not effective and did not give DirecTV any serious leverage against its rivals. Any harm to consumer welfare caused by the changing prices and product offerings from AT&T-Time Warner will therefore likely be undone as DirecTV adapts to recoup its losses.

Because AT&T and Time Warner are heavily involved in so many other industries outside of the television provider market, the vertical integration here almost acts as a further limit on anticompetitive conduct. AT&T and Time Warner must as one firm react to changes in a multitude of other dynamic industries, so DirecTV, while bundling, had to address trends and new innovations in markets outside of the television provider market. For example, the T-Mobile-Sprint horizontal merger in 2020, following the AT&T-Time Warner vertical merger, encouraged AT&T and refocus some of its resources back on the mobile phone industry and take resources away from DirecTV.[100] While these changes may not have been easily foreseeable by the Justice Department, the real evidence from this natural experiment demonstrate that it is necessary to acknowledge an industry's momentous nature when determining if anticompetitive conduct will be successful.

Overall, the data demonstrates that the Justice Department may have overreached in trying to block this vertical merger. The past forty years without much vertical merger intervention demonstrate that economics and antitrust regulation have found most vertical mergers to be generally free of serious anticompetitive effect.[101] Early on after the merger, the Justice Department seemed unphased by the merger announcement.[102] Whether the decision to attempt blocking the merger came from political influence or a changing economic perspective, the data suggest that the merger was not one worth blocking. The markets in which AT&T and Time Warner are involved worked to self-regulate and prevent DirecTV from imposing any actions that would have had anticompetitive effects. Therefore, it was likely an oversight that the Justice Department excluded the industries' changing natures from the bulk of the analyses, leading the agency expert to predict that DirecTV would benefit from the merger and harm consumer welfare.

IV. APPLYING THESE RESULTS TO FUTURE VERTICAL MERGER ANALYSIS

Going forward, the future of vertical merger regulation is not clear. As the FTC and the DOJ work on re-writing the Vertical Merger Guidelines, it is necessary that they consider the outcome of the AT&T-Time Warner challenge, as well as the observed results of the actual merger. Considering this case is especially important given how few vertical merger challenges there have been in the last forty years.

100 Boliek, *supra* note 5, at 951–52.
101 *Id.* at 940.
102 Bumgardner, *supra* note 4, at 36.

A few important lessons can be learned from the retrospective of this case. However, it is important to note that this is one case in a very specific industry, so this evidence is anecdotal. Every merger must be studied in a fact-specific manner that considers the industry, that industry's rigidity or fluidity, the market shares of rivals, and the influence of innovation and brand recognition in that industry. Regardless, the AT&T-Time Warner vertical merger was one of the only vertical merger challenges in recent history, so it is one of the only examples to draw from in future vertical merger trials.

The first suggestion this natural experiment presents is that a vertical merger faces market constraints on intentionally anticompetitive conduct from multiple product markets. In this case, it appears that while the Justice Department correctly assumed that AT&T-Time Warner would bundle products and push new products on customers, this bundling did not prove to aid DirecTV in gaining market power or monthly subscribers. Whether this is because of increasing innovation in the streaming market competing with the television provider markets or from increased pressure on AT&T to compete with the newly merged T-Mobile-Sprint, there were downward pressures on price from a variety of sources.[103] These separate product markets in which the vertically merged firm operated demonstrate pressures on multiple different fronts that the firm must coordinate. Moving resources between different sectors of the firm add to the balance required to ensure competition can still function. It appears that these pressures prevented DirecTV from successfully engaging in anticompetitive conduct, and even resulted in DirecTV losing market power and monthly subscribers.

The second suggestion is that the agencies should consider the level of innovation and change in each sub-industry of the future vertically merged firm. Following the first suggestion, it was critical in this case that the introduction of 5G in the mobile phone market prevented AT&T from distributing more resources to DirecTV.[104] While the Justice Department was concerned with DirecTV's potential leveraging of Time Warner's content, the agency's expert report did not sufficiently flag the budding innovations in AT&T's primary market.[105]

Although arguably the television provider market is as equally innovative as the mobile phone market when one includes streaming, the Justice Department excluded streaming from the market definition, making the defined market less dynamic than if streaming were included. However, this oversight should not have prevented the Justice Department from seeing that potential anticompetitive conduct could have been constrained by other dynamic industries, such as the mobile phone market and the expansion into 5G as a relevant factor. AT&T being so connected to the mobile phone market, even while it has branches in other large industries, seems to have effectively

103 *See generally* Boliek, *supra* note 5; Neff, *supra* note 4.

104 Boliek, *supra* note 5, at 951–52.

105 *See generally* Expert Report, United States v. AT&T, Inc., 310 F. Supp. 3d 161 (D.D.C. 2018) (No. 17 Civ. 2511).

worked to constrain its anticompetitive behavior, and therefore the agencies should look more closely at the innovative drive in each related industry to those relevant in a vertical merger case.

The third suggestion that the data reflect is that the more dynamic an industry is, the more likely it is that anticompetitive conduct will be unsuccessful. The different telecommunications sectors and industries are each booming in their own way. Had either the television provider or mobile phone market been less innovative, DirecTV under AT&T may have been more successful at creating bundling packages and increasing price for its rivals and its own consumers. While it is impossible to know how this natural experiment would have played out differently in other circumstances, it is important that the agencies recognize the level of innovation and productivity in these industries contributed greatly to the competitive constraints on anticompetitive conduct.

In other industries where not a lot of change or progress is occurring, such as shoe sales in *Brown Shoe*, new ideas or products are much less common and therefore anticompetitive behavior is harder to constrain.[106] However, in big technology, like the AT&T-Time Warner merger, new technology is constantly replacing old technology and tech giants become relics of the past, a process known as creative destruction.[107] This cycle has been seen with Facebook replacing Myspace, Netflix replacing Blockbuster, and overall the movement for people to replace television providers as a whole with streaming. These facts indicate that markets and industries that involve rapid changes and constantly evolving trends must be presumed as more capable of fighting anticompetitive conduct naturally.

Finally, the fourth suggestion is to not underestimate the effect of long-term contracts on an industry. Most likely, this was one of the reasons DirecTV was unable to affect rivals' costs significantly. Most competitors were already in longstanding contracts with Time Warner, and the change in ownership did not affect Time Warner's current contracts.[108] Judge Leon himself explained that this lack of mobility from contracts would likely keep rivals' costs from shifting too much.[109] The fact that the data shows DirecTV's rivals were actually more successful in acquiring market share and subscribers after the merger points to the fact that this estimation by the agency was not particularly accurate, and in the future, long-term contracts should be weighed more heavily by the agencies as factors affecting a firm's ability to behave anticompetitively.

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106 *See Brown Shoe*, 370 U.S. at 334.

107 Michael D. Goldman & Eileen M. Filliben, *Corporate Governance: Current Trends And Likely Developments For The Twenty-First Century*, 25 DEL. J. CORP. L. 683, 684–85 (2000).

108 Keyte, *supra* note 42, at 20–21.

109 *AT&T*, 310 F. Supp. 3d at 200–01.

CONCLUSION

There is much to be learned by studying the past. Being the first major vertical merger challenge from the agencies in over forty years, the AT&T-Time Warner merger is the primary contemporary example of a vertical merger litigation for modern regulators and antitrust defense teams. The case brought vertical mergers into the center of political antitrust debate.

With new antitrust ideologies and a shift in regulatory policy, as well as the re-writing of the Vertical Merger Guidelines, vertical merger regulation is currently unsettled. To restabilize regulatory policy regarding vertical mergers, the agencies must begin with looking at actual evidence and natural experiments involving vertical mergers from the past. Having an example of an agency challenge, supported by expert testimony anticipating anticompetitive effects that was followed by results that do not support that claim demonstrate that there is still much to learn about vertical mergers and their effect on competition within their particular industries.

While all economic and statistical models are extremely difficult to use for predictive measures, regulators can always learn and adapt to new observations. By incorporating the level of innovation involved in an industry, as well as how the industries of a vertical merger are integrated and the long-term contracts that the merging firms are engaged in, the agencies are one step closer to having a fuller understanding of vertical merger effects. Hopefully, the AT&T-Time Warner merger can provide that example and become the blueprint for future vertical merger analysis, giving a better understanding of what indicators suggest that a vertical merger is unlikely to have anti-competitive effects.