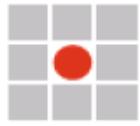




**Consumer Federation of America**



**Public Knowledge**

**ANTITRUST PRACTICE, ECONOMIC EVIDENCE  
AND MARKET REALITY  
COMPEL THE DEPARTMENT OF JUSTICE TO OPPOSE  
THE AT&T-TIME WARNER MERGER**

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## **I. SUMMARY OF THE ANTITRUST CASE AGAINST THE MERGER AND OUTLINE OF THE ANALYSIS**

### **ASSOCIATE ATTORNEY GENERAL DELRAHIM SHOULD WELCOME THE OPPORTUNITY TO PERSONALLY EXPLAIN DOJ'S OPPOSITION IN COURT TESTIMONY**

In December of 2016, we presented a lengthy analysis of the structure, conduct and performance of communications markets<sup>1</sup> to the Senate Judiciary Committee as evidence to support our testimony calling for the rejection of the ATT-Time Warner merger.<sup>2</sup> In the fifteen months since we testified, two important developments have supported our analysis and conclusions.

Above all, the Department of Justice (DOJ) examined the market conditions and the likely impact of the merger and concluded that it had to be blocked to prevent severe harm to competition. The complaint filed by the DOJ closely parallels our analysis. That should come as no surprise, since our analysis was not only built upon the logic of numerous antitrust cases brought against several mergers in the past decade, but also the mistakes made in approving a tsunami of mergers in the first decade after the passage of the Telecommunication Act of 1996.

Of equal importance, although indirectly related to the merger, the Federal Communications Commission (FCC) has flip-flopped on two major orders in which the agency sought to constrain the abuse of market power by dominant network operators. They address practices that have severe effects on the performance of digital communications markets – anticompetitive effects that lead to higher prices, restriction of consumer choice, and slowed or distorted innovation. In abandoning the FCC orders in the Business Data Services (BDS) and the Open Internet proceedings, the FCC has turned a blind eye to anti-consumer, anticompetitive practices that afflict all digital communications markets.

The DOJ got it right and the FCC got it wrong for a simple reason: the DOJ dug into the facts of the proposed merger, while the FCC ignored the facts that had been established in two massive regulatory proceedings. We believe the FCC's actions are blatantly in violation of the Administrative Procedure Act, but the first order of business is to deal with the AT&T-Time Warner merger.

This document expands and refines our earlier analysis of the emergence of what we call a “tight oligopoly on steroids” in the digital communications space. It is tailored to the merger review, but the empirical analysis of structure, conduct and performance applies equally and directly to the regulatory flip-flops of the FCC. We will deal with the illegality of those actions at a later date, building on the real-world foundation created by this paper.

### **THE ANTITRUST CONTEXT**

As the trial date for the AT&T-Time Warner merger approached, AT&T made the unusual move of including the opposing attorney, Associate Attorney General Delrahim, on its witness list, presumably to examine how he reached his decision to oppose the merger. While this is an unusual tactic that might be rejected out of hand as inappropriate, this paper argues that the Assistant Attorney General has nothing to fear. On the contrary, it could be an ideal

opportunity to lay out the broad basis for the decision to oppose the merger in a rich, qualitative narrative that is not generally made in court documents.

DOJ's opposition to the merger is so thoroughly consistent with antitrust laws, so cognizant of recent developments in economic theory and evidence, and so respectful of the legal practice of the past decade, that "just saying no" was a matter of routine and the only conclusion that the agency could, in good conscience, reach. The decision to oppose is not only correct on the facts, it is squarely within the mainstream of antitrust law and practice. The merger would harm competition, slow innovation, stifle the growth of online video distribution and raise consumer prices. Successful opposition could also be an important step toward reforming the examination of abuse of vertical market power in a procompetitive, pro-consumer direction for the digital economy.

The need for updating the approach to vertical market power has been clear for decades and the direction has been developing since the 2002 Microsoft case. The Microsoft case was about the abuse of vertical leverage through the chokepoint of the operating system applications programming interfaces (APIs) – leverage that enabled Microsoft to undermine competition for a vertical service: the Internet browser. At the same time, that vertical service, combined with a flexible programming language (Java), held the possibility of stimulating competition, "over-the-top," against the operating system monopoly. As is abundantly clear in the following analysis, these are the core issues in a series of recent antitrust cases.

Four recent cases in the digital communications space are directly relevant.

- NBC Comcast was a vertical merger that was subject to heavy conditions because of concerns about the anticompetitive abuse of vertical leverage. Those conditions remain the subject of intense debate.
- Comcast-Time Warner Cable was a geographical extension merger that was rejected because of the dramatic increase in vertical market power it would yield for the merging parties, the potential for the abuse of monopsony power, and the harm that the abuse of that market power would do to nascent over-the-top competition.
- Charter-Time Warner Cable was a geographic extension merger that was subject to conditions similar to the Comcast-NBC merger to prevent the abuse of vertical market power.
- The rejection of the AT&T/T-Mobile merger, although a simple horizontal matter, also sheds light on key issues raised in the AT&T-Time Warner merger.

Other Sherman Act cases (e.g. e-books, BMI-ASCAP) and merger reviews not examined in this paper (e.g. Cellco, DirecTV) reinforce the concern about vertical market power, the control of choke points, and the need for vigorous antitrust enforcement to protect competition. Thus, the Department of Justice had a choice between imposing extensive conditions on the AT&T-Time Warner merger or just saying no. The decision to say no is justified by the context. Once we recognize the vertical impact of the AT&T-Time Warner merger, as the DOJ complaint

does, it is clear that this merger increases vertical market power significantly more than the others.

AT&T is number one in MVPD and the only service provider with three MVPD distribution channels. It is number one in Business Data Services (BDS), number two in wireless, and number three in Wireline Broadband Internet access. Ultimately, communications are about a local connection to the network, and AT&T's market share for each of these local services is higher when measured at the local level than the national level. Taken together, it is far and away the number one video distribution firm. Time Warner is a dominant content provider (DOJ says tied for #2), with must have, marque, programming in basic cable, premium services, news and sports.

Viewed in vertical perspective, this is a one-two merger. With its very large "wing span" across video distribution platforms and its control of the BDS chokepoint, AT&T's incentive and ability to undermine competition would increase significantly. With a track record of abusive practices in other markets,<sup>3</sup> the post-merger firm would be more likely to effectively use its vertical leverage to raise prices, undermine competition, delay innovation and facilitate coordination between a shrinking number of vertically integrated members of the "tight oligopoly on steroids."

In addition, one can argue that the antitrust preference for structural (as opposed to behavioral) remedies also pushed the DOJ to reject, rather than condition, AT&T-Time Warner. We accept that tendency in the DOJ's DNA, but want to put some context around it.

- The Comcast-NBC conditions are the subject of great debate. At best, effective conditions could prevent a greatly strengthened integrated firm from harming competition. In exchange, the DOJ gave up an important potential source of competition in an environment where access to complementary services (content) is vitally important to constraining abuse of market power in distribution.
- The logic of the conditions on the Comcast-NBC merger involved benchmarking against the general practice in the sector. As more and more actors become integrated, the availability of benchmarks diminishes as abuse becomes the norm.
- Moreover, the fact that the FCC was intricately involved in that resolution made an agency with regulatory authority available, which is not the case here. The effectiveness of some aspects of Communications Act enforcement at the FCC have raised concern. Regardless of how effective they were, the regulatory framework of the FCC is not available in the AT&T-Time Warner merger.

These weaknesses cannot be addressed in this merger review and they point directly to the most underappreciated problem posed by a vertical merger such as this. As a general proposition, it is difficult to police coordination with behavioral remedies. As the market share of the vertically integrated firms increases, it becomes harder to do so. The number of competitors is inevitably small because the minimum efficient scale in the industry is large. That

is the “tight oligopoly” part of the problem. The possibility of implicit and explicit coordination between a small number of vertically integrated firms that dominate the key means of access to consumers in fortress (formerly franchise) territories, each with multimarket contact across products, is the “steroids” part. Thus, numerous factors magnify market power in digital communications markets by facilitating oligopoly coordination, including geographic separation, technology specialization, product segmentation, the historical legacy of market power from the franchise period, multi-market contact, and parallel behaviors that reinforce market power.

## **THE NEED TO UPDATE VERTICAL POLICY TO REFLECT MARKET REALITY**

The vertical merger guidelines are over thirty years old. Jonathan Sallet, who dealt with many of the specific mergers and regulatory proceedings discussed in this paper as both the General Counsel at the FCC and Assistant Attorney General for Antitrust at the DOJ, provides important insights that are reflective of the power and role of both of the agencies. From the perspective of the DOJ, he described the need for updating the treatment of vertical mergers as follows:

Of course, you may be familiar with the so-called Non-Horizontal Guidelines, which were issued in 1984. But it is widely recognized that the competitive effects theories now applied by the division in assessing vertical and other non-horizontal mergers go beyond those articulated in 1984 and reflect more recent economic literature and practical experience on whether and how a vertically integrated firm would act to harm competition. In other words, the division’s concern with possible foreclosure, raising rivals’ costs and other mechanisms for harming competition that can arise from such deals is substantially broader than what the 1984 Guidelines express. Moreover, efficiencies are not always cognizable and remedies will not always be efficacious, issues the 1984 Guidelines do not adequately address....

In other words, I believe that, while we have sharpened some of our tools, the essential inquiry has not changed. But what we are seeing may well have.<sup>4</sup>

Table I-1 extracts Sallet’s observations on the important contribution of non-horizontal considerations to recent merger reviews. There is little cause for surprise that these reflections on the actual practice of the agency would play a key role in the AT&T-Time Warner decision. The analysis in this paper adds several important layers to this broad observation on the changes in the economy and economic thinking since the *Non-Horizontal Guidelines* were last revised.

The theories current when the non-horizontal merger guidelines were last revisited – theories used to justify the accumulation of market power and excuse its abuse – have been thoroughly refuted in the past three decades, including contestability, one-monopoly rent, and overstated efficiency gains from integration. The economy has changed dramatically since the *Non-Horizontal Guidelines* were last revised, with a dramatic increase in the prevalence and importance of vertical integration and leverage. The small number of platforms that dominate communications markets are too few to deliver vigorous competition that produces the results we want from markets.

In other words, the theories had a very narrow range of applicability because of their restrictive assumptions, and the economy has developed in a direction that further narrows their relevance, if they ever had any. The nature and structure of communications makes them particularly irrelevant.

## TABLE I-1: NON-HORIZONTAL FACTORS IN RECENT MERGER REVIEWS

### Department of Justice:

As a starting point, we've seen concentrated markets, upstream, downstream, or both. Sometimes we've seen upstream inputs of competitive significance, and even uniqueness, to other downstream firms. Downstream opportunities may be foreclosed to upstream rivals. In some cases, we've seen the flow of competitively-sensitive information that tends to create unilateral or coordinated effects. The hallmark of the inquiry, whatever circumstances we observe, is to look for power over a relevant market and examine how it may be enhanced or maintained as a result of the transaction.

The division's UTC/Goodrich review in 2012 is a good example. The transaction would have made UTC both a major producer of large aircraft turbine engines and the sole-source supplier of critical components to one of its leading engine competitors. Our investigation revealed the merged firm would have had the ability and incentive to withhold or delay delivery of critical components, among other things, to that direct competitor. An impact—here an adverse impact—on interbrand competition naturally follows from this kind of foreclosure—competitors without access to critical parts do not constrain market power as well as those who can timely and effectively bring competing products to market. That problem was resolved through divestitures that also remedied more traditional horizontal concerns.

A similar concern arose in Comcast's acquisition of NBCU, where Comcast was buying unique content that was an extremely valuable component of rival video distributors' channel packages. Comcast enjoyed market power in video distribution, and the investigation suggested it could weaken competitive threats by raising the costs of critical content to downstream rivals like competing video distributors. Similar to completely foreclosing access to an input, raising its costs can decrease the ability of downstream competitors to constrain market power.

The concern in Comcast/NBCU extended not just to the current video distribution ecosystem, but to nascent online video rivals that were then beginning to disrupt and change the delivery model. That added an important layer of analysis that sometimes arises in vertical transactions: we look not only at existing products and distribution systems but at how innovation and disruption are changing them to consumers' benefit. The Comcast/NBCU decree not only sought to protect existing video rivals from foreclosure, but it was also designed to prevent the merged firm from foreclosing or raising the costs of developing business models with which online entrants would attack long-prevailing incumbent market power. The prospect was that online distributors would enter and bring new forms of competition to established video-programming business models of the kind traditionally operated by cable companies. We recognized in our Competitive Impact Statement that online entry was nascent but that the merged company might use its new-found assets to diminish its competitive significance.

The division's consent decree with Monsanto in its acquisition of Delta & Pine Land is another example of how innovation can factor into a vertical foreclosure analysis... So, Monsanto would be buying a company that was an important participant in the process of competing against Monsanto's traits. The division concluded that the merger would lessen competition in the development of cotton traits that would compete against Monsanto's traits. We ultimately entered into a consent decree with both divestiture and conduct remedies that reduced this risk while also preventing separate horizontal effects of that transaction.

Comcast would therefore have controlled a large proportion of the connections all internet content providers need to deliver content to household customers. Comcast would have also had greater incentive and ability to harm rivals to its cable television business including online video distributors like Netflix or Amazon Prime, by, for example, charging even higher interconnection fees for access to customers or degrading the quality of service. This concern about the cost and quality of upstream providers' access to downstream customers arose even though Comcast merging with TWC did not primarily involve vertical integration. Comcast ultimately abandoned the transaction after both the department and FCC expressed concerns along these lines.

### Federal Communications Commission:

The potential for increased consumer welfare as a result of these market developments was obvious – greater competition and potential competition leading to lower prices, greater output and new innovation. In other words, for the first time, multiple OVD services were launching or planning to launch services to provide consumers the ability to stream live, linear programming, including sports, as part of packages that threatened revenue streams derived from traditional Pay TV packages. In general, these new offerings may allow consumers to purchase smaller bundles or view current programming without the need for a contract with a cable company containing the traditional bundle or a traditional set-top box.

We understood that entrants are particularly vulnerable when competition is nascent. Thus, staff was particularly concerned that this transaction could damage competition in the video distribution industry by increasing both Comcast's incentive and its ability to disadvantage OVDs and thus retard or permanently stunt the growth of a competitive OVD industry. In doing so, consumers would be denied the benefits that innovative competition could bring. (12)

While the merging parties did not compete directly in the distribution of programming to consumers in local markets, OVDs do seek to distribute programming throughout the U.S., and negotiate for nationwide distribution rights. The ability of the larger merged firm to limit OVD distribution of programming nationwide, for example by negotiating contractual provisions that inhibited an OVD's ability to obtain nationwide online distribution rights, was carefully examined. Similarly, we also considered a national market for interconnection in which ISPs negotiate with OVDs (and their contentdelivery networks) over the terms by which the OVDs would reach consumers. Post- transaction, an OVD might have needed an interconnection agreement with the merged entity in order to achieve national distribution, so we also considered the ability of the merged company to impose terms that would disadvantage the OVD. (12)

[T]he combination of video and broadband distribution assets could increase the merged entity's incentives and abilities to take actions against rivals that would pose a competitive threat to online video entry – that is, current and potential competition. Increased incentives are a direct result of the increased footprint of the merged firm. (13)

Staff consideration of the cumulative impact of these levers on competition is itself a critical point. The question was not only whether a single kind of action – access to devices, or data caps or interconnection or video programming terms – by itself would degrade competition. It was also whether the merged company would possess the toolkit that would allow it to put sand in the gears of competition through the totality of its efforts. Indeed, for strategic reasons, an entity might have an incentive to spread the effects of anticompetitive actions across multiple forms of actions, and shift their impact over time, in order to attempt to avoid effective monitoring of their impact. Staff did not believe that its concerns could be remedied through conditions.

Sources: Jon Sallet, "The Interesting Case of the Vertical Merger," American Bar Association Fall Forum, November 17, 2016; "The Federal Communications Commission and Lessons of Recent Mergers & Acquisitions Reviews" Telecommunications Policy Research Conference, September 25, 2015.

What the DOJ and the FCC concluded in discharging their responsibilities is that the abuse of vertical market power must be prevented from harming competition that can take place between complements that ride on the platform. The abuse of market power must also be prevented from diminishing the possibility for new entrants to develop business models that tap their complementary strength to constrain the market power of the dominant platforms. The nature of competition (or lack thereof) in communications markets, which include examples of some of the most enduring abuses of market power in our economy, interacts with the particular importance of nascent competition entering from the position of suppliers of complementary services dependent on an essential input from the entrenched incumbents to magnify the importance of vertical leverage.

These challenges are pervasive and demand much more than vigorous antitrust enforcement of merger policy. Blocking blatantly anticompetitive mergers is an indispensable and necessary first step,<sup>5</sup> but antitrust has difficulty addressing the pervasive market power inherent in these industries. Thus, regulation has always overlapped antitrust in network infrastructure industries,<sup>6</sup> and the overlap would appear even more important as a small number of platforms come to dominate a much larger part of the economy.

Except for a brief comparison between the complaint filed against the AT&T-Time Warner merger to complaints filed in four recent cases, this paper does not analyze the court case. Rather, it provides the context for the court case, demonstrating why the DOJ had to complain about the merger and offering a lens through which the case, including the recently filed trial briefs, should be viewed.

## **OUTLINE**

Each of the discussions below adapts and/or expands arguments that have been presented by the Consumer Federation of America or its staff in academic books, journal articles and conference papers, as well as those presented in testimony before federal agencies, the courts, and the Congress.

The flow and logic of this analysis is summarized in Table I-2. The analysis runs along two tracks – one specific to antitrust and one oriented toward broader economic analysis. Each track begins with a traditional framework of analysis (Part I), then examines changes in the framework in the past quarter century (Part II). These broad concepts are then applied to the communications sector (Part III). Finally, examples of successful implementation of antitrust and non-discriminatory access to communications are provided (Part IV).

Beyond the empirical analysis of specific markets and the general need for vigorous, procompetitive antitrust and consumer protection policies, the discussions emphasize four broad themes that pointed toward the rejection of the merger.

- The strongly felt need for antitrust (and regulatory authorities) to look very carefully at the problem of vertical leverage in high-technology industries.
- Recent trends and findings in the broader economic literature that reinforce these concerns.

**TABLE I-2: OVERVIEW OF THE ANALYSIS (by track, issue and evidence)**

<b>Antitrust</b>	<b>General Economics</b>
<b><u>Part I. Broad Conceptual Framework</u></b>	
I. Fundamental antitrust principles and practices (Merger Guidelines)	II. Broad principles of economic analysis (Structure, Conduct, Performance)
III. Need to update the <i>Non-Horizontal Guidelines</i> (U.S. Critique/EU action)	III. Expansion of analysis of market imperfection (Almost two dozen Nobel prizes)
IV. Microsoft Case (Antitrust in high-tech sectors)	
<b><u>Part II. Empirical Evidence on the Application of Concepts</u></b>	
	Economic literature rejects
V. Contestability, one monopoly rent, overbroad efficiency claims (Economic studies and antitrust cases)	
	VI. “Two (competitors) is enough” (Vast literature on HHI/price and cartels)
	VII. Emergence of a Tight Oligopoly on steroids (Qualitative & Quantitative)
<b><u>Part III. Application to the Communications Sector</u></b>	
VIII. Review and rejection of other mergers (DOJ/FCC)	IX. The Centrality of AT&T in the Oligopoly (Analysis of the SCP of the BDS market)
X. The Wireless Market and the benefits of blocking the AT&T/T-Mobile (contrast between competitive and oligopoly periods)	XI. MVPD and broadband markets (Analysis of the SCP of MVPD markets)
<b><u>Part IV. Benefits of Vigorous Enforcement of Nondiscriminatory Access Rules</u></b>	
	XII. Nondiscriminatory (neutral) network access (Thirty years of success, twenty of controversy)
	XIII. Unlicensed spectrum (Effective alternative for spectrum access)
	XIV. Fairness in access to primetime audiences (Twenty years of success, sandwiched between decades of abuse)

- The structural conditions in digital communications markets that magnify these concerns – a development we call the emergence of a “tight oligopoly on steroids.”
- The decision to oppose a series of mergers in the communications sector and adopt regulatory policies to prevent the abuse of market power, and vertical leverage in particular.

**Part I:** This part lays out the analytic framework in three steps: 1) the practical framework applied by the antitrust authorities, 2) recent developments in thinking about market imperfections, particularly vertical leverage, and 3) the Microsoft case.

Section II relies primarily on the recently updated DOJ/FTC *Horizontal Merger Guidelines* to frame the analytic approach.<sup>7</sup> The *Non-Horizontal Guidelines*, which have not been updated, appear as Section 4 of that document. Since the merger is vertical, we devote equal attention to the concerns raised by vertical leverage and the ongoing efforts to provide a more refined and up-to-date view of the necessary analysis.

Section III adds depth to the analysis by locating the antitrust framework in the broader paradigm of the analysis of industrial organization.<sup>8</sup> Here we introduce two sets of changes in the field that support the decision to block the merger. First, we note the deepening concern about market imperfections and market failure as symbolized by the vast majority of Nobel prizes in economics awarded over the past two decades. Second, we review the increasing concern about vertical leverage in the antitrust field in the U.S. and EU.

Section IV describes the antitrust case against Microsoft,<sup>9</sup> which defined many of the issues that the agency encounters in mergers reviews. It addresses and rejects two key “defenses” that merging parties use to justify mergers – technological change and the theory of the single monopoly rent

**Part II:** This part reviews more specific developments that bear on the review of mergers in the digital economy. Again, three issues are addressed: 1) the rejection of theories frequently used to excuse or divert attention from the abuse of market power, 2) empirical evidence that a small number of competitors fails to discipline market power, and 3) recent complaints against mergers in the communications space.

Section V examines the economic literature of the past three decades as it bears on two of the most frequent claims parties use to attempt to convince antitrust authorities that the proposed merger should not be a competitive concern.<sup>10</sup> It shows that the economic literature has rejected the bold claims for potential competition (contestability) to discipline the abuse of market power. It also shows that the rejection of the single monopoly rent theory turns an analytic spotlight on the potential for tying and bundling to be anticompetitive.

Section VI shows that the literature strongly rejects the claim that potential competition or small numbers of competitors is sufficient to quash concerns about harmful effects of market power.

Section VII examines the unique sources of market power in the communications sector, showing the growth of a “tight oligopoly on steroids.”<sup>11</sup>

**Part III:** This part reviews empirical evidence on competitive market conditions in the communications sector that underlie recent decisions by the antitrust and regulatory agencies, not only in merger review. It reviews all of the markets in which AT&T plays a large role and the merger raises anticompetitive concerns.

Section VIII reviews the complaints and evidence in three merger reviews (Comcast-NBC, Comcast-Time Warner, and Charter-Time Warner), to provide the background for the DOJ complaint in the AT&T-Time Warner review. It concludes by placing the DOJ complaint against the AT&T-Time Warner merger in the framework applied to the other mergers reviewed in detail.

Section IX demonstrates that AT&T has a particularly strong location within that tight oligopoly and provides important background for the complaint filed by the DOJ against the merger.<sup>12</sup> It applies the conceptual and empirical framework used to describe the Business Data Services, where AT&T plays a leading role.

Section X shows the impact of the elimination of competition in the wireless market through mergers, and the resurgence of competition since the rejection of the AT&T/T-Mobile merger.<sup>13</sup> Although this was a horizontal merger, AT&T put forward many of the same arguments about the state of competition in digital communications markets as in the pending merger. The DOJ rejected those arguments and blocked the merger. The subsequent explosion of real competition has saved consumers billions, while expanding choice and improving quality. AT&T's behavior in the T-Mobile merger highlights the duplicitous nature of the merging parties in several of these cases. In public, AT&T executives (and their paid "experts") insist that competition is vigorous and/or the targeted firm is not a competitor. In private they say the opposite. Compelled to conduct due diligence and explain the "benefits" of the merger to boards, they admit that they are acquiring a significant potential competitor or complementary asset that will be a very useful tool to diminish competition.

Section XI examines the Broadband/MVPD market. It shows continuing high levels of concentration and abuse of market power, resulting in billions of dollars of overcharges.<sup>14</sup>

**Part IV:** While the previous analysis examined the negative impacts of market power that rejection or conditioning of a merger is intended to prevent, this part examines three cases where decisive action to defend and promote competition has had a positive impact by ensuring that market power over chokepoints is not abused.

Section XII provides a brief discussion of network neutrality.<sup>15</sup> No analysis of the incentive and ability to abuse vertical leverage would be complete without a discussion of network neutrality. The network neutrality debate counts twice – once for what it shows about real, on-the-ground motives and power, and once because it shows the history of abusive conduct. This is a huge policy issue whose status remains up in the air and we will only extract a few key points. However, even if strong regulations were in place, this is one of the issues where we believe the overlap of antitrust and regulation is extremely beneficial. There is simply no reason to allow the accumulation of massive market power through increased leverage and hope that network neutrality policy will take care of the problem. In the prophylactic sense of merger review, the potential harms vastly outweigh any potential benefits.

Section XIII discusses a second key "open access" decision made by the FCC that was an essential ingredient in the success of the Internet – the decision to make accessible parts of the public airwaves available on an unlicensed, nondiscriminatory basis – and opened the door to the WiFi revolution.<sup>16</sup> Having created a hugely successful approach, the FCC is challenged to expand the amount of spectrum available. The dominant incumbent cellular providers would like nothing better than to starve this model of the essential resource it needs.

Section XIV presents a discussion of the flowering of creativity and diversity during the period in which fair, reasonable and nondiscriminatory (FRAND) access to prime-time TV audiences was mandated by DOJ and FCC policies.<sup>17</sup> For two decades this policy improved video market performance, but when it was abandoned, anticompetitive practices quickly returned. The result was a dramatic increase in vertical integration and abuse of vertical leverage.

There are two appendices that bring forward more technical analyses from the earlier report. Appendix A describes the conceptual and empirical measures used for the main market structure and performance analyses – concentration, prices and profits, as well as the data sources used. Appendix B discusses international and institutional comparisons of the most important end-user charges, wireless and broadband bundles.

**PART I.**  
**CURRENT THEORY AND EMPIRICAL EVIDENCE ON**  
**THE ABUSE OF MARKET POWER BY A TIGHT OLIGOPOLIES ON STEROIDS**

## II. CONCEPTUAL AND EMPIRICAL FRAMEWORK TO ANALYZE CORE CONCERNS ABOUT MARKET POWER

In this section, we describe our approach to market structure analysis, which is based on the Department of Justice/Federal Trade Commission *Merger Guidelines*. The *Guidelines* were first issued by the Nixon Administration, then revised by the Reagan, Bush, Clinton, and Obama Administrations. After describing the approach of these agencies, we provide some of the historical background to explain the analytical basis of the concepts.

### BASIC ANALYSIS AND CONCERNS

#### Defining Markets

The DOJ/FTC *Merger Guidelines* are concerned about market power, defined as

a seller [with] the ability profitably to maintain prices above competitive levels for a significant period of time. Sellers with market power also may lessen competition on dimensions other than price, such as product quality, service or innovation.<sup>18</sup>

The reason the antitrust authorities are concerned about market power is that it results in a transfer of wealth from consumers to producers and the inefficient use (misallocation) of resources. Economists call the latter “deadweight loss” on the economy. Neither wealth transfers nor deadweight loss would take place in a competitive market.

While monopoly is clearly a big concern, most antitrust analysis focuses on circumstances in which there are a small number of sellers. With small numbers, coordinated or parallel activities, and even unilateral actions, can impose these harms.

[In] some circumstances, where only a few firms account for most of the sales of a product, those firms can exercise market power, perhaps even approximating the performance of a monopolist, by either explicitly or implicitly coordinating their actions. Circumstances also may permit a single firm, not a monopolist, to exercise market power through unilateral or non-coordinated conduct.... In any case, the result of the exercise of market power is a transfer of wealth from buyers to sellers or a misallocation of resources.<sup>19</sup>

**Definition:** The first step in the effort to examine the extent of competition for a product is to define the market to be evaluated. The key is to identify products that are close substitutes. This has two dimensions. The attributes of the product must be such that they can replace one another with similar qualities and functionalities at similar prices. The products must also be available in the geographic location of the market. In many cases, the geographic dimension is defined by transportation costs. If transportation costs are high or the ability to move products nonexistent, out-of-market products cannot compete on price. The same is true of communications services. In fact, for many communications services the geographic definition is simple. In order to transmit communications, the consumer needs to have a local connection to the network (first mile) to a point where the traffic can be widely distributed regionally or nationally (middle mile). Connectivity has a strong local component on both the originating and terminating ends. Therefore, the analysis begins at the local level and considers national markets only where they have a unique impact.

**Structure:** The second step in the analytic process is to describe the market structure. The objective is to understand how structure affects the conduct of the firms in the market. The smaller the number and the larger their size, the less likely they are to compete. The extent of concentration is frequently measured by the Hirschman-Herfindahl Index (HHI) for the reasons discussed below. Other factors are considered, too, including unique barriers to entry, history (e.g., long-term dominance by incumbent firms, other distinctive patterns of anti-competitive practices), anti-competitive contracts, or the presence of disruptive firms (mavericks).

**Performance:** The performance of the market is measured primarily by price, cost, and profits. Prices that greatly exceed costs yield excess profits. We do not expect to observe supranormal profits in competitive markets. We expect any sign of supranormal profits to elicit quick responses from firms in the market or new entrants attracted by the profit opportunity. They offer substitutes at lower prices to steal customers, thereby quickly competing away excess profits. If the supranormal profits are sustained, they indicate the existence and persistence of market power.

### **Thresholds for Concerns about Market Power**

Identifying the situations in which a small number of firms can exercise market power is not a precise science. After the product and geographic market is defined, concentration is measured by the HHI. That index has a direct relationship to the existence of market power. As shown in Table II-1, the thresholds used in the *Guidelines* were recently raised and have “common sense” referents.

Until 2010 (i.e., until the revision of the *Guidelines* in 2010), an HHI above 1,800 was considered a highly concentrated market. A market with six equal-size competitors would have an HHI of 1,667.<sup>20</sup> A market with an HHI below 1,000 was considered unconcentrated. A market with 10 equal-size competitors would have an HHI of 1,000 and would be competitive. A market was considered moderately concentrated when it fell between the highly concentrated and unconcentrated thresholds (i.e., had an HHI between 1,000 and 1,800). This reflected a belief that when the number of firms falls into the single digits, there is cause for concern. “Up to six firms one has oligopoly, and with fifty firms or more of roughly equal size one has competition; however, for sizes in between it may be difficult to say. The answer is not a matter of principle but rather an empirical matter.”<sup>21</sup>

Under the recently revised guidelines, the unconcentrated threshold was raised to 1,500 while the highly concentrated threshold was raised to 2,500, or the equivalent of four equal-size firms. These thresholds (old and new) correspond to a long-standing characterization of the ability of firms to increase prices to raise profits. Shepherd describes these thresholds in terms of four-firm concentration ratios as follows:<sup>22</sup>

- Tight Oligopoly: The leading four firms combined have 60–100% of the market. Collusion among them is relatively easy.
- A dominant firm, with almost two-thirds of the market, would create a highly concentrated market and be a particular source of concern.
- Two firms splitting the market in a duopoly also creates a highly concentrated market and raises strong concerns.

- Loose Oligopoly: The leading four firms combined have 40% or less of the market. Collusion among them to fix prices is virtually impossible.

**TABLE II-1: DESCRIBING MARKET STRUCTURE**

Department of Threshold Definitions	Type of Market	HHI	Equivalents in Equal-size Firms	4-Firm Market Share (CR4)	Concern about anticompetitive effect of increases in market power: a significant, non-transitory increase in price (5%) for two years
	Monopoly <sup>a/</sup>	10,000	1	100	
	Duopoly <sup>b/</sup>	5,000	2	100	
(Old) Dominant Firm	65% share	4,650	2	100	HHI increase: 200 points—presumed to be likely to increase market power 100–200 points—potentially raises significant competitive concerns
<u>New Highly Concentrated</u>		2,500	4	100	
(Old) Highly Concentrated		1,800	5.5	72	HHI increase: 200 points—potentially raises significant competitive concerns
<u>New Moderately Concentrated</u>		1,500	6.6	61	
	Tight Oligopoly			60	
(Old) Moderately Concentrated	Loose Oligopoly	1,000	10	40	
Unconcentrated	Atomistic Competition		50	8	

Sources and Notes: (a) Antitrust practice finds monopoly firms with market share in the 65% to 75% range. Thus, HHIs in monopoly markets can be as low as 4,200. (b) Duopolies need not be a perfect 50/50 split. Duopolies with a 60/40 split would have a higher HHI. Sources: U.S. Department of Justice, *Horizontal Merger Guidelines*, revised August 2010, for a discussion of the HHI thresholds; William G. Shepherd, *The Economics of Industrial Organization* (Englewood Cliffs, NJ: Prentice Hall, 1985), for a discussion of four-firm concentration ratios.

The upper bound of a moderately concentrated market would correspond to a tight oligopoly, which was defined as a market where the top four firms (the four-firm concentration ratio, or CR4) had more than 60% of the market.<sup>23</sup> The lower bound of a moderately concentrated market with ten equal-size firms would fall at this threshold.

Obviously, any line or threshold is inherently arbitrary, but the purpose of the *Guidelines* is to give firms contemplating mergers a signal about how the antitrust authorities are likely to react. These thresholds send that signal. However, as the *Guidelines* make clear, the ultimate decision of whether to oppose a merger will reflect a fact-intensive consideration of all aspects of the market.

### Competitive Effects

In evaluating the impact of mergers, antitrust authorities focus on modest but significant, non-transitory increases in price (SSNIP). The price increases that trigger concern are relatively small (5%) and sustained for a relatively short period (two years). Here, we focus on highly concentrated markets under the new *Guidelines* since they are current policy and all of the markets analyzed in this paper are more highly concentrated.<sup>24</sup> The Department of Justice defines the critical concern as follows:

*Highly Concentrated Markets:* Mergers resulting in highly concentrated markets that involve an increase in the HHI of between 100 points and 200 points potentially raise significant competitive concerns and often warrant scrutiny. Mergers resulting in highly concentrated markets that involve an increase in the HHI of more than 200 points will be presumed to be likely to enhance market power. The presumption may be rebutted by persuasive evidence showing that the merger is unlikely to enhance market power.<sup>25</sup>

In a highly concentrated market where a firm has a 25% market share, very small changes in market share trigger a presumption that market power will be abused because highly concentrated markets are vulnerable to abuse.

While highly concentrated markets trigger the greatest concern, moderately concentrated markets are also a concern. “*Moderately Concentrated Markets:* Mergers resulting in moderately concentrated markets that involve an increase in the HHI of more than 100 points potentially raise significant competitive concerns and often warrant scrutiny.”<sup>26</sup>

In the communications sector, a market with even six equal-size competitors is hard to envision, let alone ten. In fact, these markets struggle to support four competitors. Most have concentration ratios close to a duopoly. In infrastructure and communications industries, four is a big number that markets struggle to reach, but that should not be an excuse to abandon the fundamental principles of analysis of competitive economics. It should be a warning flag indicating market power pervades these markets. Indeed, because the advantages inherited by the incumbents from the monopoly period are so great, because entry is so difficult, and because the anticompetitive behavior of incumbents is so pervasive and deeply ingrained, we believe it would be a mistake to presume even moderately concentrated markets are competitive. Because it is so hard to achieve large numbers of competitors, communications markets have been overseen by both antitrust and regulation.

The recent revision of the *Guidelines* reflects a view based on the theory of non-cooperative games that “four is few and six is many.”<sup>27</sup> Given the long history of the thresholds and the empirical evidence on pricing abuse of market power, we believe a better summary rule of thumb should be that “four is few, six may be enough, and ten is many.”

### **Coordination Effects and Incipient Competition**

The *Guidelines* devote a considerable amount of attention to the effect a merger can have in facilitating coordination among the firms in a sector. The *Guidelines* describe the competitive concern about coordination as follows.

A merger may diminish competition by enabling or encouraging post-merger coordinated interaction among firms in the relevant market that harms customers. Coordinated interaction involves conduct by multiple firms that is profitable for each of them only as a result of the accommodating reactions of the others. These reactions can blunt a firm’s incentive to offer customers better deals by undercutting the extent to which such a move would win business away from rivals. They also can enhance a firm’s incentive to raise prices, by assuaging the fear that such a move would lose customers to rivals.<sup>28</sup>

The *Guidelines* identify three types of coordination:

- (1) Coordination can be explicit (which in itself would violate the antitrust laws),

(2) a “common understanding that is not explicitly negotiated but would be enforced by detection and punishment of deviation” and

(3) “parallel accommodating conduct not pursuant to a prior understanding.”<sup>29</sup>

Although the *Guidelines* note that “coordinated interaction includes conduct not otherwise condemned by the antitrust laws,” they argue that merger review should reach this behavior because the merger could produce conditions in the market that make it extremely vulnerable to harmful coordination. By so dramatically altering the overall competitive structure of the market, the merger can violate the antitrust laws.

The ability of rival firms to engage in coordinated conduct depends on the strength and predictability of rivals’ responses to a price change or other competitive initiative. Under some circumstances, a merger can result in market concentration sufficient to strengthen such responses or enable multiple firms in the market to predict them more confidently, thereby affecting the competitive incentives of multiple firms in the market, not just the merged firm.

Therefore, the Agencies evaluate the risk of coordinated effects using measures of market concentration (see Section 5) in conjunction with an assessment of whether a market is vulnerable to coordinated conduct... The analysis in Section 7.2 applies to moderately and highly concentrated markets, as unconcentrated markets are unlikely to be vulnerable to coordinated conduct.<sup>30</sup>

The conditions under which coordination is a concern are the exact conditions that we find in communications markets.<sup>31</sup>

Concentration, a few dominant firms

Low elasticity of demand, high switching costs

Common interest of the dominant firms

Inability of smaller, fringe firms to attract customers or expand output

Territorial segmentation

Homogeneity of products

History of coordination

Multiple market contacts

The importance of coordination underscores another aspect of merger review – the role of incipient competition and maverick firms. The *Guidelines* mention incipency twice – once in the general introduction and once in the section on “coordination.”<sup>32</sup> The section on coordination introduces the concern with reference “to the Clayton Act’s incipency standard”<sup>33</sup> because an individual firm can play a particularly important role in providing competition. This role can be heightened in the situation of systemic stress to the business model.<sup>34</sup> The disruptive behavior of mavericks is the antithesis of coordination.

Whether one believes incipency is restricted to the narrow concern with coordination or a broad-based concern under the antitrust laws, it demands consideration in analyzing the communications sector. In this case, a new technology has recently entered the market and competitive models are nascent, while the incumbents, who have resisted the technology, control crucial inputs and continue to have high market shares. The number of firms that control these

crucial inputs is quite small, the threat of harm to competition through the abuse of enhanced and unilateral market power or coordination is considerable.

## **NON-HORIZONTAL MERGERS AND MARKET STRUCTURE CONCERNS**

At one level, the *Non-Horizontal Guidelines* involve many of the same issues as the *Horizontal Guidelines* – concentration, entry conditions, and price increases. In fact, they are part of the same document. At another level they are different because the impacts are more complex. They are akin to the coordination effects in the horizontal analysis in several ways. First, they place significant emphasis on the market-level impact of the merger rather than the individual firm level. Second, they launch from the discussion of potential competition, which is akin to the incipency starting point. Third, the assessments of market structure and impacts are similar, although they trigger at somewhat higher levels and recognize a narrower set of impacts as the legitimate object of analysis. As the following discussion shows, the conditions in communications video markets clearly trigger the concerns expressed in the *Guidelines*.

### **Vertical Integration and Leverage**

Vertical integration is a key characteristic of some industries,<sup>35</sup> where the act of producing a product can be readily separated from its distribution and sale. The concerns vertical mergers raise involve anticompetitive effects across markets – foreclosure, price squeeze, vertical restraints, exclusion, tying of products, and evasion of regulation. Because vertical integration involves the elimination of a (presumably market-based) transaction between two entities, it has been the focal point of a great deal of analysis. Economic efficiencies are frequently claimed for vertical integration due to the elimination of transaction costs. Others fear inefficiency and potential abuse of the ability to leverage vertical market power that can result from excessive or unjustified vertical integration.<sup>36</sup>

The classic concern in the communications context is that suppliers of (upstream) applications or content distributed over communications networks, who are also owners of those networks, will favor their own products at the expense of the product of unaffiliated producers. Cross-owned products succeed not because they win on the merits, but because they are favored by their owners who control a key (downstream) choke point. More importantly, in communications networks, vertical relationships are central because interconnection and interoperability between networks is crucial for communications to be able to flow. Communications networks are frequently a choke point, bottleneck, or essential facility that controls the access to consumers by controlling the flow of communications. Therefore, vertical integration and leverage are a heightened concern.<sup>37</sup>

The inherent economic characteristics of these networks severely limits the number that will be available to individual consumers. Transmission of data is the indispensable function necessary to deliver services over the communications network. This creates a strong basis for concern about vulnerability to the abuse of vertical market power. Control of the network choke points gives the network operators a great deal of power in a situation where there are few, if any, alternatives.<sup>38</sup>

Vertical integration may become the norm in the industry, making it difficult for unintegrated producers to survive. Vertically integrated entities may capture the market for inputs, inhibiting independent entities from obtain the factors of production necessary to deliver competing products. Also, with vertically integrated entities dominating a sector, reciprocity and forbearance may become the norm rather than competition.

## **Conglomeration**

The problem of conglomerate mergers<sup>39</sup> is also viewed cautiously since any anticompetitive effects flowing from strategic interfirm and overall market impacts, which are difficult to assess. That said, the key conditions that are cited as making conglomerate and vertical mergers a source of competitive concern are exactly the conditions we have shown in the communications market.

Viscusi, Vernon and Harrington list the competitive concerns about conglomerate mergers to include reciprocity, opportunities for predatory pricing, eliminating potential competition, and undesirable giant size.<sup>40</sup> They argue these are difficult concepts to demonstrate empirically, but the list of conditions that make the concerns possible are clearly prevalent in communications markets – high concentration, entry barriers, and a small number of potential competitors.<sup>41</sup>

They then point to the *Merger Guidelines* for instruction in where to look for the potential competition impact. Many of the necessary conditions cited are invariably present in the communications sector.

In the *Merger Guidelines*, several criteria are given that must be met before a potential competition merger will be challenged:

1. The HHI must exceed 1800 [now 2500].
2. Entry must be difficult.
3. The eliminated potential competitor must have been one of only three or fewer firms having comparable advantages in entering the market.
4. The acquired firm's market share must be at least five percent [now three percent].<sup>42</sup>

Shepherd identifies similar competitive concerns, emphasizing mutual restraint based on multi-market contact<sup>43</sup> and adding cross-subsidy.<sup>44</sup> Shepherd argues that dominant firms engaging in conglomerate mergers pose a significant threat to competition due to a number of factors. Competition can be reduced by creating greater potential for cross subsidy,<sup>45</sup> enhancing reciprocity in the industry,<sup>46</sup> reducing potential competition,<sup>47</sup> and creating spheres of influence that foster mutual restraint.

While Shepherd is also skeptical of the impact of conglomerates on competition, the conditions he cites as mitigating the concern are not present in the communications market. Hypothesizing five firms, Shepherd's "horror" story of huge conglomerates dominating spheres

of influence and interacting in many markets to create a pattern of mutual restraint is particularly telling.

Imagine an extreme situation with five big diversified firms extending into all major sectors. They coexist in parallel, touching one another within hundreds of markets. Whatever their effect on each market might be, they pose a larger problem of spheres of interest, of diplomatic behavior replacing competition....

Each firm would weigh action in one market against the possible retaliation by other firms in that market *and* in other markets... Each firm would know more about its rivals' behavior and have more dimensions in which to react effectively... within some industry groups, there are sets of diversified firms mingling in scores or hundreds of individual markets... A degree of mutual restraint is likely in such cases.<sup>48</sup>

*Reciprocity* is an exchange of favors... Customers will normally try to induce the firm to make reciprocal deals. Yet such favors are usually departures from strict rational choice. The Chicago-school view is that reciprocity is irrational.... The degree of its effect will depend on the situation.

One must judge such possibilities carefully. A conglomerate with only minor market share positions can scarcely reduce competition.<sup>49</sup>

Vertical integration facilitates price squeezes and enhances price discrimination.<sup>50</sup> Firms can impose higher costs on their rivals or degrade their quality of service (withholding flagship programming) to gain an advantage.

This could happen, if, for example, the conduct of vertically integrated firms increased risks for nonintegrated firms by exposing downstream specialists to regular or occasional price squeezes or made it difficult for upstream specialists to find a market for their output in times of depressed demand.<sup>51</sup>

The final behavioral effect is to trigger a rush to integrate and concentrate. Being a small independent firm at any stage renders a company extremely vulnerable to a variety of attacks.

Oligopolies often settle down into behavioral patterns in which price competition atrophies, even though some or all sellers suffer from excess capacity. Non-price rivalry then becomes crucial to the distribution of sales. One form of nonprice competition is the acquisition of downstream enterprises which, all else (such as prices) being equal, will purchase from their upstream affiliates. If acquisition of this sort deflects significant amounts of sales, disadvantaged rivals are apt to acquire other potential customers in self-defense, and reciprocal fear of foreclosure precipitates a bandwagon effect in which the remaining independent downstream enterprises are feverishly sought.<sup>52</sup>

If there are 10 nonintegrated firms and only one of them integrates, then little effect on competition might occur. But if this action induces the other 9 to do the same, the ultimate impact of the first "triggering" move may be large. Any increase in market power is magnified.<sup>53</sup>

The dominant communications firms and markets possess every one of the characteristics necessary for firms to engage in cross-subsidization of their more competitive products and impose a price squeeze on their rivals. "An insecure, widely stretched conglomerate with no

strong market base and thin profit margins can affect competition far less than an established lucrative, triple-a dominant firm.”<sup>54</sup>

If an important potential entrant buys up a dominant firm (or vice versa), competition will be doubly reduced. Even so, the total effect may not be sharp. That depends on the degree of actual and potential competition that remains, and on the market power of the parent firm. Each conglomerate merger presents a different set of conditions. One can still say, roughly that the potential competition and toehold issues do not usually pose large effects on competition.<sup>55</sup>

The threat to competition from conglomerate mergers is heightened where the dominant firm has the ability to recapture the apparent losses that cross-subsidy seem to require. They do so by shifting the cost onto captive customers or regulated customers in the core franchise service. Cross-subsidization becomes possible,<sup>56</sup> although this is by no means the only available instrument of anti-competitive conduct.

Cross-subsidizing... The effect of such support depends mainly on the market position of branch B. If branch B is dominant, the support will tend to entrench it further. But if branch B has a small market share, the support will tend to entrench it further... If all branches of a diversified firm are dominant in their markets, their pooled resources are likely to increase their dominance through greater price discrimination, threats of punitive actions, and so forth.<sup>57</sup>

The threat to competition from conglomerate mergers is heightened where the dominant firm has the ability to recapture the apparent losses that cross-subsidy seems to require, such as captive customers or regulated customers in the core franchise service. The telecommunications companies had their regulated services and the cable companies had their core video services to absorb the subsidy, thereby diminishing the competition in the new “expanding” services (i.e. wireless and broadband).

In fact, many conglomerates have much less ability to cross-subsidize – to apply economic power to assist one part of the firm – than unified firms have. One judges this by the basic market position, degree of security, and flow of funds that the firm has. An insecure, widely stretched conglomerate with no strong market base and thin profit margins can affect competition far less than an established lucrative, triple-a dominant firm.<sup>58</sup>

The fact that potential competition and various forms of strategic interfirm behavior play such a large part in the analysis of conglomerate mergers underscores the importance of the theory of non-cooperative games. Analysis of non-cooperative games makes the unilateral aspect of the *Merger Guidelines* particularly relevant since it identifies key factors that facilitate the ability of firms to arrive at mutually beneficial “cooperative outcomes” without explicit collusion. The structure of games that lead to these outcomes rest on a series of characteristics that are clearly present in the communications markets we are studying. Conscious parallelism rests on strategic behavior, which is enhanced by repetition over time and across space. Taylor provides a clear statement of these issues, and similar analysis can be found in Viscusi, Harrington and Smith.

If the managers of a firm make the right assessment of how other firms will react to any course of action they take, then their firm will profit. This awareness and consideration of the market power and reactions of other firms in the industry is called **strategic behavior**. Strategic behavior also may exist when there is product differentiation... but to study and explain strategic behavior it is simpler to focus on oligopolies producing homogeneous products.<sup>59</sup>

Particular importance is placed on the ability of firms to exercise (and signal) price leadership – i.e. “**tacit collusion**, where there are no explicit communications between firms, but firms keep prices high by regularly following the behavior of one firm in the industry. The dominant firm is sometimes call a **price leader**.”<sup>60</sup> (Taylor p. 305).

Taylor also points to another situation in which the ability to engage in strategic behavior can yield increases in price above costs – price discrimination where there are different elasticities of demand across market segments.

If the monopolist can discriminate between buyers, then it is optimal to charge a lower price to the high-elasticity group and a higher price to the low elasticity group... Price discrimination based on different price elasticity of demand requires that the firm be able to prevent people who buy at a lower price from selling the item to other people. Thus, price discrimination is much more common in services than in manufactured goods.<sup>61</sup>

Again, the communications sector is a good candidate, and Viscusi, Harrington and Smith make a similar suggestion.

### III. A BROAD PERSPECTIVE ON MARKET STRUCTURE, CONDUCT, AND PERFORMANCE

The dominant paradigm over the last century – the one behind the *Merger Guidelines* – is the Structure-Conduct-Performance (SCP) paradigm. As shown in Figure III-1, throughout the following discussion of the SCP paradigm, we try to balance analyses by liberal and conservative economists. As shown in Figure III-1, the structure of the market is affected by basic economic conditions. Market structure is assumed to have a major impact on the conduct of sellers and buyers in the market. Conduct determines the performance of the market to a significant degree. However, note the feedback loops in which conduct affects market structure and policy. In this analysis, we use the concepts to describe industry structure and focus on three key aspects of the traditional approach to economic analysis: concentration, price, and profits.

The upper graph is taken from Viscusi, Vernon, and Harrison. They note, “While the structure-conduct-performance relationship is subject to debate, it nevertheless provides a useful framework for organizing a number of important concepts.”<sup>62</sup> The middle graph is from Scherer and Ross. They argue that “what society wants from producers of goods and services is good market performance. Good performance is multidimensional.”<sup>63</sup> They conclude that markets should (1) be efficient in the use of resources and responsiveness to consumer demand, (2) be progressive in taking advantage of science and technology to increase output and provide consumers with superior new products, (3) promote equity in the distribution of income so that producers do not secure rewards in excess of what is needed to call forth services supplied, and so that consumers get reasonable price stability, and (4) facilitate stable, full employment of resources, especially human resources.

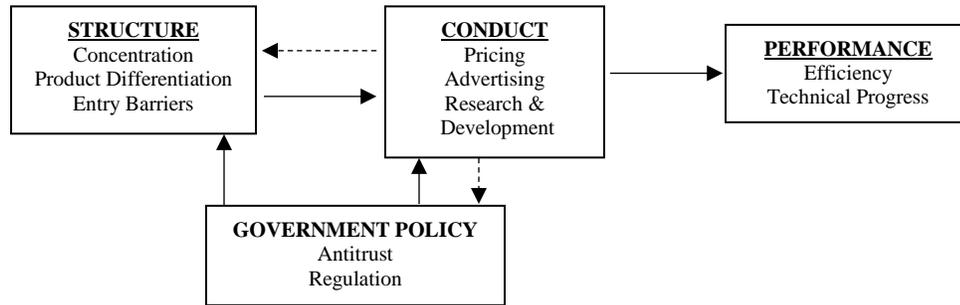
Scherer and Ross note, “Measuring the degree to which the goals have been satisfied is... not easy, but relevant indicators include price-cost margins, rates of change in output... and price levels.”<sup>64</sup> These are the primary measures analyzed in this paper. Scherer and Ross provide a long list of practical measures that detail what a workably competitive market would look like, with the attributes arranged roughly according to their relationship to the underlying paradigm, as shown in Table III-1.<sup>65</sup>

In a workably competitive market, firms are constrained by competitive market forces to earn only a “normal” rate of profit. They do not have the power to set prices unilaterally, through collusion or coordination of their conduct, to gain excess profits. They are also driven to invest and innovate; to win and hold customers who have the ability to choose which products to consume. This forces firms to be responsive to consumer needs that evolve over time.<sup>66</sup>

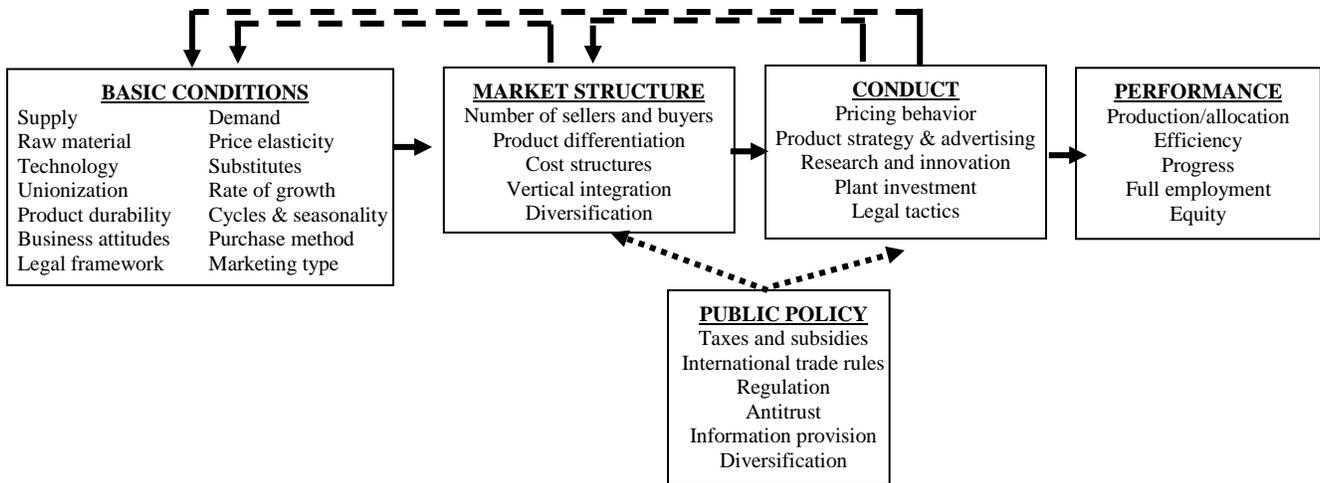
Like Scherer and Ross, Shepherd pays attention to the broader policy perspective, considering subsidies, public ownership, and social regulation. He also emphasizes market failure. Thus, all three discussions of the SCP paradigm recognize the potential role for policy to address imperfections and failures that drive markets away from the outcomes expected in workably competitive markets.

**FIGURE III-1: THE STRUCTURE-CONDUCT-PERFORMANCE PARADIGM: KEYED TO CABLE**

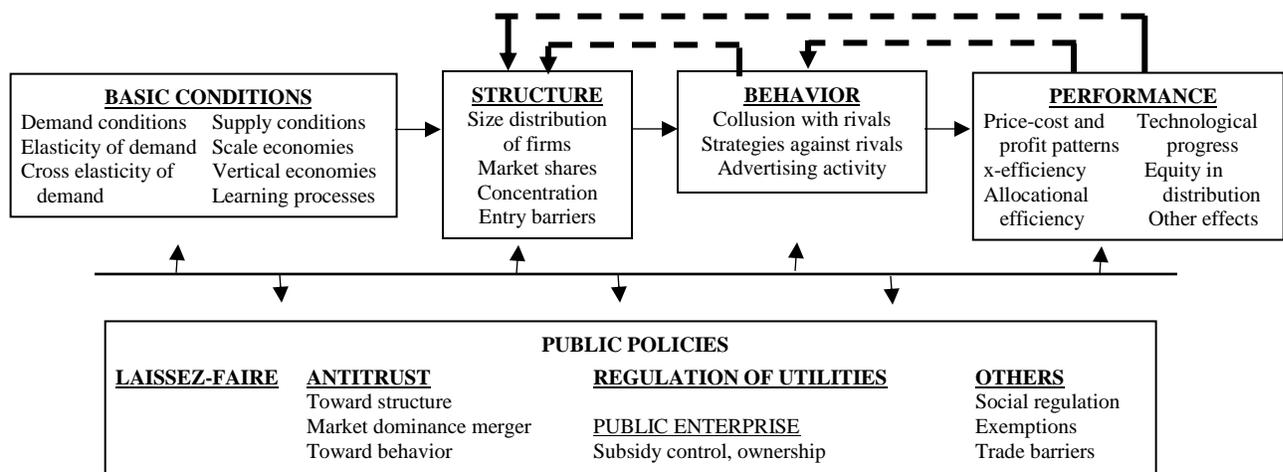
Kip Viscusi, John M. Vernon, and Joseph E. Harrington, Jr., *Economics of Regulation and Antitrust* (Cambridge: MIT Press, 2000), p. 62



F.M. Scherer & David Ross, *Industrial Market Structure and Economic Performance* (Houghton Mifflin, 3<sup>rd</sup> ed., 1990), p. 5.



William G. Shepherd, *The Economics of Industrial Organization* (Englewood Cliffs, NJ: Prentice Hall, 2<sup>nd</sup> ed., 1985), p. 5



**TABLE III-1: CHARACTERISTICS OF WORKABLY COMPETITIVE MARKETS**

<b>Structure</b>	<b>Conduct</b>	<b>Performance</b>
<p>The number of traders should be at least as large as scale economics permit.</p> <p>There should be no artificial inhibitions on mobility and entry.</p> <p>There should be moderate price-sensitive quality differential in products offered.</p>	<p>Some uncertainty should exist in the minds of rivals as to whether price initiatives will be followed.</p> <p>Firms should strive to attain their goals independently, without collusion.</p> <p>There should be no unfair, exclusionary, predatory, or coercive tactics.</p> <p>Inefficient suppliers and customers should not be shielded permanently.</p> <p>Sales promotions should be informative, or at least not be misleading.</p>	<p>Firms' production and distribution operations should be efficient and not wasteful of resources.</p> <p>Output levels and product quality (i.e., variety, durability, safety, reliability, etc.) should be responsive to consumer demands.</p> <p>Profits should be at levels just sufficient to reward investment, efficiency, and innovation.</p> <p>Prices should encourage rational choice, guide markets toward equilibrium, and not intensify cyclical instability.</p> <p>Opportunities for introducing technologically superior new products and processes should be exploited.</p> <p>Promotional expenses should not be excessive.</p> <p>Success should accrue to sellers who best serve consumer wants.</p>

Source: F.M. Scherer & David Ross, *Industrial Market Structure and Economic Performance* (Houghton Mifflin, 3<sup>rd</sup> ed., 1990), pp. 52-54.

### **THE ROLE OF MARKET FAILURE**

The flip-side of markets that achieve workable competition is markets that fail. Where markets are not workably competitive, firms can set prices far above costs to obtain excess earnings, slow innovation, restrict consumer choice, and deliver inferior goods and service. The concentration of a market—the number of firms and their relative size—is a focal point of market structure analysis. The smaller the number and the larger the size of the leading firms, the greater their ability to increase prices and earn excess profits.<sup>67</sup>

Viscusi, Vernon, and Harrington go further:

If we existed in a world that functioned in accordance with the perfect competitive paradigm, there would be little need for antitrust policies and other regulatory efforts. All markets would consist of a large number of sellers of a product, and consumers would be fully informed of the product's implications. Moreover, there would be no externalities present in this idealized economy, as all effects would be internalized by the buyers and seller of a particular product.

Unfortunately, economic reality seldom adheres very closely to the textbook model of perfect competition. Many industries are dominated by a small number of large firms. In some instances, principally the public utilities, there may even be a monopoly. Consumers who use hazardous products and workers who accept risky employment may not fully understand the consequences of their actions. There are also widespread externalities that affect the air we breathe, the water we drink, and the future viability of the planet....

Not all market failures stem from actions by firms. In some cases, individuals can also be contributing to the market failure.<sup>68</sup>

John Taylor defines market failure as “any situation in which the market does not lead to an efficiency economic outcome and in which there is a potential role for government...The major sources of market failure are public goods, externalities, and monopoly power.” Along with Viscusi, Vernon, and Harrington, Taylor stresses the challenge of identifying significant market failures that should be addressed and points out that giving government the ability do to

so requires great care. Nevertheless, it is clear that the incidence and magnitude of market failures is large enough to justify the effort.

Just as the *Guidelines* have evolved, so too has the market imperfection/market failure aspect of the Structure-Conduct-Performance framework. As shown in upper part of Table III-2, over the course of the last several decades, a broad critique of the assumptions underlying the market fundamentalist view of how markets work (or fail) has come into existence, garnering almost two dozen Nobel prizes.

The broad critiques strengthen the case for considering the conditions under which markets perform poorly. It follows that policy interventions to correct market imperfections and market failures are appropriate. These critiques have grown into full-blown schools of thought, but we see them strengthening the usefulness of the Structure-Conduct-Performance paradigm. Few, if any, of these analysts abandon capitalist markets as central economic institutions. Their primary goal is to identify the sources of market failure with greater precision and to prescribe policies to reduce the imperfections, all while preserving the positive, dynamic forces of markets. This course of development is consistent with the underlying framework presented above. As shown in the lower parts of Table III-2, we identify over three specific market imperfections that are a concern for policy. The vast majority of these will be identified in the one or more product markets in the discussion below.

#### **REINVIGORATING THE VERTICAL DIMENSION OF ANTITRUST**

The detailed analysis of market structure as the basis for antitrust and regulatory policy revives the practice of both, each having gone dormant over the previous several decades as the tight oligopoly came into existence. A book entitled *How the Chicago School Overshot the Mark* argued that the market fundamentalist interpretation of antitrust theory was based on a series of assumptions and arguments, as shown in Table III-3. This resulted in the extremely lax enforcement of antitrust. The result was to allow excessive concentration to create market power, followed by lax enforcement that tolerated its abuse. The shift in approach documented below constitutes corrections of each of these flaws in different degrees:

Table III-4 summarizes the competitive and coordination effects identified in the general merger review and their manifestations in the communications sector. The performance of the market is listed in the left column since this is the bottom line for the antitrust analysis. Market conditions and structure are in the center column; conduct is in the third column. There is clearly a pervasive and powerful set of conditions that make these markets vulnerable to the abuse of market power.

**TABLE III-2: RECENT NOBEL LAUREATES, NEW SCHOOL OF THOUGHT, AND IDENTIFICATION OF MARKET IMPERFECTION AND SOURCES OF MARKET FAILURE**

**Basic Conditions:** New Institutional/ Transaction Cost  
 Coase, 1992; North, 1993; Fogel, 1993; Williamson, 2009;  
 Ostrom, 2009 Endemic Flaws: Stiglitz, 2001; Spence, 2001

<p><b>TRANSACTION COST FRICTION</b>                  Search &amp; Information Imperfections                      Availability                      Accuracy                      Search Cost                  Bargaining                  Risk &amp; Uncertainty                      Technology                      Marketplace                      Policy                      Financial                      Liability                  Enforcement                      Monitoring Costs                      Switching Costs                      Sunk Costs</p>	<p><b>Market Structure:</b>                  Krugman, 2008, Heckman, 2008; Tirole 2014; Deaton, 2015</p>	<p><b>SOCIETAL FLAWS</b>                  Expanded Role of Externalities                      Positive                      Negative                  Public Goods                      Basic research                      Information                      Learning-by-doing                      Learning-by-using                  Network Effects                      Direct                      User                      Nonuser                      Indirect                      Cross platform                  Innovation Economics                      General Purpose                      Technology                      Producer Surplus                      Consumer Surplus                      Prosumers                      Productivity                      Applications                      Co-invention                  Non-economic Values</p>	<p><b>DEEPER CRITIQUE OF INDUSTRY STRUCTURE</b>                  Imperfect Competition                      Concentration                      Barriers to Entry                      Scale                      Vertical Leverage                      Collusion                  ICE Problems                      Price Discrimination                      Entry Barrier                      Bargaining                  Technology                      R&amp;D                      Investment                  Marketing                      Bundling: Multi-attribute                      Product Differentiation                      Gold Plating                      Inseparability                      Purchase Method                      Advertising                  Cost-Price                      Level                      Structure                      Product Cycle                      Disaggregated/fragmented Market                  Ownership                      Control                      Transfer                      Limited Payback                      Lack of Premium                  Elasticity                      Own-price                      Cross-price                      Income                  Availability                      Backward-bending                      Supply                      Absence                      Emergency                      Replacement                      Poor Quality</p>	<p><b>Conduct:</b> Behavioral                  Akerloff, 2001; Kahneman, 2002;                  Smith, 2002; Shiller, 2013. Thaler, 2017                  Strategic Behavior: Nash Jr., 1994;                  Selton, 1994; Harsanyi, 1994</p>	<p><b>BEHAVIOR</b>                  Motivation Values &amp; Commitment                  Bounded                  Selfishness &amp; Wants                  Morality                  Fairness/reciprocity                  Altruism                  Preference                  Custom                  Social Group &amp; Status                  Perception                      Bounded Vision/Attention                  Prospect                      Framing                      Loss Avoidance                      Status Quo, Habits/inertia                  Salience                  Self-fulfilling                  Prophecy                  Social Influence                      Awareness                      Attention                      Low Priority                  Calculation                      Bounded                  Rationality                      Ability to process info                      Limited                      Understanding                  Heuristic Decision-Making                  Rules of Thumb                  Information                  Discounting</p>	<p><b>Performance:</b> End of Value-free Economics, Return of Political Economy Sen, 1998                  Economy: North, Stiglitz, Krugman, Ostrom, Shiller</p>	<p><b>FOUNDATIONAL VALUES</b>                  Wellbeing, capabilities                  Declining marginal value of wealth                  Distribution of surplus matters between producers &amp; consumers &amp; among consumers                  Excessive inequality is harmful &amp; inefficient</p>	<p><b>RETURN OF POLITICAL ECONOMY</b>                  Power                  Legal Framework                      Property                      Contract                  Policy                      Taxation                      Subsidies                  Trade                      Protectionism                      Antitrust Toward Structure                      Market Dominance                      Mergers                      Behavior                  Regulation                      Price Distortion                      Access                      Permitting                      Capture</p>
<p>Source: Nobel Laureate lectures can be found at:  <a href="http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/">www.nobelprize.org/nobel_prizes/economic-sciences/laureates/</a></p>								

**TABLE III-3: HOW THE CHICAGO SCHOOL OVERSHOT THE MARK**

**Over-reliance on the efficient market hypothesis**

- Over-reliance on economic models that privilege theory over fact
- Under-emphasis on dynamic efficiency and competitive rivalry
- Over-estimation of ease of entry and expansion of output
- Over-protection of autonomy of leading or dominant firms
- Lack of appreciation for the role of mavericks
- Failure to recognize non-economic impacts and causes

**Over-emphasis on efficiency**

- Failure to require empirical evidence leads to over-estimation of efficiency gains
- Failure to require demonstration of mechanism for pass through of efficiency
- Failure to recognize wealth transfers as a cause of consumer harm

**Failure to Recognize the anticompetitive potential of vertical leverage**

- Over-reliance on single monopoly profit to absolve harm of market power
- Overstated defense and incomplete analysis of vertical restraints
- Potential effects of vertical leverage creating market power in tied product maintaining market power in tying product facilitating collusion and parallelism evading regulation
- Enhanced tools of monopolization raising rivals cost refusal to deal increases barriers to entry.

Source: Robert Pitofsky (Ed.), 2008, *How the Chicago School Overshot the Mark*,

**TABLE III-4: MERGER REVIEW OF COMPETITIVE EFFECTS**

<u>Anti-competitive Effects</u>	<u>Market Conditions to Abuse of Market Power</u>	<u>Firm Incentives/Ability to Abuse Market Power</u>	
<b>Competitive Effects</b>		<b>Dominant Firm</b>	<b>Consumers</b>
Price (SSNIP $\geq 5\%$ )	Seller #	Price	Switching Cost
Profit	Seller size	Profit	Availability
Quality	Product	Margins	Speed
Variety	Geography	Market share	Output competition
Service	Technology	Incremental cost	A Direct/Indirect
Innovation	Concentration	Sales analysis	Price discrimination
Exclusion		Customer location	Targeting
		Information about buyers	Arbitrage
		Capacity Management	Overcharging
<b>Coordination</b>		<b>Competitors</b>	End-use Products
Negotiated	Challenges	Response	Intermediate goods
Accommodating	Barriers	Speed	
Parallel behavior	Sunk costs	Capacity	
Conditions facilitating	History	Similarity	
Predictability	Intramodal Competition	Nearness	
Past practices	Vertical integration	Complements	
Monitoring	Conglomeration	Entry	
Other markets	Mavericks	Timeliness	
Collective market power	Price	Likelihood	
	Products	Sufficiency	
	Innovation		
	Efficiencies		
	Pass-through		
	Other Practices		
	Monopolization		
	Facilitating practices		
	Monopsony mergers		

## EUROPEAN ANTITRUST ANALYSIS

An informative qualitative perspective on the unique problem of a tight oligopoly on steroids can be gained by considering the market conditions that facilitate coordinated and unilateral effects in markets that exhibit characteristics of tight oligopolies, as identified by European competition authorities. The concerns identified in Table III-5 were developed to deal with the communications sector. It was quite apparent that the number of competitors would be small and the threat of anticompetitive conduct and outcomes was serious. European antitrust/regulatory authorities did not have a structure of policies that dealt with the problem of tight oligopolies giving rise to non-competitive outcomes. The challenge became clear when authorities used criteria that restricted oversight to situations of two equal-sized firms. The expert analysis showed that tacit collusion and even non-cooperative behavior could result in noncompetitive outcomes with much larger numbers of firms.

**TABLE III-5: EUROPEAN COMPETITION AUTHORITY CONCERNS ABOUT TIGHT OLIGOPOLY**

### Coordinated and Unilateral Effects

<u>Structure<sup>a,b/</sup></u>	<u>Conduct<sup>c/</sup></u>	<u>Connected Markets<sup>d/</sup></u>
<i>Few firms</i>	Horizontal Mergers	<i>Scale of Entry</i>
<i>High barriers to entry</i>		
Supply economics		
<i>Scale economies</i>	Vertical restraints (Territory, Exclusion)	<i>Vertical links</i>
<i>Network effects</i>	Predatory and limit pricing (X-subsidy)	<i>“Inherently Real”</i>
<i>Franchise</i>	Imposing barriers to entry	<i>(Operations or Demand)</i>
<i>Protection</i>		<i>Shared resource</i>
<i>Licenses</i>		<i>Operating cost info</i>
Demand		
Product differentiation	<b>Reputation</b>	<i>Customer base</i>
Elasticity	<b>Brand loyalty</b>	<i>Complements</i>
		<i>Information</i>
		<i>Shared brand resource</i>

### COORDINATED ONLY

*Frequent interactions*

**Symmetry**

**Transparency/Communication**

### UNILATERAL ONLY

*Non-compete behaviors*

**Structural links (joint ventures, specialization)**

**Product differentiation (segmentation)**

Legend: **Bold Italics** = Essential; **Bold=Important**; Plain text = conditional; *Italics*=Connected Markets

Source: Marcel Canoy and Sander Onderstal, *Tight Oligopolies: In Search of Proportionate Remedies*, CPB Netherlands Bureau for Economic Analysis, February 2003. a/ Structural characteristics (Section 2.3), b/ Tight oligopolies in Practice (Section 3.3); c/ Behavior conducive to a tight oligopoly (Section 2-4); d/ Step 1: The set of connected markets (Section 5.1).

The analysis by a European Competition authority, summarized in Table III-7, was quite influential and devoted considerable attention to “connected” markets for the following reason.

Sometimes conduct by firms in closely related markets has a strong influence on the functioning of the relevant market. It is therefore insightful to identify these markets as well. We call such markets ‘connected markets.’ Behaviour on these markets influence the behavior on the relevant market. A connected market is a market that is horizontally or vertically related to the relevant market.<sup>69</sup>

Economic policy notes from the Dutch Office of Post and Telecommunications Authority/Economic Analysis Team asked a specific question: *Is Two Enough?* The answer, as summarized in the lower part of Table II-6, was an emphatic no. The Body of European

Regulators for Electronic Communications issued a Report on Oligopoly Analysis in 2015 that referenced these earlier analyses and ultimately recommended tight oligopolies be explicitly identified as a source of concern by competition authorities.<sup>70</sup>

**TABLE III-6: TIGHT OLIGOPOLY AND COORDINATION**

**Facilitating a Tight Oligopoly**

High concentration  
 High barriers to entry  
 Capacity constraints (ambiguous)  
 High Product Differentiation  
 No countervailing buyer power  
 Low price elasticity  
 High switching costs  
 Mature technology  
 Low demand growth

**Facilitating coordination**

Very Few Firms  
 Absence of significant entrants  
 Strategic variable  
 Homogeneity of products  
 Focal point on high discount rate  
 Process:  
   Transparency  
   Enforceability  
   Repeated interaction  
   Symmetry  
 Vertical integration

Source: Body of European Regulators for Electronic Communications, 2015, OPTA/EAT, 2006.

#### **IV. LESSONS AND INFLUENCES FROM THE MICROSOFT CASE**

The detailed analysis of market structure and the deepening appreciation of market failure as the basis for antitrust and regulatory policy revives the practice of both, which had gone dormant over the previous decades. This section examines that shift by reviewing a seminal antitrust case that incorporated much of the contemporary thinking about the “new economy,” while simultaneously affirming the role of antitrust.

The Microsoft case foreshadowed the current debate in the AT&T-Time Warner merger between a structural solution (divestiture) that the DOJ favored and the behavioral approach that the court gave. In the desire of the states to pursue anticompetitive behavior in the Office product space, the Microsoft case also raised an issue that is increasingly challenging for antitrust authorities – the separation between the platform and the complements that run on it. The Microsoft case also highlighted the complexity of the tying issue in American antitrust law. The lower court in the U.S. and the European courts found an illegal tie. The U.S. appeals court overturned the Section 1 finding of illegal tying, but still found illegal tying under Section 2 of the Act. Thus, the Microsoft case reminds us how important and complex antitrust enforcement is in the digital era (see Table IV-1).

#### **THE CASE AGAINST THE MICROSOFT MONOPOLY**

In this section, we briefly review the Microsoft case, which attracted a great deal of attention from economists studying the intersection of high technology and antitrust in the new economy. It epitomizes and frames many of the issues we highlighted in the above discussion of antitrust in general, and the digital communications sector in particular. Timothy Bresnahan, a leading thinker on competition in high technology industries, commented on the prominence of many “new economy” processes identified as theoretical concepts and applied by Microsoft in its business strategies. At the same time, he lamented the intent and impact of those strategies on market competition and performance as implemented by Microsoft.

The economic theory of network effects has received a great deal of sustained attention, as it appears to capture some of the most important features of modern high-tech industries. The positive implications of the theory are important for understanding the structure of those industries, especially over time. They include positive feedback in the decision rules of individual actors, indeterminacy of equilibrium, lock-in to particular network standards, first-mover advantages or barriers to entry, high inertia for established standards but high volatility for nascent ones, and strategic competition that is intense in the period of establishing a network standard, then largely absent after lock-in....

while I admire the craft and analytical thinking one finds in the Microsoft documents, and find the ideas highly useful in informing my positive thinking about network effects and lock in theory, no one should confuse that with normative admiration for what they accomplished. All that brilliance was spent to slow down the rate of technical change resulting from the commercialization of the Internet so as to give Microsoft, imitator not inventor, enough time to ponderously take proprietary control of it.<sup>71</sup>

**TABLE IV-1: THE CASE AGAINST THE MICROSOFT MONOPOLY**

		<b>FACT</b> (Paragraph No.)	<b>LAW</b> (Page No.)
<b>MARKET STRUCTURE</b>	<b>MONOPOLY POSITION</b>	18-21,33-35	4,5
	<b>BARRIERS TO ENTRY</b>		
	Hardware	19,20,22-27,54-55	4,6
	Software	30,36-43,141,166	4,5,6
<b>CONDUCT</b>	<b>UNDER THE TABLE</b>		
	Abrogation of Contracts	390,394	18
	Intimidation	106,129,236,355	6,10
	Market Division	88,105	10,22
	Patent Infringement	390,394	
	<b>EXCLUSION</b>		
	Exclusive Deals	143,147,230-234, 247,259-260,287-290,293-297,305-306, 317-321,326-326,332, 337,339 -340,350-352	10,15,37,38
	Preferred Desktop Location	139,272,301	17, 20
	Secret Price	64,118,236-238,324	6,10,11
	Indirect Sales	10,19,103	4,6,10
	Desupporting	90,122,128-129, 192,405 -406	10,18
	<b>BUNDLING</b>		
	OS Tying	159, 170,198	4,11,12,31
	Imitation	133-134,166,	10,18,19,22
	<b>DEGRADATION OF QUALITY</b>		
	Impair MS Functionality	173, 174	11
	Reducing the Availability	407	18,19
	Impair the Nonms Functionality	92,128 -129, 160,171-172, 330,339,340	6,10,11,17,32
	Quality Impairment	90-92,128-129,160, 330,339 -340	6,11
	Resource Denial	240,357,379,396-406	31
	Incompatibility/Integration	129,387-396,404 -406	18,19
	Disabling	160,170-172	11,31,32
	<b>MONOPOLISTIC PRICING</b>		
	Reverse Bounty	1,392,602,951	6,20
	Predation Cross- Subsidy	107,137-139,147,261-262	6,10,10,21,22
	Hidden Price/Indirect Sales	10,18-19,58,103	4,6,10
	Overcharges	62-63,66	6
<b>PERFORMANCE</b>	<b>RETARDING INNOVATION</b>		
	Chilling Effect on Investment,		
	Developer Time and Money	379, 397,412	
	Delay or Prevent Development	411, 132,395-396	10,18,19
	Netscape's Navigator	81-88,408-410	22
	IBM's OS2/Smartsuite	116-118,125-130	10
	Sun's JAVA	397-403	18
	Real Networks	111-114	10
	Apple's Quicktime	104-110	10
	Intel's Native Signaling Processing	94-103	6
	Undermining Compatibility	390-396, 407	6,18,19
	<b>DENIAL OF CONSUMER CHOICE</b>		
	Deny Products Consumer Needs	247, 410	
	Delaying Release of Products	167-168	11
	Deny Consumers User-Friendly	210-216	11
	Force New Versions in New PC	57, 66	6
	Deny or Delay Non-Microsoft	90-91,93	10,11
	Thwart Responses to Demand	225-229	11,14
	Forcing Consumers to Buy	133,143,203-20611	
	In Inconvenient Ways	239-240,247,309 -311, 357,359-361	10,15
	<b>INCERASE IN CONSUMER COST</b>		
	Direct: Short Term Revenue	57,62-63	6
Price Discrimination/Secret Price	64,118,236-238,324	4,6,10,11	
Indirect: Raising Consumer	203-206,239-240,247	11	
Raising Hardware Transaction Costs			
Upgrade Policy	57,66	6	
Excess Functionality	173-174,210-126	6,11,32	
<b>EXCESS PROFITS</b>	66,379	6	

Source: Adapted from, Mark Cooper, 2001, "AntitrustasConsumerProtectionintheNew Economy:Lessonsfromthe MicrosoftCase," *The Hastings law journal* · April,

Table IV-1 presents our reading of the evidence in the Microsoft case in the structure-conduct-performance framework. A similar table appears in our analysis of each of the markets discussed in this paper. We will argue that the digital communications sectors of the new economy pose very similar challenges. Thus, the Microsoft case not only reflected and influenced antitrust thinking, it did so because it raised the key issues for antitrust and regulation of communications networks in the digital age.

To summarize a very complex set of analyses, here we extract commonalities from two books. The first book, from a conservative think tank called the Progress and Freedom Foundation, was based on papers presented at a conference in early 1998 before the Microsoft case went to trial. The editors noted that the papers “demonstrated a remarkable degree of consensus about key aspects of market structure and about the analytical approaches that should be applied to assess.” The second book was published sixteen years later by Andrew Gavil (who served for two years during the Obama administration as the Director of the Office of Policy Planning at the U.S. Federal Trade Commission) and Harry First. It offers an evaluation of the case and its impact.<sup>72</sup> The “remarkable degree of” agreement between these two books enables us to extract the key features of the case with confidence. In the following discussion, to distinguish between the two sources, we place the Gavil/First citations in italics.

#### **A NEED FOR PROACTIVE, PROPHYLACTIC PREVENTION OF ANTICOMPETITIVE ABUSE OF MARKET POWER**

The Microsoft case was, overwhelmingly, a “rule of reason” case, in which its conduct could have an anticompetitive, anti-consumer interpretation or a neutral, even pro-consumer interpretation. Microsoft argued that “*the institutions of antitrust enforcement... were poorly equipped to understand the “new economy” and hence incapable of properly applying the antitrust laws to assess its power and conduct.*”<sup>73</sup> However, over the course of two decades, Microsoft repeatedly entered consent decrees and/or lost antitrust cases in the most important jurisdictions (the U.S. and EU) it did business – jurisdictions that constituted well over half its sales.

*Microsoft’s conduct was hardly “new” in comparison with earlier monopolization cases. Although Microsoft’s products and those of its rivals seemed to be on the “cutting edge” of technology, many of its tactics and its anticompetitive strategies were obvious and profoundly traditional, and its defenses were unsupported. Indeed, every public body that investigated Microsoft concluded that it had violated the principles of competition law, and every judicial tribunal faced with the review of agency action agreed there was a basis for finding a significant violation of law – even if every claim wasn’t upheld.*<sup>74</sup>

The clarity of the antitrust findings of fact and law fulfilled the promise of the case to be “the most important case of the 20<sup>th</sup> Century – because it is, in a sense, the first case of the 21<sup>st</sup> century.”<sup>75</sup> However, the clarity of law stood in sharp contrast to the more complex and contested remedies, at least in the opinion of economists and the courts, because “it is far easier to conclude that Microsoft is in possession of a bottleneck monopoly, and my even be abusing that monopoly, than it is to find an appropriate remedy.”<sup>76</sup> The analogies to the digital communications sectors analyzed in this paper are extremely strong, both in the clarity of the market structural conditions that underlie the concerns about abuse of market power and in the

complexity of the responses. The challenge of complexity pushes strongly toward rejection of the merger. Denial of the merger is the preferable approach to deal with these challenges.

Ironically, but not surprisingly, the clearest weakness of antitrust in dealing with the anticompetitive, anti-consumer threat of a network industry delivering services that have become infrastructural in the digital economy, was the inability to “*protect the ‘competitive moment’ in the form of fledgling rivals threatened by the questionable conduct of dominant firms.*”<sup>77</sup> The lesson that one must learn from the outcome of the Microsoft case is that prophylactic polices constraining the use of market power by dominant incumbents to defend and extend their market power before they use it to harm competition is of paramount importance, and the remedial nature of much antitrust action is not well-suited to this task. The underlying factors that make these software markets vulnerable to the development and abuse of market power, along with the inability of *ex post* remedies to respond, highlight the need for a more durable approach to market power than the one cobbled together for Microsoft.<sup>78</sup>

## STRUCTURE

Table IV-2 presents the evaluation of the key structural issues in the findings of fact and law in the case. The structural factors and processes identified by Bresnahan above are prominent. The final quote in the “technology, innovations and antitrust” section of the table points out similarities with the communications industry that are the focal point of this paper.

Of paramount importance in linking the Microsoft case to the discussion of the communications sector are the observations on potential competition. Nascent competition has become the focal point of the analysis, and the best potential (most likely) competitors are deemed to be in complementary sectors. The key is to prevent the dominant incumbents from undermining those potential entrants. This situation has emerged in the communications sector because competition from the “first best” competitor – cable and telephone companies overbuilding one-another to compete – failed to materialize or was weak after the Telecommunications Act of 1996. The authorities charged with promoting or protecting competition have been forced to look to “over-the-top” competition. It was precisely this over-the-top competition that Microsoft feared and acted to undermine.

Table IV-2 shows quotes from the two books dealing with the primary structural issues in the case. They make the point that high technology and rapid innovation are not a reason to abandon concerns about abuse of market power or to forego antitrust analysis of business practices and mergers. In fact, particularly in digital industries, there are structural characteristics and market processes that increase the need for antitrust vigilance (e.g. network effects, economies of scale and scope, switching cost, etc.) The industries and sectors to which these types of concerns apply include all of the industries analyzed in this paper as communications – telecommunications, media, and video content.

The claim that antitrust authorities would muck up dynamic innovation processes was rejected, in large part because Microsoft had consistently and overwhelmingly been a follower, rather than a leader, on the innovation front. Confronted with nascent competition that threatened its market power, it unleashed a fusillade of anticompetitive tactics to squelch the competition. Contrary to the claims of the defenders of vertical market power, opening

interfaces increases efficiency by increasing scale and strengthening competition while it dissipates and redistributes rents, which is what the interface monopolists actually fear.

## TABLE IV-2: KEY STRUCTURAL ISSUES IN THE MICROSOFT FINDINGS OF FACT AND LAW

### Technology, innovation and antitrust in the new economy

The software industry is prone to concentration and conditions that make entry difficult, even in the absence of artificial impediments to competition (3)

[P]ervasive network effects... can lead to tipping to monopoly. Once... an installed base has been established, users face substantial costs of switching. The technology tends to become “locked in.”

“are prone to concentration and conditions that make entry difficult (3).

Marginal costs are low... Durable goods become obsolete due to technological change rather than wear and tear (ix).

Pervasive network effects can lead to tipping

Once an installed base has been established, user face substantial switching costs.. technology tends to become “locked in.” 9x)

*The features of the new economy that were most significant for the analysis of its conduct tended to undermine not support, Microsoft’s position...agencies and the courts came to understand these features of the new economy all too well. Network effects amplified Microsoft’s power, which was further insulated from challenge by the applications barrier to entry. Network effects were also important in illuminating Microsoft’s incentives to pursue anticompetitive strategies, including emulating its competitor’s products, integrating them into Windows, and then making them irremovable...decision to cease sharing its communications protocols, and a wide range of other conduct that impaired competition. (311).*

*argued that Microsoft became more cautious as a result of the cases and that innovation suffered...*

*Microsoft’s efforts to portray antitrust enforcement as an enemy of innovation, therefore, seemed to have the facts backward... [I]ts narrative was a transparent consequence of its conduct in other markets, where antitrust had an important role to play in preserving competition. (314) the opposite was the case. Microsoft didn’t fall behind its rivals as an innovator because of antitrust enforcement; to the contrary, I invited the attention of antitrust enforcers when it fell behind in the race to innovate, and then responded by using its market power to suppress disruptive technologies of its more innovative rivals. (310).*

*To the extent any Schumpeterian “perennial gales of creative destruction” was blowing, it wasn’t enveloping the market for desktop computer operating systems, except indirectly. Rather, it was stimulating innovation in the more competitive markets for Internet-related middleware (such as browsers and streaming media players) and servers.... When Microsoft missed... and also fell behind... it soft to calm those winds. (311).*

More traditional industries – especially those now undergoing consolidation and transformation, such as transportation, telecommunications, and various media-related businesses, such as music, book, and video content industries, should not be overlooked.... It would be a mistake to simply take a pass on technology, relying on platitudes like those served up by Microsoft... Deterrence of egregious conduct must be maintained... As one commentator has persuasively argued, exclusion is a “core competition concern” that should not be relegated to secondary status behind cartels. (311)

### Potential Competition

Threat to monopoly: If Netscape were to become an established browser with an installed base, software developers would write applications for it, and it would then be much easier for Netscape or some other firm to market an operating system in competition with Microsoft...

Microsoft also has a clear incentive to destroy the “cross-platform capability” characteristic of Java.. by developing a Microsoft version of Java which runs only on Windows.. and/or by making Windows incompatible with “pure” Java (5).

Best Competitors: The most likely source of new entry in any industry segment is from a firm that has a strong base in an adjacent layer. The threat of such “vertical competition” provides a powerful incentive to incumbents – not only to serve their customers better, but also to lock in users to the existing technology. Indeed, the same forces that lock in users and make for a concentrated industry structure are conducive to the erection of barriers to entry by seller. The barriers may delay the adoption of new technologies. (14)

Tipping: *especially in industries characterized by rapid innovation and network effects, the consequences of tipping are genuine and irretrievable if not addressed early on. (314)*

Sources: Gavil, Andrew and Harry First, *The Microsoft Antitrust Cases: Competition Policy for the Twenty-first Century* (MIT Press, Cambridge, 2014), Eisenach, Jeffrey, A. and Thomas M. Lenard, (eds), *Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace* (Kluwer, Boston, 1999).

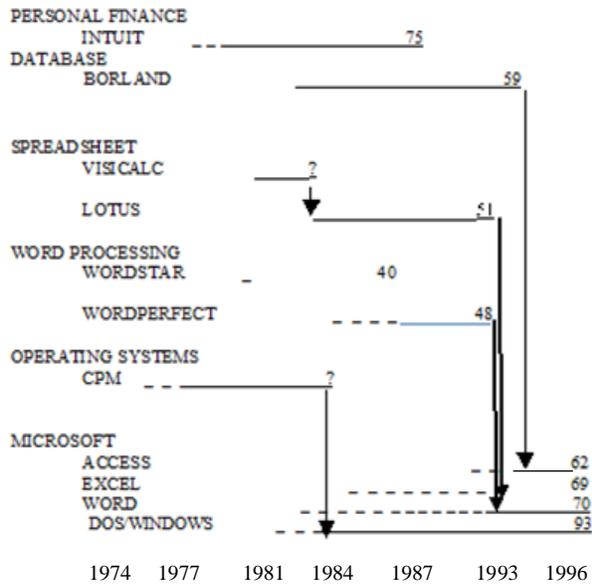
## Quantitative Evidence on Market Power

While Tables IV-1 and IV-2 identify the qualitative factors that constitute the existence of market power and demonstrate the presence of the abuse of market power, there are quantitative measures of two key areas – structure and performance. As discussed above, the *Merger Guidelines* refer to specific quantifications to establish basic concerns about the likely exercise of market power. Microsoft argued that current market shares were irrelevant since they could be replaced at any moment, but the court would have none of it. As shown in upper left graph in Figure IV-1, Microsoft’s dominance was quite durable and layered across a number of applications, not just the operating system. In the Microsoft case, the concentration of the

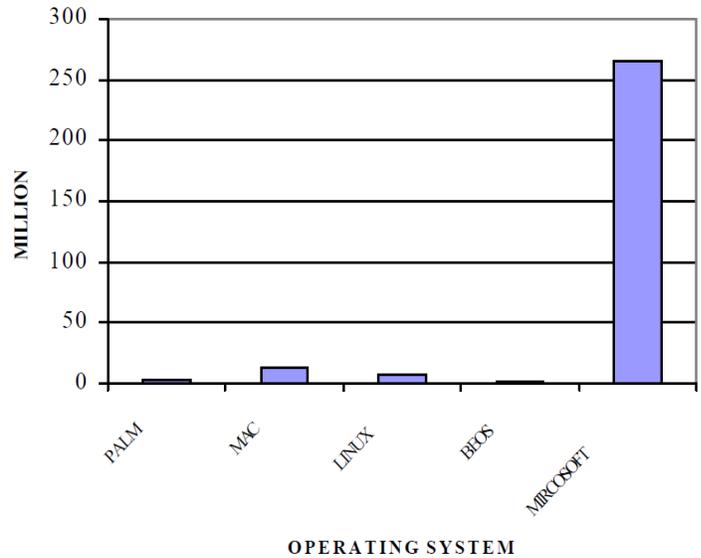
operating system market, measured either in the PC market (90+%) or the desktop market (80% including Macs), was severe. The upper right graph of Figure IV-1 reminds us that the relative size of the installed base is important since the platform can attract complementary services. These are traits of the communications sectors studied below.

**FIGURE IV-1: MEASURES OF MARKET POWER: MICROSOFT**

**Durable Dominance of Multiple Products Market Shares**

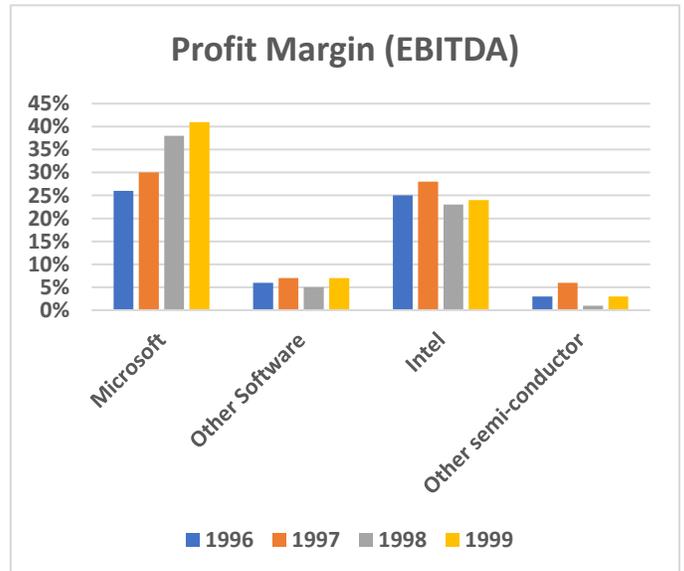
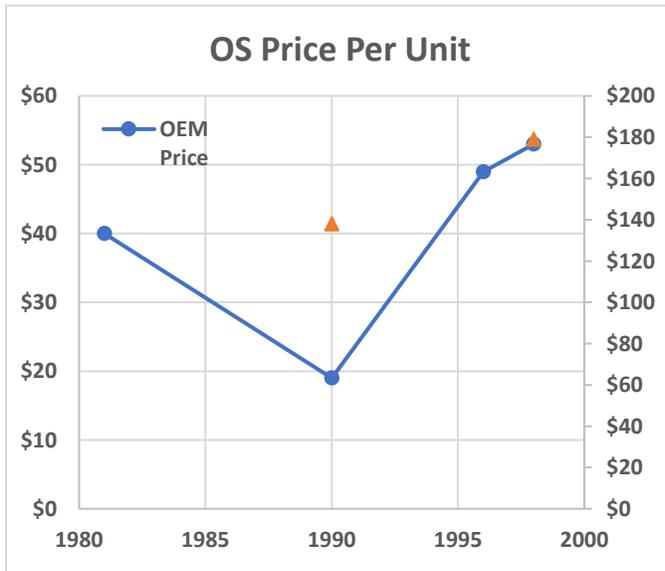


**Installed Base, Millions**



NOTES: “- - -” represents non-dominant years in market; “——” represents dominant years in market.  
 SOURCE: Schmalensee, Direct Testimony, Table 2. Evans, Nichols and Reddy, *The Rise and Fall of Leaders in Personal Computer Software*

**Price/Profit Indicators of Market Power**



Source: Mark Cooper, 2001, “Antitrust as Consumer Protection in the New Economy: Lessons from the Microsoft Case,” *The Hastings law journal* · April,

As the above discussion shows, the most prominent, frequent, and definitive evidence of market power involves not only process, but, above all, profits. While this did not play a prominent role in the Microsoft case (because there could be no fines, which would have been greatly influenced by an estimate of abuse), the issue was raised tangentially by the effort of Microsoft witnesses to claim that it faced an extremely high elasticity of demand, which would have diminished its market power. Evidence in the record, however, reflecting Microsoft's own estimates of moderate elasticities contradicted that claim.

The lower graphs in Figure IV-1 show our estimate of the two key performance measures. The lower left graph shows the pricing behavior of Microsoft, which strongly supports the conclusion that when it consolidated its market power over operating systems, it increased prices sharply above competitive levels. The lower right graph gives an estimate of the profitability of Microsoft. Here it uses non-Microsoft rates of profit to assess the presence of excess profits. (It also shows that Intel, the co-monopolist that has antitrust problems of its own, also had supranormal profits). These two quantitative indicators of the abuse of market power will be included in the discussion of the communications sectors below.

## CONDUCT

One of the important observations offered by Judge Jackson in the findings of fact and law is that one had to view the actions of Microsoft in their entirety to appreciate the magnitude of the offense. While individual acts might leave some doubt or have benign explanations, the overall campaign to defend the monopoly was staggering. The conduct aspects of the case are summarized in Table IV-3. While the economists and legal scholars focus on the knotty and challenging issues that tip the scales of liability for a violation of law, the violation was clear.

Intent and ability to abuse market power become the focal point of this qualitative analysis, as does the likely impact of such conduct. Intent and ability are also the focal point of merger review, which is the one area where the DOJ is required to be forward-looking. As noted above, instead of looking backward at actual abuses, in merger review the DOJ must look forward because a merger is inherently a restraint on trade in which an actual or potential competitor is being removed from the market.

In the Microsoft case, the assessment of intent required the court to make findings in three areas that economists look at intensely. First, the court had to conclude that there was a monopolist benefit to be had in pursuit of the behavioral actions. This required the court to overcome the "single monopoly rent" theory that had been invoked to excuse a wide range of behaviors that would normally have been seen as anticompetitive by antitrust and industrial organization analysis. This theory argued that, if the monopolist could extract all of the rents from a bundle of products by jacking up the price of the product at the core of the bundle, then it could not benefit further from abusing its market power. This theory was thoroughly refuted.

Debunking the single monopoly rent argument becomes crucial to understanding the threat of vertical abuse, particularly in these platform industries. The assumptions necessary to make the single monopoly rent argument relevant proved to be very restrictive and inapplicable to the vast majority of real world markets.

## TABLE IV-3: KEY CONDUCT ISSUES IN THE MICROSOFT FINDINGS OF FACT AND LAW

### Incentive and ability

Given the economic characteristics of software markets, a dominant firm. Like Microsoft, may well have both the incentive and ability to engage in exclusionary conduct... An important implication of network effects... is that anticompetitive practices may be both more attractive for the incumbent firm, and more harmful to consumers. Dominant firms may grater incentives to employ exclusionary practices and their likelihood of success may be greater. (3-4)

All else equal, a competitive complementary market tends to enhance the value of the monopolist's product... Microsoft's incentive to impede competition stems from its fear that the establishment of an alternative browser will threaten its operating system monopoly... the artificial advantage associated with Microsoft's contractual practices can be very helpful in maintaining that monopoly... Microsoft's practices may pose an additional burden on potential competitors and diminish the likelihood that innovators will attempt to enter markets where Microsoft is dominant. The result may be to slow the pace of innovation... generally. (8)

### Single Monopoly Rent

*[T]he requisite conditions weren't present with respect to Microsoft's refusal to supply, since client-PC operating systems and workgroup-servers operating systems will often be purchased in different amounts, at different times, by different customers... The "single monopoly profits theory" also does not take into account the possible adverse effects of the conduct on the dominant firm's power in the market for the primary product... There are network effects between PC operating systems and server operating systems. Microsoft's refusal to supply could be used to fortify its dominance in the market for client-PC operating systems, insulating it from erosion.... [I]t further entrenched its monopoly in PC operating systems. (210)*

*[I]t fails to account for the incentive to engage in anticompetitive behavior in adjacent markets in order to protect or enhance the original monopoly... incentive to destroy cross platform compatibility... Under the "dynamic two-level entry" scenario... Microsoft has an incentive to destroy the cross-platform compatibility... because... when applications are not operating-system specific, the barrier to entry is for competing operating systems are reduced... This... better fits the facts of the Microsoft case than the two-level entry scenario, provides ample incentive to engage in anticompetitive behavior in the browser market... The bottleneck owner may find it profitable to foreclose rivals... to gain market power in a "non-coincident" markets... that enjoys economies of scale or scope with the primary market... constrain the development of alternatives the bypass the bottleneck... foreclose rivals to prevent loss of its bottleneck monopoly in the future (11-12)*

### Tying, Bundling, and integration

It is especially important to distinguish practices that simply make the program available at a low (or zero) incremental price, from practices that impose an incremental cost on customers who use rival versions... Unlike giveaways... these latter practices—which include designing programs to work poorly with rival versions... and imposing contractual provisions that limit customers from using rival versions... directly harm consumers. (75)

*What was let in both jurisdictions was a finding that Microsoft's integration strategy had affected competition adversely and that there was no technological or business justification for it. (316)*

*Microsoft "tied the two products through integration of the code for both... by electing to integrate the codes in such a way that removing Microsoft middleware would cause Windows to crash. That design choice... lacked any technical or business justification... Microsoft wasn't able to show that its making its own middleware irremovable – itself an anticompetitive act – was of any benefit to consumers. Neither was Microsoft able to show that any such benefits to consumers could be realized only by integrating its own middleware, rather than middleware from some other supplier into Windows. (317)*

*The traditional anticompetitive theory of tying focusses on its impact on the tied product... Competition from rival producers of the tied product can be impaired or entirely eliminated, and consumers can be deprived of the opportunity to either decline to purchase the tied product or to purchase it from another vendor.*

*One of the central allegation... was that it used tying to insulate itself from competition in the market for the tying product... Microsoft, by impairing third-party middleware suppliers, protected its Windows monopoly from nascent competition, either from middleware itself (which might have developed into a platform of its own) or from other operating systems (which might have developed in such a way that they would work with non-Microsoft middleware). (318)*

*Four specific acts" licensing IE together with Windows... as a bundle at a single price, refusing to permit OEMs to uninstall IE... or remove the icon, excluding IE from the Add/Remove Program utility and overriding the user's choice of a default browser. (101-102)*

*[T]he court wrote... expansively about potential efficiencies from tying IE and Windows, even though in its Section 2 analysis It had found no procompetitive justifications for a number of the specific acts associated with integration.... In its monopolization discussion the court did not raise the possible efficiencies of having all APIs in a single platform; indeed, it wrote that Microsoft's effort to focus developers on Windows' APIs wasn't a procompetitive justification. (104).*

*Whatever the explanation for the seeming inconsistencies in the court's approach to product integration, there is an important common thread between its tying discussion and its general Section 2 analysis - a that that is inherent in the rule of reason. [I]n the end, the courts are going to be concerned with whether they are looking at business practices that have an anticompetitive effect and an efficiency rationale and with whether their application of antitrust law will end up doing more harm than good.*

Prevent a platform provider from using bundling along with exclusive deal and other vertical contracts, to make it unnecessarily difficult for other competitors to develop, commercialize and distribute a product that threatens the assets of the established firm... A sound competition policy, should be aimed at preventing large established firms with available unique assets from shielding themselves from competitive threats.

Therefore, it is appropriate that ... large firms receive closer scrutiny than smaller firms. (13)

### Exclusive dealing

In addition to bundling its own products, a firm may attempt to package its products with those of other firms.... A software vendor might enter into an agreement with a personal computer manufacturer that the latter will ship only machines containing the operating system provided by that software vendor....

To obtain the effects of exclusivity, there does not have to be an explicit agreement requiring exclusivity, preferential pricing... certain type of quantity discounts... can be at least partial substitutes... Exclusive dealing with computer OEMs is much like traditional exclusive dealing... there appears to be less reason to have exclusive dealing to create incentives for retailer support and promotion activities than is typical in other industries... We also note that, in the presences of network effects, exclusive dealing may be particularly harmful to competition because it can promote tipping.<sup>77</sup>

Sources: Gavil, Andrew and Harry First, *The Microsoft Antitrust Cases: Competition Policy for the Twenty-first Century* (MIT Press, Cambridge, 2014). Eisenach, Jeffrey, A. and Thomas M. Lenard, (eds), *Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace* (Kluwer, Boston, 1999).

With the single monopoly rent theory out of the way, the analysis moves on to the impact of behavior. Exterminating or impairing actual or potential rivals becomes a goal that can protect the core monopoly (tying product) and yield benefits (market power or increased rents) in the complementary or coincident (tied) product markets. The rebuttal of the single monopoly rent theory had shown that the monopolist could benefit in both the market for the tying product and the tied product. The defense at this stage is to argue that there are significant efficiencies. Microsoft failed to convince the District Court or the Appeals Court. The latter is particularly important because, while the Appeals Court overturned the Section 1 tying finding, it allowed the finding of illegality of tying under Section 2 to stand.<sup>79</sup>

## REMEDY FOR PERFORMANCE

In some respects, the remedy phase of the case was more controversial than the liability phase. It took longer, the Appeals Court reversed more of the proposed remedy than it did the court findings, and the plaintiffs split badly over whether the behavioral remedies in the consent decree would work. The key observation for this analysis, as highlight in Table IV-4, is that the remedies could not restore competition (“preserve the competitive moment”) insofar as it was difficult to “protect competition” in the form of nascent threats from fledgling rivals because “the consequences of tipping are genuine and irretrievable if not addressed early on.” These consequences are seen on the demand side, too, with consumers “unlikely” to switch.

### TABLE IV-4: CHALLENGES TO THE DESIGN OF REMEDIES

#### Preserve competitive moments

*[C]ompetition-enforcement agencies and courts should strive to “preserve competitive moment.” ... if the wheels of antitrust enforcement moved too slowly in any dimension of the Microsoft cases, it was with respect to preserving rivalry before was effectively vanquished. (324)*  
*Antitrust lawsuits are intended to “protect competition, not competitors...” As one court has correctly observed, “in a concentrated market with very high barriers to entry, competition will not exist without competitors. (325)”*

*The hesitancy of courts to act more quickly to preserve the competitive moment also left fewer viable remedies. Courts cannot raise the dead... especially in industries characterized by rapid innovation and network effects, the consequences of tipping are genuine and irretrievable if not addressed early on. In such circumstances, courts should be especially protective of “competitive moments” in the form of fledgling rivals threatened by the questionable conduct of dominant firms. (314)*

#### Restoring Competition

*The task of restoring competition by means of a decree by a court of and administrative agency is even more challenging because it involves difficult questions of prediction and institutional competence (237)*

*The system for enforcing competition policy moved too slowly to be effective in the context of quickly evolving technology markets – but not for the reason cited. Although the system wasn’t too slow too slow to judge Microsoft, it proved too plodding and cautious to protect competition from the effects of Microsoft’s conduct (312) .... Instead antitrust enforcement was proved to be too slow to save competition. Even though the threat was nascent, Netscape and Java together appeared to be forging a pathway to an invigorated and more competitive market, challenging the hegemony of Windows. (314)*

#### Incrementalism

*Limiting remedies to the incremental portion of the defendant’s power is a difficult task. It assumes the increment can be isolated, that causation can be sown, and that remedies can be calibrated to merely neutralize the effects of the challenged conduct. (238)*

#### Challenge of remedying monopoly-maintenance

*Remedies in monopoly-maintenance cases may under-deter, because the dominant firms know that their underlying monopoly power – that which gave them the power to injure competition – is insulated from remedial measures. Solving this problem of monopoly-maintenance cases, and allocating the burden of proof, greatly affects the remedy chosen (238)*

#### Challenge of enforcing behavioral conditions

*Constant monitoring by the government and the judiciary would be necessary to ensure that Microsoft was living up to its obligations... a conduct decree would necessarily impose a variety of technical obligations whose monitoring would require expertise that government enforcers lacked. (239)*

#### Institutional Diversity

*Perhaps more so than ever before, the conduct of a single firm triggered a healthy exchange of views within and across jurisdictions. (311).*

#### Deterrence

*The essence of the argument was that would outpace the courts, so eventual remedies would be meaningless. But antitrust enforcement actions aren’t just about halting and correcting for the effects of the anticompetitive conduct of a defendant. As the D.C. Circuit had pointed out in Microsoft decision, they are also about deterrence. (Some would argue they are primarily about deterrence). (313)*

*Specific deterrence aims to ensure that the antitrust violator will not commit the violation again in the future; General deterrence aims to induce others not to commit similar offenses... Remediation is more complicated... intended to restore the competition that was lost... Properly calibrating deterrence or assessing monetary injury is difficult enough. (227)*

### **Consumer Sovereignty**

*Markets function best when the ability of consumers to make informed choices about their competitive options is unimpaired.... It is also at the heart of antitrust regimes committed to protecting consumers' welfare... In myriad ways, Microsoft sought to insulate its products from the test of the marketplace rather than subject them to competition on the merits ((324-325)*

*Both tried to restore the role of consumer-driven decision making in the market, and both tried to do so without unduly interfering Microsoft's ability to offer its own products in competition with those of its rivals. (326)*

### **Switching costs and lock-in**

*subsequent events have shown how unlikely it would be that consumers, ISVs or OEMs would want to use or design a platform that would replace windows.*

*Only major structural change in the industry could have altered the incentives felt by consumers and by the industry substantially enough to create a serious challenge to Microsoft's dominance of the market for operating systems for desktop computers*

### **Interoperability**

*Because interfaces are the key to interoperability, and interoperability is the key to software markets, relentlessly aggressive, savvy companies with vast resources can be quite successful at translating he control of a critical interface into control of the market on either side of the interface. (26)*

*Microsoft was required to give access to Windows on reasonable and non-discriminatory terms, but only for the limited term of the settlement decree. (249)*

*For the interoperability remedy, Microsoft was ordered to make interoperability information available "within 120 days" and to license use of that information on "reasonable and nondiscriminatory terms" (249)*

*The representation Microsoft had made in the U.S. remedy proceedings in support of the likely effect of the Communications Protocol Licensing Program to which Microsoft had agreed in the settlement of the U.S. case... Microsoft had asserted that protocol disclosure would promote product diversity and consumer choice... surely Microsoft's failure to disclose similar information had restricted choice. (208)*

*[T]he Commission had to take account of the effects of the refusal to license on competitive conditions in the market and on innovation, both with regard to Microsoft's incentives to innovate and with regard to Microsoft's competitors to innovate without the requested disclosure.*

*Microsoft's refusal couldn't be objectively justified "merely by the fact that it constitutes a refusal to license intellectual property."*

*Microsoft's argument about incentives to innovate also ignored the interdependence of intellectual property rights and antitrust in promoting innovation. Intellectual property rights and antitrust law are complementary, working together to encourage innovation. (209)*

*Possible solutions to potentially problematic mergers include mandatory licensing and open interface requirements (10)*

*Prevent a platform provider from using bundling along with exclusive deal and other vertical contracts, to make it unnecessarily difficult for other competitors to develop, commercialize and distribute a product that threatens the assets of the established firm... A sound competition policy. should be aimed at preventing large established firms with unique assets from shielding themselves from competitive threats.*

*Therefore, it is appropriate that ... large firms receive closer scrutiny than smaller firms. (13)*

*The appropriate role for competition policy is to ensure that Microsoft continues to make its operating system applications programming interfaces (APIs) available to competitors and is not able to contractually require exclusivity from OEMs. These actions constitute "exclusionary "tying and, which would be of concern. (15-16)*

*Rules against installed-base opportunism would seem far less dangerous than broader duties in terms of stifling innovation by leading firms and undermining intellectual property rights....*

*There are at least three broad question to answer... Does the firm have monopoly power?... How does the firm maintain incompatibility?... Are open interfaces a remedy for other antitrust violations (65-66)*

*(Borland Ashton-Tate) The licensing fixes to mergers can indeed enable new competitors... (Adobe Aldus) ... Again, licensing was seen as a fix to a direct horizontal overlap in software products ... (Silicon Graphics and Alias and Wavefront) For those watching the Microsoft case, and for those contemplating mergers in software or hardware industries, the SGI precedent of opening up APIs is worthy of note. (Microsoft and Intuit) In this situation a licensing fix was regarded as inadequate. In response to DOJ's challenge, the parties abandoned the transaction. (49-50). (Computer Associates and Legent) Computer Associates agreed to grant licenses in each of five software markets of concern to the Antitrust Division... Two aspects of this case are noteworthy. First... the relevant product markets are quite "narrow," reflecting the fact that users need solution in each of these categories, and the specialized nature of the software that meets these needs. Second, the government found that entry was quite difficult, a reminder that ease-of-entry is not a silver bullet for merging software companies. (49-52)*

*the European Commission and U.S. district court were able to design administrative licensing scheme...although neither licensing program spurred significant competition in the market for operating systems, the two regimes did increase competitive offerings in other software markets. (321)*

*An innovative integration, however, may present a consumer with a new choice – a product that isn't yet on the market and which will end future consumer demand for two separate products... It might turn out that the benefits for complementary software producers can be achieved only by providing a consistent, integrated platform rather than offering he platform either with or without the "tied" product... a full inquiry into anticompetitive effects and procompetitive justification is necessary. (102-103),*

Sources: Gavil, Andrew and Harry First, *The Microsoft Antitrust Cases: Competition Policy for the Twenty-first Century* (MIT Press, Cambridge, 2014), Eisenach, Jeffrey, A. and Thomas M. Lenard, (eds), *Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace* (Kluwer, Boston, 1999).

On the one hand, the challenges may be inherent in this view of the remedy. A monopoly maintenance case did not have a great deal of leverage against the underlying monopoly and was inevitably incremental. The response was constrained in attempting not to interfere with the dominant firm's ability to offer products. Behavioral remedies required monitoring of complex technical conditions. The critical behaviors that have to be constrained involve technologically neutral interoperability and contractual terms that do not impair competition.

On the other hand, the challenges may also be inherent in the nature of the industry. Even a breakup of the company, which “would split Microsoft apart,” meant that “the day after the reorganization, Microsoft would still be the operating-system monopolist.”<sup>80</sup> Given this reality, “the decree’s conduct prohibitions were more detailed than the basic divestiture plan, with nine categories of restrictions that covered broad areas of Microsoft’s business and behavior.”<sup>81</sup> A structural separation was intended to change the incentives of the companies, but that was not enough. The decree had to regulate the behavior as well, “with provisions focused on the exclusionary conduct proved during the trial.” Including requirements for

“equal treatment... to license Windows to all OEMs on uniform terms... market driven feedback mechanisms associated with consumer choice, forbidding Microsoft from “binding” a middleware product to a Windows operating system... Reduction of royalties... meant that OEMs would have some financial incentive to offer their customers a choice of middleware... compulsory information disclosure... done in a timely manner.”<sup>82</sup>

If we accept the fundamental economic tendencies and processes summarized at the beginning of this section by Bresnahan, which drive toward a small number of platforms that yield substantial benefits, the challenge appears to be prophylactic, to intervene at the point also identified by Bresnahan where the incentive and abilities of the dominant firms turn negative. As noted above, this is well suited to merger review, where the agencies are charged with being forward-looking. It is not well suited to the backward-looking cases where they must address past bad behavior. Interestingly, Carl Shapiro, who has been a critic of the settlement,<sup>83</sup> offers (apparently approvingly) a long list of merger conditions that sought to address the abuse of market power by requiring mandatory access to interfaces.<sup>84</sup> While these conditions were deemed insufficient to end Microsoft’s monopoly, they appear to have been more effective at promoting competition in the complementary and non-coincident markets.

The trial judge chose not to hold a hearing on the DOJ divestiture-plus-conduct remedy, so the effectiveness of changing the incentives was never tested even at the conceptual level, while many of the behavioral remedies common to the proposed and implemented settlements proved inadequate. How much more effective they would have been when combined with divestiture was also not even tested at the conceptual level.

These issues reverberate in the ongoing debate over how to deal with market power in the communications sector. The debate starts with the claim that strong quantitative evidence of market failure should be disregarded, and it includes debates over the anticompetitive v. efficiency impact of contracting practices that competitors find troubling. The need for prophylactic policies to preserve competitive moments and the nascent threat of competition launching from complementary services is also a focal point of debate. Issues such as discriminatory access and exclusionary pricing play key roles in the communications sector, as they did in the Microsoft case.

**PART II. RECENT LESSONS THAT HIGHLIGHT THE IMPORTANCE OF  
ANTITRUST VIGILANCE**

## **V. THEORIES THAT EXCUSE MARKET POWER FROM SCRUTINY HAVE BEEN SOUNDLY REJECTED IN THE ECONOMIC LITERATURE**

The parties proposing these mergers repeatedly claim that there is more competition than meets the eye of traditional analysis. The DOJ rejected these claims, but the argument is nuanced. Evidence on prices and practices indicate that the current level of competition is insufficient to prevent the abuse of market power, but the potential for competition exists. The DOJ cannot ensure that the potential competition will become powerful enough to correct the abuse of market power, but it can prevent incumbents from throttling the mavericks and undermining potential competition.

### **THE REJECTION OF CONTESTABILITY THEORY AS A BASIS FOR POLICY**

These arguments about the outsized competitive effects of potential and the small numbers of competitors pushed by the dominant network firms in proposed mergers and regulatory proceedings bear strong resemblance to contestability theory that drove much deregulation in the 1980s. That theory maintained that credible threats to enter markets were common and would discipline and constrain market power, even where the number of actual competitors was small. Over the past two decades in virtually every industry where it was put forward, “contestability theory” has been debunked and rejected as an excuse for allowing very high levels of concentration.

The conditions in the marketplace necessary to produce the hypothesized, quasi-competitive effect (summarized in Table V-1) simply do not exist in reality, as they do not in the communications sector. In fact, the conditions observed in real world markets were the antithesis of those necessary to support contestability’s prediction. The theory was elegant, but the set of real world markets to which it applied was essentially null.

### **Qualitative Framework**

Not surprisingly, given the analysis in this paper, the fundamental characteristics of communications markets are uniquely hostile to contestability theory. The major flaws in the theory in the list in Table V-1 reflect the inherent and current characteristics of the communications markets that are antithetical to contestability.<sup>85</sup>

Martin, who summarized the state of the contestability literature after two decades, concludes that careful theoretical analysis and empirical research shows contestability affirms the traditional understanding rather than refutes it.

The theory of imperfectly contestable markets, on the other hand, is now acknowledged to be an extension of the mainstream structure-conduct performance school of industrial economics.... This tradition holds that increased ease of entry and exit improves the welfare performance of firms and industries... The tradition referred to also holds that difficulty of entry allows incumbent firms to exercise some market power, and that market performance depends on oligopolistic interactions as well as potential competition...<sup>86</sup>

**TABLE V-1: MARKET CONDITIONS THAT RENDER CONTESTABILITY (POTENTIAL COMPETITION) INEFFECTIVE IN DISCIPLINING THE ABUSE OF MARKET POWER**

<b><u>Structure:</u></b>	<ul style="list-style-type: none"> <li>Requires rapid (hit and run) entry and exit, thereby failing in the face of               <ul style="list-style-type: none"> <li>Barriers to entry and exit (e.g. physical assets, scale, time, finance)</li> <li>Sunk costs (asset specificity)</li> <li>Powerful incentives for incumbents to resist entry</li> </ul> </li> <li>Requires very large, even total shift of demand, failing in the face of:               <ul style="list-style-type: none"> <li>Switching costs, partnering in tangible specific assets,</li> <li>intangible social assets including brand loyalty and advertising</li> </ul> </li> <li>Assumes contrary to reality:               <ul style="list-style-type: none"> <li>many small potential entrants</li> <li>No incumbent cost advantage</li> <li>Absences of vertical Integration that affords incumbents control of access to the ubiquitous network.</li> <li>Access to technology (e.g. patenting)</li> </ul> </li> <li>Is a static analysis that ignores:               <ul style="list-style-type: none"> <li>path dependence</li> <li>Asymmetric information between incumbents, potential entrants and customers</li> </ul> </li> </ul>
<b><u>Conduct:</u></b>	<ul style="list-style-type: none"> <li>Strategic (even predatory) and oligopolistic interactions like limit pricing are responses that reduce and undermine the threat of entry</li> <li>Product differentiation makes entry more difficult.</li> <li>Other Anti-competitive practices inhibit entry (e.g. lock-in contracts)</li> </ul>
<b><u>Performance:</u></b>	<ul style="list-style-type: none"> <li>Persistence of supranormal profits</li> <li>Small number of the same firms over an extended period</li> <li>Limited ability of entrants to succeed and remain viable</li> <li>Acquisition of new entrants and potential competitors</li> </ul>

Source: Shepherd, William G. 1984, “‘Contestability’ vs. competition,” *American Economic Review* 74(4), September; Shepherd, William G. 1988, “Entry barriers, contestability, and predatory pricing,” *Revue d’Economie Industrielle*, 46(4); Martin, Stephen, 2001, “Contestability,” updated chapter from *Advanced Industrial Economics*, Wiley Blackwell; Evenden and Williams, 2000, xx

Markets where assets appeared to be mobile were put forward as ideal candidates for contestability. If one could move assets in and out of markets, they might be subject to “hit and run” entry and exit. It turned out that a variety of barriers to entry came into play, some natural, like capital or network effects, some strategic-entry-deterring practices, like lock-in contracting.

Martin points to an early admonition offered by one of the leading scholars of the analysis of industrial organization (Avinash Dixit). “It is useful to begin by noting an early call for caution in the policy application of the theory of contestable markets.”<sup>87</sup>

As a positive theory of market structure, it needs careful handling. In most cases in practice, production requires some commitments that can only be liquidated gradually, consumers assimilate and respond to price changes with some delay, and firms need some time to calculate and implement price changes. Perfect contestability is the judgment that the third lag is the longest. . . . The traditional presumption in industrial organization is the opposite, that is, that prices can be changed more quickly than sunk capacity... In practice, careful empirical work in each specific context will have to be undertaken before we can say whether an industry is contestable and sustainable and decide whether and what regulatory attention it requires.<sup>88</sup>

Careful empirical work over the next decade verified Dixit's concern, finding contestability theory inapplicable in virtually every industry to which it was applied or used to influence policy.

## **Empirical Analyses**

The most prominent examples put forward for candidates for contestability involved industries with mobile assets. Martin charts the retreat of contestability through the recognition that it was not generally present in the prime candidate – airlines. The airline industry was the original source of doubts about contestability, and the evidence that prices were not constrained in a major way by contestability grew over the years.

As a host of studies showed contestability did not exhibit the disciplining effect on prices that its authors claimed (a finding that became common knowledge), analysts moved on to more sophisticated tests. Particularly interesting was one study that demonstrates that the ill-effects of concentration extended to product quality.

Margins may be higher on monopoly routes because airlines that do not face competitive pressures can save the costs that would be needed to provide higher quality, on-time service. The results in this paper indicate that, in fact, flights are less frequently on-time on routes that are served by only one airline and in cases where the carriers market share at the airport served are higher. Accounting for scheduling suggest that actual quality provided is even worse; the airline schedule longer flight times on their monopoly routes, all else equal.

More broadly, this study is among the first to quantify the link between competition and product quality, which will inform policy makers when assessing the competitiveness of markets, evaluating potential mergers and imposing industry standards.<sup>89</sup>

A more recent study reached a similar conclusion.

Using a panel of monthly data for 5472 route-carrier combinations from 2005:4Q through 2012:4Q, we find that the average length of flight delays and cancellation rates increase with the concentration level. Worse service quality is linked to less competition. In addition, we find that the relationships between our measures of service quality and market concentration are nonlinear, so that the scale of the effects of a given change in airline competition appears to depend on the initial level of competition.<sup>90</sup>

One important aspect of the airline industry that is not present in communications markets is that, to the extent a small number of competitors, or even potential competition, has an impact, it is associated with carriers with very low costs.<sup>91</sup> The empirical evidence suggests that entrant costs are as high or higher than incumbents in BDS services because incumbents inherited the network and have equal, not greater, access to technology. This makes access to the network, interconnection and other services, at fair, reasonable and nondiscriminatory prices critical to the development of competition and an arena for fierce fights at regulatory agencies and in the courts.<sup>92</sup>

Cowie studied another industry with mobile assets – buses – in one of the more recent studies and noted that, “Most research in the area of contestable markets in transport services has been into the contestability of airline services, however studies have generally found little

evidence of its existence.”<sup>93</sup> His study of bus service reaches a similar conclusion, with about 90% of the markets studied not contestable:

Out of some 105 major bus subsidiaries operating in Britain, only 15 were identified as operating in a contestable market. When expressed in revenue shares, this only represents 8.6% of passenger revenue. Furthermore, this share has been decreasing over time as the process of merger and particularly acquisition has continued into the long run. Thus, whilst there may be evidence of the contestable market in the industry, it can hardly be described as widespread.<sup>94</sup>

### **ROUND 1 IN THE ANTITRUST WARS: REJECTING THE SINGLE MONOPOLY RENT THEORY AS THE ENTRY TO CONCERNS ABOUT TYING**

Scrambling to preserve some relevance for the theory, advocates lowered their claims to imperfect contestability.<sup>95</sup> This claim fared no better under the scrutiny of intense empirical examination. Peteraf, who tested the imperfect contestability argument in various ways, offered observations on why it did not apply. Her list of factors reflects the conditions of the communications markets.<sup>96</sup> She suggested natural barriers to entry like the high cost of *de novo* entry and network effects that were costly, if not impossible, to overcome. Additional challenges included advantages of existing reservation systems that had to be overcome, combined with the high transaction costs of establishing the necessary business relationships in a market. Strategic factors included brand recognition and loyalty programs, advertising, and limit pricing responses. These are a subset of the characteristics we see in the communications market in general, and the BDS market in particular. It is simply not likely to be greatly affected by potential competition or even imperfect contestability.

The single monopoly rent argument fared no better than contestability, although the focus has shifted from the blatant attempt to block scrutiny of tying, to an effort to narrow the inevitable scrutiny to which it will be subject. While the entry barrier for two-level entry from traditional economic analysis is, as discussed above, still relevant, three other arguments are now seen as equally, if not more, important and evident: (1) protecting the original monopoly from current or future competition, (2) slowing the pace of innovation, and (3) gaining market power in an adjacent market.

As noted above, the theory of the single monopoly rent was basically about tying and exclusionary practice – an effort to excuse the anticompetitive tying or exclusion products with the claim that the monopolist in one market (the tying product) had no incentive to abusively tie products in another market (the tied product) to its monopoly offering because he could extract all the rents by abusive pricing of the tying product. Therefore, any remedial action by competition authorities would be futile. The authors of the theory recognized that the theory was applicable under very restrictive conditions, but the effort to invoke it in the Microsoft case, a situation in which the assumptions were so clearly violated, underscored how it had been misused. Thus, the Microsoft case embodied a very public rejection of a theory that had been falling into disrepute for years.

As you read *Microsoft*, consider why the single monopoly profit theory did not prevent the D.C. Circuit from upholding the district court’s conclusion that a monopolist of operating systems for Intel-compatible personal computers could maintain its market power, harming competition, through exclusionary conduct that inhibited the development of complementary products that

rival operating systems could use to compete more effectively. Leveraging Market Power to a Complementary Market ... Preventing Buyers from Economizing on Products They Can Use in Variable Proportions... Evasion of Rate Regulation.<sup>97</sup>

Skirmishes continued – not about resurrecting the theory, but about how big a bite the failure of the theory would take out of tying and exclusionary practices. With the court having found an illegal tie up a rule of reason, the debate was framed as whether the line should lie closer to a legality or illegality. Einer Elhauge presented a comprehensive framework that narrows the set of circumstances under which tying and bundling might not be anticompetitive and where the efficiency benefits could offset the harm of anticompetitive ties (see Table V-2). In fact, as part of the debate, even the sanctity of the essential claim of the single monopoly rent theory – the safe harbor for products sold in fixed proportions – has been questioned.<sup>98</sup>

Even without a substantial foreclosure share, tying by a firm with market power generally increases monopoly profits and harms consumer and total welfare, absent offsetting efficiencies.... Bundled discounts can produce the same anticompetitive effects as tying without substantial tied foreclosure, but only when the unbundled price exceeds the but-for price. (1)

**TABLE V-2: THE DEATH OF THE SINGLE MONOPOLY PROFIT THEORY**

Assumption of Theory	Frequent Reality	Profit-Increasing Effect	Likely Welfare Effect
<u>Power Effects</u>			
Unvarying Tied Product Usage Strong Positive Demand Correlation	Varying Tied Product Usage No Strong Positive Demand Correlation	Intra-Product Price Discrimination Inter-Product Price Discrimination	Reduces <i>ex poste</i> total welfare Reduces consumer welfare
Unvarying Tying Product Usage	Varying Tying Product Usage	Extracting Individual Consumer Surplus	Reduces <i>ex ante welfare</i>
<u>Foreclosure Share Effects</u>			
Tied Market Competitiveness Fixed	Tied Foreclosure Can Reduce Tied Rival Competitiveness	Increased Tied Market Power	<i>ex ante</i> cost dissipate <i>ex pose</i> profits
Tying Market Competitiveness Fixed	Tied Foreclosure Can Protect Tying Market Power	Increased Tying Market Power	<i>ex ante</i> cost dissipate <i>ex pose</i> profits

Source: Einer Erlhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, Harvard John M. Olin Discussion Paper Series, October 16, 2009.

Franklin Fisher, who had participated in the Microsoft case as a witness, reached a similar conclusion.

[I]nnovations should be allowed on the general principle that acts that one would in any case see under competition should not be prohibited. Innovations that do not meet such a standard, however, should not be allowed. In this connection, not that neither the development of the computer reservation system nor the integration of the browser by Microsoft simply and inevitable led to monopoly leveraging... In both cases, they were accompanied by deliberately anticompetitive acts. There would have been nothing wrong with Microsoft offering its browser and an operating system together had it also offered the separately, charging a positive and remunerative price for the browser (both separately and as part of the bundle). To the extent that integration of the browser really did bring consumer benefits, consumers would have preferred that version and there would have been no need to offer the browser at what was in effect, a predatorily low price... I see no merit in the idea that one wants to encourage anticompetitive innovations that would not have occurred save for the increase in monopoly rents associated with them<sup>99</sup>.

The duration and the scope of the market power in the tying market become crucial factors. Interfaces, interconnection points in the flow of data become chokepoints. Richard Langlois offered an updated concept of standards as essential facilities in virtual networks.

I focus on a set of issues very much on the present-day agenda: antitrust policy toward network industries in which technological standards are important.... One might logically view a set of standards as an “essential facility” – a technological bottleneck – for those who wish to connect to the network.... [W]hen technological standards are involved, we can presume that the dimension of technological change will typically be at least as important as those of price and quantity....

[A] number of cases have emerged in which the facility claimed essential is in the nature of technological knowledge and in which the access desired is in the nature of a connection to a network... More interestingly perhaps, there have also been cases in which plaintiffs have desired access to what is in effect a “virtual” network – that is a network in which participants are linked together by their economic complementarity and adherence to common technological standards rather than by physical interconnection. (194-195)

The justification for revisiting the issue of interconnection and expanding it to interfaces of digital platforms and networks is not simply technical and legal, as Langlois convincingly argues. It is also historical. The first essential facilities case under the Sherman Act was the “St. Louis Bridge” railroad case, in which a consortium of railroads that controlled the most vital bridge across the Mississippi river tried to use that control to disadvantage competing railroads. In our historical analysis, this 1912 case came about thirty-five years into the second industrial revolution. In that same analysis, the Microsoft case comes about thirty-five years into the third industrial revolution. This is the moment when the new relations of production are penetrating through the economy and they compel policymakers to think about what the rights and obligations of economic actors will be. Nondiscriminatory access to the dominant networks that support commerce and communications need to be reframed.<sup>100</sup>

With tying located squarely in the Section II realm of a rule of reason (although Gavin and First argue that the grounds for Section I *per se* illegality of tying were incorrectly narrowed by the Microsoft appeals court), the intensity of the debate over where to draw the line and set the burden of proof is testimony to the importance of tying. A full discussion of those issues is beyond the realm of this paper, except to note that the communications networks have the key characteristics that make tying a troubling and suspect practice. They possess a great deal of market power in the tying product, stand to gain significantly from the exercise of that market power in both the tying and tied products, and have very feeble (at best) efficiency claims to defend their practices.<sup>101</sup>

## **ROUND 2 IN THE ANTITRUST WARS: PUTTING EFFICIENCY IN ITS PROPER PLACE**

Salop’s call for “Invigorating Vertical Merger Enforcement” challenges the efficiency claims head-on and highlights two additional factors that are of critical importance in this analysis – the special need to have vigorous enforcement in dynamic industries, and the weakness of behavioral remedies to address the problem.

Revised Guidelines and the law should incorporate modern economic analysis. The Guidelines could state clearly that enforcement policy is based on the understanding that foreclosure concerns are real, the single monopoly profit theory is invalid except under the most limited specific conditions, and EDM benefits are neither inevitable nor presumptively more significant than potential competitive harms. Enforcement should pay special attention to acquisitions by leading firms, particularly in oligopoly or dominant firm markets subject to network effects or

economies of scale. This would include acquisitions of firms that may become significant potential competitors. The agencies also should pay attention to the limitations of behavioral remedies.<sup>102</sup>

He also emphasizes that the critical area for analysis is imperfectly competitive oligopoly markets, where careful balancing of the effects should be conducted.

In short, in the real world of imperfectly competitive markets, the direction of the net competitive effect is a question of fact, not theory. While vertical mergers in oligopoly markets should not be subject to a rule near-per se illegality, they also are not entitled to near-per se legality. Both of these per se rules would lead to unacceptable errors. Instead, competitive effects analysis, enforcement and law should be balanced and fact-based.<sup>103</sup>

He works through a list of potential factors that might mitigate the beneficial effects of efficiency.<sup>104</sup>

Equally, if not more, interesting from the point of view of squaring policy with the economic and legal record built since the last revision of the *Non-Horizontal Merger Guidelines* is Baker’s analysis that argues for “Exclusion as a Core Competition Concern.”<sup>105</sup> Baker cites three dozen cases in which the claim of efficiency has failed to prevent a finding of a violation of the antitrust laws.

Synthesizing the leading cases, exclusionary conduct may be found unreasonable today without a comprehensive analysis of the nature, history, purpose, and actual or probable effect of the practice in the presence of two additional elements: if the excluding firms have foreclosed competition from all actual or potential rivals other than insignificant competitors, and if the exclusionary conduct lacks a plausible efficiency justification...

[Co]ndemnation of exclusion as anticompetitive without comprehensive reasonableness upon a showing of three elements: (a) exclusionary conduct, (b) facts suggesting the likelihood of harm to competition; and (c) the absence of a plausible efficiency justification for the exclusionary conduct.<sup>106</sup>

He also cites a couple of dozen cases where the court did not uphold the claim of antitrust liability. In many of those cases, the plaintiffs failed for reasons other than the presence of efficiencies. The aggregate numbers are reinforced by the weight of the cases, measured by the number of citations in his analysis, as shown in Table V-3. Regardless of the numbers, the point is that an efficiency claim is, at best, a factor that demands close scrutiny and does not deserve to put a thumb on the scale in either direction.

**TABLE V-3: EFFICIENCY AS A BALANCING FACTOR IN A RULE OF REASON**

Cases Supporting		Cases Not Supporting or Neutral	
Case	#	Case	#
Microsoft	29	Trinko	29
Aspen	18	Brooke	14
Visa	8	Leggin	9
Kodak	7	Jefferson P.	5

Source: Jonathan Baker, 2012, “Exclusion as a Core Competition Concern.” 78 Antitrust L.J. 5

Baker argues, as does Salop, that the threat of anticompetitive harm is particularly important in dynamic industries, and that the claims for efficiency gains tended to be based on the “wrong” cases – cases where the markets were competitive.

Moreover, anticompetitive exclusion may be the more important problem because it poses a particular threat to economic growth. Recognizing exclusion as a core concern of competition policy along with collusion could lead enforcers to place a higher priority on attacking exclusion, particularly conduct foreclosing potential entry in markets subject to rapid technological change, and to raise the penalties in egregious exclusion cases through criminal enforcement.<sup>107</sup>

Relatedly, the leading studies of vertical restraints may have examined competitive effects primarily in relatively competitive markets, where those practices would not be expected to harm competition, rather than in sectors in which firms exercise substantial market power, where antitrust enforcement tends to be concentrated... Furthermore, the prevalence of a practice in markets thought to perform competitively at best establishes that the practice could be procompetitive. It does not indicate whether the conduct could harm competition when employed by firms with market power or whether anticompetitive uses have been deterred by the threat of antitrust enforcement... By contrast, the many examples of anticompetitive conduct observed during periods of lax antitrust enforcement suggest the benefits of antitrust.<sup>108</sup>

For the analysis in this paper, Baker offers a series of important observations based on the case law. For example, market power is durable and its abuse is not excused, but rather is heightened, in dynamic industries.

Market power is often durable: economic theory suggests many reasons why monopoly power would not be transitory, and the case law offers many examples of durable market power,<sup>267</sup> including in high-tech markets. Moreover, the empirical evidence indicates that the push of competition is generally more important for innovation than the pull of monopoly. Hence a focus on —dynamic competitionl does not justify exclusionary conduct such as monopolization.<sup>109</sup>

One of the most interesting observations offered by Baker is the direct link between the Microsoft case, which we have argued is a main foundation of contemporary antitrust practice, as discussed in Section IV, and the Comcast NBC merger, discussed in Section VII.

When antitrust cases address the suppression of new technologies, products, or business models, the disputes are almost always framed as exclusionary conduct allegations.<sup>146</sup> For example, Microsoft was found to have harmed competition in personal computer operating systems by impeding the development of a new method by which applications software could access operating systems, involving the combination of Netscape’s browser and Sun’s Java programming language.<sup>147</sup> The D.C. Circuit explained that —it would be inimical to the purpose of the Sherman Act to allow monopolists free reign to squash nascent, albeit unproven, competitors at will – particularly in industries marked by rapid technological advance and frequent paradigm shifts. Similarly, much of the relief accepted by the Justice Department and the Federal Communications Commission in their concurrent reviews of Comcast’s acquisition of NBC Universal programming aimed to protect the development of nascent competition from a new technology, online video distribution, and new business models that could threaten Comcast ‘s market power in cable television. (35)

## **DISMANTLING THE CHICAGO SCHOOL DEFENSE OF DOMINANT FIRMS IN OLIGOPOLY MARKETS**

We can draw on two comprehensive views to summarize the economic and legal literature that dismantles the Chicago school arguments that sought to insulate dominant firms in oligopoly markets from antitrust liability, as shown in Figure V-1.

Figure V-1 shows the two key dimensions of market structure that affect the evaluation of the impact of tying – the competitiveness of the two markets (tying and tied). We locate the potential effects of ties where they are most likely to have an impact, given the markets in which they occur. Thus, in vigorously competitive markets, ties can generally be seen as procompetitive. The focal point of the analysis is on markets where the tying firm has market power. While the efficiency defense can still be made, it must offset the analysis of the potential anticompetitive effects of ties.

Once the theoretical barrier is breached, as with the dismantling of the single monopoly rent theory in the Microsoft case, empirical analysis takes over and the picture is not pretty. In the tying debate, a great deal of time and energy is spent on structural situations that do not apply when the communications sector is the field under study, precisely because the structural conditions do apply.

As shown in Table V-3 and demonstrated throughout this analysis, the anticompetitive effects of market power and its increase through mergers is likely to be substantial and negative. We include high level evaluations of two important regulatory policy issues – “zero-rating” practices that bundle unlimited usage with access for affiliated content and applications (but not for unaffiliated) and for paid prioritization (which charges unaffiliated content and application providers more for the same level of service as affiliated).

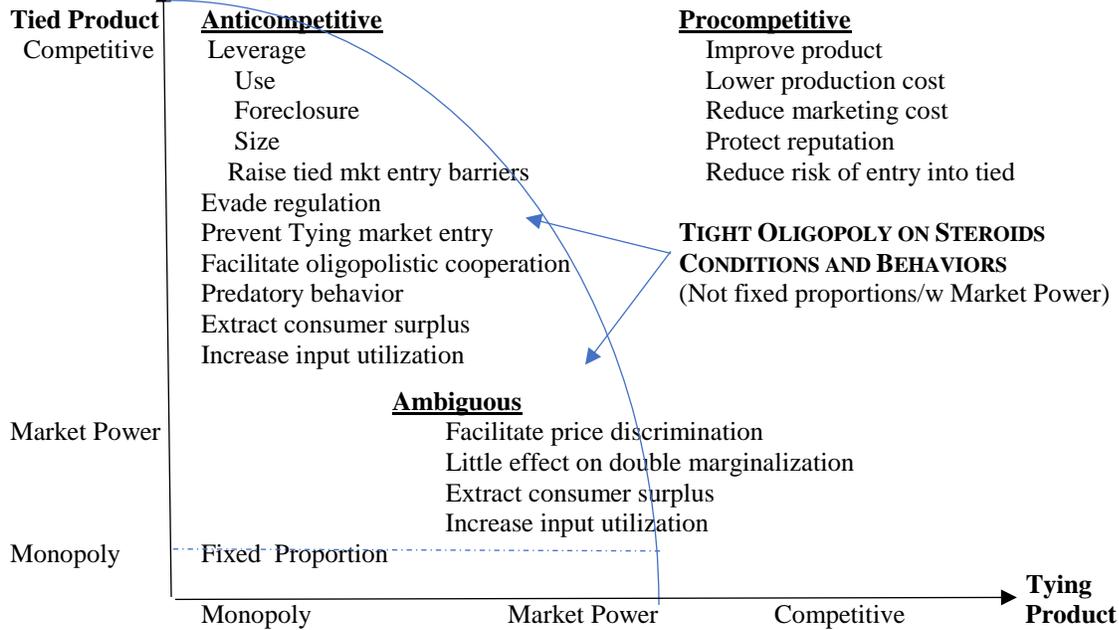
The Chicago School’s single monopoly rent theory became a serious and harmful distraction in antitrust and competition policy when, in spite of caveats, it was put forward as a general prescription (*per se* legality) for policy even though it was applicable only under a very restricted set of circumstances.

The post-Chicago argument (from the Harvard economists, as Elhauge calls them) exposed that mistake. Vertical integration moved into the region of a rule of reason, but the defenders of market power created another distraction. Seizing on the need to balance costs and benefits, they claimed vertical integration produced large efficiency gains that were very likely to outweigh any abuse of market power. They supported this claim by pointing to the many instances of the presence of vertical integration in competitive markets and the contractual terms that predominated in those markets.

The post-post-Chicago school economists criticized the undue deference that was given to the efficiency arguments, pointing out that the interesting cases were not those where competition reigned supreme (or even hard monopolies, which are rare), but the situation of oligopoly in one or both of the product markets. The theory wins, hands down, so there is no justification for quasi-*per se* legality.

**FIGURE V-1: ANTICOMPETITIVE BUNDLING BY THE COMMUNICATIONS OLIGOPOLY**

**Market Structure and Impacts of Bundles**



**Assessment of Disputed Bundles**

Impact of Bundling	AT&T Time Warner	Zero-Rated Unlimited Bundles	Paid Prioritization
<b>Procompetitive</b>			
Improve product	-	-	?
Lower production cost	-	-	-
Reduce marketing cost	-	-	-
Protect reputation	-	-	-
Reduce risk of entry into tied	?	?	?
Fixed Proportions Safe Harbor	-	-	-
<b>Ambiguous</b>			
Facilitate price discrimination	-	-	-
Little effect on double marginalization	-	-	-
Extract consumer surplus	-	-	-
Increase input utilization	-	-	-
Not Fixed Proportions	-	-	-
<b>Anticompetitive</b>			
Leverage	-	-	-
Use	-	-	-
Foreclosure	-	-	-
Size	-	-	-
Raise tied mkt entry barriers	-	-	-
Evade regulation	-	-	-
Prevent tying mkt entry	-	-	-
Facilitate oligopolistic cooperation	-	-	-
Predatory behavior	-	-	-

Sources: Bruce H. Kobayashi, 2005, "Does Economics Provide a Reliable Guide to Regulating Commodity Bundling By Firms? A Survey of the Economic Literature," *Journal of Competition Law & Economics*, 1, Guy Sagi, Guy 2014, "A Comprehensive Economic and Legal Analysis of Tying Arrangements," *Seattle University Law Review*, (8).

But is there justification for quasi-*per se* illegality, as would be implicit in a rejection of a merger (specific, to an individual company) or a rule (general, to ban a practice in a specific market)? The remainder of this paper argues that there is at three levels.

First, we look at general studies of concentration and price, which implicitly convey information about vertical integration and price. If vertical integration has positive efficiency benefits that outweigh negative price impacts, we would expect to see industries with higher degrees of integration exhibiting less abuse of pricing power. Although this is an admittedly indirect test, it consistently rejects the efficiency argument.

Second, we look at several instances where specific firms were involved and conclude that there is no evidence to support the efficiency argument.

Third, we look at market-wide performance in the main communications product markets – business data services, wireless, and cable – and find strong evidence that contradicts the efficiency argument.

Given all of this evidence on the likely harmful effect of vertical integration in these markets where AT&T is an important player and where its vertical leverage would dramatically increase as a result of the merger, we conclude that the DOJ is on very firm ground to reject the merger. We also build a foundation for the defense of rules to ban discrimination at two chokepoints by network operators (e.g. in business data services for “middle mile services” or network neutrality for “first mile connectivity”).

## **VI. POTENTIAL COMPETITION AND TIGHT OLIGOPOLIES ARE INSUFFICIENT TO PREVENT THE PERVASIVE ABUSE OF MARKET POWER**

### **TWO IS NOT ENOUGH FOR WORKABLE COMPETITION<sup>110</sup>**

In a sense, the rejection of the notion that a very small number of competitors is enough competition to discipline the abuse of market power is even more definitive than the rejection of the potential competition leg. The empirical evidence rejects that argument just as strongly. The academic literature, as discussed below, is equal in strength and larger in volume.

First, the Department of Justice and the Federal Trade Commission had conducted an extensive review of the evidence on competitive market structure and concluded that the thresholds for classifying markets should be changed. Under the old definition, a market with the equivalent of ten equal-sized firms was considered unconcentrated. Under the new definition, a market with roughly six equal-sized firms is considered unconcentrated. Under the old definition, a market with fewer than six equal-sized firms was considered highly concentrated. Under the new definition, a market with four equal-sized firms is considered highly concentrated. In essence, the DOJ/FTC relaxed the old rule of thumb (“six is few and ten is many”) by adopting a rule of thumb that is current in the literature, “four are few and six is many.”<sup>111</sup> As discussed below, the European competition authorities also rejected the proposition that two is enough.

While there are occasional theoretical suggestions that “two is few and four is many,” there is scant, if any, real-world evidence to support that proposition.<sup>112</sup> The argument that “two is enough” has virtually no support in the theoretical or empirical literature. Indeed, the evidence runs in the opposite direction; the empirical evidence suggests that six may not be enough. As discussed below, the rule of thumb that fits the real-world experience is “four is few, six may be enough depending on the market, and ten is many.”

The primary effect of the contestability theory was to compel analysts to look more carefully at potential competition. As Martin (1994) suggests, the net effect was to strengthen the basic findings of the traditional approach, with researchers producing ever more nuanced and sophisticated rejections of contestability. The use of concentration ratios overwhelmingly shows a statistically significant effect in the expected direction. Higher concentration yields higher prices in a wide variety of markets.

Here, it is important to keep the context in view. Hundreds of studies had shown that the level of concentration had a statistically significant and quantitatively meaningful relationship to prices and profits. To the extent that potential competition was operating, it would have weakened the relationship, but it had not eliminated it by any stretch of the imagination. The average could be misleading. Authors set out to identify the markets in which potential competition might have a big effect. They generally found small effects that were not sufficient to undermine the basic relationship between concentration and price. Potential competition was nowhere near an effective substitute for actual competition.

Of equal importance is the fact that the effect of concentration was not limited to the range of monopoly-duopoly. The markets studied are not, on average, duopolies. On the

contrary, the level of concentration is overwhelmingly below the duopoly level. Using the average HHI and the distribution of HHIs, 95% or more of the products studied have more firms than a duopoly. Since increases in concentration are significantly related to increases in price for products, and with market concentration well below the duopoly level, a duopoly cannot be enough to deliver the benefits or workable competition.

Since the HHI captures more information about the market structure, most studies do not generally examine the impact of adding a specific number of competitors to a market. When they do take an approach that counts firms, they confirm that adding competitors into the mid, or even high, single digits lowers prices (see Figure VI-1). For the purpose of this analysis, we accept as a baseline the largest number of firms in the market defined by the author as most competitive. Since the structure they consider tends to stop at fairly low numbers, the analysis may be leaving a lot of rent in the pockets of the sellers. That is, the less they consider concentrated markets, the larger the magnitude of the estimated effect of market power. For the present purposes of testing the ability of very small numbers of competitors to constrain market power, the conservative baseline is more than adequate.

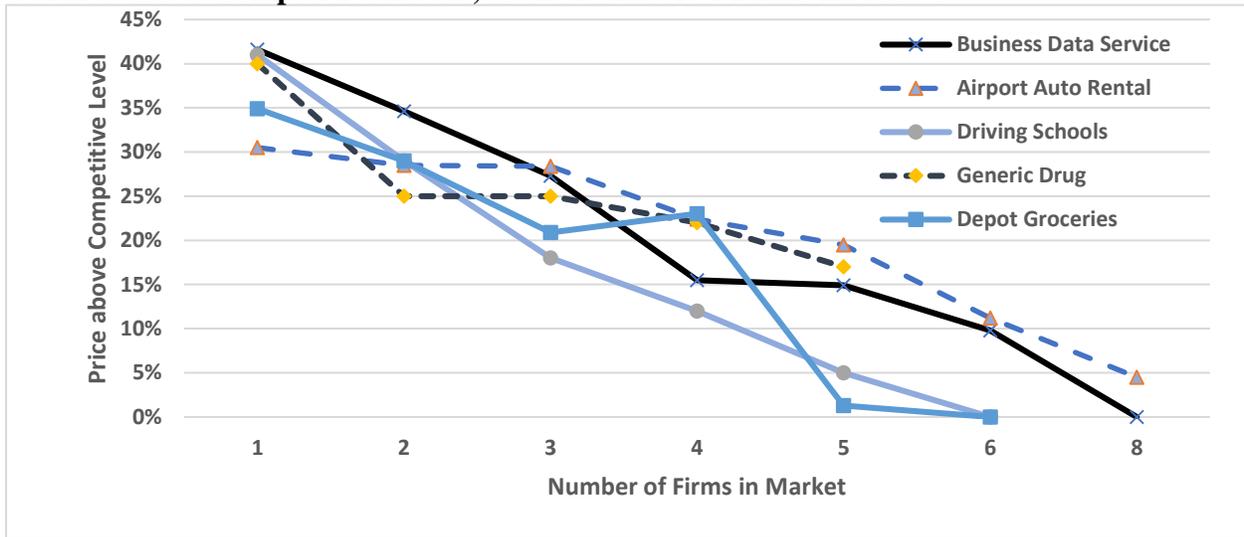
Figure VI-1 compares Baker's results for the FCC BDS data to the findings in several other product markets. To create a basis for comparison between these empirical studies, we have used regression coefficients on the specific number of firms to estimate how far prices are above competitive levels. We convert Baker's (xxx) data to a continuous variable by starting with in-building competitors and adding in census block competitors. Because potential entrants that are distant from a market tend to have smaller effects, we show actual competitors first and add the effect of potential competitors atop the effect of actual competitors. Generic drugs and driving schools, in addition to Business Data Services, include estimates of the specific impact of potential competition that will be discussed below. We identify seven levels of competition that play a central role in debate – 1, 2, 3, 4, 5, 6, and 8. In the upper graph, we show the monopoly markup in percent. In the lower graph, we convert this to an index of the exercise of market power by calculating the reduction in market power as competitors are added. This enables us to include measures other than price. This approach addresses the key issues highlighted by the rules of thumb – “two is few, four is many,” and “four is few, six is many.” On average, two competitors leave almost three-quarters of the rents in the pockets of the sellers. Four firms leave slightly less than half the rents on the table, and five firms leave slightly less than one-third. Six firms squeeze out all the rents in some cases, but not in others.

The evidence shows that two is clearly not enough. Adding competitors to four has large effects.<sup>113</sup> Beyond four, results become less clear.<sup>114</sup> In several examples, six has a statistically significant impact in both product markets. Rents continue to be squeezed out up to eight firms in the case of BDS and airport auto rental.

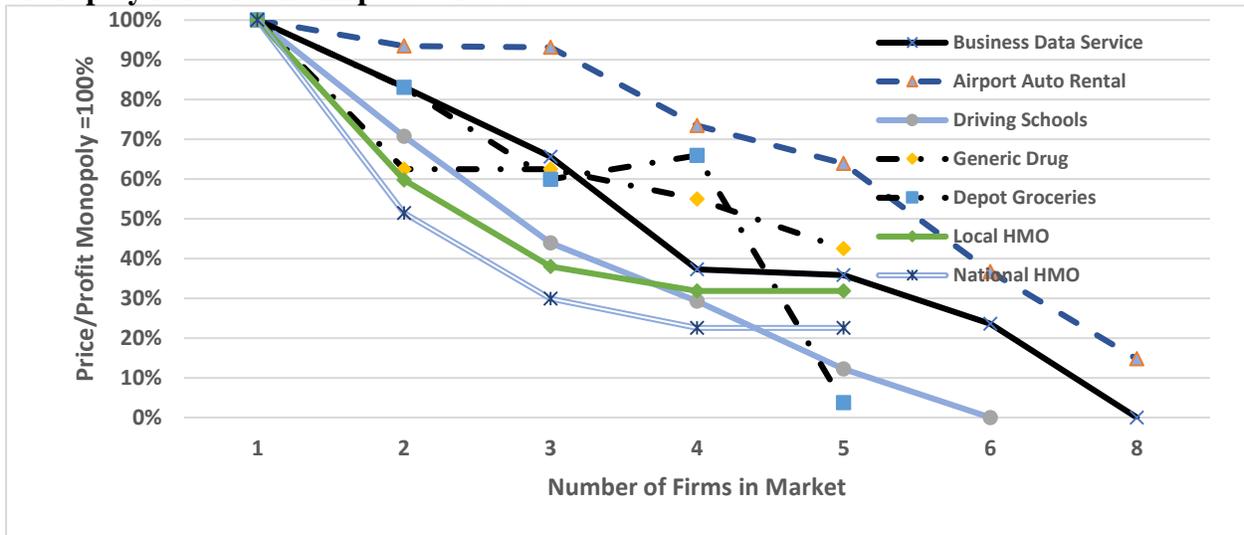
A point of considerable debate in the measurement of the abuse of market power stems from the fact that the pure measure, based on the notion that competitive prices should equal marginal costs, glosses over the problem of fixed costs, which must be recovered in prices to maintain a going concern. Business Data Services may or may not have larger fixed costs than the other examples in Figure III-1.

**FIGURE VI-1: CONCENTRATION AND MONOPOLY OVERCHARGES**

**% Price above Competitive Levels, as the Number of Firms Increases**



**Monopoly Price/Profit Impact = 100%**

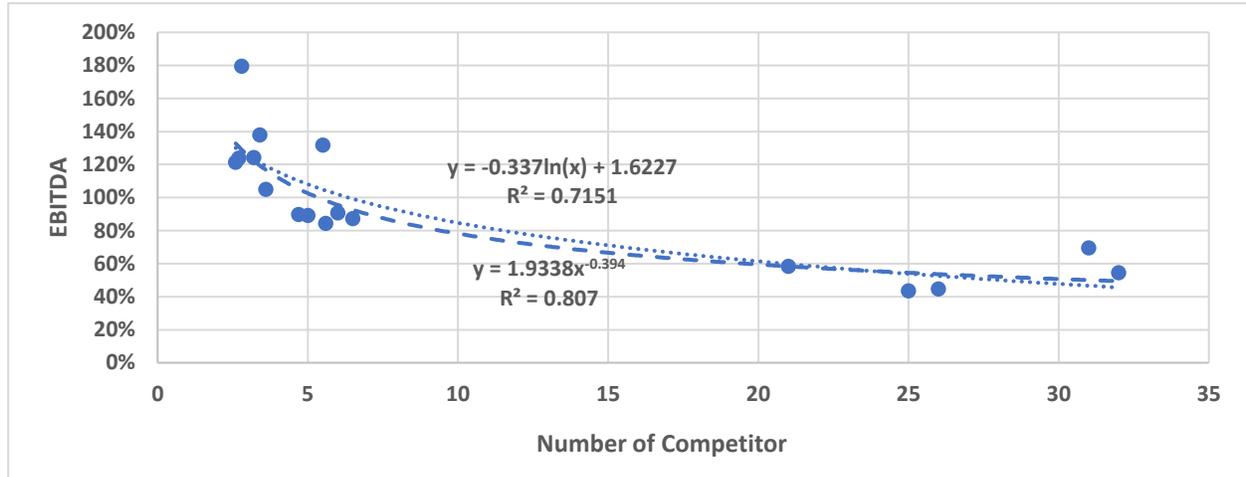


Sources: Cooper, Mark and Bruce Kushnick, 2016, Comments and Reply of the Consumer Federation of America and the New Networks Institute, before the Federal Communications Commission, in the matter of *Business Data Service in an Internet Protocol Environment, Investigation of Certain Price Cap Local Exchange Carrier Business Data Service Tariff Pricing Plans, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket Nos. 16-143, 15-247, 05-25, RM-10593, June 27, August 8, interpreting Baker, 2016; Airport Auto Rental, Singh Vishal and Ting Zhu, 2006, *Pricing and Market Concentration in Oligopoly Markets*, March 8; Asplund, Marcus and Richard Sandin, 1999, "Competition in interrelated markets: An empirical study," *International Journal of Asplund, Marcus and Richard Sandin*, 1999, "Competition in interrelated markets: An empirical study," *International Journal of Industrial Organization*, (37); Marion, Bruce W. and Cynthia Mazo, 1995, *Competition in Grocery Retailing: The Impact of a New Strategic Group on BLS Price Increases*, Working Paper 110, Department of Agricultural Economics, University of Wisconsin, October.

Figure VI-2 and the accompanying table shows the prices and profit margins (EBITDA) of a number of hospital services where fixed costs are likely to be significant. The critical conclusion – that competition squeezes out rents well beyond two – is supported. The results of

this study of competition in common operating room procedures adopted a simple measure of competition: those above and below the mean HHI. The average number of hospital chains serving an area was eleven, so the dividing line is reasonable in terms of the old DOJ/FTC standard of “ten is many.” Although the measure used in the study is imprecise, the study also provided an econometric measure of the impact of competition, which enables us to create the price curve analysis in the figure and the margin analysis in the supporting table below.

**FIGURE VI-2: CONCENTRATION AND PROFITS IN COMMON SURGICAL PROCEDURES**



Procedure Mark-up	Concentration Levels Equivalent	HHI	# of Firm	Commercial Margin (EBITDA)		
		Competition Measure	#	Margin Analysis		
		HHI	#	AVG.	SD	CV
	1 SD Below Mean	329	43.7	53%	0.098	18%
	Competitive (Below Mean)			64%	0.161	25%
	Mean HHI Moderately Concentrated	1819	5.6	96%	0.179	19%
	Consolidated			129%	0.282	22%
	1 SD Above Mean	3311	3.1	132%	0.256	19%

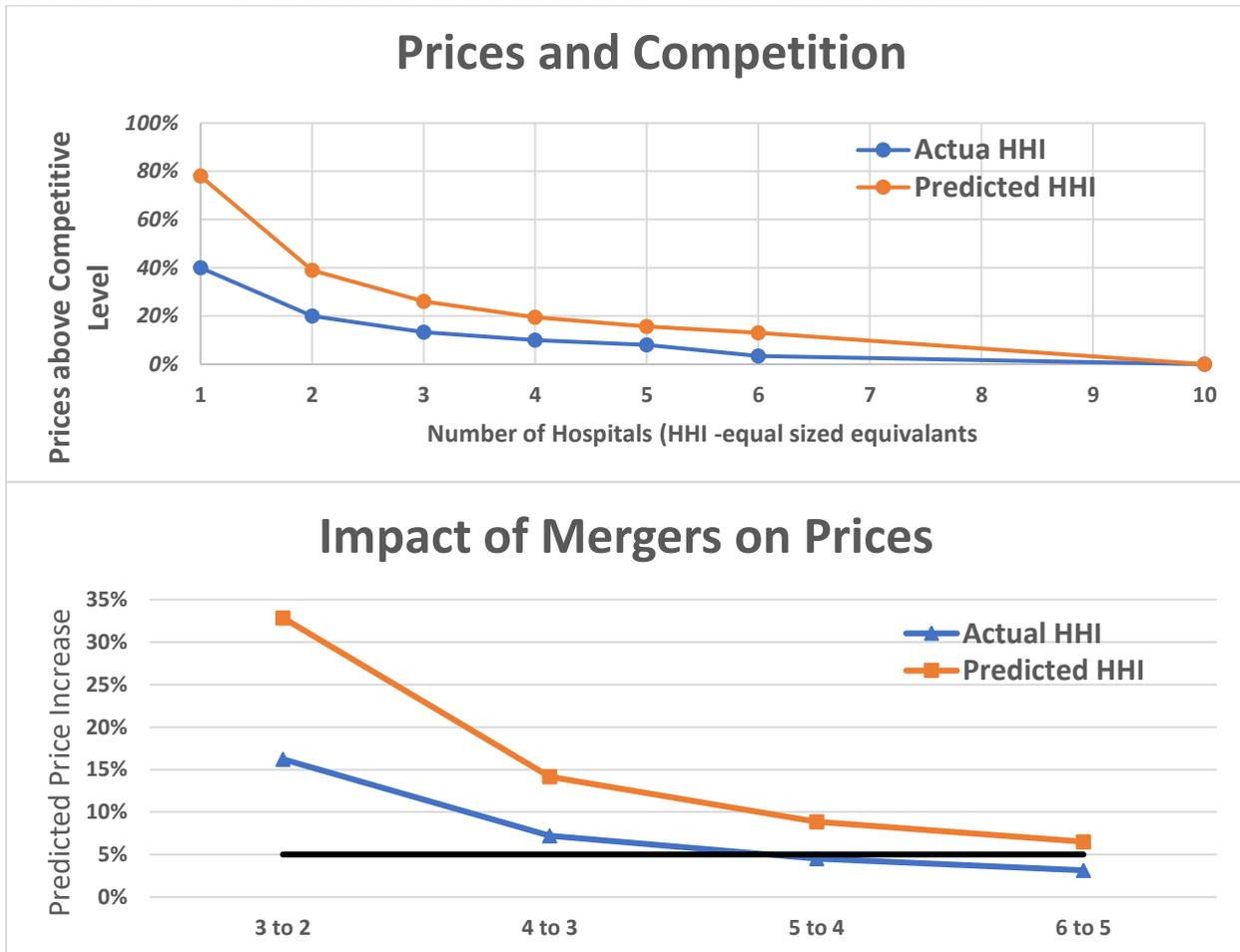
Source: Robinson, James C., 2011, “Hospital Market Concentration, Pricing, and Profitability in Orthopedic Surgery and Interventional Cardiology,” *The American Journal of Managed Care*, 17(6).

The estimated margin at the competitive level (one standard deviation below the mean of HHI), with implicitly large numbers of competitors, is fairly tightly concentrated around 50%. As competition declines to the moderately concentrated level (five to six), the margin goes up significantly by over forty percentage points. The firms in a moderately concentrated market for these services are earning excess profits above 40%. In highly concentrated markets the excess profits rise by another 40%.

A second study on hospitals yields a similar pattern, as shown in the upper graph of Figure VI-3. Again, we have constructed these curves from the HHI coefficients and the examples given in the text. The introduction of a second hospital has a larger impact, squeezing out about half the rents, but half are still left on the table. The lower graph shows the impacts of mergers in highly concentrated markets. The examples in text assumed equal sized firms. We have added the six-to-five mergers based on the observed HHI relationship. Tying this back to the earlier discussion, the four-to-three and three-to-two mergers clearly exceed the SSNIP standard. Even the five-to-four is close. Using the higher levels of HHI, all of the mergers exceed the SSNIP standard. These results mirror the larger antitrust practice and academic

literature. Mergers with four firms are a great concern, while mergers with five or six firms are borderline. Two is simply not enough competition.

**FIGURE VI-3: CONCENTRATION AND PRICES IN LOCAL HOSPITAL MARKETS**



Source: Antwi, Yaa Akosa, Martin Gaynor and William B. Vogt, 2013, “A Competition Index for Differentiated Products Oligopoly with an Application to Hospital Markets,” September 27, 2013

As noted by the antitrust authorities, other dimensions of the product space are affected by concentration, including, for example, variety.<sup>115</sup> A more recent study in a very different industry – smart phones – reached a similar conclusion.<sup>116</sup> This result was demonstrated for mergers between the top six firms in the smart phone market, which was moderately concentrated at the time, underscoring the uncertainty about where to draw the line on concern over the level of concentration.

### POTENTIAL COMPETITION AND ENTRY

One of the earliest tests of contestability examined the effect of potential entry into airline markets, where potential entrants were defined as serving one of the two cities in an origin destination pair. This was a lot more than a toe in the market as a basis for entry. It found that one actual (average) competitor had the impact of three potential competitors.<sup>117</sup> This finding has become a standard,<sup>118</sup> but it is important to note that the comparison was for the average

competitor on markets with an average of two-and-a-half competitors. One might surmise, as we have seen, that potential competitors rank well below the third competitor.

Several of the studies included in Figure VI-1, above, explicitly take potential competition into account. For example, it is interesting to note that the driving school analysis takes distance from nearby markets into account and finds that there is a competitive effect for markets that are very close. A market that is just ten miles away, however, has an effect equal to adding a sixth competitor.

As a numerical example of the magnitude of the distance effect in a market for which distance = 40 has about .07 high prices compared to a market where distance = 10... This is comparable to the quadropoly coefficient of 0.06. Other studies that have included a measure of geographic distance find a positive, although not always significant effect on prices or profits.<sup>119</sup>

However, the example given uses a market in which the closest competitor is one-third as far as the average. It then compares that market to one that is almost one standard deviation above the average. A more traditional and informative approach would be to compare a market one standard deviation above and below the mean. Moving one standard deviation above or below the mean has an effect on price that is less than one-half the effect of the fourth competitor. To put this another way, with the average number of firms in a market being two, and the average distance to the nearest market being 27.7 miles, even if the potential competitor is next door, the competitive effect is just over half of the effect it would have if it was the fourth actual competitor; and just over one-third the effect of an actual third competitor. When numbers of competitors fall into this range, nearness is not very important because natural factors and active strategies dampen the effects of competition. Potential competition is simply not enough to substitute for actual competition moving from four to six competitors.

The generic drug study used the expiration of a patent as an indicator of an increase in potential competition. It found a small effect, but observed that the effect was contingent on other factors.

The study of depot grocery stores provides another perspective. The author did not operationalize a potential competition variable, but did categorize entrants by their size. The study found that actual depot competitors with a small market share (less than 5%) had no effect on prices. Two or three depot competitors (5%-10%, or 10%-20%) had a modest impact on prices. The fourth competitor (20-30%) had the largest impact. The fifth competitor had no effect.

Similarly, and a bit closer to home, a study of the response of dominant incumbents to the threat of entry by cable companies showed that publicly owned systems, which had not been placed under restraints by policy, induce cable owners to upgrade their systems.<sup>120</sup> The study found that this was a strategic capacity response, since the incumbents were also slow to offer upgraded services. The study also found that the threat of entry by a privately owned overbuilder did not elicit this response. Finally, measures of the distance of the overbuilder from the cable system were not significant.

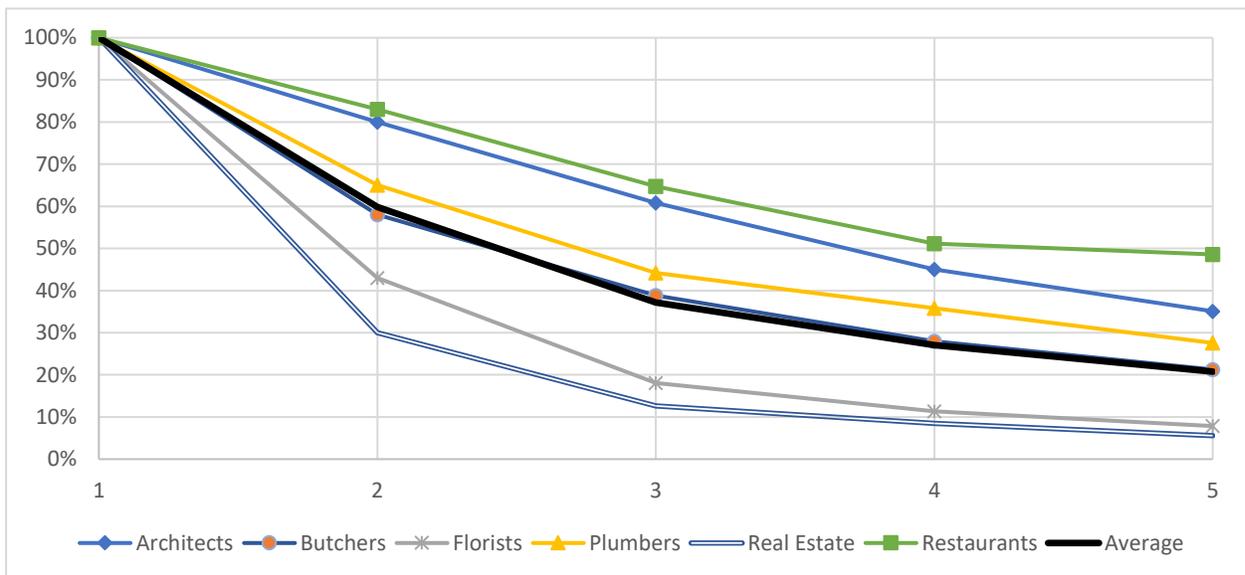
Interestingly, a study of European telecommunications competition found a similar difference between public and private firms and competition.

We conduct an empirical study of the infrastructure investment of 20 incumbent telecommunications operators in OECD countries between 1994 and 2008, and we conclude that greater competitive pressure fosters infrastructure investment by state-owned incumbents but reduces investment by private incumbents.<sup>121</sup>

A study of potential entry in Belgian local markets is also instructive. The markets analyzed were small and nonurban. To control for economics of scale, the potential entrants were essentially “mom and pop” enterprises (averaging one outlet). Interestingly, of the seven industries studied, the one with the smallest effects of competition was found guilty of price fixing in the period covered by the data. Ironically, in the debate over contestability, these types of small enterprises were offered as another area for good candidates for contestability, as Peteraf (1995) points out.<sup>122</sup> Schwartz and Reynolds (1984) have argued that contestability theory might only apply for some small neighborhood of costs above zero sunk costs. Beyond this, they expect monopoly prices to prevail. If contestability were working, we would not see the pattern of declining rents as the number of competitors increases.

Figure VI-4 shows the standard measure we have used for describing the effect of adding competitors to lower the monopoly markup. Figure VI-4 is based on the constant elasticity specification of the model. A specification in all twenty-four of the coefficients was statistically significant.<sup>123</sup>

**FIGURE VI-4: MARKUP EFFECTS OF ENTRY IN VARIOUS BUSINESS SECTORS**



Source: Schaumand Catherine and Frank Verboven, 2011, *Entry and Competition in Differentiated Products Markets*, Center for Economic Studies Discussion paper, 11 (23), September

The results are similar to the earlier finding on the effect of actual competition. The second competitor has an effect, but the third squeezes margins by about half as much as the second, and the fourth and fifth squeeze margins by another quarter of the original monopoly markup. The second competitor leaves about half of the monopoly rents in the pockets of the dominant firm, while competitors three through five squeeze the rest out.

## CARTELS, COORDINATION AND TACIT COLLUSION

Another type of data that sheds considerable light on the question of how many competitors are necessary to prevent the abuse of market power in the real world can be found in the literature on cartels. The gap between theory and reality is particularly great in the analysis of cartels. As one recent study put it:

Experimental tests of the tacit collusion model so far find that, while collusion sometimes occurs with two firms, behavior is close to Nash play in markets with three or more firms.

Yet the empirical reality of antitrust enforcement is different: cartels usually involve many firms... Empirical evidence on cartels suggests that the median number of cartel members lies between six and ten...<sup>124</sup>

The conventional wisdom is that collusion is easier with fewer firms. While theories on collusion as well as oligopoly experiments support this assertion, there is abundant evidence from cartels suggesting that firms also manage to cooperate in markets with a large number of competitors. In this area of analysis, the central challenge is to uncover the factors that exist in the real world that render the theoretical expectation incorrect. The answer is consistent with a broad body of literature on behavior. The ability to communicate explicitly and implicitly, and to pragmatically discipline “cheaters,” helps to effectively achieve above-cost pricing when the number of competitors is in the high single digits, particularly when the firms recognize their mutual interests and reciprocity governs behavior.<sup>125</sup>

Communications provide critical functions in establishing pricing policy and in dispute resolution,<sup>126</sup> perhaps by signaling threats to promote compliance without punishment,<sup>127</sup> or keeping punishment targeted.<sup>128</sup> The results of an experiment that looked intensively at communications found that

Our result is at odds with the conventional wisdom, if interpreted as “there are more cartels the fewer the firms.” In our data, duopolies have higher prices throughout, so the conventional wisdom that “fewer firms find it easier to maintain high prices” does hold both when firms talk and when they do not talk. But we also saw that the gain from talking is larger for the less concentrated industry, and, as a result, “there are fewer cartels the fewer the firms.”<sup>129</sup>

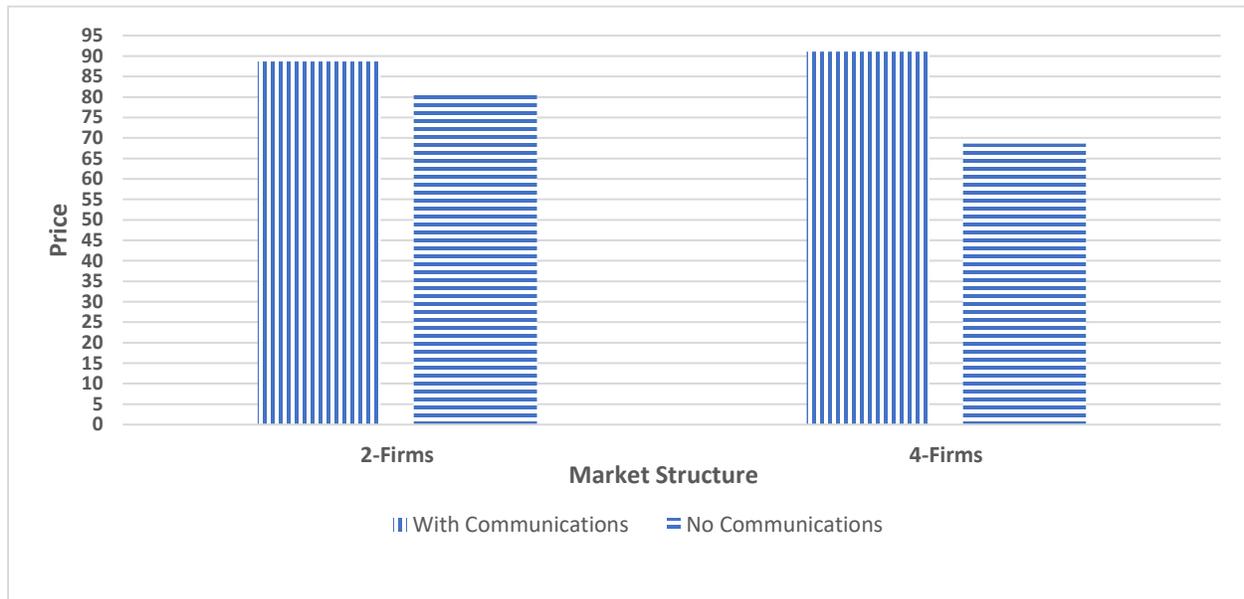
The results summarized in Figure VI-5 show that communications increase rent extraction in a duopoly by about 10%, while communications in a four-firm cartel enable the extraction of rents slightly above the two-firm cartel. The key finding is that prices in a four-firm market without communications are 23% lower than in the two-firm market with communications. This is similar to the amount of rent squeezed out in the move from two to four firms in the analysis above.

Another recent study that allowed various levels of communications reached a similar conclusion.

Allowing the upstream firm to chat privately with each downstream firm reduces total offered quantity from near the Cournot level (observed in the absence of communication) halfway toward the monopoly level. Allowing all firms to chat together openly results in complete

monopolization. Downstream firms obtain such a bargaining advantage from open communication that all of the gains from monopolizing the market accrue to them.<sup>130</sup>

**FIGURE VI-5: IMPACT OF THE NUMBER OF FIRMS AND COMMUNICATIONS ON ABUSIVE PRICING**



Source: Fonseca, Miguel A. and Hans-Theo Norman, 2014, "Endogenous cartel formation: Experimental evidence," *Economics Letters* 125, p. 224.

The lysine cartel case provides an interesting perspective on the abuse of market power. A debate occurred over how large the fine should be for engaging in explicit cartel behavior. Those who argued for a lower fine claimed that the underlying abuse of market power should be the base, not the total abuse of market power in the sector.

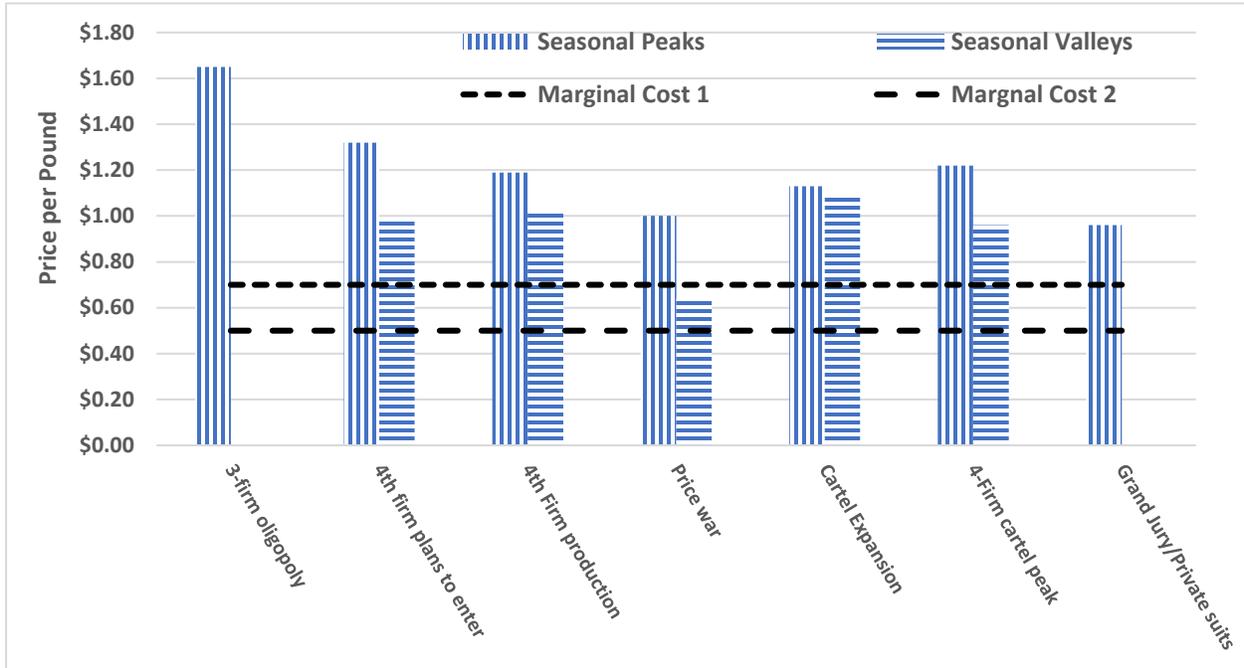
But the lysine industry of 1992-1995 was not a simple "competitive" industry. Prior to ADM's entry the lysine market was essentially a three-firm oligopoly. With ADM's entry it was a four-firm oligopoly. The Herfindahl-Hirschman Index (HHI) was well above 3000. Barriers to entry were high. It was a standardized commodity, with a standard chemical formula. The buyers of lysine were numerous -- the 1992 Census of Manufactures listed 1,160 companies in the "prepared feeds."<sup>131</sup>

In part, the difference of opinion about the magnitude of the overcharges stemmed from a difference of opinion about the marginal cost, which is a frequent issue in such situations.<sup>132</sup> In sum, the lysine industry had virtually all of the characteristics of an industry in which implicit oligopolistic coordination of some kind would likely have arisen in the absence of the explicit conspiracy. From the point of view of the claim that potential competition or two competitors is enough to adequately discipline market power, this fine point is irrelevant (see Figure VI-6).

This is an industry that went from a three-firm oligopoly to a four-firm oligopoly. The average excess of prices over costs was 45%. When the entrant initiated a price war, prices fell to costs. When the new entrant joined the cartel (explicitly), prices rose, albeit not back to the

pre-entry level because capacity had been expanded and there were now four firms in the cartel, not three. The seasonal pattern of increasing prices was much more pronounced under the cartel. The increases from the valleys to the peaks being three times as large.

**FIGURE VI-6: THE LYSINE CARTEL, PRICES AND MARGINAL COSTS**



Sources: White, L., 2001. Lysine and price fixing: how long? How severe? *Review of Industrial Organization* 18; de Roos, Nicolas, 2006, "Examining models of collusion: The market for lysine," *International Journal of Industrial Organization*, 24.

The analysis of coordination (explicit or tacit) emphasizes the importance of product differentiation,<sup>133</sup> particularly differentiation by geographic location, which plays a large part in BDS markets.<sup>134</sup> For example, the study of HMOs in Figure III-1 underscores this point. The competitive effect of adding HMOs follows the classic pattern, but the effect is very sensitive to the substitutability of products,

The estimates indicate that the effects of competitors on profitability come almost exclusively from same-type HMOs. For both local and national firms, the presence of a same-type competitor cuts baseline profit by more than half... while the presence of competitors of other types has a negligible impact on profits. This provides strong evidence that HMOs are differentiated by geographic scope, and that this differentiation is a profitable strategy.<sup>135</sup>

The authors draw a broad conclusion about the (in)ability of differentiated products to exert competitive influence.

In heterogeneous produce industries, however, firms offering similar services may not be direct competitors due to differences in their geographic location, customer base, or other aspects of their business strategy.<sup>136</sup>

A summary of the entry deterrence literature provides more insight. Table VI-1 identifies the key characteristics in the literature that affect the ability of incumbents to deter or respond to threats of entry.

**TABLE VI-1: STRATEGIC BEHAVIORS AND FACTORS THAT AFFECT ENTRY**

<u>Factors</u>	<u>Firms as Incumbents Deterring Entry</u>	<u>Firms as entrants</u>
Number of Firms	As the number of rivals increases, the likelihood that there is a common view about ether competition is in terms of strategic substitutability or complementarity is reduced. In addition, where relevant, the permutations of accommodate or deter are substantially increased.	
Large Size	Small size (and large numbers) of firms militate against any strategic tools, not least because of the action of any particular firm is less likely to be noticed	
Type of entrant	Established rivals or new entrants	
Actions	<p>Exclusionary behavior may be used in preference to true strategic behavior.</p> <p>Intellectual Property, The incumbent has more to gain by protecting it position from entry (by increasing R&amp;D and patenting results). Good for targeting entrants, not likely to upset incumbents</p> <p>Exploiting selling network: Extremely important Assured supply of raw materials and intermediate products: Extremely important</p> <p>Advertising: By increasing advertising expenditures just prior to and during the launch of products by entrants, incumbent firms may reduce the impact of the entrant's own campaign and raise their costs. Good for targeting entrant, not likely to upset incumbents</p> <p>Price is an infrequent policy: only 1% of respondents said that their pricing policy was <i>mainly</i> directed at slowing the rate of new entry.</p>	<p>Intellectual property is a bigger entry obstacle than a tool to deter entry, particularly for small firms</p> <p>Agreements between firms over pricing and strategy are a bigger obstacle to entry than a tool to deter.</p> <p>Access to human resources is a challenge, particularly for small firms</p>

Source: Singh, Satsinder, Michael Utton and Michael Waterson, 1998, *Strategic Behaviour of Incumbent Firms in the UK*, *International Journal of Industrial Organization*, Volume 16, Issue 2, 1 March.

Small numbers of large firms are well positioned to deter entry, particularly from new entrants, as opposed to those who are expanding into new product markets from adjacent markets. Advertising is seen as an important weapon. Command of distribution networks and access to key inputs aid incumbents, and the lack thereof disadvantages entrants. Locking up access to critical resources or lack of access to resource is an important factor. As we have seen

throughout this analysis, the situation in the BDS market is dense in the factors that would restrict the impact of entry. The enthusiasm for entry as a disciplining force needs to be tempered by the recognition of the complexity of entry and the variety of strategic actions that can be used to deter or blunt its effects.

One study concludes “that investments in deterrence are viable, especially when new entrants face significant other barriers to entry.”<sup>137</sup> It identifies ten factors that have been supported in the literature as inhibiting entry to some degree. Uncertainty and dynamic development, upgrades, advertising, ex ante pricing, strategic alliances, quality, brand loyalty, lock in contracts, switching costs, and geographic linkages. Another study adds information asymmetries, ex post pricing, and manipulation of regulation to push the total past a dozen.<sup>138</sup> Another study identifies specific types of information that affect responses.<sup>139</sup> Various studies that find important impacts include prices,<sup>140</sup> differentiation, both geographic<sup>141</sup> and product<sup>142</sup> differentiation, and capacity<sup>143</sup> that diminishes competitive effects. Thomas concludes that

incumbents accommodate other incumbents on price and new products but use advertising to limit the scale of entry. Entrants are more likely to be met with an aggressive price response. I also find that incumbents are more likely to respond when the scale of entry is greater... These findings show that investments in deterrence are viable, especially when new entrants face significant other barriers to entry.<sup>144</sup>

The ammunition at the disposal of the incumbents is varied and significant,<sup>145</sup> confirming the fundamental expectation that higher concentration leads to higher price.<sup>146</sup> This interacts with the expectation that higher capacity leads to lower prices and leads to the notion that capacity is an important deterrence strategy, as in

We find that there is higher investment in capacity relative to demand (i.e., idle capacity) in markets with a larger Herfindahl index and by firms with a larger share of market capacity. These results are consistent with the entry deterrence literature that suggests firms in more concentrated markets and firms with a larger market share have greater incentive to invest in entry-detering capacity.<sup>147</sup>

One Study finds congestion to be a strategic response,<sup>148</sup> while another finds a u-shaped relationship with strategic investment (small unnecessary, large impossible).<sup>149</sup> Other responses include strategic alliances,<sup>150</sup> outsourcing,<sup>151</sup> quality as a strategic response,<sup>152</sup> exploitation of network effects,<sup>153</sup> and price responses,<sup>154</sup> in which prices for strong brands rise rather than fall.<sup>155</sup> Entry is least likely for small products and markets (Bergman and Rudholm p. 12), which appears to apply to the majority of BDS services that are lower capacity.

Responses in digital communications markets are complex, very selective and not focused on price.<sup>156</sup> Response to entry in cable is complex, with the existence of various *ex ante* and *ex poste* strategies targeting different types of entrants. Incumbents respond more aggressively to publicly owned entrants, who are not likely to enter into non-cooperative or tacit collusion strategies.<sup>157</sup> The general finding that competition between MVPD service providers can be effective but is very rare has long been demonstrated by FCC and academic analysis. The response by cable operators has been to increase the number of channels. A recent study corroborates that finding and argues that the average price per channel goes down significantly.<sup>158</sup> There are two caveats about this proposition. First, cable operators do not sell

services on a per channel (a la carte) basis and consumers generally watch only a small subset of channels, so increasing the number has little effect on the welfare of most consumers. Second, the example given makes the calculation based on an extreme set of assumptions. It hypothesizes an increase in potential competition that is over six times the standard deviation in the data. A more reasonable approach would be to model increases of one or two standard deviations, which would result in a much smaller increase in the number of channels and a much smaller decrease in per channel prices

Thus, the empirical literature on potential entry does not support the company claims (or the FCC's optimism) about its disciplinary capacity, particularly in light of the abysmal track record in the BDS sector. Qualitative overviews and analyses of entry present a very complex picture in which natural factors (like economies of scale) interact with strategic actions (like investment in excess capacity or "lock-in" contracts) to make the outcome highly uncertain. The DOJ should give little credence to claims that potential competition or small numbers of competitors can alleviate the concerns raised by the AT&T-Time Warner merger.

## **HOW ANALYZING CARTEL BEHAVIOR CAN INFORM ANTITRUST AND COMPETITION POLICY**

In the previous section, we concluded with observations about "parallel exclusion," which argued that groups of firms implicitly acting in like fashion should be a warning sign for antitrust authorities and a focal point of analysis. In this section, we conclude with observations about explicit coordination (cartel behavior) that make similar points.<sup>159</sup>

First, cartel behaviors need to be exposed to full antitrust scrutiny and treated as seriously as single firms with respect to anticompetitive impacts.

Enforcement agencies tend to follow the Sherman Act in categorizing anticompetitive behavior as either a horizontal agreement between competitors to suppress interfirm rivalry (Section 1) or monopolization behavior by a single dominant firm (Section 2). However, it may be more appropriate to view the behavior by some cartels as a combination of the two types of anticompetitive behavior. The historical record suggests that cartels often act like a single dominant firm, moving from the suppression of competition within the cartel (interfirm rivalry) to the suppression of competition from outside the cartel.<sup>160</sup>

Second, history is important because, "Firms in industries with a history of successful cartel activity that includes a relatively full portfolio of monopolization conduct may warrant extra attention from enforcement authorities."<sup>161</sup> (227)

Third, cartel behavior presents a rich opportunity to learn about the various tactics that constitute monopolization conduct.

As shown by our data, cartels do in fact engage in monopolization conduct, although the types of behaviors and extent of that conduct vary across cartels... The adapted framework provides guidance to antitrust authorities investigating such conduct by cartels. Insights on the pro-versus anticompetitive effects of such conduct derived from cartel investigations can be applied to monopolization investigations. The practices are familiar: "overt predation against non-cartel rivals, leveraging into both downstream and horizontally-related markets, exclusively dealing, blocking entry, bundling, tying, raising rivals' costs, and other conduct typically associated with allegations of monopolization."<sup>162</sup>

Fourth, one of the benefits of studying cartels to learn lessons about monopolization is to place a spotlight on coordination effects.

[W]hat is the incremental social harm that a cartel could do by moving past the suppression of interfirm rivalry and toward monopolization conduct? This question is relevant for merger policy. Coordinated effects analyses typically do not address the possibility of monopolization conduct arising from post-merger coordination. However, such conduct is a potential social harm, so the antitrust agencies should consider this when reviewing a merger.<sup>163</sup>

Discussing cartel behavior as a two-stage process, Heeb, et al. facilitate the analysis in the sense that the challenge of reaching a general agreement among potential firms, to quell interfirm rivalry, is distinct from the tactics used to secure the benefits of monopolization.

The first stage consists of reaching a consensus on a plan to restrict output or otherwise curb rivalry. For many cartels, once interfirm rivalry is addressed, the cartel moves to the second stage of activity, in which it uses exclusionary behavior often featured in monopolization cases to ensure the effectiveness of its efforts to restrict output.<sup>164</sup>

From the point of view of one of the main themes of the development of a tight oligopoly on steroids, their observations on the factors that facilitate the development of cartels (i.e. the ability to come to agreement on dampening interfirm rivalry among the dominant firms that count most) are particularly important. They are precisely the factors that we have identified as characterizing the communications sector.

When is interfirm rivalry the primary drain on profits? We can answer this using Porter's diagram. Interfirm rivalry is the primary drain on profit when the perimeter forces depressing profit are not strong—that is, if the threat of entry is small, demand for the industry's product is relatively inelastic (meaning that there exist few substitutes), there are many small buyers, and factor inputs are largely acquired in a highly competitive marketplace. In addition, because collusion is designed to eliminate or at least reduce interfirm rivalry, collusion is especially valuable if firms' products are close to perfect substitutes and if interfirm competition is largely based on price, because then interfirm rivalry has a strong depressing effect on industry and firm profits.<sup>165</sup>

A second important theme from the point of view of this paper and the strong currents that reject the defense of market power, the authors arrive at the seemingly obvious conclusion that

Cartels exist to suppress competition. When a cartel goes past the suppression of intra-cartel rivalry to initiate or coordinate additional conduct known to be potentially anticompetitive, it seems reasonable to assert that such conduct is anticompetitive in this situation. This observation is valuable because it suggests that cross-industry comparisons can help us understand the procompetitive and anticompetitive nature of such conduct. (229)

Answering “the question of what conduct the cartel could engage in that would be above and beyond the suppression of rivalry among the firms in the cartel...we envision four broad categories.”<sup>166</sup> As shown in Table VI-2, which uses the textual discussion to expand their Table 1, the category of “Harm non-cartel rivals” has four subcategories for which we have provided

the examples from the text. The text also identifies three other categories of behaviors about which cartels may provide lessons.

We begin by mentioning some behaviors that are not included in the table since they are not clearly monopolization behaviors, yet these forms of conduct go beyond the suppression of intra-cartel rivalry. First... the cartel purchased the product of non-cartel rivals to prevent that supply from disrupting the cartel agreement and the cartel's attempts to increase price. Second, a number of cases mention coordinated attempts to control the behavior of distributors.<sup>167</sup>

The direct actions listed represent actions taken by members of the cartel against one another, presumably to elicit compliance.

**TABLE VI-2: CARTELS AND MONOPOLIZATION CONDUCT**

Harm non-cartel rivals	
Contracts with cartel buyers (lock-in, prevent price competition)	8
Targeting non-cartel buyers (selective predation)	14
Using contracts with cartel suppliers (exclusivity, deny supply)	2
Targeting non-cartel suppliers (raising rival's cost)	8
Harming potential entrants (deter entry)	17
Harming substitutes (tying, bundling, reduce quality/attractiveness)	6
Purchase of non-cartel rivals	10
Foreclose supply	1
Coordination of downstream	6
Direct	11

Source: Randal D. Heeb, William E. Kovacic, Robert C. Marshall & Leslie M. Marx, *Cartels as Two-Stage Mechanisms: Implications for the Analysis of Dominant-Firm Conduct*, 19 CHI. J. INT'L L. 19 (2009).

## VII. UNIQUE CONCERNS ABOUT VERTICAL MARKET POWER IN THE COMMUNICATIONS SECTOR

Throughout the discussion of the analytic framework, we have noted that the communications sector exhibits characteristics that make their markets vulnerable to the abuse of market power. In this section, we present an overview of the conditions in the market. We begin by applying the DOJ merger review framework from the mergers discussed in the previous chapter to the AT&T-Time Warner merger. We then examine the long-term, underlying that with a discussion of the fundamental conditions in the market. In keeping with our general approach, we ground that discussion in a “traditional” approach. In the next section, we review the manifestations of the conditions of market power in the post-Telecommunications Act context.

### PERSISTENT, PROFOUND MARKET POWER IN THE COMMUNICATIONS SECTOR

In the second edition of his classic work, *Economics of Regulation*,<sup>168</sup> published less than a decade before the enactment of the Telecommunications Act of 1996, Alfred Kahn identified a series of characteristics that could justify regulation. While he was generally critical of the way regulatory oversight had been practiced, the conditions he identified compel careful consideration of regulation of communications networks.

#### Infrastructure and Externalities

Making the case for economic regulation, Kahn pointed to the fact that because communications networks exhibit economies of scale, the market will support only a small number of large firms compared to other sectors of the economy.<sup>169</sup> In addition, because of the essential inputs they provide, they influence the growth of other sectors and the economy.<sup>170</sup> They are infrastructure.

Kahn’s description of the rationale for regulating infrastructure encompasses three major economic principles. He starts with what is essentially a positive externality – a public goods argument. The broad economic impact means that private individuals might not see the benefits, or might be unable to appropriate (capture) that value in the form of profits, so they will invest less in the provision of service than is socially justified. In addition to this macroeconomic impact, those who are unserved or priced out of the market are disadvantaged at the individual level. Capitalists won’t serve them because they are not typically profitable.

An extension of this argument for the communications network involves achieving ubiquitous, seamless interconnection and interoperability, which is not a likely outcome of market forces alone.<sup>171</sup> Ubiquitous, seamless interconnection and interoperability are a highly desirable characteristic of infrastructure networks that achieve important network effects, another positive externality.<sup>172</sup> We have argued that competitive communications and transportation networks do not inherently produce this outcome because of the perverse incentives of dominant providers of bottleneck facilities, and because the high cost of negotiating interconnection creates obstacles to seamless interconnection. Government policy has repeatedly been forced to step in to achieve the desired outcome.

## Market Structure

Kahn added two other characteristics as potential justifications for regulation: “natural monopoly” and “for one or another of many possible reasons, competition does not work well.”<sup>173</sup> Although Kahn was skeptical of the monopoly rationale for regulation, he later argued that the nature and extent of competition is an empirical question:

The question is not simply one of *how much* competition to allow—how much freedom of entry or independence of decision making with respect to price, investment, output, service, promotional effort, financial, and the like. It is a question also of what, in the circumstances of each regulated industry, is the proper *definition*, what are the *prerequisites*, of effective competition.<sup>174</sup>

Two decades after the passage of the Telecommunication Act of 1996, which aspired to supplant regulation with competition, the critical question is not, “Is there more competition?” The question is, “Is there enough competition to prevent abuse?” This analysis shows that the answer must be a resounding no.

The second rationale offered by Kahn is a market structure problem. Very large economies of scale mean that building multiple networks raises costs. The market will not support competition. In the extreme, we run into the problem of a natural monopoly. Firms that become too large behind high barriers to entry, transaction costs on the supply-side, high switching costs or other behavioral flaws on the demand side, obtain market power. Monopolists (natural or otherwise) have market power and there is a strong incentive to abuse it. With the incentive and ability to exercise it, they engage in behaviors that harm competition (by creating additional obstacles to entry or extending their market power to complementary markets) and consumers (raising prices and restricting choices). Regulation controls market power. However, monopoly is not the only reason to implement public policy. It has never been a necessary condition to impose common carriage in the communications and transportation sectors.

Infrastructure industries exhibit several market structural problems. They deliver service with relatively low elasticities. In fact, they can be considered “necessities” since they have a combination of low price elasticity and moderate-income elasticity.<sup>175</sup> The low-price elasticity means it is difficult to go without communications or find good substitutes. The moderate-income elasticity means the good commands a significant part of the household budget all the way up and down the income distribution, but the percentage declines as income rises. The important role of communications in the broader economy and for households magnifies the ability to exercise, and the impact of, the abuse of market power.<sup>176</sup>

Deployment of facilities to compete with an incumbent communications network is costly and difficult. Network effects – the ability to reach large numbers of customers to make the network more valuable to each individual customer – are important. Therefore, the communications sector provides a fertile ground for the abuse of market power. Its size, great importance to the functioning of the economy, and underlying economic characteristics suggest that the existence and persistence of market power is a problem. It has made this sector the target of a great deal of public policy.<sup>177</sup> Elasticities of demand and supply are low compared to other sectors. The key services supplied to consumers (broadband and wireless) exhibit the elasticities of necessities.<sup>178</sup>

## **Social Values**

We turn next to Kahn's third reason for regulation – “other.” Although it is less specific, it can be given several referents in the communications space. Competitive markets do not deliver universal service because there are significant parts of society where the rate of profit does not support extending the infrastructure or making it affordable. Rural/high-cost areas and low-income populations may not be very attractive from an investment point of view, but they are important from a public policy/social values point of view.

Freedom and diversity of opinion and voices are extremely important socio-political values that may not be accomplished by a competitive market. They may or may not be profitable, but society simply cannot leave them to the vagaries of the market. Speech and diversity are perhaps the most important examples of these values.<sup>179</sup> Communications is well-recognized as a key to democracy, and many consider it a human right.<sup>180</sup> The challenge is not simply to ensure that all have the opportunity to speak, but also to address gross imbalances in those opportunities. Many citizens deserve more speech than the market affords them.

These very fundamental economic and non-economic justifications for public policy to promote ubiquitous, affordable communications service are frequently reinforced (and preceded) by the rationale that much infrastructure relies on some form of public license – use of rights of way, control of airwaves, grants of authority, exclusive franchises and eminent domain. Those rationales are important and they tend to be stated first because they are easy and obvious. However, the broader factors are at least as important.

## **DEREGULATED NETWORK INDUSTRIES DO NOT EMBRACE SEAMLESS INTEGRATION**

Continuing the theme of discussing recent conceptual and empirical analysis that sheds light on critical issues at play in the analysis of market structure and market power, we believe it is important to briefly review how recent experience illuminates the longstanding policy concern about interconnection and interoperability. Infrastructure network industries in other circumstances without regulated integration suggest that seamless integration is not an outcome to be expected in the marketplace.<sup>181</sup> The inclination to use local market power to extract rents and undermine competition, rather than interconnect, was as strong at the turn of the 21<sup>st</sup> century as it was at the turn of the 20<sup>th</sup>. Deregulation in the airline and railroad industries made interline movements the first victims of deregulation. Network operators want to drive end-to-end traffic onto their networks, and they develop elaborate strategies for doing so.<sup>182</sup> In each of the cases of deregulation, the post-deregulation of the industry looked nothing like the pre-deregulation competition theory predicted, yet policy makers are urged to just plow ahead despite the fact that behavior contradicts the theoretical basis for deregulation.

The telecommunications sector is not an exception. The reconstitution of integrated local and long-distance companies through mergers, by firms that also dominate wireless and have joint ventures with their closest cable rivals, bears no resemblance to the “sweet spot” that the pre-divestiture theory identified as the place where quasi-competition might produce “voluntary” integration between independent networks. Special access services, which allow competitors to interconnect with the wireline telecommunications network, have been a source of constant complaint about abuse since the industry was deregulated.<sup>183</sup>

The FCC has successfully asserted jurisdiction over roaming charges for wireless interconnection.<sup>184</sup> Even though the FCC asserted authority to compel interconnection, however, the telecommunications carriers have ignored, pushed the limits of, and violated the FCC's rules in a short period of time. This suggests that, absent the public policy principles that require integration, it will not be observed.

In fact, in each of these network infrastructure industries, we observe a period of pseudo-access competition (quasi-competition is too strong a word). Small "mom and pop" service providers crop up in unserved areas to extend service. Head-to-head competition does not make sense to these entrants and is quite rare. Interconnection also is not attractive to them, as they guard their local monopoly as a source of potential rents. In order to get going, the small entrants rely on inferior technology, offer services on non-compensatory rates, and fail to maintain their quality of service. In short order, there is a wave of bankruptcies and buyouts. Advocates of competition, ignoring economies of scale and the rigors of minimum efficient scale, wave their arms in the air and complain about the evils of concentration.

This pattern occurred in the railroads (1860s-1870s), telephone (1910s-1930s), cable industry (1970s- 1990s), and cellular service (2000-2010).<sup>185</sup> Incumbent telecommunications carriers strangled competition where it represented a threat, as in the 'Baby Bell' approach to interconnection with the competitive local exchange carriers after the Act. To the extent there is end-to-end seamless integration of infrastructure communications networks, that is the result of mandated integration.

Ironically, a claim that an especially weak form of pseudo-access competition (especially weak because it was not head-to-head, intramodal competition, but intermodal competition) would discipline market power in broadband access played a key role in leading the FCC to misclassify high-speed data transmission as an information service. Pseudo-competition quickly gave way to a monopoly, or at best a cozy duopoly in access.<sup>186</sup>

#### **THE EMERGENCE OF A TIGHT OLIGOPOLY ON STEROIDS: THE DOMINANCE OF VERTICALLY INTEGRATED CONGLOMERATES:**

Layer upon layer of characteristics render communications markets vulnerable to the abuse of market power. The fundamental economies of scale, scope and network effects exhibited by the communications sector would have been an obstacle to competition under any circumstances. But the 1996 Telecommunications Act's competition policy was launched from a condition in which monopoly power existed, having been built behind decades of franchise monopoly that shielded the incumbents from competition and endowed them with a vast communications network whose sunk costs had been paid by captive consumers. They had not won their dominant position; they were gifted it by public policy.

The 1996 Act hoped that the conditions it imposed on incumbents would unleash market forces sufficient to tear down the franchise monopolies. While there was a growth of competition, it was far too weak to control the market power possessed by the incumbent networks. The economic fundamentals of the sector combined with a ubiquitous inherited network to give the incumbent local telephone and cable companies an insurmountable advantage. The difficulty of overcoming the advantage that had been bestowed on the

incumbents was vastly and repeatedly underestimated. Lax antitrust enforcement and premature deregulation of markets with substantial market power made matters worse. Table VII-1 summarizes the competitive and coordination effects identified in the general merger review above, and their manifestations in the communications sector. There is clearly a pervasive and powerful set of conditions that make these markets vulnerable to the abuse of market power. Table VII-2 inserts the conditions in the communications market into the framework derived earlier from the European competition authorities.

The key structural characteristics can be captured in a string of adjectives used to describe these markets and the firms that make them up. They are highly concentrated, with high barriers to entry, behind which vertically integrated and conglomerated giants sell low elasticity of demand services that embody huge potential surplus. The economic framework usually starts with an assumption of workable competition, then explores deviation from it. Given the underlying structure and history in the communications sector, the discussion needs to reverse direction. The starting point is market power and the question is whether competition can grow sufficiently and quickly enough to constrain the abuse of the endemic market power. There were, and are, good reasons to believe the answer is negative.

First, the dominant firms in the current communications industry structure were all born as monopoly franchise holders. They had exclusive rights to offer services or use important essential assets. While there have been efforts to introduce competition, the current market structure still very much reflects that original DNA.

Second, the traditional analytic framework used to examine market structure and performance is referred to as “The Possession of Monopoly Power”<sup>187</sup> or “Alternative Monopoly Measures.”<sup>188</sup> In fact, the “lesson... of the economic definition of monopoly power is that it is not an ‘either-or’ concept. It is a matter of degree.”<sup>189</sup>

Third, although it is true that many of the markets are oligopolies today, they are tight oligopolies with levels of concentration in important, especially local, product and geographic markets that approach or exceed the level of a duopoly. They operate under conditions that are conducive to the abuse of market power. That is, there are a small number of firms who have a history of anticompetitive behavior in circumstances with high barriers to entry, where they meet each other on a continuous basis across many markets. This provides the opportunity for learning and strategic behavior in the sale of products that have relatively low elasticities of demand and few, if any, good substitutes.<sup>190</sup> The outcome is closer to the monopoly outcome than the competitive outcome. In these circumstances, the concerns raised by the *Merger Guidelines* of the Department of Justice and the Federal Trade Commission are very real.<sup>191</sup>

The high level of local concentration reflects one of the great disappointments of Telecommunications Act of 1996. The 1996 Act envisioned vigorous competition in all markets, but the stronger form of competition never developed. Telephone companies chose not to compete against other telephone companies. Cable companies chose not to compete against other cable companies. Head-to-head, intramodal competition did not develop because the companies chose to buy one another out. Thus, the geographic separation, technological specialization, and service segmentation between sectors dating back across the monopoly history of the industry was brought forward into what was supposed to be the competitive era.

**TABLE VII-1: MERGER REVIEW OF COMPETITIVE EFFECTS AND MARKET CONDITIONS IN THE COMMUNICATIONS SECTOR**

<u>Anti-competitive Effects</u>		<u>Market Conditions to Abuse of Market Power</u>		<u>Firm Incentives/Ability to Abuse Market Power</u>	
General Concern	Communications Sector	General Concern	Communications Sector	General Concern	Communications Sector
<b>Competitive Effects</b>				<b>Dominant Firm</b>	
Price (SSNIP $\geq 5\%$ )	Yes ( $\sim 25\%$ )	Seller #	Few	Price	High
Profit	High (EBITDA)	Seller size	Large	Profit	High
Quality		Product	Segmented	Margins	High
Variety		Geography	Separated	Market share	High
Service	Poor (Satisfaction)	Technology	Specialized	Incremental cost	Low
Innovation		Concentration	High	Sales analysis	Limited Loss
Exclusion	Pervasive	over time	Persistent	Customer location	Crucial
		Demand elasticity	Low	Information about buyers	Extensive
<b>Coordination</b>		Entry & Exit		Capacity Management	Yes
Negotiated	Occasional	Challenges	Severe	<b>Competitors</b>	
Accommodating	Frequent	Barriers	High	Response	Weak
Parallel behavior	Reciprocity	Sunk costs	Large	Speed	Slow
Conditions facilitating		History	Limited	Capacity	Limited
Predictability		Intramodal Competition	Limited	Similarity	Yes
Past practices	Yes	Vertical integration	Extensive	Nearness	Yes
Monitoring		Conglomeration	Yes	Complements	Yes
Other markets	Multiple contact	Mavericks	Few	Entry	
Collective market power	High	Price		Timeliness	Late
		Products		Likelihood	Low
		Innovation		Sufficiency	Low
		Efficiencies	Not unique	<b>Consumers</b>	
		Pass-through	Limited	Switching	
		Other Practices		Cost	High
		Monopolization	Yes	Availability	Limited
		Facilitating practices	Yes	Speed	Slow
		Monopsony mergers	Yes	Output competition	
				Direct/Indirect	Both
				Price discrimination	
				Targeting	Yes
				Arbitrage	No
				Overcharging	
				End-use Products	Consumer
				Intermediate goods	BDS

**TABLE VII-2: TIGHT OLIGOPOLY AND COORDINATION IN ELECTRONIC COMMUNICATIONS**

<u>Facilitating a Tight Oligopoly</u>	<u>Facilitating Coordination</u>	<u>Factors in Communications Markets</u>
High concentration	Very Few Firms	Market Division
High barriers to entry	Absence of significant entrants	Constrained network effects
Capacity constraints (ambiguous)	Strategic variable	Absence of potential maverick entrants
High Product Differentiation	Homogeneity of products	Lumpy but not whole-hog, repeated constraints
No countervailing buyer power		Moderate, bundled differentiated products
		Technological specialization, Geographic segmentation
		Need for interconnection
		Customers small relative to total
Low price elasticity		Brand loyalty, lock in contracts
		Migrate to franchise product-centered bundle
High switching costs		Technological, Financial, Search
Mature technology		Structural links, Facilitating practices, History
Low demand growth	Focal point on high discount rate	
	Process: Transparency,	Cournot process
	Enforceability	
	Repeated interaction	Interconnection
	Symmetry	Franchise service, geographic symmetry
	Vertical integration	Multiproduct

Source: Body of European Regulators for Electronic Communications, 2015, OPTA/EAT, 2006.

This conclusion is reinforced by the fact that each of these markets is also above the level that is typically used to determine whether a market is a “tight oligopoly,” not only at the local level, but also at the national level, as shown in Figure VII-1 and the embedded table. Since the services provided by communications networks are about connecting the user to the network, they are, first and foremost, local services. Here they are measured by the guidelines used by the Department of Justice and the Federal Trade Commission, shown in Figure VII-1 and the embedded table.

The conditions for the exercise of market power do not stop with highly concentrated markets. The market division strategies that the dominant firms chose to pursue have resulted in a tight oligopoly for each of the services at the local level. A dominant local firm that does not face head-to-head, intramodal competition takes a high market share in its home territory for its franchise service, on the order of half the market. Where the service territories of the different media overlap, a second intermodal competitor takes a small market share – one-fifth to one-sixth – as the “entrant” into a new service, but within its old service territory.

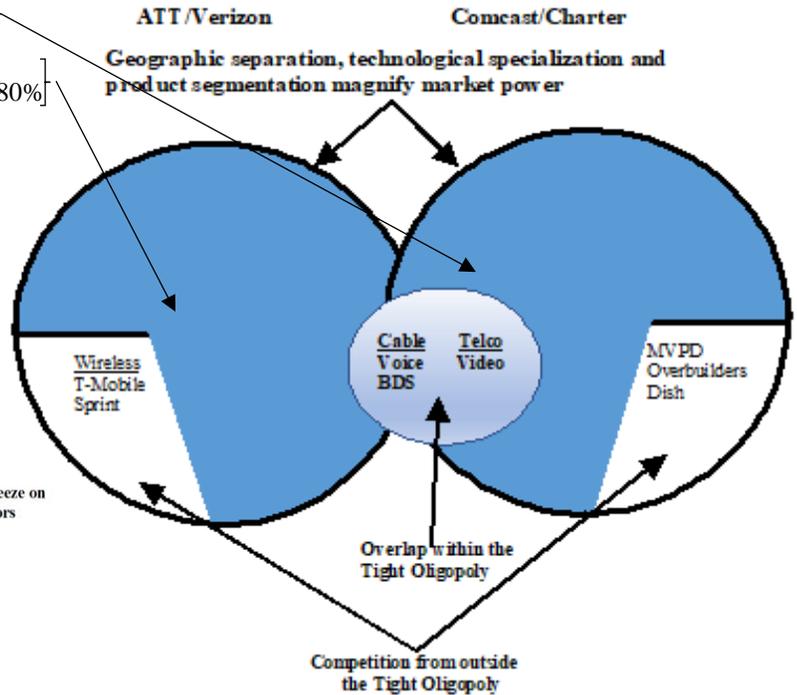
In every case, by a wide margin, the four dominant firms exceed the level that is characterized as a tight oligopoly. This means that the potentially strongest competitors (those with expertise and assets that might be used to enter new markets) are few. This reinforces the geographic segregation between services from the monopoly period, since the best competitors have followed a non-compete strategy. In fact, the actual situation is worse than the traditional concentration analysis suggests. It is the same four consolidated, vertically integrated firms that dominate all the main product markets. These four firms alone constitute a tight oligopoly across all four markets. Moreover, the balance between the members, multimarket contact, geographic separation, technological specialization, and product segmentation all diminish rivalry, magnifying the ability to abuse market power.

**FIGURE VII-1: A TIGHT OLIGOPOLY ON STEROIDS**

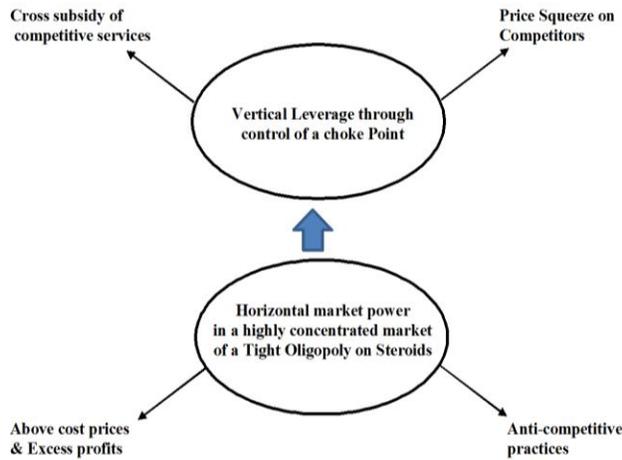
**THE TIGHT OLIGOPOLY**

Service	HHI Concentration		Oligopoly CR-4	
	National HHI	Local HHI	Local CR4	Local Segment EBITDA
Broadband	5200	5900	74%	90%
MVPD	4000	3820	79%	40%
Wireless	2800	3300	68%	50%
BDS	6600	7000	80%	60% -80%

**THE STEROIDS**



**Business Data Services: A Highly Concentrated Market with a High Level of Vertical Leverage**



Sources: Thresholds, U.S. Department of Justice and the Federal Trade Commission, 2010, *Horizontal Merger Guidelines*, Wireless: Federal Communications Commission, *19<sup>th</sup> Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services*, for national market shares. Local market shares adjusted based on *Complaint, Competitive Impact Statement, United States v. AT&T Inc. and Deutsche Telecom, AG*, (No. 1:11-cv-01560), August 31. Cable/Broadband: Paul e Sa, Paul, Ian Chun, and Julia Zheng, 2015, "U.S. Telecom: Pay TV—A New Way to Look at Cable/Telco Competition and Market Shares," AB Bernstein Analysis, December 9. Craig Moffett, *U.S. Cable & Satellite: A Funny Thing Happened on the Way to the Graveyard*, MoffettNathanson, January 13, 2016, for cable and telephone company broadband subscribers Business Data Services, *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593.

## THE LONG HISTORY OF ANTITRUST AND REGULATION IN THE COMMUNICATIONS SECTOR

Given this analysis of the fundamental economics and history of structure, conduct and performance of the communications sector, it should not be surprising that economic regulation and antitrust were focal points of policy activity since the birth of electronic communications in the late 19<sup>th</sup> century (see Table VII-3). Nor should it be a surprise that economic regulation was “invented” to deal with the large corporate entities (above all, the railroads) that became more important and ultimately dominant in the economy of the second industrial revolution).

**TABLE VII-3: THE LONG HISTORY OF DUAL OVERSIGHT IN THE COMMUNICATIONS SECTOR**

Year	Regulation	Antitrust
1887	Interstate Commerce Act	
1890		Sherman Act
1910	Mann-Elkins Act	
1913		ATT/DOJ Consent Decree
1914		FTC Act
1927	Radio Act	
1934	FCC Act	
1945		Associated Press
1949		Final Judgment
1956		Modification of Final Judgment
1968	Carter Phone and Computer Inquiries	
1969	Red Lion	
1984	Spread spectrum decision leading to Cable deregulation	Break-up of ATT
1987		Triennial reviews begin in the Antitrust court
1992	Cable Reregulation (Consumer Protection Act)	
1996	Telecom Act of 1996	
2003	Cable Modem Order	
2005	Madson River	
2005	Wireline Broadband Order	
2010	Open Internet Neutrality Order Comcast/NBC Merger Conditions	Ticket Master Comcast-NBC Consent Decree
2011	ATT/T-mobile merger blocked	
2013	Data Roaming Order	e-Book Price Fixing
2014	Open Internet Order remanded Universal Service Reform Upheld	

The development of antitrust and regulation have been thoroughly intertwined in communications. In 1897, the first federal regulatory agency created in the progressive era – the Interstate Commerce Commission<sup>192</sup> – was given the authority to prevent railroad corporations from charging rates that were “unjust,” “unreasonable,” “unjustly prejudicial” or “discriminatory.” The Mann Elkins Act of 1910 quickly extended the Interstate Commerce Act to the telephone network.<sup>193</sup> The Communications Act, which shifted communication regulation to a new agency at the height of the New Deal era, was quite progressive and pragmatic in its goals, making the first task of the agency:

[T]o make available, so far as possible, to all people of the United States a rapid, efficient nationwide and world-wide wire and radio communications service with adequate facilities at reasonable charges, for the purposes of national defense, for the purpose of promoting safety of life and property through the use of

wire and radio communications, and for the purpose of securing a more effective execution of this policy by centralizing authority heretofore granted by law to several agencies and by granting additional authority with respect to interstate and foreign commerce in wire and radio communications.<sup>194</sup>

A significant part of the motivation for the Telecommunications Act of 1996 was to codify the regulatory concepts that the FCC had developed over the previous thirty years. The development of economic regulation after the 1996 Act is discussed in Section IV below.

In 1890, the Sherman Act<sup>195</sup> provided the Department of Justice with a “comprehensive charter of economic liberty aimed at preserving free and unfettered competition as the rule of trade.” The Sherman Act outlaws “every contract, combination, or conspiracy in restraint of trade,” and any “monopolization, attempted monopolization, or conspiracy or combination to monopolize.”<sup>196</sup> The telephone industry became the target of one of the first antitrust consent decrees under the Sherman Act,<sup>197</sup> a continuing series of complaints and consent decrees that culminated in the largest divestiture of private property ever required in an antitrust case.<sup>198</sup> The ongoing antitrust oversight over the industry was one of the factors behind the Telecommunications Act of 1996.

It is not an exaggeration to say that the success of the modern communications sector rested on this dual oversight of the industry, which strove to keep it as competitive as possible and pressed it toward progressive goals, given the available technologies. While the nature and extent of regulatory and antitrust oversight of these industries has evolved over the course of almost a century and a half,<sup>199</sup> space does not allow us to review these developments in detail.

Here we merely note that dual jurisdiction has been an enduring and extremely successful feature of the legal landscape. This dual jurisdiction frequently interacts, with antitrust-driven development later being incorporated into economic regulation. This important role of balanced, dual oversight has continued into the digital era. FCC policy decisions over the course of a decade (Carterphone,<sup>200</sup> the Computer Inquiries<sup>201</sup> and Spread spectrum<sup>202</sup>) that ensured open access to, and nondiscriminatory treatment of, traffic on the communications network were critical to create an environment in which the Internet grew to dominate communications. Antitrust cases have continued to protect competition on the platforms that make up the digital communications sector, with the most spectacular being the AT&T breakup.

Table VII-4 summarizes the array of market imperfections we observe across the product markets and policy examples addressed in this analysis. We believe that Judge Jackson’s characterization of Microsoft’s behavior in software markets captures the essence of the “tight oligopoly on steroids” in digital communications markets. To paraphrase, when the separate categories of conduct are viewed correctly as a single, well-coordinated course of action, only then does the full extent of the violence done to the competitive process reveal itself.

**TABLE VII-4: IMPERFECTIONS ACROSS DIGITAL COMMUNICATIONS MARKETS**

	Cable	Wireless	BDS	Network Neutrality	Fin-Syn
<b>IMPERFECTIONS</b>					
<b>SOCIETAL FLAWS</b>					
Externalities					
Network Effects	X	X	X	X	
Innovation Economics	X	X	X	X	X
<b>MARKET STRUCTURE</b>					
Imperfect Competition	X	X	X	X	X
ICE problems		X	X	X	
Technology			X		
Marketing	X			X	
Cost-Price	X	X	X	X	
Vertical Ownership	X	X	X	X	X
Elasticity	X	X	X		
Availability	X		X		X
<b>TRANSACTION COST</b>					
Bargaining			X	X	X
Enforcement			X	X	
Switching costs	X	X	X	X	
Sunk costs		X	X		
<b>ENDEMIC TENDENCIES</b>					
Asymmetric Info.			X		
Agency (Perverse incentives)	X	X	X	X	X
Conflict of Interest		X	X		X
Macroeconomic	X	X	S	X	
<b>BEHAVIORAL ECON.</b>					
Calculation	X	X			
Execution	X	X			
<b>VALUES</b>					
Distribution of surplus	X	X	X	X	X
<b>POLITICAL POWER</b>					
Legal Framework	X	X		X	
Subsidies		X	X	X	
Antitrust	X	X	X	X	X
Regulation					
Access	X	X	X	X	X
Permitting	X	X	X		
Capture	X	X	X		

## PARALLEL EXCLUSION AND THE TIGHT OLIGOPOLY ON STEROIDS

Hemphill and Wu have offered a discussion of “Parallel Exclusion” that helps to ground our concept of a tight oligopoly on steroids and tie it to antitrust practice.<sup>203</sup> As with our other conclusory discussions, we note that their concept suggests a focus on where the practice has been heading. As Salop’s argument for identifying exclusion as a focal point of practice, noted in the conclusion to Section V and the discussion of Heeb, et. al. about cartels in the conclusion to Section VI, they argue for adopting the concept to help formalize, modernize and institutionalize the practice.

Parallel exclusion is “just” a practice that can have severe anticompetitive impacts – raising prices and slowing or blocking innovation (higher quality, lower cost). That practice is most threatening when implemented in specific structures. The characteristics most associated with the most harmful effects of parallel exclusion are precisely the factors that we say magnify the market power of a tight oligopoly and render it a tight oligopoly on steroids.

The classic debate, however, is incomplete, for it is fixated on pricing and thus neglects the importance of parallel exclusion... Parallel exclusion (engaged in by multiple firms, that blocks or slows would-be market entrants) ... deserves much greater attention, for its anticompetitive forms have much greater social consequences than parallel pricing due to their potential to influence not just prices, but also the pace of innovation... Parallel exclusion (self-entrenching conduct, engaged in by multiple firms, that harms competition by limiting the competitive prospects of an existing or potential rival to the excluding firms) ...

Parallel exclusion is pervasive in industries that comprise a few major players....<sup>204</sup>

Conscious parallelism, non-cooperative mutually reinforcing, self-interested behavior, or what Hemphill and Wu call “oligopolistic interdependence,” is central to the recognitions of parallel exclusion as a significant concern.<sup>205</sup>

The anticompetitive harm resulting from parallel exclusion is felt most in exactly the areas where contemporary antitrust and regulation have begun to express the greatest concern. It is most effective against nascent competition and low cost of exclusion. In industries marked by rapid technological change, the exclusion of new entrants has a far greater impact on the development of the industries. Dynamic sectors are more important than static, particularly where parallel exclusion undermines the virtuous circle of innovation and investment.<sup>206</sup>

- The structural conditions that provide the environment for parallel exclusion are the core of the above analysis; market power, economies of scale, difficulty of finance for entrants, network effects.
- The behavioral actions that facilitate parallel exclusion are also familiar; standards (without FRAND), sabotaging connections, punishing customers, disparaging quality and reliability, recruiting agents (intermediaries), overbuying inputs (e.g. spectrum), bundling and tying, Most Favored Nation clauses.
- The stability of parallel exclusion is supported by the ease of identifying a coordination point (focal rules), transparency of compliance, permanence of

change, geographical market division, avoiding non-price competition, weak entrants.

- A history of exclusion makes it easier to coordinate in the future. Thus, a specific history of monopoly or regulatory exclusion may be a strong predictor of stable exclusion. The firms involved can simply continue the former monopoly's patterns of exclusion or find ways to continue the exclusion once provided by now-repealed government regulations.

As we have done earlier, we note that the analysis of parallel exclusion is based on intensive empirical analysis of specific examples, all of which post-date the rewrite of the *Non-Horizontal Merger Guidelines*. Thus, each of the three sections in this part include both quantitative and qualitative evidence on economics analysis and antitrust practice that strongly support the increased concern about the abuse of vertical market power. Interestingly, three of fifteen examples in Table 1 from Hemphill and Wu<sup>207</sup> represent markets reviewed in this paper. In the lengthier discussions, AT&T occurs several times, including its early history, the abuses that led to the divestiture, the continuing behavior of the spin-off Baby Bells, and the proposed AT&T/T-Mobile merger. While some of the examples may have been more prominent, none has been more persistent and consistent than AT&T.

## CONCLUSION

Duopoly and tight oligopoly would both be properly descriptive of some aspects of digital communications markets. Reinforced with geographic separation, technological specialization, and product segmentation, the market power these firms enjoy goes beyond the simple oligopoly concept we find in the analytical frameworks. Given the significant and repeated examples of coordination – sometime explicit, frequently parallel – and the reinforcing behaviors in multiple markets, it is proper to call the current situation a “virtual cartel” or a “tight oligopoly on steroids.” Moreover, given the economic forces in the communications sector, it may well be that small numbers of suppliers prove typical. Therefore, the public policy problem is that we have dominant conglomerates in inadequately regulated, highly concentrated markets.

That being the case, there should be no pretense that competition is sufficient to protect consumers. The amount of scrutiny they require is magnified by the important role they play and their central location as chokepoints and bottlenecks in the digital communications sector and the digital economy. Thus, it is important to recognize the problem at the national level for several reasons.

While increasing profits is the primary motive behind the abuse of market power, dominant incumbents have a strong interest in using their market power to control and direct the process of innovation where it poses a threat to their dominance. Traditional concerns about large incumbents raising prices have received a great deal of attention – too much, in the sense that other sources of market failure that undermine or weaken competition and innovation deserve equal attention. Indeed, in a dynamic sector with dominant incumbents controlling key chokepoints, their incentive and ability to weaken competition and control or diminish long term change may be even more important. They are the weakest link in the chain of competition.

The incentive and ability to implement these strategies will vary from market to market and product to product. Incumbents have been willing to push their market power and litigate even modest constraints on their behavior despite the issue being under close public scrutiny. Their steadfast opposition to unbundled network elements, which was the cornerstone of the 1996 Act's effort to promote competition by opening the most critical chokepoint, was an early and striking example with direct implications for the special access market. The almost two-decade-long battle over network neutrality (nee open access) presents another clear example of the vigorous defense of market power that the dominant incumbents have mounted.<sup>208</sup>

**PART III.**  
**WHERE AT&T AND THE PROPOSED TIME WARNER MERGER FIT IN THE**  
**TIGHT OLIGOPOLY UNDER CURRENT ANTITRUST PRACTICE**

## VIII. ANTITRUST CONCERNS ABOUT THE STATE OF COMPETITION IN THE 21<sup>ST</sup> CENTURY COMMUNICATIONS SECTOR

In this section, we place the rejection of the AT&T-Time Warner merger in the context of recent antitrust action in response to proposed mergers in the same markets. There were three mergers proposed in this space that elicited vigorous reactions from the federal authorities at the DOJ and FCC. One merger was rejected, while the others were subjected to significant behavioral remedies. As noted above and explained below, the impact of the AT&T-Time Warner merger is much closer to the previous merger that was rejected.

### COMCAST-NBC: CLEAR INDICATIONS OF THE EMERGING APPROACH

In the 2010 public interest filing and expert testimony accompanying the request for the transfer of broadcast licenses from NBC to Comcast, Comcast took the position that because it was largely a vertical merger and all of the market segments involved were vigorously competitive, the merger posed no actual or potential threat to competition, consumers, or the public interest.<sup>209</sup> In 2011, the DOJ<sup>210</sup> and FCC<sup>211</sup> rejected the Comcast arguments and analyses, finding that the merger posed significant threats and could not be approved without substantial remedial actions and ongoing conditions (See Figure VIII-1).

As the FCC put it with regard to Online Video Distribution (OVD):

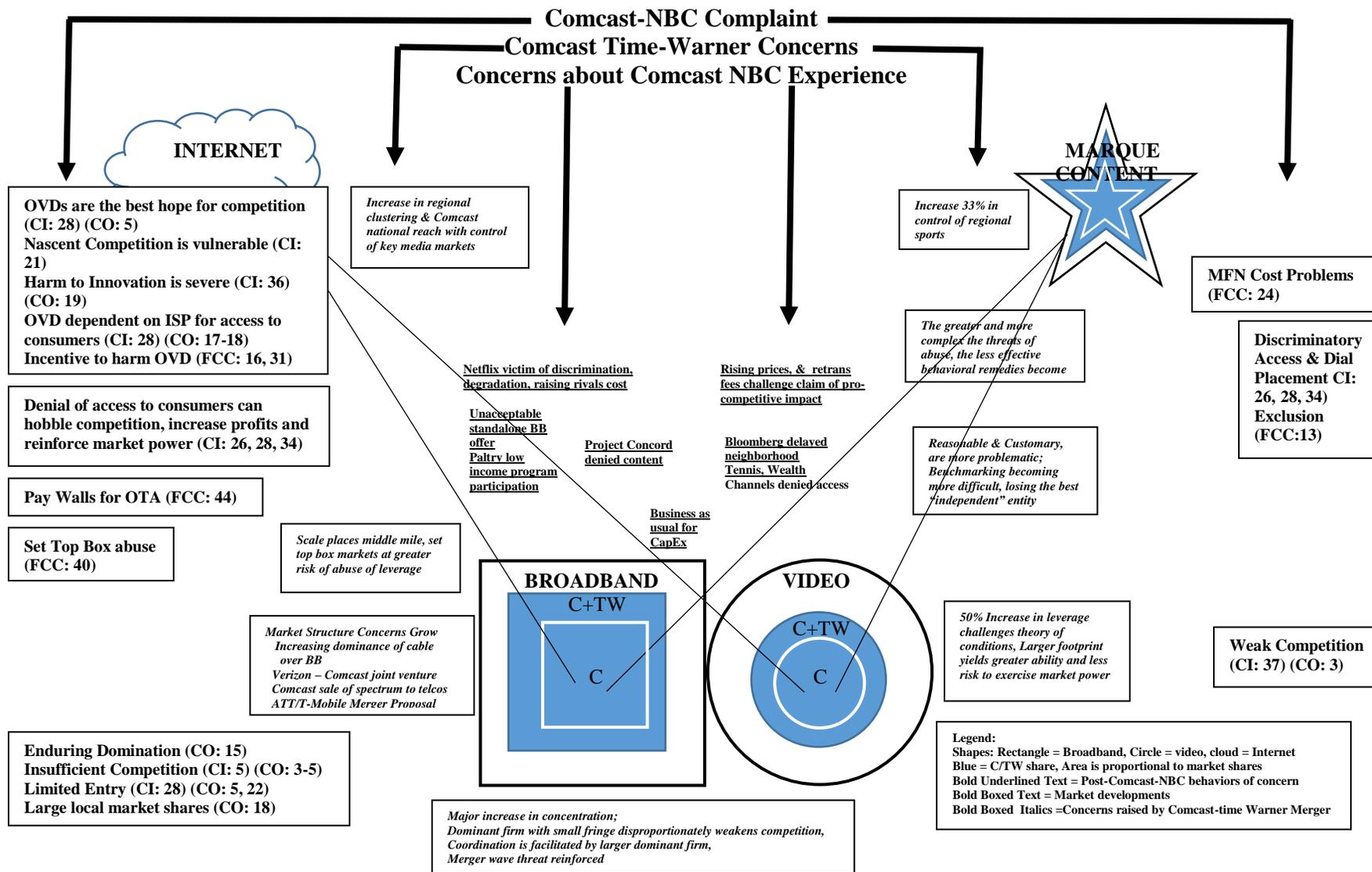
despite their arguments in this proceeding, the Applicants' internal documents and public statements demonstrate that they consider OVDs to be at least a potential competitive threat. The record here is replete with e-mails from Comcast executives and internal Comcast documents showing that Comcast believes that OVDs pose a potential threat to its businesses, that Comcast is concerned about this potential threat, and that Comcast makes investments in reaction to it. The record also contains NBCU e-mails and documents showing that many of the other cable companies are similarly concerned about the OVD threat and that NBCU feels pressure to avoid upsetting those companies with respect to any actions it might take regarding the online distribution of its content.<sup>212</sup>

The DOJ recognized the competitive dangers inherent in Comcast's vertical integration into content with its merger with NBC-Universal:

Comcast has an incentive to encumber, through its control of the [Joint Venture], the development of nascent distribution technologies and the business models that underlie them by denying OVDs access to NBCU content or substantially increasing the cost of obtaining such content. As a result, Comcast will face less competitive pressure to innovate, and the future evolution of OVDs will likely be muted. Comcast's incentives and ability to raise the cost of or deny NBCU programming to its distribution rivals, especially OVDs, will lessen competition in video programming distribution.<sup>213</sup>

Comcast could have challenged the conclusions reached by the DOJ and FCC and gone to court to prove that the agencies were wrong. It chose not to do so. As a matter of law, Comcast's original claims of no actual or potential harm were wrong. Figure VIII-1 uses the DOJ/FCC analysis of the Comcast-NBC merger to frame the issues. The outer issues are from the DOJ Competitive Impact Statement and Complaint and the FCC Order. The middle

**FIGURE VIII-1: MARKET DEVELOPMENTS, COMCAST BEHAVIOR & THE COMCAST MERGERS**



Sources: Department of Justice, Complaint (CO), Competitive Impact Statement (CI), United States v. Comcast Corp., 808 F. Supp. 2d 145 (D.D.C. 2011) (No. 1:11-cv-00106); Federal Communications Commission (FCC), Memorandum Opinion and Order, In re Applications of Comcast Corp., General Electric Co. and NBC Universal, Inc. for Consent to Assign Licenses and Transfer Control of Licensees, FCC MB Docket No. 10-56 (adopted Jan. 18, 2011).

issues are those raised by the Comcast-Time Warner proposed merger. The inner issues are the observations on the implementation of the Comcast-NBC conditions that raised some concerns.

The analysis of the Comcast-NBC problem involves a vertical relationship – the potential for Comcast’s heightened interest and leverage in the content market to retard competition in the distribution market. The core of the concern in the Comcast-NBC merger was Comcast’s significant market share at key points in the supply chain of video and communications service. As the nation’s largest multichannel video program distributor (MVPD) and the nation’s largest provider of broadband Internet access service (BIAS), Comcast’s large market share occurs at strategic chokepoints where competition is feeble at best. The DOJ/FCC concluded that allowing it to gain control over additional “marquee” content would give Comcast the incentive and ability to exercise market power at the expense of competition, consumers, and the public interest in all the video content and distribution markets in which Comcast participates.

In public, Comcast executives claimed that OVDs did not pose a competitive challenge. In private they thought and acted in exactly the opposite manner. In fact, in the FCC order, which reviews the record in detail, there are almost fifty citations to proprietary documents that contradict the Company’s public statements. This is approximately one-third of all the citations to proprietary documents in the body of the FCC order. In addition to the key issue of OVD competition, these citations covered other key issues, including exclusionary conduct with respect to MVPDs, online distribution of content affecting both OVDs and MVPDs, and broadband Internet access service. In short, Comcast’s public statements are repeatedly at odds with its private thoughts, not to mention the reality of the markets in which it sells services.<sup>214</sup> This two-faced behavior is exactly what we observed in the Microsoft case.

Public interest groups filed extensive analysis of the documents and buttressed the analysis of these confidential documents with additional data that is not proprietary. Table VIII-1 pinpoints the evidence supporting the case against the merger in the body of confidential documents. We use the structure-conduct-performance paradigm.

The story the documents tell is crystal clear. Contrary to the claims in the Public Interest Statement and Comcast’s expert testimony, the Internet provides a platform for video competition. The acquisition of NBC Universal would dramatically increase the arsenal of weapons available to Comcast in its campaign to reduce the threat of competition over the Internet platform. The anticompetitive impact of the merger on traditional video markets exacerbates the threat to video competition on the Internet platform because it increases the vertical leverage that Comcast can bring to bear on consumers and competitors. Moreover, the direct anticompetitive effects on traditional video markets are considerable and should not be overlooked by the DOJ and the FCC. The merger eliminates head-to-head competition. The response to the Comcast-NBC merger – the first merger that integrated a large MVPD with one of the major TV broadcasters – opened a new phase in the effort to deal with the problem of vertical integration in the age of digital communications. The consent decree signed by the merging parties and the conditions for the transfer of NBC’s broadcast licenses imposed by the FCC endeavored to address the problem of vertical integration between transmission and content.

**TABLE VIII-1: THE CASE AGAINST THE COMCAST-NBC UNIVERSAL MERGER, STRUCTURE, CONDUCT PERFORMANCE**

	Internet	MVPD	Broadcast	Confidential
<u>Structure</u>				
Distribution concentration	E-17-20; CI7-7-8, 23-29	S-40-42, 121-122; R-54-55;	S-30-44; R17-18; D-2; CI-45-52	X
		CI-15-16, 18-19, 29-35; MX-12-15,	MC-13-14	
		MX-A2-15; MC-21-26		
Must Have Content	S-33,37, 105-106; ACA-35-37;	S-30, 106-109; MX-16-18; ACA-10-12;	S-103-106,109-114; D-13-15;	X
	CI-36-46	MC-26-33; CW-17-30	CR-42-47	
Competition	S-15-16, 28, 71-76; W-5-8;	S-56-71, 127-140; M17-21	R-9-11; CI-50-51; CR 33-38	X
-	E-27-32; CI-53-59; MC-3-36;	MX-22-24, A7-16		
-	CR-5-13, 29-33, CW-34-42			
<u>Conduct</u>				
Vertical Leverage Theory	S-76-82; D-11-13:	CI-9-12;MC-14-21, 103-126 >>		X
	MX-26-28; E-21-23; >>			
Foreclosure Withholding	D-6,28-33, E-39-43	S-43-56, 76-93; D-8-11; ACA-26-28	S-82-93,114-115	X
		MX-20-22, 30-32 ,A-24-30; CW_33-39		
Demand Exclusives	S-45-56			
Degrade Quality	W-15-16; E32-39			
Discrimination	S 96-103	MX-28-30, A7-12		X
Tying/bundling	S-115-118, MX-32-37;	S-18,86; MX-37-41, A-30-43; CW-14-15	S-10-13, 114-115; D-6,33-34	X
	CI 65-68; MC-37-61			
Raising Rival's Cost		R-18-21; D36-44; ACA-4	D-23-27	X
Coordination	S-2,22; E45-47; CI59-63; CR-13-25			X
<u>Performance</u>				
Prices (cable rate/Retrans Fees)		S-34,61; R38-40; CI-34	R-14-18,36-37; D-15-23;	X
		CW 12, 16,30-33; CR 17, 53	M-2,21-22; ACA-21-24	
Margins	E-24-27	S-106-109; MX-23, A-7; CR-18,53		X
Equity Stakes		S-9-10, 93-99	MC-62-102	
Departure Rates (Katz Critique)		S-118-127; M27-32; W-20-24; CR-25-29		

**Notes:** References are to the July 21 filings for the following: ACA= American Cable Association; B=Bloomberg; CI=Cooper/Lynn, initial; CR=Cooper/Lynn Replies; CW= Communications Workers; D=DirecTV; E=Earthlink; M=Murphy; MC=Cooper; MX=Marx; R=Rogerson; S=Singer; X = Confidential Evidence.

**Source:** Declaration of Mark Cooper and Adam Lynn in Support of Public Interest Petitioners' Reply to Opposition, In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. For Consent to Assign, Licenses or Transfer Control of Licensees, Federal Communications Commission, MB Dkt No. 10-56, August 19, 2010, Redacted, Exhibit 1, The Case Against the Comcast-NBC Universal Merger, Structure, Conduct Performance, which is not proprietary.

## **The Sources of Market Power**

As the largest MVPD and largest BIAS provider in the nation, Comcast occupies a key strategic location in the 21<sup>st</sup> century communications sector that is quickly becoming the heart of the digital economy. Access to the network is an essential component of any and all uses of the network. Comcast is the dominant provider of the dominant technology. The vertical links created by the merger give Comcast the incentive and the ability to exercise market power through vertical leverage that has harmful effects on horizontal competition, consumers, and the public interest.

Access facilities and markets are inherently local. The user needs a local connection to access the network. Because network access facilities tend to be capital intensive and immobile (i.e., they serve a particular place and it is difficult, costly, and time consuming to move them, if they can even be moved at all), competition tends to be weak in these markets. Network owners are likely to have market power.

Although the access market is local, when a single entity dominates many of these local markets, it has implications for the goods and services that are delivered to consumers over the local communication network. If a single entity dominates a large enough share of the local markets, it can influence the outcome of services that compete in national markets. Denying access to a large body of consumers who subscribe to a network, or imposing excessive costs and conditions on gaining access to those consumers, can reduce or undermine the ability of potential and actual content competitors to survive or provide effective competition. Similarly, withholding access to marquee content can reduce or undermine the ability of actual or potential distribution competitors to survive or provide effective competition.

The agencies reached the conclusion that the Comcast-NBC merger posed these threats based on a close examination of the record. They found that Comcast's claims of "no harm" were by its own words.

## **Buyer Market Power**

An important antitrust concern arises when a firm becomes such a large a buyer of goods or services that it can use its market power to dictate prices, terms, and conditions that hurt the firms from which it buys those goods and services. It might do so to increase its profits, even though the quality or diversity of the products available declines. The official term for this form of market power is "monopsony" power.

Enhancement of market power by buyers, sometimes called "monopsony power," has adverse effects comparable to enhancement of market power by sellers. The Agencies employ an analogous framework to analyze mergers between rival purchasers that may enhance their market power as buyers.<sup>215</sup>

If the firm with buyer market power also happens to sell similar products, as Comcast does in the video market, it would be doubly glad to weaken potential competition in the market for those products. It could increase its profits by paying less for the goods and services it buys, and charge more or gain market share for its own products by using its buyer power. The weaker

horizontal competition is, the more likely it is for the firm with buyer market power to benefit from its abuse.

The FCC uses a 30% figure as the limit on the reach of distribution firms, based on the fear that by refusing to carry a cable network, the firm would be large enough to determine if the program will succeed or fail. Antitrust practice uses the same threshold, and companies have been found guilty of violating the antitrust laws by abusing their market power with market shares at this level. Mergers have been blocked based on the existence of buyer market power.<sup>216</sup> The Comcast-NBC merger was legally blocked, and later approved with conditions, on this basis.

We find that, as a vertically integrated company, Comcast will have the incentive and ability to hinder competition from other OVDs, both traditional MVPDs and standalone OVDs, through a variety of anticompetitive strategies. These strategies include, among others: (1) restricting access to or raising the price of affiliated online content; (2) blocking, degrading, or otherwise violating open Internet principles with respect to the delivery of unaffiliated online video to Comcast and (3) using Comcast set-top boxes to hinder the delivery of unaffiliated online video.... Specifically, we find that Comcast's acquisition of additional programming content that may be delivered via the Internet, or for which other providers' Internet-delivered content may be a substitute, will increase Comcast's incentive to discriminate against unaffiliated content and distributors in its exercise of control over consumers' broadband connections.<sup>217</sup>

### **Bottleneck Market Power**

The importance of bottleneck power was affirmed in the Comcast-NBC merger. The Department of Justice (DOJ) made it clear that Comcast would have the incentive and the ability to undermine competition by leveraging its control over access to broadband customers. This would weaken online video distributors (OVDs). Both the DOJ and the FCC imposed conditions to prevent that abuse.

The proposed JV would allow Comcast to limit competition from MVPD

competitors and from the growing threat of OVDs. The JV would give Comcast control over NBCU content that is important to its competitors. Comcast has long recognized that by withholding certain content from competitors, it can gain additional cable subscribers and limit the growth of emerging competition. Comcast has refused to license one of its RSNs, CSN Philadelphia, to DirecTV or DISH. As a result, DirecTV's and DISH's market shares in Philadelphia are much lower than in other areas where they have access to RSN programming...

52. The impact of the JV [Joint Venture between Comcast and NBC] on emerging competition from the OVDs is extremely troubling given the nascent stage of OVDs' development and the potential of these distributors to significantly increase competition through the introduction of new and innovative features, packaging, pricing, and delivery methods...

54. Comcast has an incentive to encumber, through its control of the JV, the development of nascent distribution technologies and the business models that underlie them by denying OVDs access to NBCU content or substantially increasing the cost of obtaining such content. As a result, Comcast will face less competitive pressure to innovate, and the future evolution of OVDs will likely be muted.<sup>218</sup>

Every MVPD rival that participates along with Comcast in these relevant markets purchases most if not all of Comcast-NBCU's programming, including most if not all of the programming to be contributed to Comcast-NBCU in this transaction. Comcast-NBCU has the ability to exclude all of Comcast's rivals from the JV's programming, whether by withholding the programming or raising its price, thereby harming competition in MVPD services in each of Comcast's franchise areas.<sup>219</sup>

Given the failure of cable operators to compete head-to-head in physical space, along with their efforts to extend that non-compete model into cyberspace, we must consider the impact of the proposed merger to enhance the ability of the industry to coordinate this campaign against OVD competitors. A dominant firm with a post-merger market share as large as Comcast-Time Warner would be well positioned to lead, signal, and coordinate actions that would diminish competition. "Internal documents expressly acknowledge that 'authentication' is Comcast's and other MVPDs' attempt to counter the perceived threat posed by OVDs."<sup>220</sup>

Having provided a very detailed examination and explanation of the potential harm the merger would do, the agencies chose to impose conditions on the merger rather than block it.<sup>221</sup> The complaint and remedy, described in Figure VIII-2, marked an important milestone in the quarter-century-long struggle to protect consumers from the abuse of market power unleashed by the Cable Deregulation of 1984. As shown in the graph, the conduct remedies selected are constrained in their applicability to other mergers in two ways. First, there is concern and debate about their effectiveness. Second, other mergers that pose greater threats of abuse of market power and anticompetitive impacts are less likely, even unlikely, to be constrained by these conduct remedies. Affirmation of these concerns was quickly provided by Comcast, who soon proposed a much more threatening merger.

### **COMCAST-TIME WARNER: A GOLIATH THAT THREATENS COMPETITION AND CONSUMERS**

In February 2014, the nation's largest cable company, Comcast, announced its planned \$45.2 billion acquisition of the nation's second largest cable company, Time Warner Cable. The antitrust division of the U.S. Department of Justice began its review process of the merger in March, and in April, Comcast submitted its public interest statement to the FCC to obtain permission for the merger. In evaluating the Comcast-Time Warner merger, we agree with the *Economist* magazine, which concluded,

"[T]he deal would create a Goliath... For consumers the deal would mean the union of two companies that are already reviled for their poor customer service and high prices. Greater size will fix neither problem... The biggest worry is Comcast's grip on the Internet... Comcast will have extraordinary power over what content is delivered to consumers, and at what speed."<sup>222</sup>

As bad as the Comcast-NBC merger was, the Comcast-Time Warner was worse. If the Comcast-Time Warner merger closed, the increased size would magnify its status of gatekeeper for both new and emerging Internet services and conventional distribution of content to consumers. All of the DOJ's concerns about the Comcast-NBC merger would be magnified. Combined with Comcast's vertical integration into content, the merger creates the incentive and enormous leverage for Comcast to:

- (1) stifle slowly emerging competition from rivals such as Netflix and Amazon that require high speed Internet access to deliver quality service to their customers, thwarting not only

competition from existing rivals but discouraging investment in new innovative services delivered over the Internet;

(2) slow the pace and dictate the direction of equipment, device, and service innovation to lock in maximum revenue for Comcast's own infrastructure and business model;

(3) pay content suppliers less than the market value of their products and services, driving up the cost of programming to other distributors and increasing prices to consumers;

(4) artificially raise the prices of Comcast-owned programming to Comcast rivals, thus hampering their ability to compete and raising prices for consumers; and

(5) position itself as the dominant gatekeeper for all new services (both video and non-video) that rely on fast, reliable broadband connections to reach customers.

If the merger were approved, Comcast would control nearly 50% of high speed Internet access in this country, over 30% of Multi-Channel Video Programming Distributor (MVPD) subscribers, and almost 60% of cable subscribers.<sup>223</sup> Comcast would also have a significant presence in nineteen of the twenty largest Designated Market Areas (DMAs) in the country.<sup>224</sup> It would have about 35% of the MVPD market.<sup>225</sup> It would dwarf the closest-in-size cable system by a factor of nearly eight.<sup>226</sup> It would be over three times as large as the next broadband Internet access service provider.<sup>227</sup>

Figure VIII-1, above, shows that the Comcast-Time Warner merger would dramatically increase the market power of the post-merger entity at the key access chokepoints. It shows that many of the underlying market structural conditions (aside from the merger) had either failed to improve or deteriorated. It identifies Comcast behaviors under the NBC consent decree that were troubling from the point of view of implementing behavioral remedies.

It is a gross understatement to say that the Comcast-Time Warner merger would pose a much larger threat to competition and consumers. Comcast's dominance in broadband access would position it as more than just the gatekeeper for online video innovation. Any innovative new technology provider that needs reliable, high-speed Internet access would be wary of doing anything that could expose it to retaliation by Comcast. Control of 50% of high-speed Internet subscribers would mean that Comcast's discrimination against any new service could be the difference between its failure and success. As the FCC recognized, had such discrimination occurred earlier, "some innovative edge providers that have today become major Internet businesses might not have been able to survive."<sup>228</sup>

The merger would also give Comcast market power as a purchaser of programming (monopsony power). After the merger, programming suppliers will be faced with a single large buyer and a fringe of smaller buyers. No program supplier will be able to obtain the critical mass of "eyeballs" necessary to successfully launch or sustain a program or channel without placement on the post-merger Comcast systems. This would enable Comcast to demand less than market prices for programming. Programmers will seek to make up lost revenues by increasing prices to other distributors, harming the ability of smaller distributors to compete and raising prices for consumers.

Monopsony power also gives Comcast enormous control over how independent programming is seen by subscribers. In the past, Comcast has exercised its influence to prevent independent programming, such as HBO, from being accessed on devices Comcast does not control, such as the Roku and Playstation 3.<sup>229</sup> Post-merger, Comcast's monopsony power would harm consumers outside of its geographic footprint, as well. After the merger, Comcast's infrastructure would serve almost 60% of all cable subscribers, along with its large share of high-speed broadband customers. This would give Comcast an enormous degree of leverage over equipment manufacturers and standard-setting organizations that establish the cost-effective business opportunities for offering cable and broadband customers new wireless cloud storage and in-home viewing options. No innovation in cable services or infrastructure could be adopted unless it was in Comcast's interest to do so.

Post-merger, Comcast would have an incentive to increase the prices its rivals pay for that programming, since doing so would give Comcast a competitive advantage in providing MVPD services. For example, recent economic analysis shows that the prices for regional sports channels owned by cable companies are higher than those charged by independent sports channels.<sup>230</sup> By increasing programming prices for competitors, Comcast can make its own pay-television service more attractive when compared to rivals.<sup>231</sup>

A merged Comcast and Time Warner Cable would be positioned to act as the dominant gatekeeper for all types of online services. For an Internet service to reach Comcast's customers, at some point either its data network or a third-party network must interconnect with Comcast's network. However, after the merger, Comcast may have the means to use these interconnection relationships in an anticompetitive manner.<sup>232</sup> No matter how competitive the transit market may be, at some point all transit providers must face the reality that there is no way to reach Comcast's customers except through Comcast. Because of the size of the combined Comcast and Time Warner Cable customer base, if Comcast decides to begin charging popular Internet services for access to its customer base, those large Internet services would have no choice but to acquiesce.<sup>233</sup>

Furthermore, given the leverage Comcast would have over Internet content and service companies, many of the same problems that manifest in the video space today could spread to the Internet market. If Internet service companies are forced to pay a toll to access Comcast's customers, they may have to raise their prices, and the entire industry could suffer reduced investment. Similarly, popular Internet companies and content providers may decide to offset interconnection fees paid to Comcast by charging smaller Internet service providers (ISPs) for interconnection themselves. This is a path towards introducing today's "TV-style" blackouts to the Internet.

#### **CHARTER-TIME WARNER CABLE**

With the analytic framework clearly outlined in two successful merger reviews, the application of that framework to the Charter-Time Warner Cable merger was straightforward. The DOJ and the FCC had to oppose the merger. The only question was whether to impose extensive conditions or reject the merger outright. They chose the former, as shown in Table VIII-2.

**TABLE VIII-2: DOJ/FCC CONCERNS AND REMEDIES FOR THE ANTICOMPETITIVE IMPACT OF THE CHARTER-TIME WARNER CABLE MERGER**

**Vertical Leverage**

Unless a video programmer obtains carriage in the packages of video programming distributors that reach a sufficient number of consumers, the programmers will be unable to earn enough revenue in licensing or to attract enough advertising revenue to generate a return on their investments in content. For this reason, video programmers prefer to have as many video programming distributors as possible carry their networks, and particularly seek out the largest MVPDs that reach the most customers. If the programmer is unable to agree on acceptable terms with a particular distributor, the programmer's content will not be available to that distributor's customers. This potential consequence gives the largest MVPDs significant bargaining leverage in their negotiations with programmers...

Unlike MVPDs, OVDs do not own distribution facilities and are dependent upon broadband Internet access service providers, including incumbent cable companies such as Charter and TWC, for the delivery of their content to viewers. (p. ...6)

the Complaint alleges that the proposed merger would increase the ability and incentive of New Charter to use its leverage with video programmers to limit the access of online video distributors ("OVDs") to important content. These OVDs are increasingly offering meaningful competition to cable companies like Charter, and the loss of competition caused by the proposed merger likely would result in lower-quality services, fewer choices, and higher prices for consumers, as well as reduced investment and less innovation in this dynamic industry. (p. 2)

**Local Market/Bottleneck**

In contrast, wireline-based distributors such as cable companies and telcos generally must obtain a franchise from local, municipal, or state authorities in order to construct and operate a wireline network in a specific area, and then build lines to homes in that area. A consumer cannot purchase video programming distribution services from a wireline distributor operating outside its franchise area because the distributor does not have the facilities to reach the consumer's home. Thus, although the set of video programming distributors able to offer service to individual consumers' residences is generally the same within each local community, the set can differ from one local community to another. (p. 7)

**Large Market Share**

The incumbent cable companies are often the largest video distribution provider in their respective local territories; the Defendants' market shares, for example, exceed 50 percent in many local markets in which they operate. The DBS providers, DirecTV and DISH Network, account for an average of about one third of video programming subscribers combined in any given local market. The telcos, including AT&T and Verizon, have market shares as high as 40 percent in the communities they have entered, but they are only available in limited areas and account for about 10 percent of video programming customers nationwide. Overbuilders such as Google Fiber can also have moderately high shares in particular local markets, but their services are only available in a small number of areas and they account for fewer than two percent of nationwide video programming distribution subscribers. (p. 7)

**High Barriers to Entry**

Successful entry into the traditional video programming distribution business is difficult and requires an enormous upfront investment to create a distribution infrastructure... Therefore, traditional MVPDs' market shares are likely to be fairly stable over the next several years. (p. 14)

**Potential competition**

Several OVDs, including Netflix, Amazon Prime Instant Video, and Hulu Plus, offer "subscription video on demand" ("SVOD") services where consumers typically obtain access to a wide library of movies, past-season television shows, and original content for a subscription fee.<sup>3</sup> In addition, some individual cable programmers, such as CBS and HBO, have begun offering their content directly to consumers on an SVOD basis.

In contrast to these SVOD providers, a few OVDs have recently begun offering MVPD-like bundles of live, scheduled content to consumers over the Internet. (p. 8)

Although many consumers treat OVD services as a complement to traditional MVPD service... some are already using OVDs as substitutes for at least a portion of their video consumption....

Absent interference from the established MVPDs, OVDs are likely to continue to grow, and to become stronger competitors to MVPDs.... Defendants' internal documents show that they have typically been comparatively less concerned about competition from certain SVOD providers, like Netflix, that do not offer live or current-season programming, and more concerned by the threat posed by VMVPDs (pp. 9-10).

#### **Anti-competitive practices**

some MVPDs have sought to restrain nascent OVD competition directly by exercising their leverage over video programmers to restrict video programmers' ability to license content to OVDs. As alleged in the Complaint, and explained in more detail below, TWC has been an industry leader in seeking such restrictions, and the formation of New Charter will create an entity with an increased ability and incentive to do so. For example, a merger may create, or substantially enhance, the ability or incentive of the merged firm to protect its market power by denying or raising the price of an input to the firm's rivals. (pp. 10-11)

#### **Merger Increases Leverage**

Given the importance of New Charter as a distribution channel, programmers will be less likely to risk losing access to New Charter's considerable subscriber base – which is almost 60 percent larger than TWC alone – and will be more likely to accept to New Charter's demands. (p. 13)

#### **Remedies**

The Proposed Final Judgment Prohibits Defendants from Limiting Distribution to OVDs through Restrictive Licensing Practices (p. 15)

The Proposed Final Judgment Prohibits Defendants from Discriminating Against, Retaliating Against, or Punishing Video Programmers (p. 18)

Provision of Defendants' FCC Interconnection Reports (p. 19)

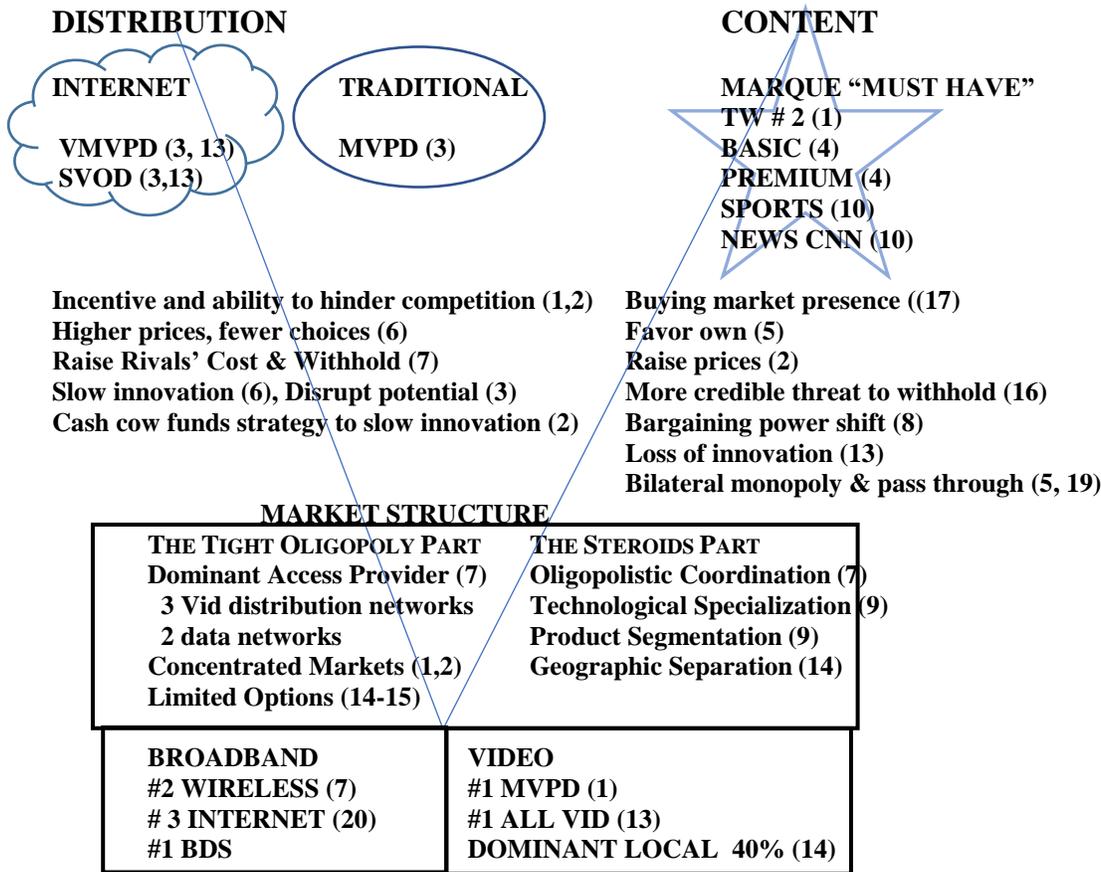
The FCC's order approving the merger imposes an obligation on New Charter to make interconnection available on a non-discriminatory, settlement-free basis to any Internet content provider, transit provider, or content delivery network ("CDN") who meets certain basic criteria. (p. 20)

Sources: U.S. Department of Justice, *v. Charter Communications, Inc., Time Warner Cable Inc., and Advance/New House LLC*. Competitive Impact Statement, Civil Action No. 1:16-cv-00759, May 10, 2016; Federal Communications Commission, *In the Matter of Application of Charter Communications, Inc., Time Warner Cable Inc., and Advance/New House Partnership, for Consent to Assign or Transfer Control of Licenses and Authorizations*, MB Docket No. 15-149, May 10, 2016.

### **THE ANTICOMPETITIVE EFFECTS OF THE AT&T-TIME WARNER MERGER**

As shown in Figure VIII-2, AT&T-Time Warner poses threats to competition that are similar to the Comcast-Time Warner merger, although the foundation of the market power is somewhat different. It accumulates "eyeballs" and controls different networks that add up to very substantial market power similar to, and in some important ways, greater than, Comcast-Time Warner. The DOJ complaint speaks for itself.

**FIGURE VIII-2: DOJ COMPLAINT AGAINST THE ATT-TIME WARNER MERGER**



Sources: Page references are to U.S. Department of Justice, 2017, Complaint in United States of America v. AT&T Inc, DirecTV Group Holdings and Time Warner Inc., United States Court for the District of Columbia, Case No. 1:17-cv-02511, November 20, 2017. Selected citations follow

**DISTRIBUTION**

**Benefits of disruption:** In many industries, online distribution has enhanced consumer welfare by enabling disruptive entry. In an effort to challenge the traditional subscription television model, online video distributors are emerging and increasingly are a welcome option for consumers. Some consumers subscribe to an online video service like Netflix or Amazon Prime, often in addition to their traditional TV subscription. (3)

The proposed merger would result in fewer innovative offerings and higher bills for American families. (p. 2)

**Raising Rivals’ Cost:** AT&T/DirecTV would hinder its rivals by forcing them to pay hundreds of millions of dollars more per year for Time new and exciting video distribution models that provide greater choice for consumers. The proposed merger would result in fewer innovative offerings and higher bills for American families. (2)

**Incentive and Ability:** Accordingly, were this merger allowed to proceed, the newly combined firm likely would—just as AT&T/DirecTV has already predicted—use its control of Time Warner’s popular programming as a weapon to harm competition. AT&T/DirecTV would hinder its rivals by forcing them to pay hundreds of millions of dollars more per year for Time Warner’s networks, and it would use its increased power to slow the industry’s transition to new and exciting video distribution models that provide greater choice for consumers. (2)

Although it has concluded that “[t]raditional Pay-TV will be a cash cow business to AT&T for many years to come,” AT&T/DirecTV fears future “disruption” from emerging competitors. Consumers are beginning to see new video distribution offerings. For example, online distributors like Sling TV offer less expensive alternatives to traditional subscription television that do not require yearly contracts or cable set top boxes, but this merger would impede that innovation. AT&T/DirecTV perceives online video distribution as an attack on its business that could, in its own words, “deteriorate [ ] the value of the bundle.” Accordingly, AT&T/DirecTV intends to “work to make [online video services] less attractive.” (6)

**Consumer Prices:** [T]he merger would result in higher prices for consumers of traditional subscription television because it would give the merged company the power to raise the prices that competing video distributors pay to it for Time Warner’s popular TV networks for no reason other than that those networks would now be owned by AT&T/DirecTV. (3)

**High Margins:** For traditional video distributors, this lack of competition means huge profit margins. Indeed, AT&T/DirecTV describes the traditional pay-tv model as a “cash cow” and “the golden goose.” (2)

**CONTENT**

**Threat to Withhold:** As AT&T has expressly recognized, however, distributors that control popular programming “have the incentive and ability to use (and indeed have used whenever and wherever they can) that control as a weapon to hinder competition.” Specifically, as DirecTV has explained, such vertically integrated programmers “can much more credibly threaten to withhold programming from rival [distributors]” and can “use such threats to demand higher prices and more favorable terms.” Accordingly, were this merger allowed to proceed, the newly combined firm likely would—just as AT&T/DirecTV has already predicted—use its control of Time Warner’s popular programming as a weapon to harm competition. (1-2)

Because the video distributor walking away from a deal with the merged company would lose access to Turner’s popular programming, some of the video distributor’s valuable customers would be dissatisfied and switch to a competing video distributor. Some of those departing customers would sign up with AT&T/DirecTV, bringing with them significant new profits for the merged company. (5)

**Bargaining power:** The merger would thus substantially lessen competition by giving the merged company the additional leverage to charge its rival video distributors higher prices for its networks than Time Warner’s current market power would otherwise allow, making those distributors less able to compete effectively with the merged company. (5)

Programmers’ arms-length negotiations with video distributors involve a give and take based on the relative bargaining leverage of the parties, which is informed by the options available to each party in the event a deal is not reached.

Video distributors with large numbers of subscribers generally have more bargaining leverage and often pay programmers less per subscriber to carry their networks than do video distributors with fewer subscribers. (9)

The merged company’s bargaining leverage as a seller of programming would thus increase, and not through the offering of lower prices or a superior product or service offering, but directly because of this proposed merger. Competing MVPDs and virtual MVPDs would thus recognize that it will make financial sense to pay the merged firm a higher price for Turner networks than it would prior to the merger, rather than risk losing valuable customers. (17)

**Favoring Own:** Congress also expressed such a concern by recognizing that “[v]ertically integrated program suppliers also have the incentive and ability to favor their affiliated cable operators over nonaffiliated cable operators and programming distributors using other technologies.” (5)

**Passthrough:** Because video distributors aim to cover programming cost increases by raising the prices they charge their customers; the higher prices video distributors would pay for Turner TV networks as a result of this merger would directly hit the pocketbooks of American consumers. (5)

**High margins:** These new customers bring with them significant margins that would reduce the losses the merged company would sustain when the rival MVPD or virtual MVPD no longer distributes Turner programming. As DirecTV has explained, control of programming by a distributor creates “the ability to extract higher rates for years going forward based on the threat of such [subscriber] switching.” The merger would thus create a company that has the incentive and ability to weaken its video distributor competitors by charging them higher prices for Turner’s networks, resulting in a substantial lessening of competition. (17)

#### **MARKET STRUCTURE (TIGHT OLIGOPOLY)**

**ATT Video:** AT&T is the country’s second largest wireless telephone company, third largest home internet provider, and one of the largest providers of landline telephone services. It is also the country’s largest MVPD, with more than 25 million subscribers. It has three MVPD offerings: (1) DirecTV, a satellite-based product with almost 21 million subscribers that it acquired through a merger in 2015; (2) U-Verse, a product which uses the local AT&T fiber optic and copper network and has almost 4 million subscribers; and (3) DirecTV Now, its new online video product (virtual MVPD) with almost 800,000 subscribers. (11)

**Time Warner Content:** As Time Warner has told its shareholders, its Turner networks include three of the top five basic cable networks; Turner also has one of the top news networks. And HBO is the “[w]orld’s leading premium pay TV brand.” Time Warner’s networks own the rights to hit shows such as *Game of Thrones*, as well as the current and future rights to “marquee sports programming,” including NCAA March Madness, substantial numbers of regular season and playoff games of Major League Baseball and the NBA, as well as the PGA Championship. AT&T has concluded that Time Warner’s networks have “world-class ability to attract and sustain audiences with premium content.” Because these popular networks drive ratings and attract customers, video distributors consider it extremely important to carry them. As Time Warner stated in its Annual Report for 2016, its most popular Turner networks reach over 91 million households—of the nearly 100 million households with traditional video distribution subscriptions. Time Warner’s own internal documents note the “high proportion of ‘must carry’ networks” in its Turner portfolio, which “are a critical component of the basic cable bundle.” (4)

Time Warner’s Turner networks are extremely important for many emerging video distributors—its own analysis ranks those networks as tied for second behind only Disney in their ability to attract customers to emerging platforms. (6)

**Local market:** This merger would substantially lessen competition among all distributors of professionally produced, full-length video programming subscription services to residential customers in the United States. As a result, consumers in relevant local geographic markets throughout the country in this “All Video Distribution” product market—which includes MVPDs, virtual MVPDs, and SVODs—would see higher monthly TV bills and less innovative TV offerings. If one company owned all video distributors in a geographic market, it would profitably raise prices significantly on at least one product. The All Video Distribution market constitutes a relevant antitrust product market and line of commerce under Section 7 of the Clayton Act. (p.13)

The relevant product markets in which to evaluate this merger are the sale of subscription video programming in the All Video Distribution and Multichannel Video Distribution product markets, and the relevant geographic markets are local geographic markets across the country. Consumers seeking to purchase video distribution services must choose from among those providers that can offer such services directly to their home. (14)

Because consumers within a local area have the same options available to them for video programming, it is appropriate to treat such similarly situated consumers the same and aggregate them into local geographic markets. For example, a cable service area that only offers consumers a choice among three options (a cable company and two satellite companies) would be a local market. If a cable service area overlapped with the area in which a telephone company offers video distribution services (such as AT&T’s U-Verse offering), that area of overlap would be a local market in which consumers are offered a choice among four options: a cable company, a telephone company and two satellite companies. Using available data generally allows measurement of these local markets by zip code. (p. 15)

#### **MARKET STRUCTURE (STEROIDS)**

**Oligopolistic Coordination:** The merger would also make oligopolistic coordination more likely. For example, the merger would align the structures of the two largest traditional video distributors, who would have the incentive and ability to coordinate to impede competition from innovative online rivals and result in higher prices. In short, the merger would help the merged firm's bottom line by extending the life of the old pay-tv model, but harm consumers who are eager for new innovative options. (p. 7)

AT&T itself has noted the high levels of concentration within the pay-tv industry and their stabilizing effect. In a presentation prepared for a meeting with Time Warner executives related to this merger, AT&T noted that, after the merger, the merged company and just three other companies would control a large portion of all three levels of the industry: television studio revenue, network revenue, and distribution revenue. AT&T went on to explain that—given these high levels of concentration—its “Core Belief #1” is that, notwithstanding the emergence of online video distributors, “[t]he economic incentives of major pay-tv players will encourage **stability** as the ecosystem evolves.” (Emphasis added.) This “stability” comes at the cost of competition that benefits consumers in the All Video Distribution and Multichannel Video Distribution markets. In addition, the nature of the subscription television industry, including the widespread use of most favored nations (MFN) clauses between video distributors and programmers, facilitates coordination. Moreover, after the merger, AT&T/DirecTV and Comcast/NBCU, which together have almost half of the country's MVPD customers, would have an increased incentive and ability to harm competition by impeding emerging online competitors that they consider a threat, and increasing the prices for the networks they own. (20)

**Vertical Integration:** In sum, as DirecTV itself has explained: “[V]ertical integration of programming and distribution can, if left unchecked, give the integrated entity the incentive and ability to gain an unfair advantage over its rivals. This ultimately results in higher prices and lower quality service for consumers.” (6)

AT&T itself has previously stated that access to some of the most popular television programming is “critical to preserve and promote competition and diversity in the distribution of video programming.” This merger would give the combined firm control over AT&T/DirecTV's massive video, wireless, and internet distribution network as well as Warner's popular and valuable TV networks and studio. It would give the merged firm the power to make its current and potential rivals less competitive. The effect of the merger would likely be substantially to lessen competition. It would violate the antitrust laws and therefore should be enjoined. 7-8)

## IX. THE CENTRALITY AND IMPORTANCE OF AT&T IN THE TIGHT OLIGOPOLY ON STEROIDS

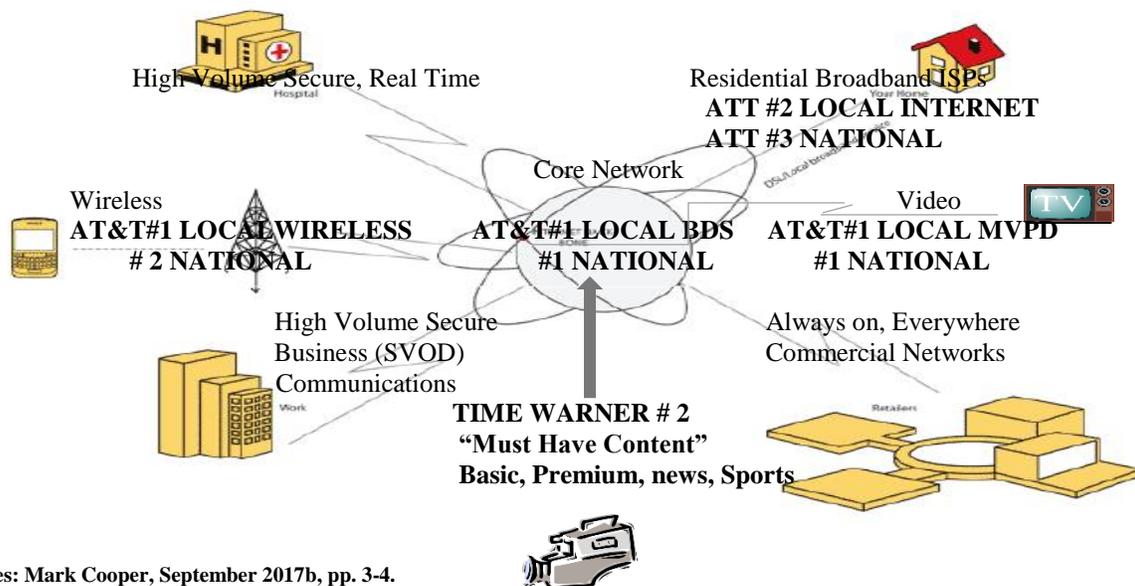
The previous section provided the historical context and specific concerns that shape the lens through which the AT&T-Time Warner merger must be viewed. Both sets of factors strongly point to rejection of the merger. This section reinforces that conclusion by analyzing how the special position that AT&T occupies in the tight oligopoly on steroids magnifies the anticompetitive concerns.

### THE CHOKEPOINT OF BUSINESS DATA SERVICES

AT&T occupies a particularly strong position in the tight oligopoly that dominates the 21<sup>st</sup> century communications sector. As the former franchise monopolist with the largest legacy of a ubiquitous monopoly network, it controls the core communications network. The most important element of this network position is its dominance of Business Data Services (BDS). BDS have become the crucial chokepoint at the core of the digital communications sector. Here, the ocean of data surging through the global network is transformed into the stream of data reaching individuals. Abuse here could distort a wide range of products that rely on BDS.

As shown in Figure IX-1, a wide range of businesses and public agencies, including hospitals, schools, libraries, and public safety offices, also need secure, dedicated, high-speed, high-capacity connections to the wireline communications network to function well. Plain old telephone service does not meet the service and quality needs of an increasing array of users and uses. There are hundreds of millions of end-users spread all over the map that must rely on BDS, and with the expansion of the Internet of Things, there will be billions.

**FIGURE IX-1: BUSINESS DATA SERVICES AND ACCESS TO CORE NETWORK FUNCTIONALITY ARE CENTRAL IN THE DIGITAL REVOLUTION**



Sources: Mark Cooper, September 2017b, pp. 3-4.

To put this another way, all of these services involve a connection to a business. In addition to the three applications that involve the sale of communication services to residential end users

- Broadband Internet Access Service
- mobile broadband, and
- phone service,

Other service uses involve connections to businesses that do not sell communications to consumers, but need BDS to conduct their daily business.

- small, medium, and large businesses that need much more capacity than a single telephone line,
- branch networks (like ATM's or gasoline stations) that have many nodes that need to be online all the time, and
- businesses like health care providers, who need to move large quantities of data between their offices frequently and in real time

We underscore the business-to-business relationships on which BDS service is based because these increasingly important core network communications services are not free. They have significant cost as intermediate goods that are recovered from consumers in the prices they pay for the goods and services that embody them.

A good example of this is mobile wireless service, which has become the largest component of the household communications budget. In order for a consumer to place or receive a mobile wireless transmission, the consumer uses all the facilities that connect the transmission from end-to-end. When the consumer originates the transmission, it is carried from the handset to a cell tower. Once it gets to the tower, it must be hauled back to a point where it can connect to the nationwide communications network. The provision of this “middle-mile” link in the communications network is just as necessary to a successful transmission as the “first mile” link to the consumer.

Since the backhaul is to a connection point with the telephone network, high volumes of traffic are aggregated at the cell tower and the backhaul generally takes place over high volume wireline facilities. These facilities, which are essential to communications, are needed on both ends of the transmission. Mobile wireless carriers usually purchase these services, called “special access” from wireline incumbent telephone carriers. As such, when the consumer pays her mobile wireless bill, she pays the cost of the middle-mile/special access/backhaul for both the originating and terminating areas. Ultimately, all of the costs of BDS are just a cost of doing business, which is passed through to consumers in the bills they pay for goods and services that use BDS as an input.

Business Data Services epitomize the challenges of building a competitive communications environment. BDS were among the first services deregulated after the 1996 Act, under the theory (read: hope) that competition would quickly develop once it was allowed.<sup>234</sup> The decision was immediately contested and has been under almost constant review

ever since.<sup>235</sup> Ironically, as a standalone long-distance company, AT&T filed the original complaint about the premature and ill-considered deregulation decision because there was insufficient competition to prevent the abuse of market power. Once AT&T became an integrated local and long-distance company in the market for BDS, however, it steadfastly opposed any moves toward reregulation that would have curtailed its ability to abuse its market power.<sup>236</sup>

### The Conditions in the BDS Market

Conditions in the market made the persistence of market power inevitable. As shown in Table IX-1, the BDS market exhibits a long list of anticompetitive characteristics at all levels of structure, conduct and performance. These conditions were extensively documented in the hearing record.

**TABLE IX-1: ABUSE OF BDS MARKET POWER: STRUCTURE, CONDUCT AND PERFORMANCE**

<p>Basic Conditions<sup>2</sup></p> <ul style="list-style-type: none"> <li>Franchise Monopoly History<sup>3</sup></li> <li>Few Substitutes<sup>4</sup></li> <li>Inelastic Demand and Supply<sup>5</sup></li> <li>Declining Costs &amp; Rapid Growth<sup>6</sup></li> </ul> <p>Market structure</p> <ul style="list-style-type: none"> <li>Concentration/Inadequate Competition<sup>7</sup></li> <li>Barriers to Entry<sup>8</sup> <ul style="list-style-type: none"> <li>Deployment Costs<sup>9</sup></li> <li>Network Effects<sup>10</sup></li> <li>Incumbent Advantage<sup>11</sup></li> </ul> </li> <li>Weakness of Alternatives<sup>12</sup></li> <li>Macroeconomic Losses<sup>20</sup></li> </ul>	<p>Perverse incentives</p> <ul style="list-style-type: none"> <li>Vertical integration, Merger wave<sup>13</sup></li> <li>Regulatory shenanigans<sup>14</sup></li> </ul> <p>Anticompetitive Conduct</p> <ul style="list-style-type: none"> <li>Price<sup>15</sup></li> <li>Price squeeze<sup>16</sup></li> <li>Lock-in Terms and conditions<sup>17</sup></li> </ul> <p>Performance</p> <ul style="list-style-type: none"> <li>Price above costs<sup>18</sup></li> <li>Excess profits<sup>19</sup></li> <li>Macroeconomic Losses<sup>20</sup></li> </ul>
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Sources:

- 1 All citations are to the record in the *Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593.
- 2 The welfare economic framework animates and described in detail in several of the major discussion, e.g. Bridger Mitchell, 2010; WIK, 2016. (pp. 45-47); Bluhm and Loube, 2009, pp. 25-30.
- 3 Selwyn, 2010, (Hereafter Selwyn), shows the compelling logic of the deployment of telecommunications network in franchise territories; The technology deployed during the monopoly period, still dominates, Zarakas and Gately, 2016, Table 2. The NRRI, account of the history of regulation reminds us of the strong and somewhat arbitrary role the regulated franchises played in the development of the industry and the allocation of costs and benefits, pp. 9-19.
- 4 Bessen and Mitchell, 2016, ¶ 5, Baker, 2016, ¶¶ 16, 26, 30 Sappington, 2016, ¶¶ 13, 14; National Association of State Utility Consumer Advocates and The New Jersey Division of Ratepayer Counsel, 2013, p.13.
- 5 Mitchell, 2010, ¶ 65.
- 6 Gately, et al., 2010, pp. ii, 4. CostQuest, Wik Study, NRRI, NASUCA, 2016, p. 13; NASUCA, 2013, p. 14.
- 7 NRRI; CostQuest and Windstream, 2015. attached to *ex parte* filing of Harris, Wiltshire & Grannis, June 8, 2015, (Hereafter, CostQuest), p. 2; Bessen Declaration, ¶¶ 41 *et seq.*, Baker Declaration, ¶44; Sappington Declaration, ¶17; NASUCA, 2016, p.2.
- 8 Selwyn, p. 6; Mitchell Declaration, ¶ 19; NRRI, p. 25; Government Accountability Office, 22007; Bessen Reply, ¶¶ 23, 28-30.
- 9 CostQuest, p. 2; Mitchell Declaration, ¶¶ 19, 118.\. Declaration, ¶ 40.
- 10 Selwyn, p. 3; this observation underlies the analysis in CostQuest.
- 11 CostQuest, p. 2.
- 12 Baker Declaration, ¶¶ 31, 32, 22; Bessen Declaration, ¶ 16.
- 13 NRRI, p. 81; McKee, p.5. shows Sprint’s HHI rising from just under 6,000 to just under 8,000 as a result of the acquisition of the two largest long-distance carriers (ATT, MCI) by the dominant local exchange companies (SBC, VZ), Comments of Sprint, p. 2.
- 14 Reply Comments of Sprint, February 19, 2016, pp. 64-66.
- 15 Gately Declaration, pp. ii, 4. (Hereafter, Gately Comment), Baker Declaration, ¶¶ 63-64. Citation of NECA tariffs (Comments of INCOMPAS, January 19, 2010), p. 10, (hereafter INCOMPAS Comments), Sappington Declaration, ¶ 23.
- 16 NASUCA, 2016, p. 8; McKee, 7; Sprint Comment, pp. ii, 28. Sprint Reply, pp. 49-51.
- 17 Mitchell Declaration, ¶¶ 20, 115, 116, 130-131; Gately Comment, pp. 42-46; NASUCA 2013, p. 26; GAO.
- 18 Gately, Comment, WIK-study, NASUCA< 2013, p. 17.
- 19 McKee, 8-9; Gately, Comment, pp. ii, 4; NASUCA, 2016, p. 3.

As shown in Table XI-2, those characteristics fit precisely with the concerns about the abuse of market power expressed by U.S. antitrust authorities. As shown in Figure II-2, BDS services are not only the most highly concentrated of the digital services, but they also exhibit the least rivalry between the members of the oligopoly. The members of the oligopoly do not frequently sell BDS out of region; when they buy BDS service out-of-region, they buy from each other. To the extent that there is overlap between their primary service areas, they tend not to compete in the wholesale market (with non-dominant firms engaging in self-supply).

**TABLE IX-2: CONCERNS ABOUT VERTICAL LEVERAGE IN HIGHLY CONCENTRATED MARKETS APPLIED TO THE BDS MARKET**

<b>Description of Concern</b>	<b>Conditions in BDS Market</b>
<b><u>Input Foreclosure (IF)</u></b>	
Market Structure	Extremely highly concentrated
Ability of fringe to compete	Limited due to high cost, low market share
Behavior of integrated firms	Multiple exclusion strategies
Impact of contractual terms	Layers of anticompetitive conditions
Availability of substitute inputs	Limited
Incentives of other firms to parallel	Strong in-region and reciprocity out-of-region
Ability to undermine competition -- withholding, quality degradation, or price increase	Demonstrated in input and output markets
Competitive fringe ability to constrain	Price competition is weak or non-existent
Pass through of variable cost	Yes
Ability to capture customers	Incumbents dominate with 80% market share
Impact of reciprocity	Extensive
<b><u>Customer Foreclosure (CF)</u></b>	
Bargaining leverage	Overwhelming
Ability to self-supply	In-region, absolute
<b><u>Unilateral Incentives (UI)</u></b>	
Earning on input, compared to retail product	Rapid growth in BDS services
Relative margins	High margin on BDS services
Barriers to entry	Substantial
Vulnerability to coordination	Significant and demonstrated
Incentive to deal with independents	Nil in-region, small out-of-region
Access to and use of competitively sensitive information	Dominance puts fringe at a severe disadvantage
Who are the mavericks, how do firms behave toward them	All non-incumbents behave as mavericks
<b><u>Price Increases (\$)</u></b>	
Cost symmetry	Asymmetry between incumbents and competitors
Cost and ability to punish market participants	High margins create strategic tool
Balance of upward and downward pressure on prices	Persistent rising prices, increasing profits
<b><u>Evasion of regulation (ER)</u></b>	
Evasion of regulation: ability, profitability	Clear evidence of cross subsidy
Ability of regulators to detect and deter evasion	Nil

## THE FCC’S SPECIAL ACCESS ORDER

After a decade of delay, the FCC finally issued an order in the Special Access proceeding. We believe it fits squarely into a clear pattern that has developed over the course of the past five years – one that takes on more force as it becomes precedential and cumulates evidence.

The dominant firms claim that they face vigorous competition and, as a result, the prices they charge are reasonable and the terms and conditions they impose in contracts are not abusive

or anticompetitive. The Commission rejects these claims on the basis of a thick empirical record, blocking some actions and imposing greater regulatory oversight on others.

### **Anticompetitive Contract Terms and Conditions**

We start with the question of conditions, since that is the area where the Commission has acted most aggressively in this case. The companies claim that various contractual terms like “all-or-nothing requirements,” “shortfall penalties” and “early termination penalties” are a reasonable way to recover costs they have incurred in offering discounted tariffs. The Commission finds that, while some terms are reasonable, many of the tariffs are punitive rather than efficient. The Commission invited the companies to provide cost data that would explain how such obviously excessive and restrictive conditions could be economically justified. The companies chose not to offer one shred of cost evidence. With no concrete defense, the Commission must find the terms illegal.

There are other patterns in the data that suggest anticompetitive practices. Since the largest incumbent local exchange carriers (Verizon, AT&T, and CenturyLink) have significant out-of-region businesses (wireless and enterprise), they are purchasers of special access in those areas. They overwhelmingly buy services from the local exchange carriers incumbent to those regions rather than competitors. They almost never build out-of-region facilities. By withholding their business from competitive suppliers, they significantly shrink the market. They also establish a pattern of reciprocity – extending their no-compete strategy into this important market. This is the telco version of the no-compete strategy that pervades the cable industry.

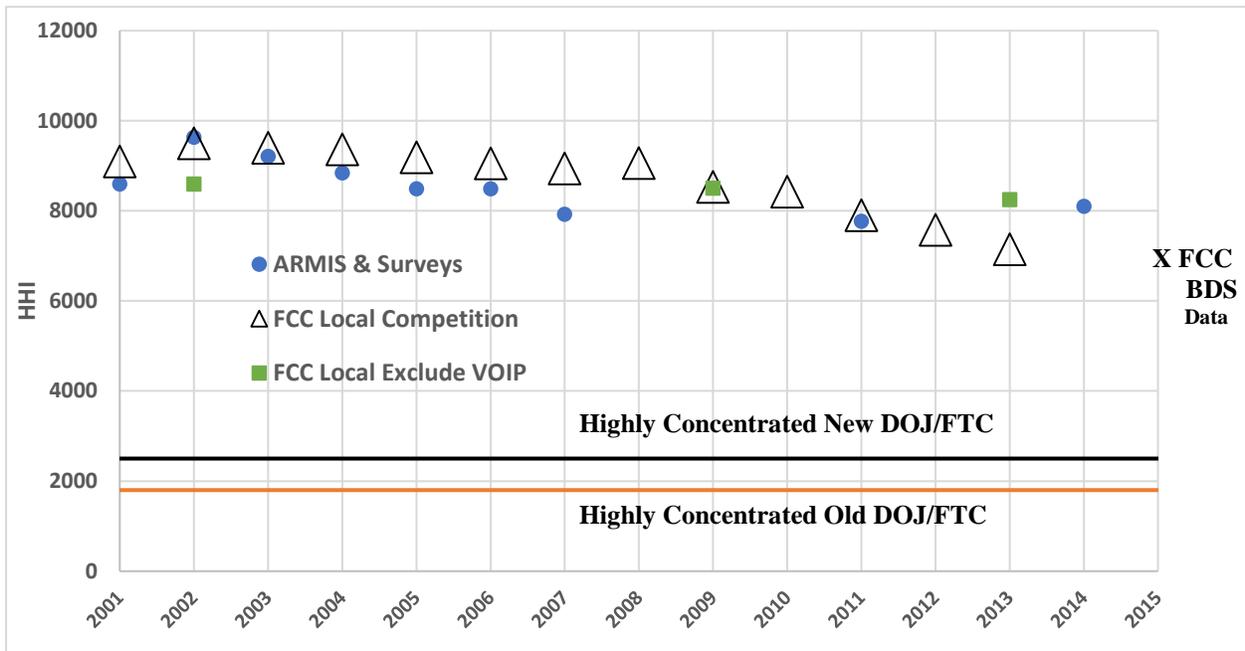
### **The Extent of Competition**

On the question of vigorous competition, the Commission has compiled the largest data set in the history of the FCC. It shows that about three-quarters (at least 70% and as much as 80%) of consumers purchase special access services under the conditions of an absolute monopoly – even using a fairly lax geographic definition of the market (see Figure IX-2). The remainder have, at best, a duopoly – one competitor serving someone in their building. In very few circumstances do customers have four or more competitors. Even using a looser definition – one actual competitor and four potential competitors somewhere in the census block – fewer than 10% have competition. Measured at the level of buildings and focusing on facilities-based competition, the incumbent local telephone companies have a market share of about 83%. The HHI is close to 6900, attributing no market power to the largest competitor in the market, which tends to have a market share of 10%.

### **Competition and Price**

With respect to prices, for low-bandwidth services that make up 60% of the market, the economic analysis shows that competition reduces prices. The more vigorous the level of competition, the larger the price reduction. In the most rigorous specification modeled by the FCC expert, the benefits of competition are at least 5% and as much as 28%. Three-quarters of the special-access customers who lack competition are denied any of these benefits. Almost no users of special-access service receive the benefits of competition.

**FIGURE IX-2: CONCENTRATION IN SPECIAL ACCESS MARKETS**



Sources: Early ratios are based on FCC Monitoring Reports, Charles W. McKee, *Special Access: The Unregulated Monopoly*, Sprint, March 4, 2009. 2011 based on FCC *Local Competition Report*, CLEC business subscribers times percent of CLEC subscribers served by CLEC owned facilities. FCC special access proceeding from the Economist' report.

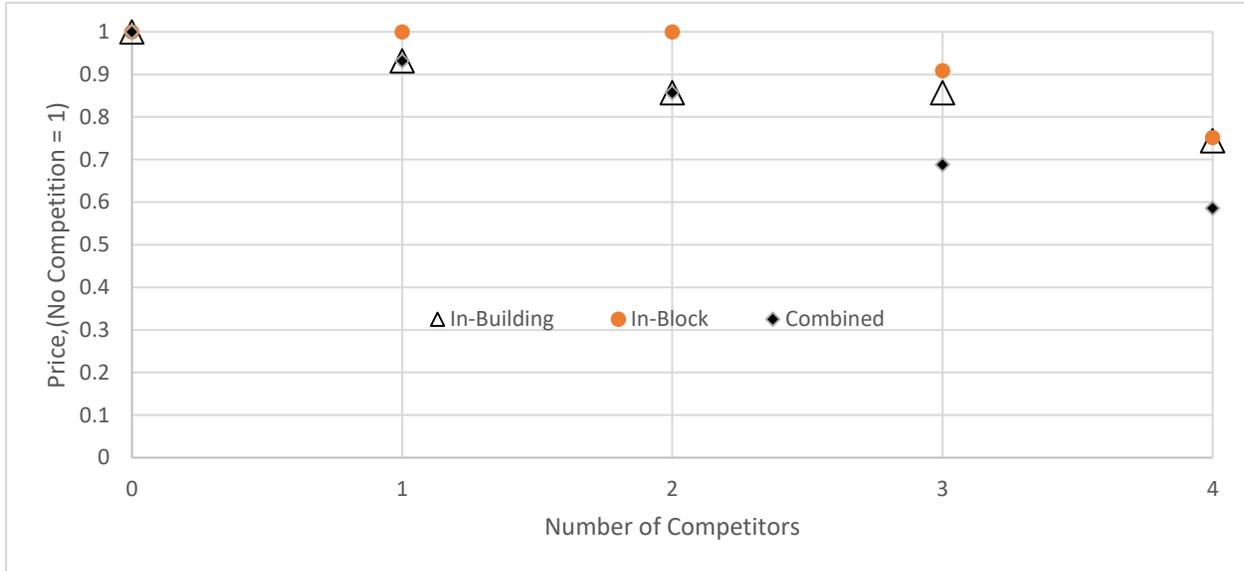
A reanalysis of the data by John Baker demonstrates the flaw in the FCC analysis. He identified in-building providers as competition, augmented by potential competitors in the census block. Figure IX-3 summarizes the regression analyses of Jonathan Baker that extend the analysis of the FCC expert. Baker analyzes the effect of in-building v. in-census block competitors independently. His analysis accepts the basic approach taken by the FCC expert and elaborates on it in several ways. He analyzes only high-bandwidth services since there is a consensus that low-bandwidth services are not competitive. He includes the presence of cable. Baker's analysis is decisive in several respects.

- First, he generally replicates the in-block result, but finds in-building competition is more important.
- Second, in-building competition has an immediate and larger effect.
- Third, in-block competitors do not have an impact until the third competitor is added.
- Fourth, adding the eighth competitor lowers prices by about 10%, which exceeds the SSNIP standard.
- Fifth, the impact of eight or more competitors, which is probably very rare, is a price reduction of 43%.

This is consistent with our general conclusion that “four is few, six may be okay, and ten is competitive.” Moreover, the fact that prices in competitive markets are lower does not mean

they are free of above-cost pricing. As noted in the conceptual discussion, in a situation where the dominant firm has a large market share and the competitive fringe has higher costs, the dominant firm can collect rents by strategic pricing – pricing against the residual demand curve.

**FIGURE IX-3: PRICE IMPACT OF IN-BUILDING AND IN-BLOCK COMPETITORS**



Source: Jonathan Baker, 2016, Replay Comments, in the matter of *Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, January 27. Table 1, column 8.

The regression shows that mobile telecommunications providers are charged much higher prices. This has the effect of undercutting mobile, which has the strongest base of competitors and potential to compete out of region. This reinforces the no-compete strategy.

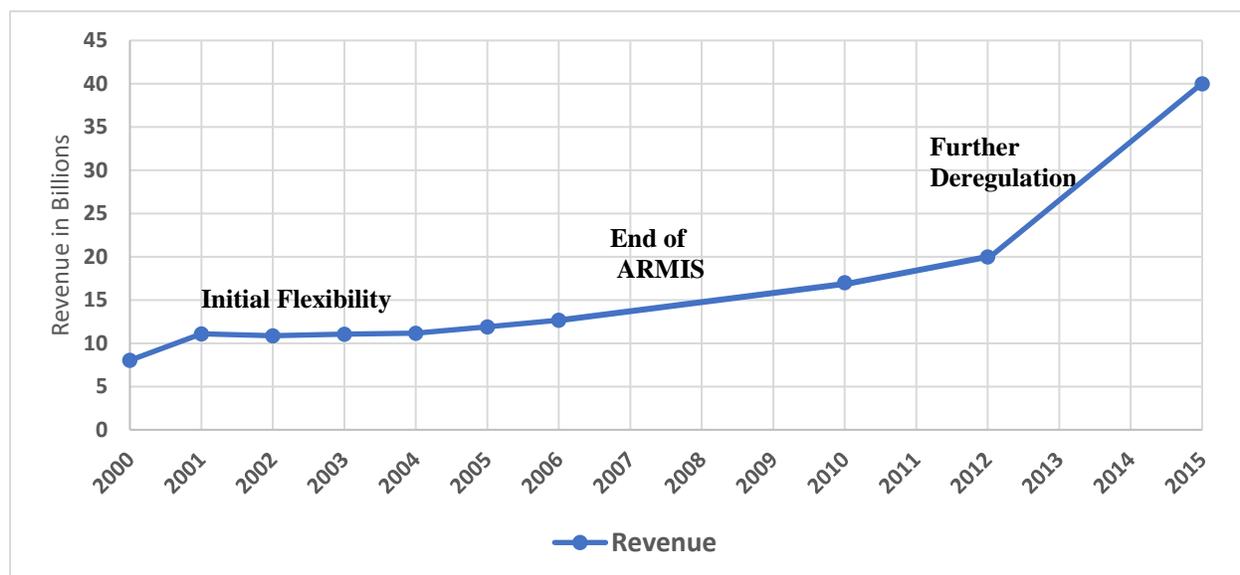
The digital revolution has two hallmark characteristics. The cost of communications has been plummeting, while the capacity and functionality have been increasing dramatically. As a result, demand for communication services has been increasing, and those services have become the main manner by which many daily economic, social, and political activities are conducted. As these services become virtual necessities in the digital economy, their elasticity of demand decreases. Growing demand creates economics of scale and scope that further lower costs.

Needless to say, these are clearly benefits delivered by the technological revolution. Technological revolutions succeed by increasing the total social surplus that is available. However, they have a negative consequence in the context of the development of the tight oligopoly described above. Market conditions determine how the surplus is divided between consumers and producer. Competition would force the bulk of the cost savings through to consumers. In contrast, with declining cost and a highly concentrated supply-side that features inelastic demand and few good substitutes available for each of the main services, the door is opened to the abuse of market power. When competition is weak and consumers cannot find good substitutes, sellers have market power to raise prices and provide poor service.

## INCREASING REVENUES, DECLINING COST, SOARING PROFITS

Figure IX-4 shows the dramatic increase in revenues after the decision to deregulate the special access market. Between 2000 and 2010, revenues increased by just under 8% per year. In the past half-decade, that rate of growth has doubled. This increase was triggered by further deregulation and elimination of oversight over special-access rates, including the termination of the controls that the FCC placed on SBC at the time it acquired AT&T. Over the entire period, revenues increased by 11% per year. The first round of increase followed the initiation of pricing flexibility. The second came more recently when oversight was further relaxed. Needless to say, growth in the volume of traffic was considerable, as well.

**FIGURE IX-4: SPECIAL ACCESS REVENUE**



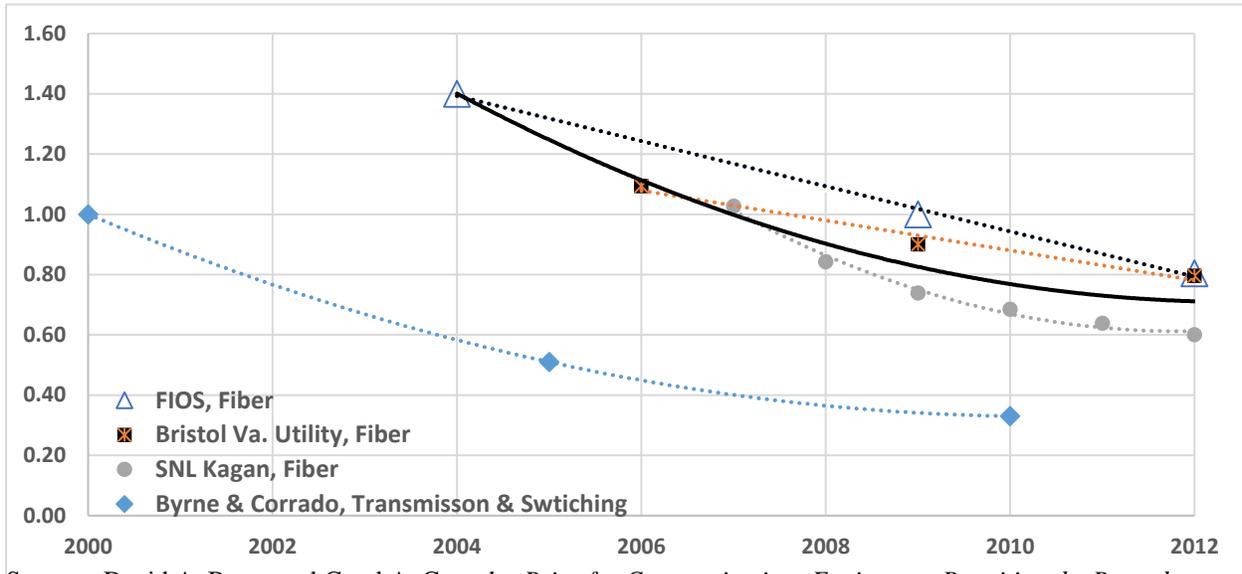
Sources: 2000-2007, The official FCC ARMIS data is frequently the source for early estimates, see Susan Gately, et al., *Longstanding Regulatory Tools Confirm BOC Market Power*, Economics and Technology Inc., January 2010, Charles W. McKee, *Special Access: The Unregulated Monopoly*, Sprint, March 4, 2009.

While revenues were increasing dramatically, costs were declining, particularly for fiber optic cable, as shown in Figure IX-5. Transmission and switching costs were declining by about 12% per year over the first decade of the 21<sup>st</sup> century.

With revenues growing at almost 8% per year and costs declining by 12% per year, we would expect to see a large, double-digit increase in profits. This is exactly what the data showed, as long as it was available (see Figure IX-6).

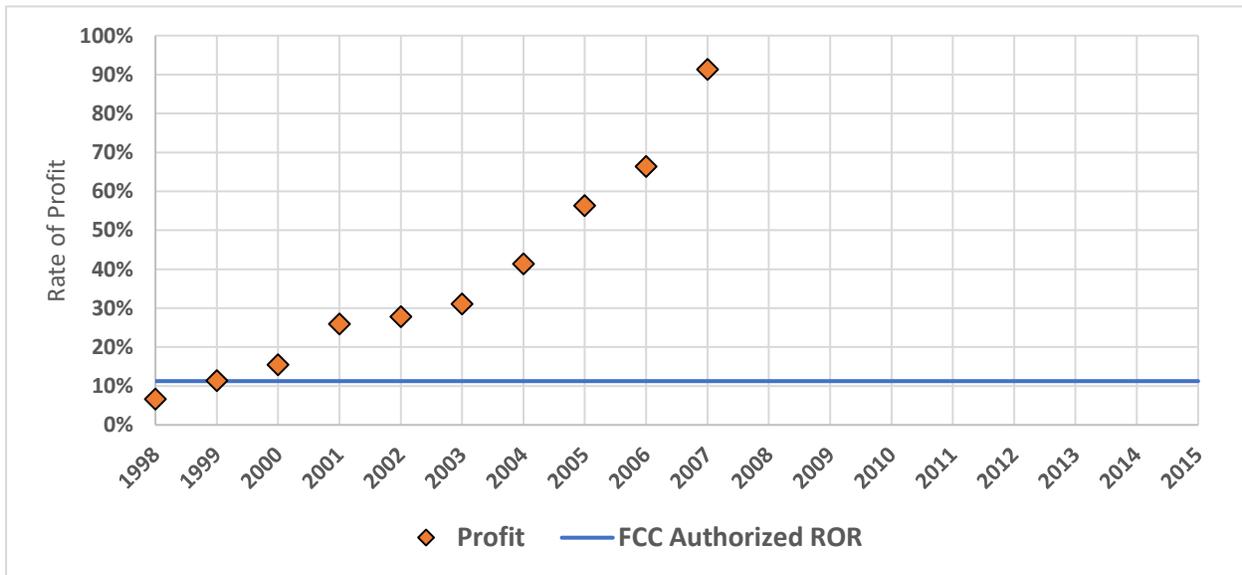
Although detailed evidence on the communications equipment components that most directly affect special access costs is not available for the most recent period, the general index for communications equipment costs has continued to decline. In fact, the rate of decline nearly doubled in the 2010-2014 period. Thus, excess profits in the special-access market are certain to be much larger today than they were when the collection of ARMIS data ceased.

**FIGURE IX-5: DECREASES IN THE COST COMPONENTS OF SPECIAL ACCESS SERVICES**



Sources: David A. Byrne and Carol A. Corrado, *Price for Communications Equipment: Rewriting the Record*, September 2015; CostQuest and Windstream, *Analysis of Fiber Deployment Economics for Efficient Provision of Competitive Service to Business Locations*, Presentation to FCC Staff, June 4, 2015, attached to *ex parte* filing of Harris, Wiltshire & Grannis, *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, June 8, 2015, p. 16.

**FIGURE IX-6: SPECIAL ACCESS PROFITS**



Sources: 2000-2007, The official FCC ARMIS data is frequently the source for early estimates, see Susan Gately, et al., *Longstanding Regulatory Tools Confirm BOC Market Power*, Economics and Technology Inc., January 2010, Charles W. McKee, *Special Access: The Unregulated Monopoly*, Sprint, March 4, 2009.

For 2007, ETI estimated overcharges in the range of \$10 billion on total revenues of \$17 billion. In other words, excesses are over half the total. That estimate was calculated based on the rate of return that the FCC had allowed in in 1990, as shown in Figure X-6. This was a generous rate of return and it is very high in today's market. The FCC-authorized rate of return

was set in a period when the risk-free rate of return (on ten-year T-bills) was about 8.5%; today it is less than 3%. The interest rate on triple-A-rated corporate bonds is also about five percentage points lower. Although one can argue that the increase in competition raises the cost of capital, we have shown that competition is feeble at best. The competitive rate of return would be set well below the level that is a quarter of a century old

Capital costs and the cost of capital are only part of the cost of service. We find bits and pieces of evidence on operating costs. Gately gave data that suggested a decline in operating cost of 10% per year for a few years in the mid-2000s. If equipment costs that have been declining by 16% per year represent half of the cost of service (as suggested by s WIK-study) and operating costs have been declining by 5%, the total cost has been declining by 10% per year or more. Sustained over a fifteen-year period (since the onset of pricing flexibility), the cost of special access would have fallen by 75%.

This highlights the problem not only with regulatory flexibility, but also the price cap approach, even if the rates are held steady at the rate of inflation. Profits would be growing 10% per year plus the rate of inflation. The price cap adjustment was 5.3% until 2005 and 1.8% for thereafter. Based on these factors, the average annual compound rate of growth in profits would be about 18% over the period from 2002 to 2007. In the five years after pricing flexibility for which we have ARMIS data, Gately shows a compound annual rate of increase in profits of 20%.

### **Financial Analysis of the BDS Market**

Since the FCC has stopped collecting financial data on special access and the companies have failed to file any meaningful data on the cost and profitability of these services in this proceeding, it is difficult to analyze the financial performance of these services. Projecting price and cost trends from the last available financial data, we have argued that the market is generating \$20 billion in excess profits. That estimate was based on an estimated market size of \$40 billion. In fact, the FCC puts the BDS market at \$75 billion.

With 75% of the Verizon's income coming from these services that rely on special access, we think the market could be as large as \$100 billion. This is a critical analysis that must be a focal point of the proceedings we have recommended. Some commenters put the overcharges at \$40 billion.<sup>237</sup>

Here we take a different approach to the excess profitability question. Matching Verizon corporate financial data with detailed filings in the State of New York, we estimate EBITDA for various market segments. The analysis supports the conclusion that there are tens of billions of dollars of overcharges, and we urge the Commission to conduct a thorough cost study to sort these issues out.

Embedded in the price and profit data is a pattern of cross-subsidization. In 2012, the New York State Attorney General wrote that Verizon was cross-subsidizing its wireless deployments with the wireline capex. According to the NY Attorney General, about 75% of Verizon NY's wireline utility budget has been diverted to fund the construction of fiber optic lines that are used by Verizon Wireless's cell site facilities and FiOS cable TV.

Verizon New York's claim of making over a 'billion dollars' in 2011 capital investments to its landline network is misleading. In fact, roughly three-quarters of the money was invested in providing transport facilities to serve wireless cell sites and its FiOS offering. Wireless carriers, including Verizon's affiliate Verizon Wireless, directly compete with landline telephone service and the company's FiOS is primarily a video and Internet broadband offering.... Therefore, only a fraction of the company's capital program is dedicated to supporting and upgrading its landline telephone service.<sup>238</sup>

In Table IX-3 we present three views of Verizon financial performance. We compare the Verizon SEC annual report to the New York financial filing. In New York, we present two views of the data that differ in how we treat Ethernet-based access. Two views are necessary because of the ambiguity in the treatment of Ethernet-based access, which is likely a part of the IP-services included in the Strategic Services category reported in the VZ-SEC.

First, in the upper part of the Table IX-3, we align the Verizon SEC data with the New York financial data. In 2015, without allocating Ethernet-based services to the New York financial report, VZ-New York represented 14% of Verizon wireline revenue, 11% of expenses, and 16% of depreciation. With Ethernet, revenue was 17%. For the reasons stated below, we do not attribute additional Ethernet costs to the New York Jurisdiction.

The Verizon SEC data identifies a wireline segment that includes consumer and small business retail in the mass market category. This includes FiOS revenues, which Verizon estimates to be about 34% of wireline revenue. In the New York data, the category of nonregulated services (made up largely of FiOS) equals 22% of the wireline revenue. The difference in the FiOS share results from the fact that some FiOS revenues (e.g. video) are not reported as telecommunications revenues in New York.

This is an important issue for cost allocation since FiOS costs appear to be reported as local, but these revenues are not. For example, the New York financials show that just 4% of the current plant is classified as FiOS and only 9% of the plant under construction is classified as FiOS, compared to 28% of revenues that are attributed to FiOS. To the extent that FiOS uses special access, this misallocation might impact the estimates of costs and profits, but the bigger question here is whether costs are being dumped on regulated local service to subsidize competitive services.

The BDS category poses a similar problem. Verizon identifies several types of service that appear to be access services.

Global Enterprise offers strategic services and other core communications services to medium and large business customers, multinational corporations and state and federal government customers...

Global Wholesale provides communications services including data, voice and local dial tone and broadband services primarily to local, long distance and other carriers that use our facilities to provide services to their customers.<sup>239</sup>

Strategic services are defined as follows in the 2008 annual report.

Our strategic IP-based services are the essential building blocks for the integrated communications and IT solutions that Verizon Business offers worldwide... In 2008 we expanded and improved what was already one to the worlds few truly global networks, resulting in enhanced speed, availability, diversity and resiliency for business and government customers worldwide. These improvements were part of approximately \$17 billion we invested last year building, operating and integrating our advanced broadband wireless and wireline networks.<sup>240</sup>

**TABLE IX-3: VERIZON SEC AND NEW YORK WIRELINE FINANCIAL DATA: 2015**  
(All figures are in %)

VZ-NY as a % of VZ-SEC	VZ-SEC	VZ--NY	
		Ethernet included	
		No	Yes
Revenue		14	17
Expenses		11	11
Depreciation		16	16
Cost as a % of Wireline			
Cost of Service	55	62	62
Selling	14	16	16
Depreciation	18	20	20
Revenue as a % of wireline			
FIOS	34	28	21
Local Service	15	19	18
BDS	52	58	58
Access (Core & Wholesale)	29	29	33
2      Other BDS (Strategic & Other)	23	29	26
EBIDTA Margin			
Wireline	23	30	30
Local Service		-51	-51
Access		67	80
Wireless	43		

Source: VZ-SEC, Verizon, Annual Report, 2015, pp. 19-24. FIOS is 79% of customer retail, Local service is 21% of customer retail plus small business. Access includes global enterprise and global wholesale. VZ-NY, Annual Report of Verizon for the Year Ended December 31, 2015, to the State of New York Public Service Commission, Schedule 9. Other Revenues of \$1.5 billion are included and attributed to other BDS services. All nonregulated revenues are assumed to be FIOS.

Here we have the thorough interweaving of the IP transition, access and broadband. Strategic services clearly include Ethernet-based access services, which are a large part of the BDS market but are not reported as local telecommunications in New York. The FCC has identified the distinction between services based on TDM technology and services based on Ethernet as important. It concludes that Ethernet-enabled special access represents over 40% of special access. Verizon reports this in the SEC financials as wireline, but does not report it in New York. The far-right column in Table 2 assumes that Ethernet-based access represents 40% of additional access revenue, compared to the base of access revenue reported in New York.<sup>241</sup>

Whether or not that should be reported as New York revenue, the existence of that revenue raises the profitability of access services substantially, as shown in the lower part of Table IX-3.

The lower part of Table 2 shows the standard estimates of EBITDA for four categories of services – mass market, local service, access and wireless. Mass market and wireless are from the SEC filing; local and access are from the New York filing. The fact that local service shows a severe loss (-51%) and access is immensely profitable (+67%) reflects in part the misallocation of costs. But for the present purposes, the critical factor is that access is the most profitable service. Including the Ethernet-based revenue could boost that to as much as 80%.

## CONCLUSION

To sum up, we have demonstrated the structural conditions for a severe abuse of market power in the delivery of special access services. Cost and price trends are direct evidence of substantial overcharges and excess profits. Direct overcharges of \$20 billion per year burden household budgets. Indirect economic losses that result from the drag on the economy add another \$20 billion to the harm. These harms have been building up since the premature deregulation of special access, and they have accelerated in recent years. As an intermediate good, this abusive pricing for special access operates in the background. A lot of it turns up in the consumer's cellular bill, since wireless is a huge consumer of special access. Some may turn up in the consumer's broadband bill. The rest is passed through in the cost of other goods and services.

Special access is one of the clearest cases of unjustified deregulation since the passage of the 1996 Act in terms of the harm imposed (measured by the rate of overcharges), if not the absolute value of harm. It came so quickly that there could be no pretense that competition had already grown enough to discipline the market power of the large incumbents. The predictive theory offered by the FCC to authorize deregulation seriously misunderstood the market structure.

## X. THE WIRELESS MARKET

### POLICY CONTEXT AND CONCENTRATION

In the early 1990s, when the mobile industry was opened to competition through the auctioning of spectrum licenses, there were few subscribers and prices were extremely high. The incumbent telephone companies that had been given cellular licenses a decade earlier had not done much to develop the space, not wanting to cannibalize their monopoly telephone services. Once competitors entered, things changed rapidly. New entrants were unconcerned with protecting monopoly rents. As shown in the upper graph of Figure X-1, concentration remained quite low, only reaching the threshold of moderately concentrated (by the old DOJ/FTC definition) at the end of the decade.

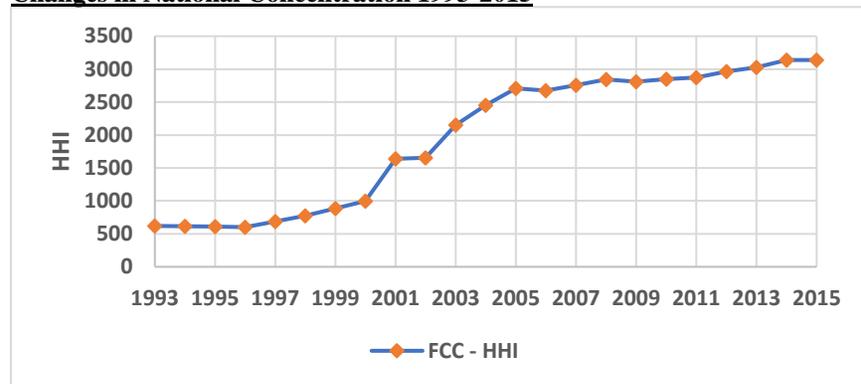
The HHI values in upper left graph of Figure X-1 are national figures. While this reflects the fact that wireless companies compete in most markets with uniform prices, this view somewhat understates the level of concentration in local markets. Since the initial mobile providers were the dominant Incumbent Local Exchange Carriers (ILECs), they tend to have a higher market share in the home territories where they enjoy advantages of brand recognition and ubiquitous facilities to support their mobile services (as shown in the lower graph of Figure X-1).

One additional view of market concentration included in the upper right graph of Figure X-1 is rarely, if ever, analyzed. The DOJ identified the large business (enterprise) market as a separate national market for wireless. It was much more concentrated (700 points) than the overall national market. Today, the national and local markets are highly concentrated, even by the recently relaxed *Merger Guidelines*

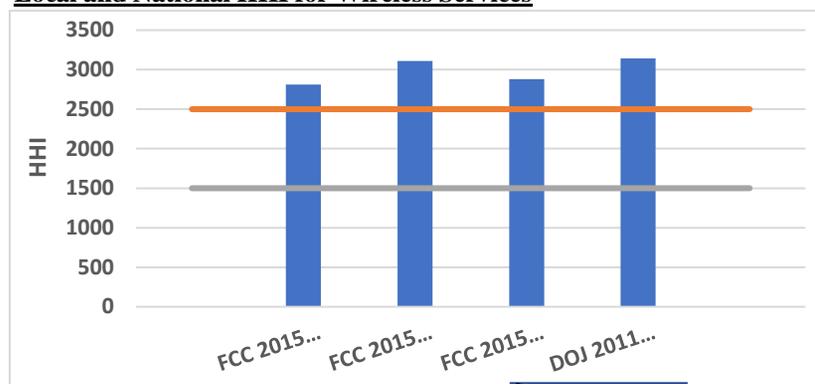
As show in the lower graph of Figure X-1, a wave of mergers beginning in the mid-1990s dramatically increased the level of concentration. The dominant firms gobbled up smaller firms, thereby removing the most threatening potential competitors and cementing the oligopoly. Prices stopped falling, as shown in Figure X-2. A few years later, cellular providers began to offer broadband service, greatly increasing functionality. Subscribership continued to increase, reflecting the immense value of mobile communications to consumers. The increasing functionality kept demand growing. The continued absence of competition kept prices flat, even though technological progress and economies of scale and scope were lowering costs and increasing earnings.

**FIGURE X-1: MERGERS CREATED A TIGHT OLIGOPOLY ON STEROIDS IN THE DIGITAL COMMUNICATION SECTOR**

**Changes in National Concentration 1993-2015**

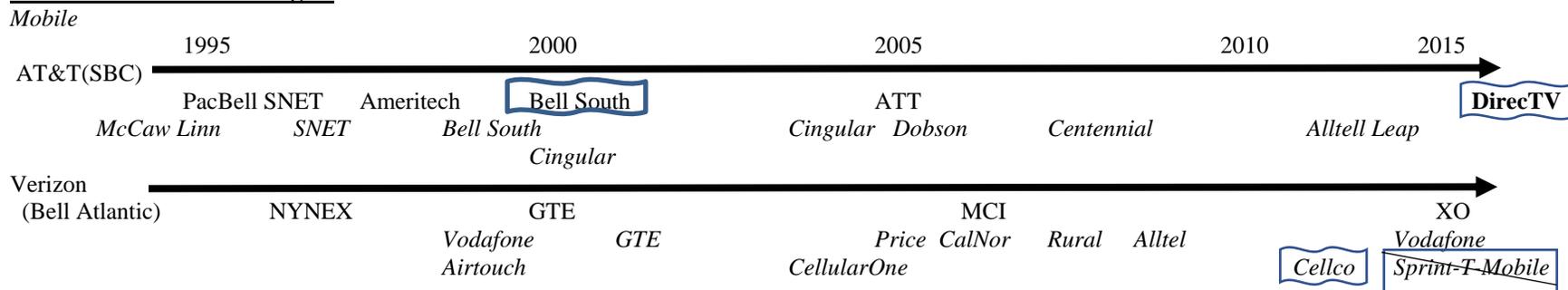


**Local and National HHI for Wireless Services**



Sources: Federal Communications Commission, *Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, various. U.S. Department of Justice, 2011b, *Complaint, Competitive Impact Statement, United States v. AT&T Inc. and Deutsche Telekom, AG*, (No. 1:11-cv-01560), August 31. Federal Communications Commission, 2011b, *Order and Staff Analysis, in the matter of Applications of AT&T Inc. and Deutsche Telekom AG for Consent to Assign or Transfer Control of Licenses and Authorizations*, WT Docket No. 11-65, November 29. Federal Communications Commission, various, *19<sup>th</sup> Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*.

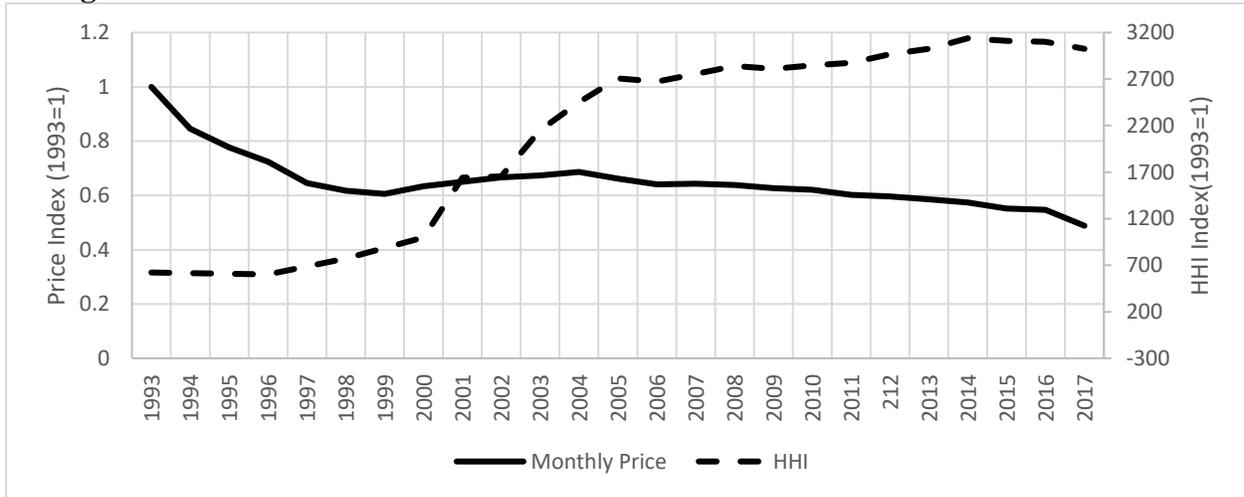
**Landline and Wireless Mergers**



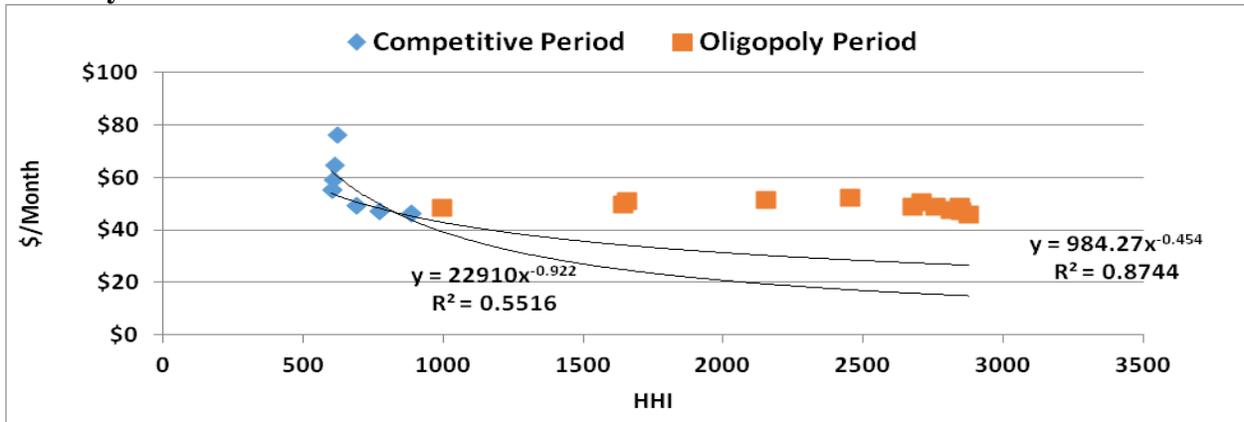
Sources: Eli Noam, *Media Ownership and Concentration in America*, 2009, pp. 77, 236, 237, 240, 246; Federal Communications Commission, *Competition Reports, Cable and Wireless*, various years; Wall Street Journal, "A Tangled Family Tree," Pew Research.org, Chart of the Week, based on Rani Molla, *Wall Street Journal*. U.S. Department of Justice, *Complaint, Competitive Impact Statement, United States v. Comcast Corp.*, 808 F. Supp. 2d 145 (D.D.C. 2011) (No. 1:11-cv-00106); *Complaint, Competitive Impact Statement, United States v. AT&T Inc. and Deutsche Telekom, AG*, (No. 1:11-cv-01560), August 31; *Competitive Impact Statement, U.S. and the State of New York, v. Verizon Communications Inc., CellCO Partnership d/b/a Verizon Wireless, Comcast Corp., Time Warner Cable Inc., Cos Communications, Inc., and Bright House Network, LCL*, No. 1:12-CV-01354, August 16, 2013; *Competitive Impact Statement Charter Communications, Inc., Time Warner Cable Inc., Advance/New House Partnership, and Bright House Networks, LLS. Civil Action No. 1:16-cv-00759 (RCL), May 10, 2016*; Jon Sallet, Federal Communications Commission General Counsel, Remarks to the "Telecommunications Policy Research Conference: The Federal Communications Commission and Lesson of Recent Merger & Acquisition Review, September 25, 2015.

**FIGURE X-2: THE CORRELATION BETWEEN CONCENTRATION AND MONTHLY PRICE**

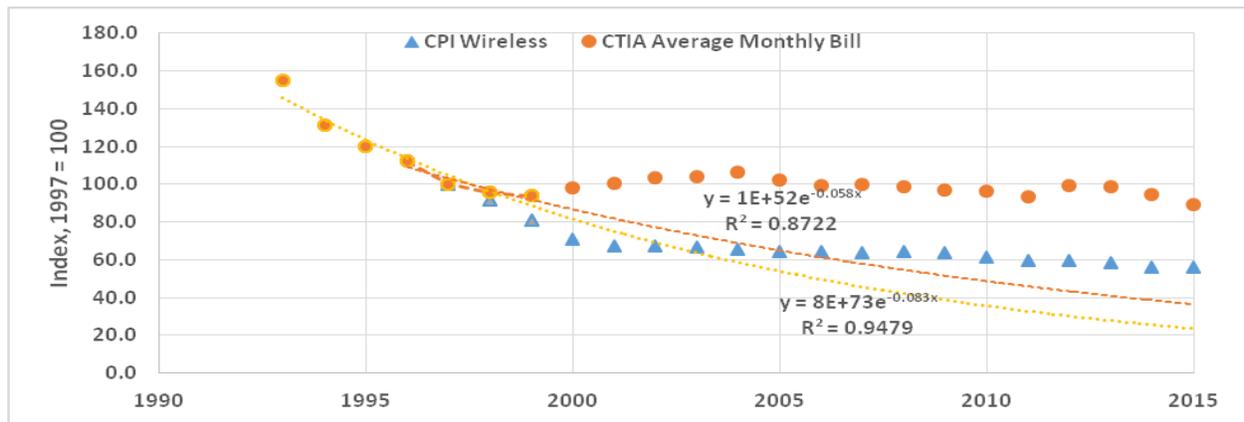
**Changes in Concentration and Price**



**Monthly Bill**



**Index**

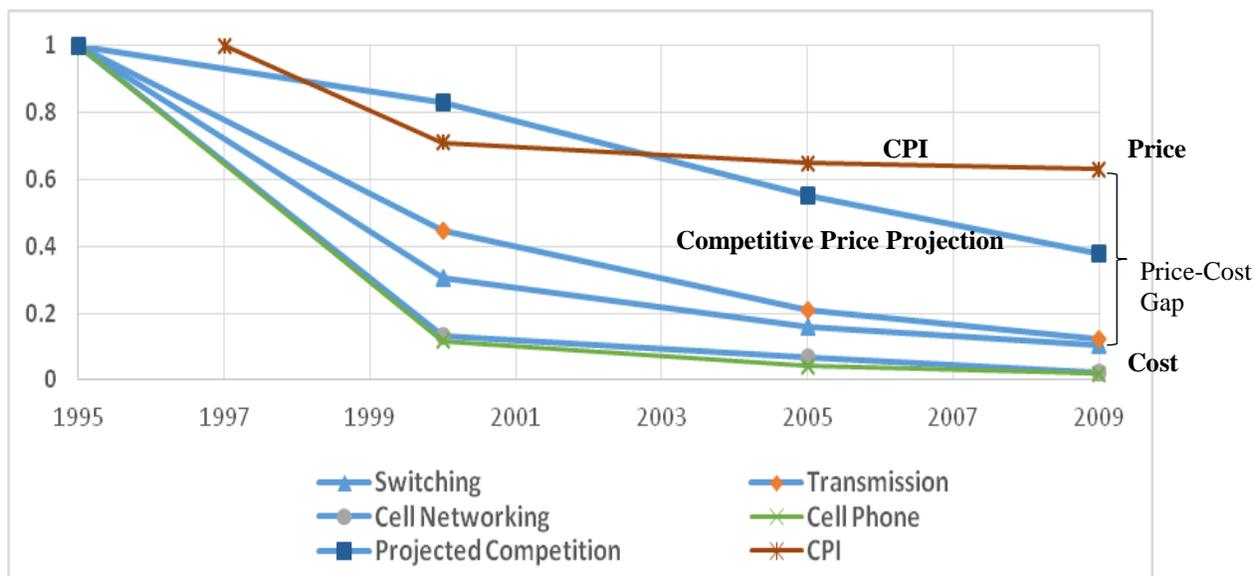


Source: Federal Communications Commission, *Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services, Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, various.

## EXAMINATION OF TRENDS IN PRICE, COST AND PROFIT

Figure X-3 puts the projected competitive price in context by comparing it to the CPI estimate and independent estimates of equipment costs. The implication here is that costs were falling much more rapidly than prices.

**FIGURE X-3: CELL CPI, PROJECTED COMPETITIVE PRICES & COST OF EQUIPMENT, INDICES**



Source: Bureaus of Labor Statistics, *Consumer Price Index*; David M. Byrne and Carol A. Corrado, 2012, *Prices for Communications Equipment: Rewriting the Record*, February. Finance and Economics Discussion Series 2015-069, Washington Board of Governors of the Federal Reserve System.

While the declining costs were reflected in prices in the competitive period, that correspondence ceased as the industry concentrated. In other words, costs continued to decline, but prices did not. In light of these declining costs, the competitive projection seems quite reasonable, or even high. Moreover, the competitive processes of the 1990s did not reflect the dynamic technological development of the 2000s, wherein strong economies of scale and new economies of scope were present.<sup>242</sup> The declining cost of technology is consistent with the pattern of investment per subscriber, as shown in Figure XII-4. The high levels in the mid-1990s reflected the investment stimulated by the auction of spectrum and the entry of new suppliers. Investment surged briefly with the rollout of wireless broadband. Over the past decade, investment per subscriber has trended downward, with annual investment down one-third since the broadband era peak in 2005.

Figure X-4 shows the sharp contrast between price increases and cost declines across all the products analyzed in this analysis since the passage of the 1996 Act. Cable rates have been the target of a great deal of analysis that points out the rapid escalation of monthly rates above the rate of inflation, but this is far too narrow a view. As shown in Figure X-4, this view dramatically underestimates the extent of the problem in two respects:

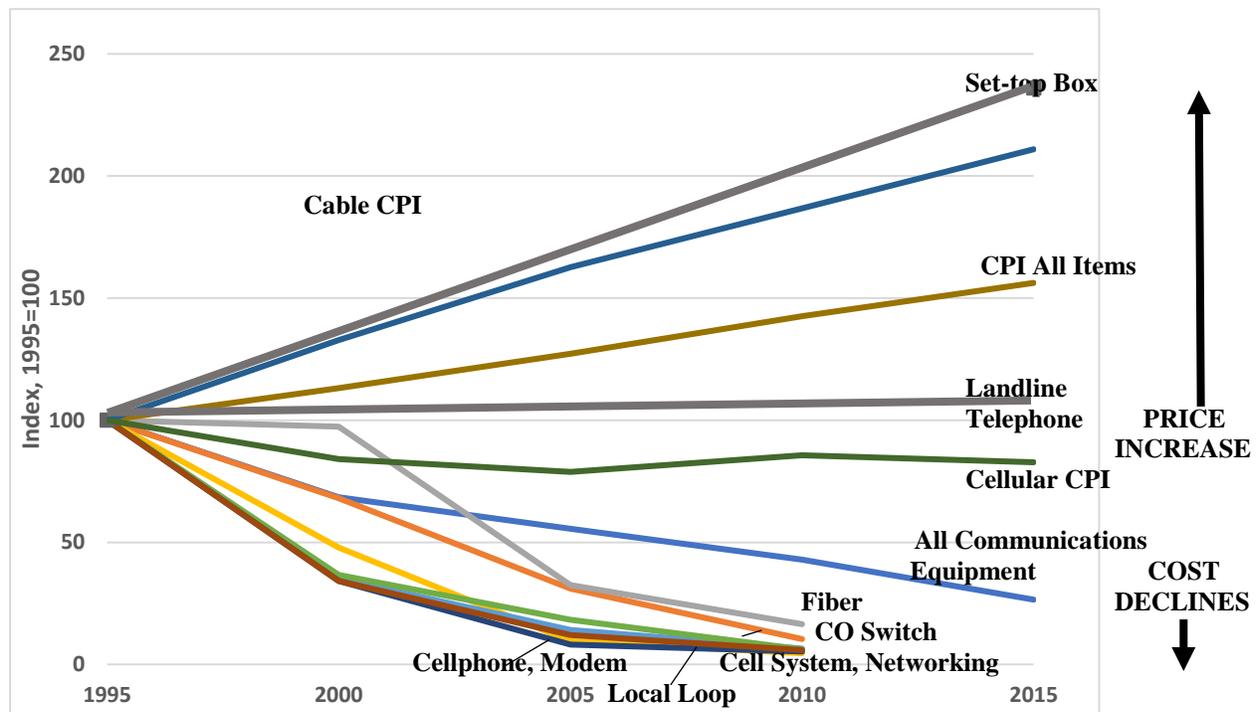
First, the problem afflicts many more services than cable monthly rates.

Second, the general rate of inflation is not the proper baseline or referent for communications markets during a technological revolution. Costs have been falling dramatically in several of the most important aspects of the delivery of services. Even steady prices constitute substantial abuse of market power.

While declining costs were driven by technological change and economies of scale, there were also increasing revenues resulting from the addition of new services. In examining the most important infrastructure investment – cell sites – we observe a potential large economy of scale. Subscribers per cell site and revenues per cell site both increased significantly over the period. The 32% increase in subscribers per cell site offsets a slight 4% decrease in average revenue per user, yielding a 27% increase in revenue per subscriber.

There are other indicators of these returns to scope. Examining the number of devices that use wireless data transmission (an important indicator of economies of scope) and the data revenue reported by AT&T wireless suggests the immense increase in data revenue – a potential economy of scope.<sup>243</sup> In the last decade, the number of devices has gone from zero to a quarter of a billion.<sup>244</sup>

**FIGURE X-4: COMMUNICATIONS SERVICE PRICE INCREASES V. DECLINING EQUIPMENT COSTS**



Sources: Cost trends: David M. Byrne and Carol A. Corrado, *Prices for Communications Equipment: Rewriting the Record*, released February 2012, revised and released as Finance and Economics Discussion Series, 2015-069; “Recent Trends in Communications Equipment Prices,” *FEDS Notes*, September 29, 2015. Price trends: Bureau of Labor Statistics, *Consumer Price Index*.

While the CTIA revenue indices have been incorporated into the FCC annual reports of competition in the mobile industry, they do not give a complete picture of the prices paid by consumers or the basis for earnings in the industry. The most recent CTIA report included a

second estimate of revenues that reflect equipment costs paid by consumers. Service plus equipment costs are reported 20% higher than the monthly service revenues that had been reported for two decades. The change in the treatment of equipment costs is necessary because it reflects a change in the way equipment is acquired by consumers. Today, consumers are much more likely to directly bear the cost. While that makes perfect sense, it raises a question about the total revenue of the industry in earlier years.

Earlier estimates of equipment costs are rare. However, until the last two years, the difference between the total monthly revenues and service plus equipment remained constant on a percentage basis. In the past two years, the difference has increased sharply, almost doubling. The increase alone equals almost \$1 billion per month, or over \$3 per account per month. Thus, the excessive charges borne by consumers suggested by the previous analysis may have been underestimated.

With weak competition, rapidly declining production costs, and additional declining costs associated with economies of scale and scope, large cost reductions and revenue increases could have been passed through to consumers if competition were vigorous. But with weak competition, they were taken as excess profits. We will observe a similar process in the wireline broadband.

All of these metrics suggest that costs were falling and revenues were rising. The failure of prices to fall is consistent with the exercise of market power that grew dramatically with the consolidation of the industry. The decline in incremental investment per subscriber and increase in revenue per cell site argue against the claim that the industry needed to hold prices to fund deployment.

### **THE BENEFIT OF REJECTING THE AT&T/T-MOBILE MERGER**

The AT&T/T-Mobil merger represented a simple case of horizontal concentration. It was unique in the sense that the FCC had rarely determined that a merger should go to a formal, legal review within the agency. It was even rarer for the merging parties to declare that, even though they would withdraw the proposed merger in light of that decision, they would consider proposing it in the future. That decision led the FCC to release the order it intended to use to put the merger over to trial, even though the merging parties tried to convince the FCC not to do so. Thus, not only do we have a rare case of a withdrawn merger, but we also have a detailed account of why it raised the concerns of the agency.

This was a proposed merger between two firms that, the record showed, clearly competed against one another head-to-head, with massive implications for market structure and conduct, as shown in Figure X-5. It involved the number two and the number four firm merging to become the number one firm, violating both the Department of Justice *Guidelines* and the FCC's own thresholds, which were very similar:

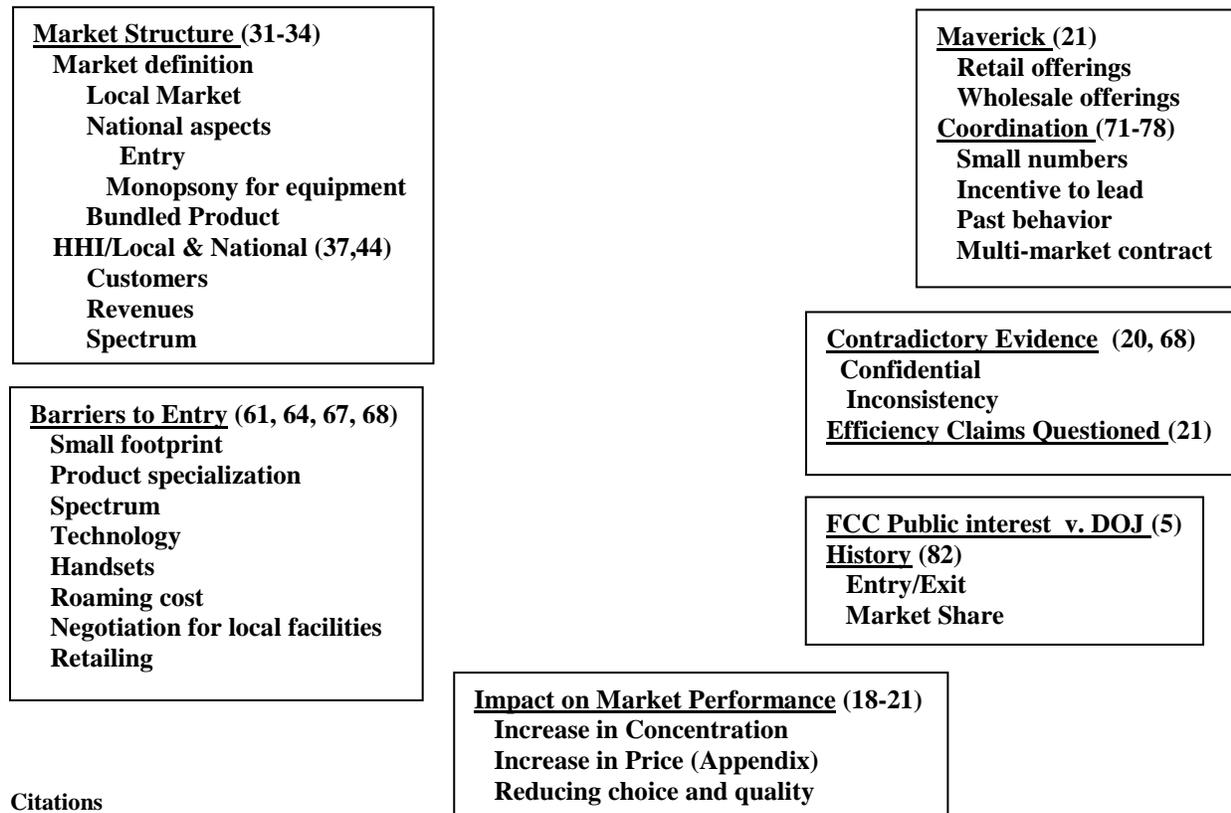
the DOJ declared that a merger was presumed to be likely to enhance market power if the post-merger market was highly concentrated (HHI > 2500) and the increase in the HHI was greater than 200 points. The FCC's threshold was 2800 and 1000 points respectively <sup>245</sup>

In this case, the local markets had an average of post-merger HHI of almost 3500, and the increase at the national level was almost 700 points (the increase at the local level was stamped proprietary).

An unprecedented 99 of the largest 100 local wireless markets – every Top 100 CMA except Omaha... would exceed the level at which the Commission becomes concerned about anticompetitive effects. Similarly, the Commission’s spectrum screen is triggered in an excess of 250 CMAs covering two-thirds of the population of the United States (and territories).<sup>246</sup>

The willingness to propose a merger that vastly exceeded the thresholds was magnified by the insistence that the parties reserved the right to re-propose the merger. It sheds light on the disdain for merger oversight that had developed during the period of lax merger review. In rejecting the merger for the many reasons identified in the citations provided in Figure X-5, the Department of Justice and the Federal Communications Commission rejected the claim by the merging parties that they did not actually compete.

**FIGURE X-5: MARKET STRUCTURAL REASONS TO OPPOSE THE ATT/T-MOBILE MERGER**



**Citations**

**National/local market definition**

Mobile wireless telecommunications services are sold to consumers in local markets that are affected by nationwide competition among the dominant service providers. It is therefore appropriate both to identify local markets in which consumers purchase mobile wireless telecommunications services and to identify the nature of the nationwide competition affecting those markets. AT&T’s acquisition of T-Mobile will have nationwide competitive effects across local markets.

Because most customers use mobile wireless telecommunications services at and near their workplaces and homes, they purchase services from providers that offer and market services where they live, work, and travel on a regular basis...

Accordingly, from a consumer's perspective, local areas may be considered relevant geographic markets for mobile wireless telecommunications services. (8)

In competing for customers in the 97 markets identified in Appendix B and other CMAs, AT&T and T-Mobile (as well as Verizon and Sprint) utilize networks that cover the vast majority of the U.S. population, advertise nationally, have nationally recognized brands, and offer pricing, plans, and devices that are available nationwide....

The national decision-making of the Big Four carriers results in nationwide competition across local markets....

Because, as AT&T admits, competition operates at a national level, it is appropriate to consider the competitive effects of the transaction at a national level. There is no doubt that AT&T and T-Mobile compete against each other on a nationwide basis, make many decisions on a nationwide basis, and that this national competition is conducted in local markets that include the vast majority of the U.S. population. (9...10)

#### **Highly concentrated markets increased by more than the HHI threshold.**

AT&T and T-Mobile compete against each other in local markets across the United States that collectively encompass a large majority of U.S. mobile wireless telecommunications consumers. Indeed, AT&T and T-Mobile compete head to head in at least 97 of the nation's top 100 CMAs as well as in many other areas. These 97 CMAs alone include over half of the U.S. population. Each of these 97 CMAs, identified in Appendix B, effectively represents an area in which the transaction likely would substantially lessen competition for mobile wireless telecommunications services and each constitutes a relevant geographic market under Section 7 of the Clayton Act, 15 U.S.C. § 18. (9)

Preliminary market share estimates demonstrate that in 96 of the nation's largest 100 CMAs -all identified in Appendix B as representing relevant geographic markets for mobile wireless telecommunications services -the post-merger HHI exceeds 2,500. Such markets are considered to be highly concentrated.

In 91 of the 97 CMAs identified in Appendix B as representing relevant geographic markets for mobile wireless telecommunications services -including all of the 11 nation's 40 largest markets -preliminary market share estimates demonstrate that AT&T's acquisition of T-Mobile would increase the HHI by more than 200 points. Such an increase is presumed to be likely to enhance market power. In an additional 6 CMAs, the increase would be at least 100, an increase that often raises significant competitive concerns. (11-12)

#### **Limited Competition**

##### **Generally**

AT&T and T-Mobile are two of only four mobile wireless providers with nationwide networks and a variety of competitive attributes associated with that national scale and presence. The other two nationwide networks are operated by Verizon Wireless ("Verizon") and Sprint Nextel Corp. ("Sprint"). Although smaller providers exist, they are significantly different from these four. For instance, none of the smaller carriers' voice networks cover even one-third of the U.S. population, and the largest of these smaller carriers has less than one-third the number of wireless connections as T-Mobile. Similarly, regional competitors often lack a nationwide data network, nationally recognized brands, significant nationwide spectrum holdings, and timely access to the most popular handsets. Collectively, the "Big Four" -AT&T, T-Mobile, Verizon, and Sprint -provide more than 90 percent of service connections to U.S. mobile wireless devices. (2-3)

Among other limitations, the local and regional providers must depend on one of the four nationwide carriers to provide them with wholesale services in the form of "roaming" in order to provide service in the vast majority of the United States (accounting for most of the U.S. population) that sits outside of their respective service areas. This places them at a significant cost disadvantage, particularly for the growing number of customers who use smartphones and exhibit considerable demand for data services. The local and regional providers also do not have the scale advantages of the four nationwide carriers, resulting in difficulties obtaining the most popular handsets, among other things. (15)

##### **Enterprise market particularly hard hit**

Business customers, sometimes known as enterprises, and government customers often select and contract for mobile wireless telecommunications services for use by their employees in their professional and/or personal capacities. These customers constitute a distinct set of customers for mobile wireless telecommunications services, and sales of mobile wireless telecommunications services covered by enterprise or government contracts amounted to more than \$40 billion last year. The selection and service requirements for enterprise and government customers are materially different than those of individual consumers. Enterprise and government customers typically are served by dedicated groups of employees who work for the mobile wireless carriers, and such customers generally select their providers by soliciting bids, sometimes through an "RFP" (request for proposal) process. Enterprise and government customers typically seek a carrier that can provide services to employees, facilities, and devices that are geographically dispersed. Therefore, enterprise and government customers require services that are national in scope. In addition, prices and terms tend to be more attractive for enterprise and government customers than for individuals and include features such as pooled minutes as well as favorable device upgrade and replacement policies. Enterprise and government service contracts often are individually negotiated, with carriers frequently providing discounts on particular RFPs in response to their competitors' offers. There are no good substitutes for mobile wireless telecommunications services provided to enterprise and government customers, nor would a significant number of such customers switch to purchasing such services through ordinary retail channels in the event of a small but significant price. (7-8)

### **Loss of a maverick**

Due to the advantages arising from their scale and scope of coverage, each of the Big Four nationwide carriers is especially well-positioned to drive competition, at both a national and local level, in this industry. T-Mobile in particular -a company with a self-described "challenger brand," that historically has been a value provider, and that even within the past few months had been developing and deploying "disruptive pricing" plans -places important competitive pressure on its three larger rivals, particularly in terms of pricing, a critically important aspect of competition. AT&T's elimination of T-Mobile as an independent, low priced rival would remove a significant competitive force from the market. (3)

T-Mobile has positioned itself as the value option for wireless services, focusing on aggressive pricing, value leadership, and innovation.... T-Mobile consumers benefit from the lower prices offered by T-Mobile, while subscribers of Verizon, AT&T, and Sprint gain from more attractive offerings that those firms are spurred to provide because of the attractive national value proposition of T-Mobile.

T-Mobile has been responsible for numerous "firsts" in the U.S. mobile wireless industry... first Android handset, Blackberry wireless e-mail, the Sidekick (a consumer "all-in-one" messaging device), national Wi-Fi "hotspot" access, and a variety of unlimited service plans, among other firsts. T-Mobile has also been an innovator in terms of network development and deployment.

### **Barriers to Entry on supply-side**

To provide service, mobile wireless telecommunications carriers typically must acquire FCC licenses to utilize electromagnetic spectrum to transmit signals; deploy extensive networks of radio transmitters and receivers at numerous telecommunications towers and other sites; and obtain "backhaul" -copper, microwave, or fiber connections from those sites to the rest of the network. They must also deploy switches as part of their networks and interconnect their networks with the networks of wire line carriers and other mobile wireless telecommunications services providers. To be successful, providers also typically must engage in extensive marketing and develop a comprehensive network for retail distribution. (6)

Entry by a new mobile wireless telecommunications services provider in the relevant geographic markets would be difficult, time-consuming, and expensive, requiring spectrum licenses and the construction of a network. To replace the competition that would be lost from AT&T's elimination of T-Mobile as an independent competitor, moreover, a new entrant would need to have nationwide spectrum, a national network, scale economies that arise from having tens of millions of customers, and a strong brand, as well as other valued characteristics. Therefore, entry in response to a small but significant price increase for mobile wireless telecommunications services would not be likely, timely, and sufficient to thwart the competitive harm resulting from AT&T's proposed acquisition of T-Mobile, if it were consummated. (20)

### **High switching costs on the demand side**

**Extreme importance of mobile:** Mobile wireless telecommunications services have become indispensable both to the way we live and to the way companies do business throughout the United States. Innovation in wireless technology drives innovation throughout our 21st-century information economy, helping to increase productivity, create jobs, and improve our daily lives. Vigorous competition is essential to ensuring continued innovation and maintaining low prices. (2)

**Lack of substitutes:** There are no cost-effective alternatives to mobile wireless telecommunications services. Because neither fixed wireless services nor wireline services are mobile, they are not regarded by consumers of mobile wireless telecommunications services as reasonable substitutes. (6)

In the face of a small but significant price increase imposed by a hypothetical monopolist it is unlikely that a sufficient number of customers would switch some or all of their usage from mobile wireless telecommunications services to fixed wireless or wireline services such that the price increase or reduction in innovation would be unprofitable. Mobile wireless telecommunications services accordingly is a relevant product market under Section 7 of the Clayton Act, 15 U.S.C. § 18. (6-7)

### **Harms of the merger:**

**Reducing price, choice, quality innovation:** T-Mobile consumers benefit from the lower prices offered by T-Mobile, while subscribers of Verizon, AT&T, and Sprint gain from more attractive offerings that those firms are spurred to provide because of the attractive national value proposition of T-Mobile... Innovation is well known to be an important driver of economic growth. T-Mobile has been responsible for numerous "firsts" in the U.S. mobile wireless industry, as outlined in an internal document entitled "T-Mobile Firsts... T-Mobile has also been an innovator in terms of network development and deployment. (12-13)

**Coordinated effects:** Certain aspects of mobile wireless telecommunications services markets, including transparent pricing, little buyer side market power, and high barriers to entry and expansion, make them particularly conducive to coordination. Any anticompetitive coordination at a national level would result in higher nationwide prices (or other nationwide harm) by the remaining national providers, Verizon, Sprint, and the merged entity. Such harm would affect consumers all across the nation, including those in rural areas with limited T-Mobile presence. (16)

**Source: Federal Communications Commission, Order and Staff Analysis, *In the matter of Applications of AT&T Inc. and Deutsche Telecom AG for Consent to Assign or Transfer Control of Licenses and Authorizations*, WT Docket No. 11-65, November 29, 2011.**

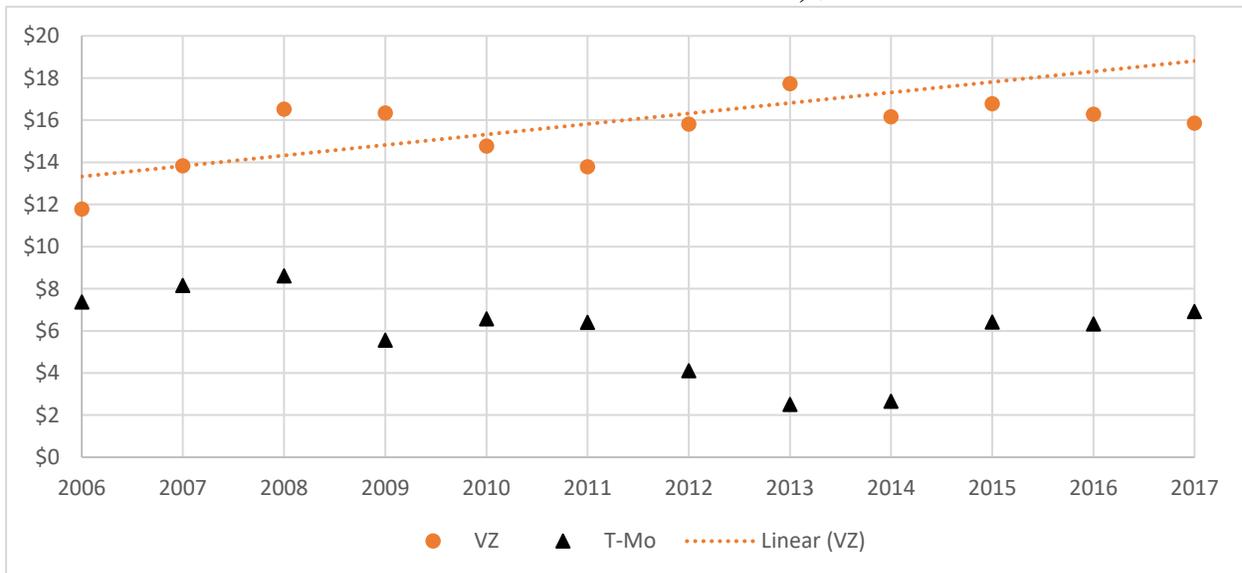
A brief analysis of the current benefits of competition is informative. After the denial of the proposed AT&T merger with T-Mobile, which froze T-Mobile for well over a year, T-Mobile found itself with a large cash infusion from the break-up fee and the prospect of having to stand alone.

As the fourth largest of the major national carriers, it made the decision to compete vigorously on price and service terms to increase market share. It has always been the disruptive maverick in the group. For the first time in more than a decade, price competition broke out. By 2014, its impact was clear.

This can be seen in the dip in the industry average prices (and ARPU) in the upper graph of Figure X-2, above. The dominant national carriers were forced to respond by abandoning the pattern of relentlessly raising prices, and their operating income per subscriber showed the effect. Average ARPU was down by 20%.

Earnings estimates shown in Figure X-6 support this conclusion. Here we use earnings (EBITDA) minus capital expenditures to be extremely conservative. The difference between T-Mobile as a competitor and the dominant firms has been clear for over a decade, except for the short period during which T-Mobile was the target of a takeover attempt. The difference in EBITDA between T-Mobile and Verizon is about \$10 per subscriber per month. Its aggressive price/quality competition strategy has not only increased its market share, but it is yielding increasing margins as it achieves scale. Our earlier analysis of earnings after capital expenditures shows even larger differences.

**FIGURE X-6: EBITDA MINUS CAPITAL EXPENDITURES, \$/CONNECTION/MONTH**



Sources: Federal Communications Commission, *Wireless Competition Reports*, various years, Company annual reports to update for 2017.

## CONCLUSION

In this section, we have examined domestic U.S. pricing patterns, finding that overcharges could be in the range of \$20–\$30 per subscriber per month. International comparisons put the overcharges at about \$20. Analyzing earnings puts the overcharges in the range of \$10–\$15 per month. There are two factors that suggest even larger overcharges. The EBITDA-based estimates are on the low side of the price-per-month overcharges, which suggests additional costs could be squeezed out. The shift to consumer payment for handsets increases costs, which may not be reflected in the monthly subscription revenue. The dominant wireless providers are also vertically integrated into telecommunications, and they have the potential to bury costs with cross-subsidies for communications network inputs used by wireless service. It is also important to keep in mind that these are overcharges and excess profits per connection, with over three connections per account. Assuming residential customers have two accounts per households, and applying an overcharge of \$10 per connection, the annual overcharges are well over \$30 billion.

A recent analysis by the *Economist*<sup>247</sup> demonstrating why the AT&T-Time Warner merger should be rejected underscores the reasonableness and relevance of this analysis of the wireless sector in the U.S. The *Economist's* premise is that lack of competition, high prices, and the excess profits of the American wireless giants indicate the presence of market power that could be greatly reinforced as a result of the merger.

There are two reasons why trustbusters should now take a tougher line. First, the telecoms industry is already a rent-seekers' paradise. Americans pay at least 50% more for mobile and broadband service than people in other rich countries. For each dollar invested in infrastructure and spectrum, American operators make 28 cents of operating profit a year, compared with 18 cents for European firms. That reflects the lack of competition. AT&T and Verizon control 70% of the mobile market and are the only firms that reach 90% or more of Americans with high-speed services. Half of the population has no choice of fixed-broadband supplier. The lack of downstream competition in pipes could distort competition in upstream content.<sup>248</sup>

We have provided extensive evidence on all of these quantitative economic points, as shown in Table X-1. The concentration, price, and profit margin metrics we have offered are virtually identical. Our estimates of price differences between the U.S. and other advanced industrial nations are somewhat lower because we control for bundles of minutes and include only large nations. Our bottom-line estimate of overcharges is much more cautious because a) we recognize the need for capital investment, and b) the costs in the comparatively lower density U.S. might be higher. Thus, our estimate of overcharges is about half of the simple price comparison. It should be said, however, that the long history of anticompetitive behavior and the dynamic effect of competition suggests consumers may be bearing unnecessary costs (overcharges) that are the result of oligopoly-induced inefficiency. Compared to that of the *Economist*, our estimate of \$10 in overcharges per month per subscriber is very cautious.

**TABLE X- 1: *ECONOMIST* ANALYSIS OF WIRELESS MARKET V. CURRENT PAPER**

<u>Economist</u>		<u>Current Paper</u>	
Concentration			
Dominant Firm Market Share	70%	70%	Revenue
		68%	Connections
Prices U.S./Other advanced	50%	23-38%	Medium - Large Bundles
Profit Margin (U.S./Other)			
Profit/Sales	55%	50%	EBITDA (Dominant v. Maverick)
	na	≈ 25%	Overcharge as % of Monthly based on EBITDA – CapEx (Dominant v. Maverick)

Sources: “Vertical Limit: AT&T’s takeover of Time Warner should be blocked,” *Economist*, October 29, 2016.

## **XI. BROADBAND AND VIDEO: CABLE CONCENTRATION AND EXCESS PROFITS**

### **POLICY CONTEXT**

Like all of the major communications networks, at their birth the cable companies were granted local franchises to provide service. Unlike the cellular industry, which faced head-to-head competition from firms with the same technology (intramodal competition) within a decade, the cable operators did not. Their franchise was exclusive, and they put up vigorous resistance whenever a potential competitor was allowed to enter. Overbuilders, as the intramodal competitors came to be known, never represented more than a very small fraction (2%) of the local multichannel video programming distribution market.<sup>249</sup> When cable was deregulated in 1984, there was a great deal of talk about multiple cables in every neighborhood, as well as the potential for satellite to compete. By 1992, when rapid increases in cable prices led to the reregulation of cable, the cable monopoly was as strong as ever.

The Cable Television Consumer Protection and Competition Act of 1992 (the Cable Act) had two effects on cable.<sup>250</sup> It subjected rates to regulation, which will be discussed below, and it imposed program access rules on cable. Since cable operators had withheld access to programming, thereby undermining the ability of direct broadcast satellite (DBS) to compete, the Cable Act established a compulsory license. Moreover, since cable was rapidly becoming the preferred way to view television and broadcasters were becoming increasingly dependent on cable for program delivery, the Cable Act gave over-the-air broadcasters carriage rights. Access was the key consideration in both. A new distribution network could not succeed without access to content. Content providers could not succeed without access to distribution networks.

With the programming bottleneck removed, satellite penetration increased, but it never proved to be an effective direct competitor to cable.<sup>251</sup> Satellite expanded rapidly at first, primarily in rural areas where cable was not available. Later, when satellite expanded into urban areas, the difference in technologies made satellite unable to compete and bring down the price of cable. Intermodal competition was no replacement for head-to-head intramodal competition.

To match satellite, cable moved to digitize its network and increase the number of channels offered, but did not lower prices. Moreover, the digitization of cable systems had the consequence, unintended at the time, of making cable modem Internet service possible. Cable began to offer Broadband Internet Access Service (BIAS) alongside video service. Bundles of Multichannel Video Programming Distribution (MVPD) and BIAS service became the norm, with subscribers to cable modem service exceeding cable MVPD subscribers in 2014. Satellite could not deliver this bundled service, so any chance it had of being able to compete with cable was reduced, if not eliminated. Counting TV and broadband subscriptions separately, wireline broadband/video companies have almost five times the number of subscribers as satellite. Cable alone has almost three times the number.<sup>252</sup> For thirty years, competition from satellite could not restrain cable video pricing abuse, and it is now at a severe technological disadvantage.

In the Telecommunications Act of 1996, the rate regulation part of the 1992 Act was swept away, replaced by another round of policy that hoped to stimulate competition. Cable operators were encouraged to compete against one another, and telephone companies were

invited to enter the video business. Congress also mandated that the sale of set-top boxes, which receive the video signal from the cable network and deliver it to the television, should be competitive. The content rules (compulsory license, program access, retransmission, and must-carry rules) remained in place, however.

Twenty years after the 1996 Telecommunications Act opened the door to competition, no incumbent franchise cable company has overbuilt one of its neighbors to engage in head-to-head competition. Instead, they bought one another out and tried to extend their physical space “no compete” model to cyberspace with “TV everywhere.”<sup>253</sup>

In the twenty years after the passage of the 1996 Act, no Baby Bell has ever overbuilt one of its neighbors to engage in head-to-head telephone competition. The Baby Bells spent the first few years after the 1996 Act

- fending off local competition in voice service,
- exploiting their advantage in wireless service (described above),
- buying up sister Baby Bells (AT&T merging SBC, Ameritech, Bell South, and Pacific Bell; Verizon merging Bell Atlantic and NYNEX), and
- acquiring independent local and competing companies (e.g., SBC acquiring AT&T long distance and Southern New England Telephone Company; Verizon acquiring MCI and GTE).

They entered the video market late in their service territories, hesitantly, and on a narrow basis. Ultimately, they joined the national market-division scheme hatched by cable by becoming active members of the private passport network that preserved the local market advantage from physical space.

Until 2010, the FCC magnified the threat of the abuse of market power by erroneously classifying Broadband Internet Access Service as an unregulated information service rather than a telecommunications service, and by approving a series of mergers that undermined competition. The DOJ/FTC also failed to block or impose meaningful conditions on mergers that were allowed to go forward.

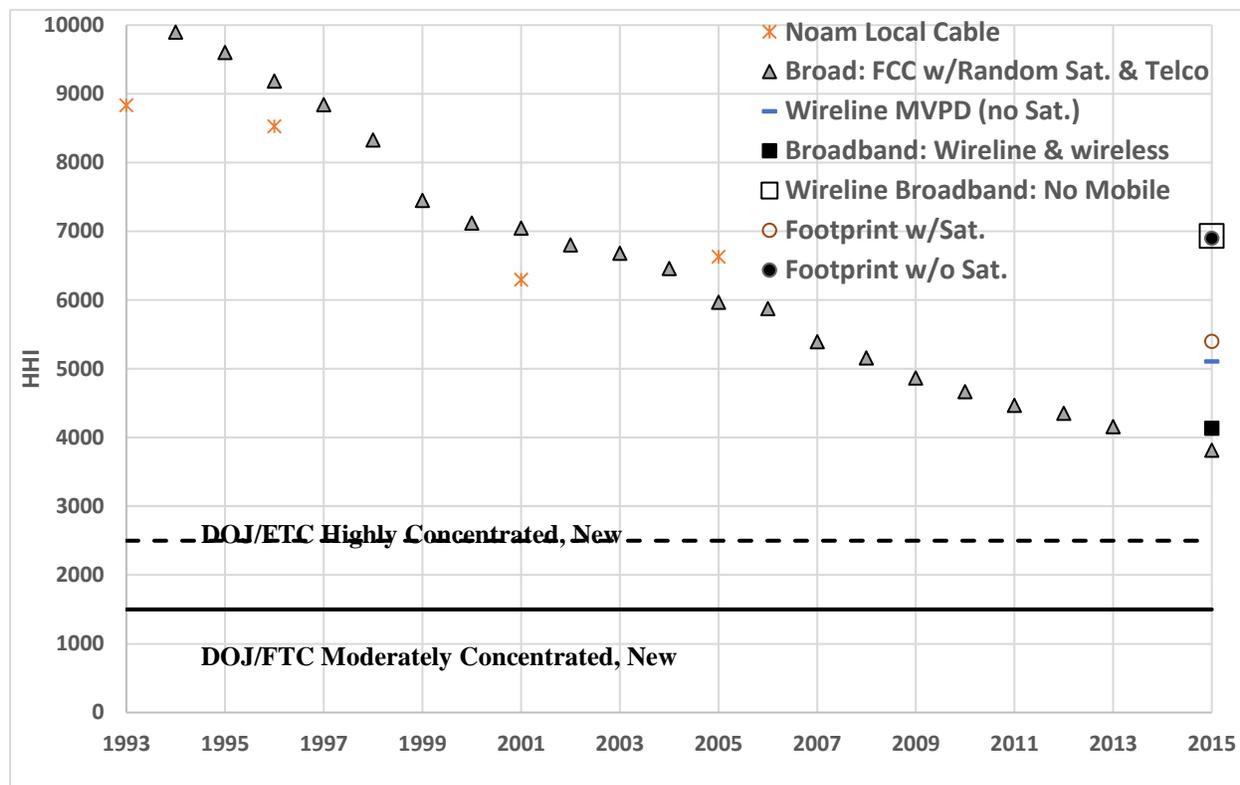
## **CONCENTRATION**

### **Video**

The net result of ineffective intermodal competition and absence of intramodal competition was to leave the local MVPD market highly concentrated throughout the period, as shown in Figure XI-1. The graph shows several approaches and sources for calculating the HHI in the MVPD /BIAS markets, treating them as local markets. The local market is relevant for analyzing market power in setting monthly charges for service since consumers must have a local connection to receive service. Figure XI-3 uses the geographic aspect of market definition to estimate local concentration, recognizing that there is almost no head-to-head competition between cable companies and no head-to-head competition at all between telephone companies.

It assumes that satellite and telecommunications competition is evenly (randomly) spread across the nation. It shows two approaches to the definition of the product market.

**FIGURE XI--1: CONCENTRATION OF LOCAL MVPD AND BIAS MARKETS**



Source: Eli Noam, *Media Concentration*, Table 4.9, which provides estimates for local concentration through 2006. The footprint numbers extend that local HHI analysis, based on assumptions about head-to-head competition for landline service, as in de Sa, Paul, Ian Chun, and Julia Zheng, 2015, “U.S. Telecom: Pay TV—A New Way to Look at Cable/Telco Competition and Market Shares,” AB Bernstein Analysis, December 9. Federal Communications Commission, *Annual Report on Cable Competition*, various issues, Table B-4, which gave national HHI calculations until the 12<sup>th</sup> Report. Subsequently, the FCC gave national market shares, but did not calculate the HHI because it recognized the importance of local market shares, which it could not calculate. Craig Moffett, *U.S. Cable & Satellite: A Funny Thing Happened on the Way to the Graveyard*, MoffettNathanson, January 13, 2016, for cable and telephone company broadband subscribers. Pew Center for American Life, *Internet Trends, Broadband at Home*, various reports, for recent national subscribers.

However, we believe a narrow wireline definition of the broadband market is the correct product definition. Satellite has never been able to discipline cable pricing power, and it is at a severe disadvantage vis-à-vis cable because of the emerging dominance of bundles. The bundled product is clearly the product that Comcast promotes: “According to Comcast 79 percent of its video customers at the end of 2013 subscribed to two services while 44 percent subscribed to all three.”<sup>254</sup> Satellite cannot provide bundles. Focusing on the wireline MVPD market, we see that the HHI is about 5,000. It works out to a duopoly, but, as we argue, two is not enough to create workable competition.

The reasonableness of this approach to market definition and estimation of concentration is supported by a recent analysis by de Sa, Chun, and Zheng of AB Bernstein Consulting.<sup>255</sup> They conducted an analysis of the overlap of cable and telco service areas (or “footprints”) as “a

new way to look at cable/telco competition and market shares.” Using a broad market definition—two wireline and one wireless provider—we estimate the HHI based on their data to be about 5,400. Focusing only on wireline, we estimate the HHI to be just over 6,900. Since this is essentially the same as our true broadband definition, the HHI is approximately the same as our true broadband definition.

## **Broadband**

In analyzing the market for broadband service, the second aspect of market definition—product definition—plays an even larger role. Internet access started out as a fairly slow-speed data service, delivered to the consumer over the telephone utility plant. Dial-up Internet access service spread rapidly, exceeding one-third of the market in about fifteen years. In contrast, telephone service took about twenty-five years to reach that level. Radio, television, and wireless achieved that level in about five years. Dial-up service was generally a monopoly service, offered by the franchise telephone company.

Cable operators entered the Internet access market after the 1996 Act with a much higher-speed broadband service. It used a cable modem technology that ran over the digital network they had deployed to match the quantity of programming offered by satellite. Wireless Internet access service was also available, but the capacity it could offer fell between slow-speed dial-up and true broadband. The competitive role of wireless broadband is also clouded by the fact that the dominant incumbent local telephone companies were also the dominant wireless providers in the local service territories. Even with an unjustifiably broad definition, competition is extremely weak. The HHI is about 4,000.

A product definition that recognizes the very different capabilities of the technologies leads to an even more troubling view of market concentration. The more careful the analysis of competition, the less competition there appears to be. The key point here is that the functionality and capacity of wireless and wireline broadband are radically different. Wireline broadband has much higher capacity but lacks mobility. Wireless has mobility, but much lower capacity. They are not treated as substitutes by consumers. The differences in the technologies are reflected in marketplace behavior. Five-sixths of subscribers who have wireline broadband at home also take wireless.<sup>256</sup> They are either different products or complements, which means they do not compete. We believe market definition must recognize the major difference between the technologies.

After a decade of misrepresenting market structure by relying on a constant, low-speed threshold for defining high speed, the FCC was compelled to take a more realistic look at broadband in drawing up the National Broadband Plan. Properly evaluating the nature of the service is grounded in the Communications Act in three ways.

- First, the purpose of the Communications Act is to “make available” services with “adequate facilities at reasonable charges.”
- Second, the universal service language in the 1996 Act defines services that are eligible for support from the universal service fund according to what is being deployed and subscribed to in the marketplace.

- Third, the 1996 Act requires the FCC to assess whether the deployment of infrastructure is adequate for a variety of purposes under Section 706, and to take action to accelerate deployment if it finds that it is not adequate.

After the National Broadband Plan report, the FCC initially defined the threshold for broadband at four megabits per second (mbps) down and one mbps up. This level was over five times the level that had been used before the 2009 amendments to the Communications Act. Using the definitions in the Act and taking a forward-looking view of adequate facilities and deployment, the FCC then raised the threshold to twenty-five mbps down and three up.

Therefore, the most important product market here is the “true” broadband market, which we define to include cable modem service and telephone company high-speed services. We do not include telephone company DSL in the product market. True broadband is the product that can deliver large amounts of high-quality video to consumers, which makes it the primary area for potential competition. Comcast’s own advertising and executive statements make it clear that DSL is not a good substitute.<sup>257</sup>

We do not include wireless (mobile) broadband in this product definition. As deployed, it generally lacks the ability to deliver large quantities of high-quality video that can compete with the MVPD product. Comparisons of speed and price make it clear that wireless broadband is not a good substitute when it comes to professional MVPD video. Compared to Verizon and AT&T (the dominant wireless broadband service providers), Comcast offers services at roughly the same fixed monthly charge, but at a speed two to three times faster and a cap over 100 times higher. At the level of Comcast’s cap, AT&T and Verizon wireless broadband is ten times as expensive. Streaming of HD video, which is the direction of video service, will overwhelm wireless broadband and household budgets that try to use it for MVPD service.

If we look at the true broadband market defined in this way and recognize the fundamental difference in capacity, function, and pricing between wireless and wireline, we conclude that cable is the overwhelmingly dominant provider of true broadband. The HHI is about 7,000, which is higher than any end-user communications market except cable before the 1996 Act. This result reflects the thoroughly uncompetitive DNA of the industry. Since the dominant incumbents never compete by overbuilding one another, competition in the true BIAS market is confined almost entirely to the dominant incumbent cable franchisee, with some competition from telephone companies that have chosen to selectively deploy fiber optic cables to the home, and an occasional overbuilder (older cable overbuilders that have gone digital and, in a few cities, Google).

Given the thresholds identified by the antitrust authorities, both the MVPD and the BIAS markets are very highly concentrated. Theory predicts that this extreme level of concentration should create a great deal of market power and result in substantial pricing abuse and high levels of excess profits. Moreover, the technological and economic structure of the market dictates that we consider video and broadband simultaneously in examining the financial performance of the market.

This nuanced situation is clearly unfolding in the BIAS market with respect to video competition. The video and broadband markets have become thoroughly intertwined in the sense

that cable operators provide both services with one infrastructure and market them both in bundles. Video delivered through the Internet could pose a threat to cable operator market power in the video market. But Over-The-Top (OTT) video providers have to reach consumers through a true broadband connection if they are going to compete with cable on quality, quantity, and price. Unfortunately, the majority of consumers that the OTT video providers must reach get the BIAS service from cable operators. In other words, the OTT video service providers are dependent on their competitors to succeed. Wireline network operators have a great deal of experience at using bottlenecks to choke off competition. The network neutrality debate reflects this underlying reality, with Comcast (the dominant cable company) being a particularly egregious repeat offender.<sup>258</sup>

## **U.S. PRICE TRENDS**

Because competition has been so weak in the MVPD/BIAS market throughout its history, we do not have examples of a competitive period or a viable disruptive competitor to gauge the extent of pricing abuse. Therefore, we look to similar or related markets to evaluate cable pricing. In addition, given the lack of a direct competitive example, we will look at different pieces of the bundle to add perspective.

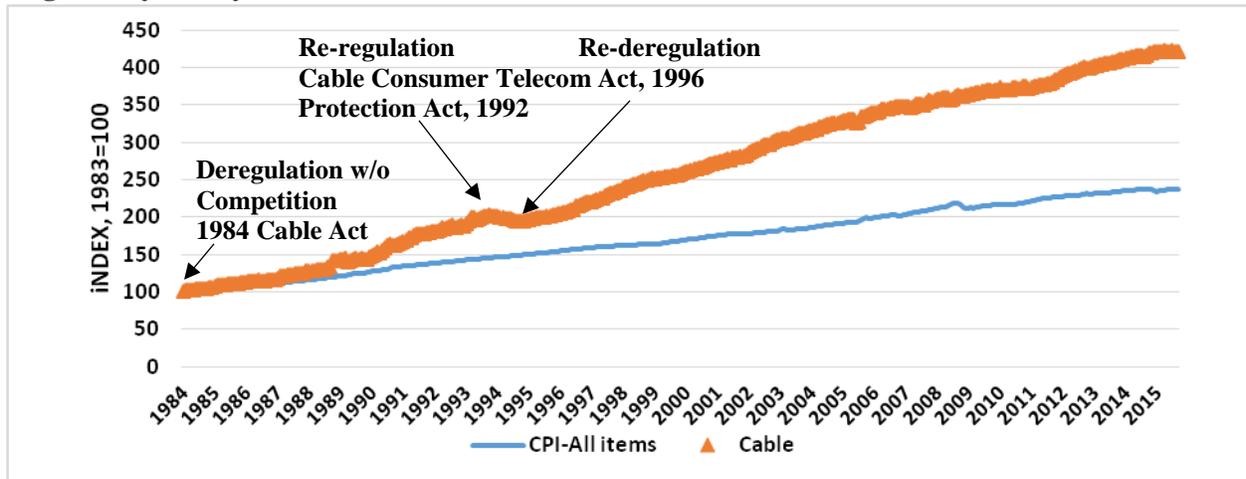
As shown in the upper graph of Figure XI-2, cable rates have increased twice as fast as inflation, except for the period before full deregulation (1984–1986) and the brief period of regulation in the early 1990s. The Cable Act of 1992 had several effects on cable, as noted above. The impact of relevance to this discussion is that it subjected rates to regulation. After an initial rate reduction, the FCC adopted a price cap approach to regulation, which would have allowed cable rates to rise at the rate of inflation. The 1996 Act repealed that regulation, and cable rates, undisciplined by regulation or competition, returned to their relentless upward march.

As shown in the lower graph of Figure XI-2, the prices of three other services we identify are all flat and did not keep pace with inflation. Interestingly, telecommunications service was generally controlled with price cap regulation (wherein the cost of service is presumed to change with productivity increases, and those increases are “shared” between the companies and the consumer). The sharing may not have been fair, in that it failed to reflect the full extent of the productivity gains and allowed telephone companies to overcharge for plain old telephone service, but consumers fared better than they did in the case of unregulated cable service. Internet service providers and mobile services were not regulated, but were undergoing significant growth, technological change, and cost declines.

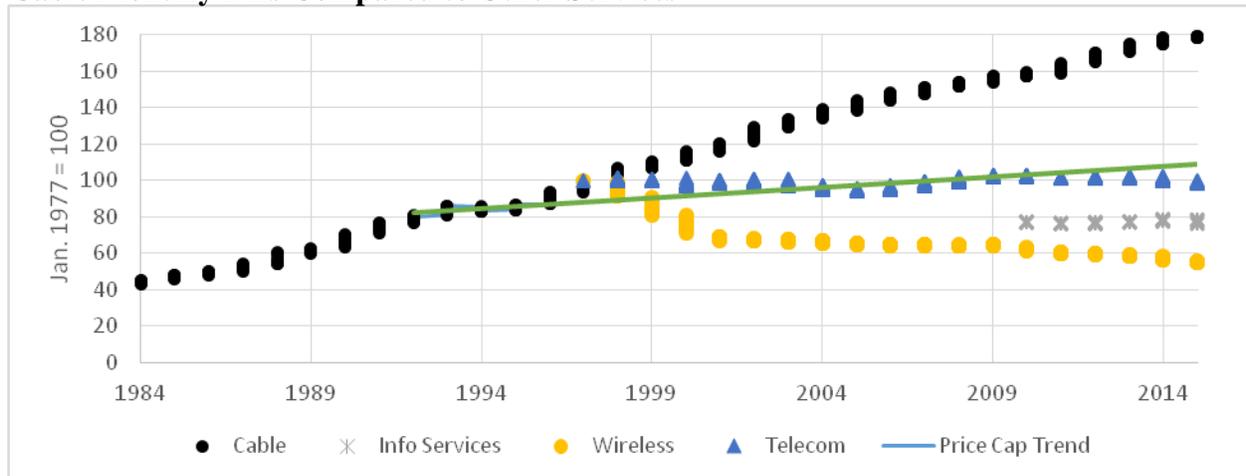
Based on this simple starting point, one can argue that cable prices should not have increased faster than the rate of inflation. Current rates are almost twice as high as they should be. Put more precisely, the current excess is about 44% of the current price based on the rate of inflation.

**FIGURE XI-2: LONG TERM: DEREGULATION LED TO PRICE INCREASE FAR ABOVE INFLATION**

**Regulatory Policy and Price**



**Cable Monthly Bills Compared to Other Services**



Sources: FCC, *Cable Competition and Price Reports*, various issues; Bureau of Labor Statistics. Consumer Price Index.

**THE SET-TOP BOX**

As we have seen, cable rates generally went through the roof, and set-top box charges were no exception. The dramatic increase in rates afflicted all aspects of cable service, including set-top boxes. Congress explicitly extended the policy of relying on competition to the set-top box market because the set-top box can operate as an independent chokepoint and barrier to competition. By controlling the way programming is presented, as well as complementary information, MVPDs and the programming providers exercise control over the customer and the pace of innovation in both hardware and software. There is no incentive for third parties to innovate new, complementary services if they cannot access the content.

The failure of the FCC to develop an effective space for competition in the set-top box market has resulted in a near monopoly by the MVPDs.<sup>259</sup> It has also resulted in pricing abuse within this market that is a significant contributor to the abusive price of video service overall.

The evidence of this abuse parallels the evidence we have reviewed for the pricing of monthly service.

The pay TV industry collects around \$20 billion in box rental fees per year – a large enough sum to explain the industry opposition to reform in this area. While that number by itself is enough to demonstrate that something is amiss in the set-top box market, it is possible to even more precisely quantify the scale of the set-top box pricing abuse.

With the Cable Consumer Protection Act of 1992, Congress directed the Commission to directly regulate cable rates (including equipment rates). Under the Act, the rates for set-top boxes and remote controls were to be reasonable and based on actual costs, and consumers paid (on average) about \$2.60 per month. With the 1996 Telecommunications Act, Congress changed its approach, deciding to remedy cable consumer harms primarily through marketplace reforms and competition. But the numbers show that the reforms of the 1996 Act were insufficient to prevent pricing abuse by cable companies (see Figure XII-3).

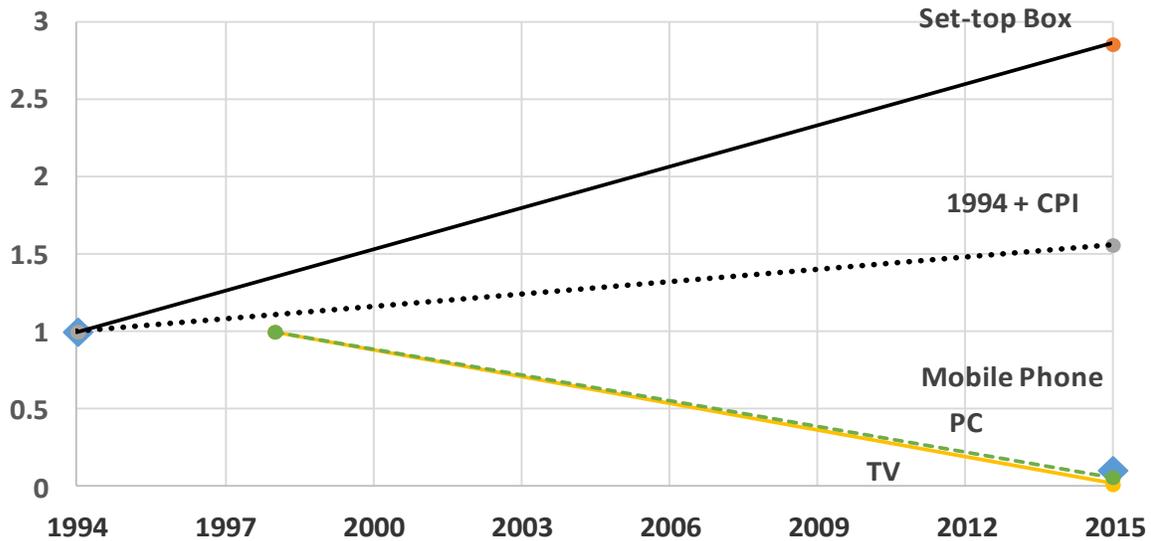
Today, the average charge for a set-top box is \$7.43 per month.<sup>260</sup> That is an increase of 185% since 1994. It is more than three times the increase in the Consumer Price Index (CPI) over that same period.<sup>261</sup> In real terms, the price was increasing at almost 3% per year. The rate of increase is slightly higher than the general increase in cable subscription rates

An even more damning comparison in Figure XI-3 is the pricing of other types of customer premise equipment. The prices for these pieces of equipment were plummeting. They were decreasing by about 19% per year in real terms. This is consistent with price indices for telephones, fax machines, modems, and cellular phones. These other devices provide functionalities that are similar to – and probably more complex than – the functionalities provided by set-top boxes, yet their price was falling.

Set-top boxes today, of course, are more capable than the boxes of 1994, but this is true of all areas of consumer electronics. Indeed, computers, televisions, and mobile phones have gotten better to a greater degree than set-top boxes, and more quickly. But as Figure XIII-3 indicates, the cost of these devices has not gone up since the 1990s. In fact, it has gone down by over 90%.<sup>262</sup> This is the expected result in a highly competitive, dynamic technology market. The other equipment markets are, in fact, much less concentrated than the cable market.<sup>263</sup>

It is simply not credible to argue that the cost of set-top boxes should behave so differently from other similar and complementary types of customer premise equipment (CPE). The best explanation of the set-top box market's exceptional ability to impose excess charges on consumers is its immunity to market forces and the failure of competition, both in pay TV generally and in the set-top box market specifically. These excesses are rolled into the overall overcharges. They are substantial – in the range of \$6 billion to \$14 billion.<sup>264</sup> Singling them out provides context for the overall magnitude of abuse and the importance of identifying chokepoints in the flow of data.

**FIGURE XI-3: PRICES OF CUSTOMER PREMISE EQUIPMENT: SET-TOP BOX V. OTHER CPE**



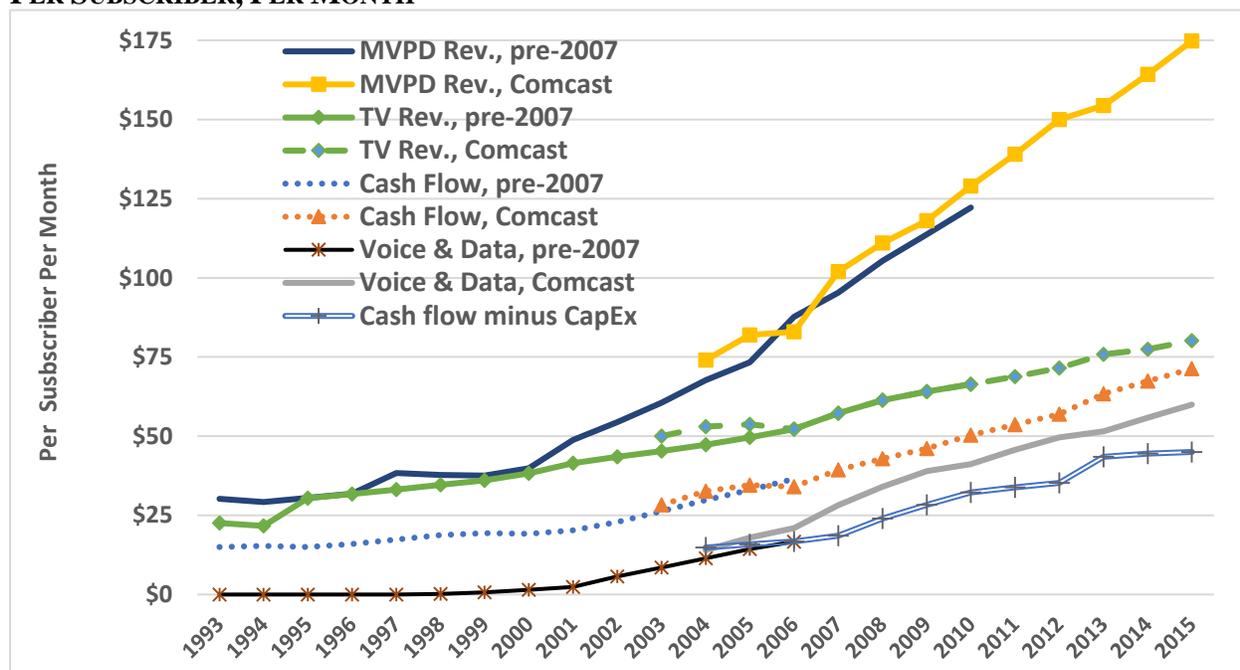
Sources and Notes: Cell Phone, 1994: \$950 (average of 1993 and 1995); from 2015: \$100 “Smartphones connect users with many of the functions of a laptop computer,” <http://electronics.costhelper.com/smartphone.html>. Set-top Box, 1994: \$2.60 (FCC, DA94-767, pp. 11, 12 showed regulated systems in the top 25 markets charging \$2.48 in equipment per month, and all systems in the top 25 markets charging \$2.59, per the chart on page 12). We use \$2.60 as a conservative estimate. Set-top Box, 2015: \$7.43 (Jon Brodtkin, Cable TV Box Rental Fees,” <http://arstechnica.com/business/2015/07/cable-tv-box-rental-fees-cost-average-household-232-a-year>. Inflation from FCC, 2014, *Report on Cable Industry Prices*, MM Docket No. 92-266, p. 10, updated with Bureau of Labor Statistics, CPI.

### EXCESS PROFITS

In Figure XI-4, we show trends of operating income for total cable operations and BIAS. Because the FCC stopped reporting EBITDA and the cable operators have shifted to OIBDA (Operating Income Before Depreciation and Amortization), we have calculated operating income per video subscriber for Comcast (the dominant cable operator by far). Comcast is a little higher than Time Warner on some of these measures and a little lower than Charter, but generally it matches up quite well with the earlier FCC series. We show it on an annual basis per video subscriber per month for consistency. The operating income includes the excess of operating revenue over operating costs, plus depreciation and amortization, before interest or taxes are paid.

With the expansion of broadband, earnings increased at an extremely rapid pace – about twice as fast as cable prices. We identified the cause of this difference earlier. Costs were falling in a period when total subscribers were expanding. Economies of scale and scope were realized in a network where Broadband Internet Access Service was added. By the end of the period, revenue from BIAS is equal to half of total revenue. In the absence of competition, cable operators increased TV rates and held broadband rates constant even though costs were falling. They pocketed the surplus as excess profits.

**FIGURE XI-4: CABLE OPERATING REVENUE & INCOME WITH BROADBAND REVENUE PER SUBSCRIBER, PER MONTH**



Sources: Federal Communications Commission, Annual Video Competition Reports; Comcast Annual Reports.

There are very powerful economies of scope operating between video and broadband. The margin on broadband is generally reported and reputed to be in the range of 90%, which means all of the network costs are being recovered elsewhere. That elsewhere is cable, which was subject to light regulatory oversight until recently. It made sense for the cable operators to allocate costs to cable to justify high rates for basic service since there was lingering regulation of basic service. It also made sense to depress the return on video and blame it on transmission fees, which shifts the finger of blame to the programmers.

This astronomical markup on high-speed data services caused some controversy when the number was highlighted in a Time Warner annual report.<sup>265</sup> In fact, more than half a decade earlier, in a general analysis of cable modem service, Moffett, one of the leading analysts of the cable industry, had used a similar number.<sup>266</sup> Indeed, an even earlier study by another financial analyst,<sup>267</sup> ABN-AMRO, had reached a similar conclusion. The issue is simple: When a firm sells multiple services using the same facilities, it enjoys strong economies of scope and scale. Where it chooses to recover the joint and common costs determines the apparent profitability of each.

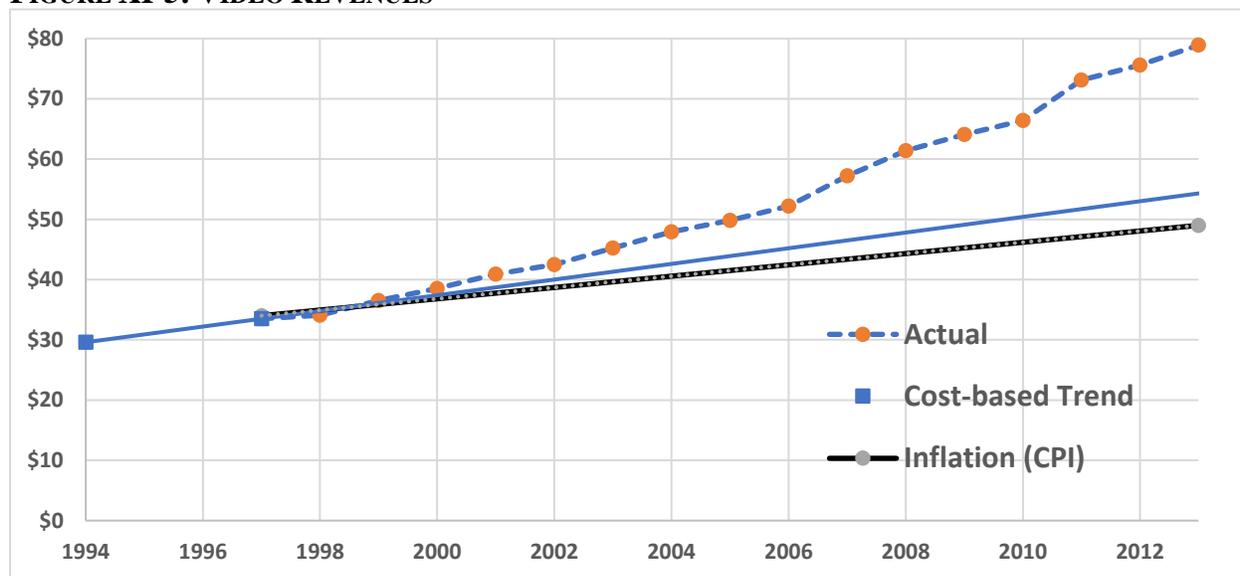
In the ABN-AMRO analysis, high-speed data and digital video services were treated as incremental. High-speed data has very low incremental capital costs – as low as 2% of the total.<sup>268</sup> The largest capital costs were digital set-top boxes, which, as we have seen, became a cash cow for the cable operators. Even predicting a sharp decline in ARPU for broadband—an assumption based on competition that never developed—the return on invested capital for broadband service was projected at 25%, which is over four times the return for cable service.<sup>269</sup>

Adjusting for the failure of competition to reduce ARPU, the return on capital invested in broadband rises to 38%. That is over six times the return on basic cable.<sup>270</sup> Ironically, both ABN-AMRO and Moffett predicted declining Average Revenue per User due to competition (7% and 5% per year, respectively) that never came to pass.<sup>271</sup> By 2009, broadband ARPU was already over 20% higher than Moffett had predicted.

The reasonableness of this estimate can be demonstrated in the context of Figure XIII-6. A reduction of \$25 per month (\$300 per year) can be seen as a reduction in broadband revenue of about 55%. This would put the margin for that broadband service at around 40% – the level of cable video service, which is bearing all the infrastructure costs. In other words, removing the excess would split the surplus between producers and consumers. To put this in perspective, as shown in Figure V-6, cash flow per subscriber has increased by over \$50 per month since the early days of high-speed data offerings by cable operators. A reduction of \$25 per month would have split the increasing surplus between producers and consumers.

Before broadband service was added, cable was overcharging consumers, as the price trajectory showed. Recent estimates of video ARPU show continued growth, as demonstrated in Figure XIII-7. Video ARPU is \$35 more per month than inflation or cost would support. Not all of this ARPU would be converted to earnings. We use the industry average rate at which ARPU is captured as EBITDA (i.e. the EBITDA margin is 40%). Using the experience under the short period of regulation or the CPI, it would be possible to put excess charges for video in the range of \$10 per month. Out of an abundance of caution, we estimate the monthly overcharge to be \$25 per month on the bundle. This is a household-level service.

**FIGURE XI-5: VIDEO REVENUES**



**Sources:** Federal Communications Commission, Annual Reports on Cable Competition, Docket Numbers 12-81,13-99, p., 69;, p. 7;, 15-41, p. 66. Earlier data for 1994-2006, was given in a Table Entitled Cable Industry Cash Flow (0-4, p. 23; 06--11, p.11; 07-206, p. 23

The calculation of excess profits suggested in Figure IV-6 by either cash flow or cash flow minus capital expenditures underestimates the abuse of consumers. As discussed below,

over the period studied, the two largest cable operators, which account for over 60% of all cable subscribers, brought no new capital to the industry. That is, the depreciation and amortization of existing capital and assets provided more cash than the outlays for capital expenditures. Adjusting the Lerner Index to take capital expenditure into account and thus better reflect the price-cost margin concept underlying the Lerner Index, the excess profits would be larger by almost \$10 billion.

## **XII. COMMUNICATIONS PROTOCOLS, OPEN ACCESS AND ENTREPRENEURIAL EXPERIMENTATION**

No discussion of AT&T's incentive and ability to abuse its market power by exercising vertical leverage at a key chokepoint in the digital communications network would be complete without an examination of its opposition to rules that require nondiscriminatory access to the broadband network. First as a cable company, and now as a local telephone company, it has been an active member of the cabal opposing network neutrality. No issue has attracted more attention from the "tight oligopoly on steroids" than network neutrality for a simple reason: it lies at the core of their market power. One of the clearest indicators of this concern is the fact that two of the most vigorous supporters of network neutrality – AOL when it was an independent Internet service provider, and AT&T when it was an independent long-distance company – flipped their position the moment they were acquired by local broadband service providers.

Indeed, much of the early arguments we made in support of network neutrality were derived directly from their lengthy analyses and comments concerning how market power over chokepoints could be abused to undermine competition in the delivery of services over the digital communications network.<sup>272</sup> Interestingly, the issue exploded on the policy scene in 1998 at the same time as Microsoft case, and the two have been intertwined ever since. This is a huge issue that has been and will be separately litigated as a regulatory matter. In our view, network neutrality is a perfect example of a policy issue that antitrust alone cannot address because it needs to be dealt with in a continuous, prophylactic, forward-looking manner that is not the usual practice of antitrust. Nevertheless, a brief discussion of network neutrality is in order because AT&T has market power to abuse its control of the network, has done so in the past, and continues to oppose effective network neutrality rules. Therefore, it does shed light on its incentives and ability.

The story of network neutrality in the fifty years since the FCC established a framework for the growth of the Internet a story of the good, the bad and the ugly. The good part of network neutrality is the remarkable success of the policy of ensuring nondiscriminatory access to the digital communications network. The bad part is the repeated effort of the network owners to roll back policies preventing nondiscrimination, and the anticompetitive, anti-consumer behaviors they engage in when they think they can get away with it. The ugly part is the dramatic flip-flop of policy positions the companies went through when they were acquired by network owners. As independent long-distance companies (AT&T) and independent service providers (AOL), they wrote the book on how network operators could abuse their control of essential bottleneck chokepoints in the digital communications networks.

To tie all of the themes in this analysis together, we begin with a brief description of the positive benefits of ensuring nondiscriminatory access through policy, then discuss the negative impact of allowing network owners to leverage the vertical power over chokepoints.

### **THE ROLE OF ACCESS IN THE VIRTUOUS CYCLE OF DIGITAL COMMUNICATIONS**

In responding to the Congressional Request to draw up a National Broadband Plan, the FCC concluded that the success of the digital revolution in communications rested on a unique

innovation system that created virtuous cycles of innovation and investment.<sup>273</sup> The virtuous cycle framework posits that innovation and investment at the edge of the network are inextricably linked to innovation and investment in the communications network itself in a recursive, reinforcing feedback loop. Development of applications, devices, and content stimulates demand for communications that drives innovation and investment in the supply of communications network capacity and functionality. In turn, improving network functionalities and expanding capacity makes new applications possible, which stimulates new demand and allows the cycle to repeat. The Commission took on the challenge of developing a regulatory framework that protects and advances the “virtuous cycle” so that broadband deployment and adoption is stimulated. This framework is widely accepted under a variety of names – positive externalities, spill overs, network effects, positive feedback loops, and dynamic increasing returns.

Shane Greenstein describes the process of entrepreneurial experimentation at the core of the virtuous cycles that developed in several digital technologies, including computers, the Internet and Wi-Fi. It is important to distinguish the micro level activities in which individuals and firms engage from the macro or system level unintended benefits to which they give rise. Individual firms are motivated and take action at the micro level. At this level, we can identify a number of conditions that created a space that was extremely friendly to entrepreneurial experimentation, which Greenstein puts at the center of the success of the digital techno-economic paradigm.<sup>274</sup>

The “intentional” activities that constitute the core of the “virtuous cycles” that typify the digital techno-economic paradigm include the following:

- Neutrality of the communications protocols and network devices
- Avoiding costly bilateral negotiations over the cost and quality of access
- Freedom to experiment
- User-driven to an unprecedented degree
- Interoperability
- Open standards
- Importance of platforms
- New relationship to capital markets

The impact of the micro level intended or directed activities described above were reinforced by undirected processes. There were strong positive external economies associated with the emerging techno-economic paradigm... referred to as “dynamic increasing returns... self-reinforcing, positive feedback cycles. Other external economies among users, increasing returns to learning and development of expertise, the nonrivalrous character of application of innovation to output, innovational complementarities, spillover pools.<sup>275</sup>

The system level characteristics that emerge as positive externalities to reinforce the “virtuous cycle” of the Internet innovation system include the following:

- Expanded division of labor
- Divided and diverse technical platform leadership
- Specialization of supply firms
- Network effects
- Knowledge flows
- Learning externalities

Greenstein singles out two critical features that enabled the micro level activity that gave rise to an explosion of entrepreneurial experimentation.

First, the Internet was designed to have its intelligence at the end of the network. That is, users had to adopt applications in the PCs and workstations that were compatible with one another but did not have to worry about any of the devices or protocols inside the network.

Second, once the commercial Internet had diffused (by 1997 to all major cities in the United States), a remarkable set of new possibilities emerged: The Internet made it possible for users and vendors to move data across vast geographic distances without much cost, either in operational costs and/or in advanced set-up costs of making arrangements for transport of data. Together, those two features enabled enormous combinations of users and suppliers of data that previously would have required bilateral—and, therefore, prohibitively costly—agreements to arrange. In brief, it enabled a network effect where none had previously existed, involving participants who could not have previously considered it viable to participate in such a network.<sup>276</sup>

The fact that users and companies at the edge did not have to “worry about the devices and protocols inside the network” and could use the ubiquitous telecommunications network without bilateral – and prohibitively costly – arrangements were essential and necessary features of a communications environment that fostered innovation at the edge. The arrangement involved the dramatic reduction in transaction costs that created a network effect. “Network neutrality” is a perfect description for a situation in which you do not have to “worry about” the insides of the network or negotiate to make agreements for transport of data through the network. This dramatically expands the communications space.

Greenstein points out that the Internet protocol itself was managed as an open standard subject to a multi-stakeholder governance process. This prevented the incumbent telecommunications companies from hijacking the standard-setting process. The key was a collaborative, open process built on “the emergence of a new form of leadership for designing standards, one that involved collections of market participants... not beholden to the managerial auspices of AT&T or IBM... [and] also did not simply ratify the design decisions of Intel, Microsoft, or Cisco, though all those firms sent representatives who had a voice in shaping outcomes.”<sup>277</sup>

The committees that were responsible for designing key standards for the Internet were comprised of representatives from many firms, as well as interested researchers from universities and other nonprofit organizations. Because undirected economic experiments are undertaken by multiple firms working together, by definition the committees participated in these types of

experiments. This raised the profile of activities inside standards committees and it directed attention at different forms of consensus-oriented standards processes for designing standards accommodating a variety of complementary goods and services.

Many of these decisions went into use quickly, ensured that all complying components would interoperate, and had enormous consequences for the proprietary interests of firms.

Never before had such a large industry had so much of its innovative activity shaped by collective firm decisions.<sup>278</sup>

In the array of potential sources of information, the new paradigm provides the opportunity for the most edgy of all actors – consumers and users – to play a much larger role in driving innovation. “All of the sources of ideas for new R&D projects outside the R&D lab itself, including suppliers, rivals, university and government labs or even a firm’s own manufacturing operations, customers are far and away the most important.”<sup>279</sup>

This new techno-economic paradigm dramatically improves economic performance because it facilitates economic activity at the micro level that had been hampered by traditional market barriers or imperfections (transaction costs, access to capital, market power, etc.). It also has the effect of reducing a number of other market imperfections that had hampered the macro level performance of the system (provision of public goods, learning, spillovers, network effects, etc.)

Greenstein’s analysis, cited above, does not examine how the network neutrality that existed on the eve of the explosion of the commercial Internet (and was so vital to the Internet’s success) came about. Tim Wu (among many others) has identified a series of regulatory decisions that paved the way.

[T]he FCC ordered Bell to allow the connection of the “Carterphone,” a device designed to connect a mobile radio to a Bell Telephone... the FCC went further and specified something simple but absolutely essential: the familiar RJ-45 telephone jack... The modular jack made it unnecessary for a Bell technician to come and attached one’s phone to the phone line. More crucial, with the phone change in place, any innovator – any person at all – was suddenly free to invent things that could be usefully attached to the phone lines...

They also made possible the career of Dennis Hayes, a computer hobbyist (“geek” is the term of art) who, in 1977 built the first modulator/demodulator (modem) designed and priced for consumers, the so-called Hayes Modem...

[T]he FCC issued a rule banning AT&T from directly entering the market of “data processing” or “online services.” These were the earliest precursors of what I now call Internet service...

In short, with strange and unprecedented foresight, the FCC watered, fertilized, and cultivated online computer services as a special, protected industry, and, over the years, ordained a set of rules called the *Computer Inquiries*, a complex regime designed both to prevent AT&T from destroying any budding firms and also to ensure that online computer service flourished unregulated.<sup>280</sup>

Francois Bar notes that the FCC made a number of additional decisions that magnified the importance of the commitment to access to the core communications network and the decision not to regulate behavior in the data transmission area.

The FCC allowed specialized providers of data services, including Internet Service Providers (ISPs) and their customers, access to raw network transmission capacity through leased lines on cost-effective terms. Regulatory policy forced open access to networks whose monopoly owners tried to keep them from using the full capabilities of the network in the most open and free manner.

Open network policy assured the widest possible user choice and the greatest opportunities for users to interact with the myriad of emerging new entrants in all segments of the network... Indeed, the Commission consistently back cost-based access to the network (initially through leased lines and later through unbundled network elements). The de facto result of this policy, and of more conscious choices symbolized by the *Computer III* policies, was to prevent phone company monopolies from dictating the architecture of new data-related services.<sup>281</sup>

Thus, this was not a one-off policy but a sustained commitment.

## **INCUMBENT OPPOSITION AND THE CONSTANT THREAT OF THE ABUSE OF MARKET POWER**

### **Discriminatory Access**

Having made the case that these bold decisions, implemented over decades, were profoundly successful, one might ask, “What do policy makers have to worry about?” The answer is, “A lot.” Noted above and summarized in Table XII-1, as independent “over-the-top” service providers, AT&T and AOL wrote the book on the need for nondiscriminatory access. They described in great detail the challenges of facilities-based competition and the vast tools that network owners had to undermine competition for services and block the entry of competing networks.

The incumbent communications companies were adamantly opposed to changes in policy that might threaten their dominance. They continue to oppose the openness mandates. They possess massive economic resources, occupy critical strategic locations in the network, and wield a great deal of political influence and power. Policy is always subject to reversal. Questions of the applicability of “old” policy to “new” technologies or services can always be raised. The 1996 Act was just the beginning of the war, not the end. In 2018, we are still litigating against efforts by the FCC to implement open access rules.

Open spaces like the Internet protocols are the meat and potatoes of new entrants and entrepreneurs, but they are anathema to entrenched network incumbents. Given their location and importance in the digital communications platform, if those incumbents are left unregulated to pursue their interests, they are likely to do significant harm to freedom of entrepreneurial experimentation at the edge of the network, which is the driving force in the “virtuous cycle.”

Their actions can dampen the willingness and ability of the edge to experiment by imposing counterproductive “worry” about the network and its devices, increasing costs substantially by forcing edge entrepreneurs to engage in bilateral negotiation, undermining

interoperability, and chilling innovation through the threat of “holding up” successful edge activities.

**TABLE XII-1: THE IMPORTANCE OF ACCESS TO BOTTLENECK FACILITIES AS TOLD BY AT&T AND AOL AS INDEPENDENT SUPPLIERS OF “OVER-THE-TOP” SERVICES**

*Comments of AT&T Canada Long Distance Services Company, REGULATION OF CERTAIN TELECOMMUNICATIONS SERVICE OFFERED BY BROADCAST CARRIERS, the Canadian Radio-television and Telecommunications Commission, Telecom Public Notice CRTC 96-36: (1997)*

Each of these pronouncements made by regulators, policy makers and individual members of the industry reflects the strongly held view that access to the underlying facilities is not only necessary because of the bottleneck nature of the facilities in question, but also because it is critical for the development of competition in the provision of broadband services. AT&T Canada LDS shares this view and considers the control exercised by broadcast carriers over these essential inputs is an important factor contributing to the dominance of broadcast carriers in the market for access services.

[I]n any event, even if it could be argued that the telephone companies are not dominant in the market for broadband access services because they only occupy a small share of the market, there are a number of compelling reasons to suggest that measures of market share are not overly helpful when assessing the dominance of telecommunications carriers in the *access* market. Because there are and will be many more providers of content in the broadband market than there are providers of carriage, there always will be more service providers than access providers in the market. Indeed, even if all of the access providers in the market integrated themselves vertically with as many service providers as practically feasible, there would still be a number of service providers remaining which will require access to the underlying broadband facilities of broadcast carriers. The cost of switching suppliers is another important factor which is used to assess demand conditions in the relevant market. In the case of the broadband access market, the cost of switching suppliers could be significant, particularly if there is a need to adopt different technical interfaces or to purchase new terminal equipment for the home or office. (12)

The dominant and vertically integrated position of cable broadcast carriers requires a number of safeguards to protect against anticompetitive behaviour. These carriers have considerable advantages in the market, particularly with respect to their ability to make use of their underlying network facilities for the delivery of new services. To grant these carriers unconditional forbearance would provide them with the opportunity to leverage their existing networks to the detriment of other potential service providers. In particular, unconditional forbearance of the broadband access services provided by cable broadcast carriers would create both the incentive and opportunity for these carriers to lessen competition and choice in the provision of broadband service that could be made available to the end customer.. .

The telephone companies also have sources of market power that warrant maintaining safeguards against anticompetitive behaviour. For example, telephone companies are still overwhelmingly dominant in the local telephony market and, until this dominance is diminished, it would not be appropriate to forebear unconditionally from rate regulation of broadband access services. (15-16)

*America Online, Inc., Comments, TRANSFER OF CONTROL OF FCC LICENSES OF MEDIAONE GROUP INC., TO AT&T CORP., CS Docket 99-251 (filed Aug. 23, 1999)*

At every key link in the broadband distribution chain for video/voice/data services, AT&T would possess the ability and the incentive to limit consumer choice. Whether through its exclusive control of the EPG or browser that serve as consumers’ interface; its integration of favored Microsoft operating systems in set-top boxes; its control of the cable broadband pipe itself; its exclusive dealing with its own proprietary cable ISPs; or the required use of its own “backbone” long distance facilities; AT&T could block or choke off consumers’ ability to choose among the access, Internet services, and integrated services of their choice. Eliminating customer choice will diminish innovation, increase prices, and chill consumer demand, thereby slowing the roll-out of integrated service. (11)

[A]n open access requirement] would allow ISPs to choose between the first-mile facilities of telephone and cable operators based on their relative price, performance, and features. This would spur the loop-to-loop, facilities-based competition contemplated by the Telecommunications Act of 1996, thereby offering consumers more widespread availability of Internet access; increasing affordability due to downward pressures on prices; and a menu of service options varying in price, speed, reliability, content and customer service. (14)

As incumbents, they have a conservative, myopic bias and are certain to be far less innovative and dynamic than the edge. This is based on a preference for preserving the old structure,<sup>282</sup> pursuit of incremental<sup>283</sup> process innovation rather than radical product innovation, and proprietary culture that prefers restrictions on the flow of knowledge.<sup>284</sup>

Competition is much weaker in the network segment of the digital platform than the edge segments, which means network owners face less pressure to innovate, have the ability to influence industrial structure to favor their interests at the expense of the public interest,<sup>285</sup> can use vertical leverage (where they are integrated) to gain competitive advantage over independent edge entrepreneurs,<sup>286</sup> and have the ability to extract rents where they possess market power or where switching costs are high. At the same time, the network operators have given strong indication that they have the incentive and ability to engage in these antisocial kinds of conduct.<sup>287</sup>

The parent companies that acquired the independent service providers took vigorous actions to defend and exercise their market power. AT&T has sued or threatened to sue every local jurisdiction that required open access, and they have withheld investment in those areas. Time Warner pulled the plug on Disney and threatened to extract full subscriber value from Disney for every customer it lost when Disney offered to give satellite dishes to the public. AOL threatened to sue Prodigy for the economic harm it caused AOL when Prodigy hacked into AOL's instant messaging service.<sup>288</sup>

As services that compete with the franchise offerings of network owners, voice and video have been singled out for attack. In the earliest debate over non-discrimination, they made it clear that they intended to exercise control over the flow of data on their Internet communications network.

A term sheet offered by Time Warner to unaffiliated ISPs who had requested access to its network during the summer of 2000 gives a new and troubling specificity to the threat to innovation. There in black and white are all the levers of market power and network control that stand to stifle innovation on the Internet. Time Warner demanded the following:

Prequalification of ISPs to ensure a fit with the gatekeeper business model

Applying ISP must reveal sensitive commercial information as a precondition to negotiation

Restriction of interconnecting companies to Internet access sales only, precluding a range of other intermediary services and function provided by ISP to the public (e.g., no ITV [interactive TV] functionality)

Restriction of service to specified appliances (retarding competition for video services)

Control of quality by the network owner for potentially competing video services

Right to approve new functionalities for video services

A large, nonrefundable deposit that would keep small ISPs off the network

A minimum size requirement that would screen out niche ISPs

Approval by the network owner of the unaffiliated ISPs home page

Preferential location of network owner advertising on all home pages

Claim by the network owner to all information generated by the ISP

Demand for a huge share of both subscription and ancillary revenues

Preferential bundling of services and control of cross market of services

Applying ISP must adhere to the network operator's privacy policy

Under these conditions, the commercial space left for the unaffiliated and small ISPs (where much innovation takes place) is sparse and ever shrinking.<sup>289</sup>

AT&T's negotiations with Mindspring exhibited similar problems.<sup>290</sup>

As concerning as these early actions were, the FCC under Chairman Powell moved forward with the information service classification. Notwithstanding even more scrutiny, the incumbents continued to engage in behaviors that clearly violated the principle of non-discriminatory access.

- **Blocking:**
  - Madison River blocking VoIP ports (2005):
  - Cingular's blocking of PayPal (2006):
  - AT&T blocking of Slingbox iPhone application (2010):
  - Skype blocking on mobile networks (2010):
  - FaceTime blocking over mobile devices unless using Mobile Share plan (2012):
  - Verizon blocking access to tethering apps (2012):
- **Degradation:**
  - Comcast degrading Bittorrent Traffic (2007):
  - Netflix degradation on Comcast (2013-2014)
  - Comcast refusal to connect Netflix CDN (2013)
- **Discrimination:**
  - Comcast exemption of Xfinity online video app on Xbox and TiVo from data caps (2012)
  - AT&T sponsored data plan on wireless network (2014)
  - T-Mobile "Music Freedom" exemption of popular music streaming sites from data caps (2014):
- **Raising rivals' costs:**
  - Comcast/Verizon interconnection agreements with Netflix (2014):
  - Continuing problems with wireless data roaming (2010-2014)

The traditional concerns about market power abused by large incumbents has received a great deal of attention – too much, in the sense that the other sources of market failure that would undermine or weaken the “virtuous cycle” deserve at least as much attention. Nevertheless, the fundamental point is that “[l]eading incumbent firms and new entrants face different incentives to innovate when innovation reinforces or alters market structure.” The incumbents will invest

in innovation that supports the platform and their leading role in it. In particular, they will prefer proprietary standards.<sup>291</sup>

Over the course of almost two decades, we have drawn an analogy between the anticompetitive tactics of Microsoft and broadband network providers, as summarized in Table XII-1. The strategies and tactics have changed over the years but the strategic anticompetitive effects have remained the same. Our conclusion about the Microsoft case remains relevant to the AT&T-Time Warner merger: “Many who viewed Microsoft as a dynamic, new economy business had difficulty believing Microsoft had used plain old anti-competitive dirty tricks to achieve its business success and were shocked when the court concluded:”

**TABLE XII-2: ANTICOMPETITIVE TACTICS AT DIGITAL CHOKEPOINTS: MICROSOFT AND BROADBAND PROVIDERS**

**Browser Wars Strategy**

**Attack Internet MVPD Platform  
Comcast  
ATT**

Bundle IE browser and operating system  
Bundle cable, leverage information

Bundle online video with physical space video by requiring  
physical subscription to get access to online video

Raise entry costs through incompatibility

Keep set top box closed, forcing IMVPD to find  
Limit upstream, ban servers and LANS  
non-Comcast hardware

Incent OEMs to preload IE not Nav.  
Ban streaming

Pressure incumbent MVPDs to participate in  
TV Everywhere, shrinking the market of competing  
platforms

Degrade the quality of Nav.  
Price squeeze

Withhold valuable marquee content to undermine the quality  
or raise the cost of content available on the Internet platform.  
Pressure content providers to not make their product available  
on the Internet by offering favorable conditions for physical  
space distribution to those who deny Internet access to content

Make using Nav. a "jolting experience"  
Restrictions on backbone, cashing

Use the ability to block or degrade the quality of service of  
specific application and Internet Service Providers, forcing  
precedence, and committed access rate  
IMVPD to rely on non-Comcast broadband ISP

Sources: Mark Cooper, 2000, “Open Access to the Broadband Internet: Technical and Economic Discrimination in Closed Proprietary Network, *University of Colorado Law Review*, 71 (4), p. 1034; Mark Cooper,

In essence, Microsoft mounted a deliberate assault upon entrepreneurial efforts that, left to rise or fall on their own merits, could well have enabled the introduction of competition into the market for Intel-compatible PC operating systems. While the evidence does not prove that they would have succeeded absent Microsoft’s actions, it does reveal that Microsoft placed an oppressive thumb on the scale of competitive fortune, thereby effectively guaranteeing

its continued dominance in the relevant market. More broadly, Microsoft's anti-competitive actions trammelled the competitive process through which the computer software industry generally stimulates innovation and conduces to the optimum benefit of consumers.<sup>292</sup>

As we have shown throughout this analysis, the AT&T-Time Warner merger would dramatically increase AT&T's incentive and ability "to place an oppressive thumb on the scale of competitive fortune." Under its obligation to prevent illegal restraints on trade in merger review, and given the difficulty of behavioral remedies under the antitrust laws, the Department of Justice was correct to block the merger.

### XIII. UNLICENSED SPECTRUM AND THE WIFI REVOLUTION

In this section we review the benefits of ensuring access to another of the key chokepoints in the digital communications ecology. It created an open access regime to parts of the public spectrum. In the above discussion, this is a vital resource without which wireless communications services simply do not work. The FCC repeated its remarkable success of ensuring an open Internet with the Computer Inquiries when it established the conditions for the explosive growth of another communications protocol, Wi-Fi. Here, Greenstein acknowledges the role of the FCC.

More surprising, a wireless fidelity technology now popularly known as Wi-Fi became dominant. Wi-Fi did not arise from a single firm's innovative experiment. Rather, Wi-Fi began as something different that evolved through economic experiments at many firms. The evolution arose from the interplay of strategic behavior, coordinated action among designers, deliberate investment strategies, learning externalities across firms, and a measure of simple and plain good fortune.<sup>293</sup>

The mobile communications revolution was built upon two very different and successful approaches to the management of spectrum. They were made possible by a remarkable, U.S.-led, real-world experiment.<sup>294</sup> In the early days of radio communications, policymakers chose to manage interference in radio transmission by granting an exclusive license to one user to transmit signals on specific frequencies (called bands) in a specific geographic area for a specific purpose. For three-quarters of a century, this approach led to the dominance of broadcasting in the commercial use of the airwaves. In the mid-1980s, the FCC altered the regulatory regime for access to spectrum and created the opportunity for dramatic improvements and changes in the use of spectrum for communications purposes.<sup>295</sup>

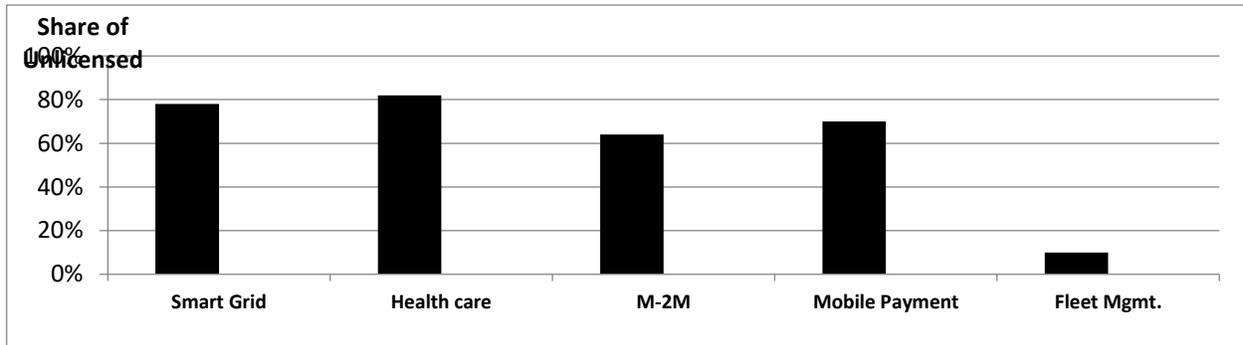
The FCC established the basis for two different approaches. Exclusive licenses were made available that allowed new, two-way communications. Later, licenses were auctioned to the highest bidder.<sup>296</sup> The licenses were still exclusive, but the bidding and flexibility were intended to improve the utilization of spectrum by assigning the rights to those who were willing to pay the highest price. At the same time, the FCC identified some bands where there would be no licensee, and interference would be avoided by the use of new technologies (spread spectrum), as well as restrictions on the amount of power devices could use. Anyone and everyone could transmit in these unlicensed bands as long as the devices obeyed the rules.

To understand the success of the shared use model we must understand the principles on which it rests. Long before the advent of wireless broadband service, there was widespread agreement about the inefficiency of the model in which the FCC administratively selected uses and users of the spectrum.<sup>297</sup> Until broadband service was widely available, the evaluation of the two-pronged experiment that launched in the mid-1980s was largely theoretical and reflected strongly held beliefs about the desirability and superiority of specific ownership models. To say that there was antagonism between the two views would put the state of the debate mildly. The empirical record shows that the two ownership models are equally robust and more complementary than competitive.

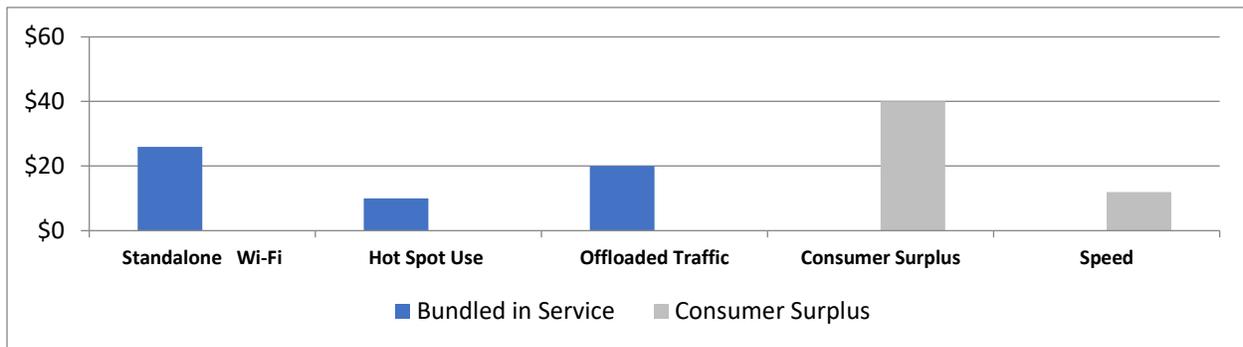
Figure XIII-1 shows three different views of the value of unlicensed spectrum, which makes it clear that their co-existence has not only been peaceful, but also extremely mutually beneficial.

**FIGURE XIII-1: ASSESSING THE VALUE OF UNLICENSED SPECTRUM (YEAR-END 2010: BILLION)**

**Shares of Unlicensed Spectrum in Intermediate Input Wireless Data Activity**



**Mass Market, End-User Value and Surplus**



**Across Services and Functionalities**

**Mass Market, End-User Services**

Extending wireless & wireline broadband to mobile devices

\$26 billion

Hotspot Service  
Public-free  
Public-billed  
Community  
Personal

\$10 billion

**Intermediate Inputs**

Cellular broadband traffic offloading

\$20 billion

Intensive intra-firm communication  
Healthcare  
Monitoring  
Surveillance  
Pay & Go

\$24 billion

Internet of things  
Smart Grid  
Inventory

Sources and Notes: Intermediate Inputs: Yochai Benkler, *Unlicensed Wireless vs. Licensed Spectrum: Evidence from Market Adoption*, 2011. Wi-Fi standalone value is calculated as 110 million users are \$20 per month value based on charges for standalone Wi-Fi services (as advertised in web sites of Boingo, AT&T, T-Mobile). Most cellular providers bundle Wi-Fi with cellular broadband subscriptions. Hot Spot Connectivity estimated by scaling up AT&T 1.2 billion per year to 3.6 national total valued at average per session charge of \$3. Consumer surplus is from Richard Thanki, *The Economic Value Generated by Current and Future Allocations of Unlicensed Spectrum*, Perspective, 2009 (adjusting his 30% scenario for the current level of broadband subscribers). Speed is from, Paul Milgrom, Jonathan Levin and Assaf Eilat, *The Case for Unlicensed Spectrum*, October 12, 2011). Intermediate Inputs from Richard Thanki, *The Economic Value Generated by Current And Future Allocations of Unlicensed Spectrum*, Perspective, 2009 and Yochai Benkler, *Unlicensed Wireless vs. Licensed Spectrum: Evidence from Market Adoption*, 2011.

**SOURCES OF ECONOMIC ADVANTAGE OF THE UNLICENSED MODEL**

The success of the shared use model rests on three sets of factors – traditional economics, institutional effectiveness and systemic diversity. These factors explain the past success of

shared use (primarily as an institutional arrangement that stimulates innovation and promotes efficiency), provide a basis for appreciating the critically important contribution it makes in the overall sector, and offer a framework for assessing its potential for the future.

### **Traditional Economic Characteristics of a Deregulatory Approach**

The shared use model is extremely – even radically – deregulatory because it allows anyone to transmit signals for any purpose, as long as the devices used abide by the rules of sharing. If the rules are written leniently, many people will be able to transmit for many purposes. If the rules are written well, interference will be avoided. There are still some rules, as there always must be if chaos is to be avoided and commerce is to thrive, but the shared public use model supports many more users and uses.

Market forces obviously operate in license-exempt bands even without spectrum pricing – through equipment purchase decisions by countless individuals at the retail level and through manufacturers’ product development and marketing decisions at the wholesale level. Regulatory criteria for equipment type acceptance constrain these forces – though not as much as license conditions limit the choices of purchasers, designers and producers of radio equipment for licensed use. In that sense, license-exempt bands are arenas for more creative competition among equipment vendors and service providers than the licensed bands.<sup>298</sup>

The shared use model creates key conditions for economic activity and dynamic innovation.<sup>299</sup> It captures what would be externalities with respect to licensed approaches.

[T]he primary benefits of unlicensed spectrum may very well come from innovations that cannot be yet be foreseen. The reason is... that unlicensed spectrum is an enabling resource. It provides a platform for innovation upon which innovators may face lower barriers to bringing new wireless products to market, because they are freed from the need to negotiate with exclusive license holders.<sup>300</sup>

No matter how insightful the licensees may be, they cannot match the vision of an army of potential innovators seeking to find ways to utilize the spectrum.

- The shared use model lowers barriers to entry by providing access to the most critical bottleneck input – spectrum. This allows more and smaller firms to utilize the resource, ensuring a wider range of perspectives brought to bear on developing potential uses of the resource.<sup>301</sup>
- It lowers the hurdle of raising capital by eliminating the need for a network and focusing on devices.<sup>302</sup>
- Removing this barrier to entry removes the threat of hold up, in which the firm that controls the bottleneck throttles innovation by either refusing to allow uses that are not in its interest, or appropriating the rents associated with innovation.<sup>303</sup>
- It fosters an end-user focus that makes innovation more responsive to consumer demand; indeed, it allows direct end-user innovation.<sup>304</sup>

The shared use model promotes efficient use of the spectrum.

- The shared use model de-concentrates the supply of services. The exclusive license model, especially for high-bandwidth services, tends to result in a very small number of suppliers, particularly in lower density markets.<sup>305</sup>
- Shared use of frequencies encourages much more efficient use of the spectrum by allowing dynamic utilization of a resource that is subject to congestion but is non-depleting. It is always there, available to be used for communications, as long as transmissions do not interfere with each other. A decentralized approach is better able to fill all of the empty spaces.<sup>306</sup>

### **Reduced of Transaction Costs**

The shared public use model as implemented by the FCC results in much lower transaction costs than would be the case if the exclusive licensed model attempted to replicate the array of activities and transactions that takes place in the shared use space. The FCC's approach to setting aside spectrum for shared use exhibits several characteristics that accomplish the task of managing the common pool resources in a light-handed manner.<sup>307</sup>

- The sharing rules were simple; an easy set of conditions with which devices had to comply.
- They did not require intensive, continuous monitoring and coordination.
- There were no membership rules. Anyone could enter and use the shared resource.

The shared use model also avoided the transaction costs of the exclusive licensed spectrum.

- The cost of requiring the army of potential innovators to negotiate for the right to use licensed spectrum is substantial and certain to put a damper on innovation and economic activity.
- As implemented by the FCC, individual private incentives are preserved. The shared public use model does not require consciously coordinated collective action among the users of the shared spectrum. Entrepreneurs do not have to form a group to succeed; they just have to follow the rules and find consumers who are willing to use their services.
- The approach to sharing use of frequencies was also radically deregulatory because it relied on self-regulatory industry standards. The self-regulatory approach has produced a series of standards that have allowed the technology to evolve at least as quickly as the exclusive licensed spectrum.
- The self-regulatory approach to standard setting avoided the drag of bureaucratic rulemaking.

A systematic comparative look at network technologies and applications reinforces the conclusion that the unlicensed model has performed at least as well as – and likely better than – the licensed model (as shown in Table XIII-1). Thanki provides a comparative analysis of the timing of major technology deployments and the introduction of applications. Once again, it is clear that the unlicensed use model is at least as effective as the exclusive licensed model. Thanki defines the innovations in applications as follows:

Incremental innovation involves small steps, something that is a minor improvement to an existing solution. Small steps have taken Gillette from one razor blade, to two, three and now five blades.

Radical innovations take big steps, creating major improvements that are often very different to existing solutions. Cloning ‘Dolly’ the sheep qualifies as a radical innovation – it was a first and it was certainly a breakthrough.

**Table XIII-1: INNOVATION IN UNLICENSED USE AND EXCLUSIVE LICENSED USE SPECTRUM: Standards and Devices**

**EXCLUSIVE LICENSED USE**

**UNLICENSED USE**

**Standards Released**

2G - GSM 1993

2.75G- GSM+EDGE

3G - CDMA 2000

3G - 1x EV-DO Rev A

3G- WCDMA

3.5g - HSPDA

WiMAX - IEEE 802.16

4G - LTE

IEEE 802.11-1997: WLAN standard originally 1 Mbit/s and 2 Mbit/s, 2.4 GHz RF and infrared (IR) standard (1997),

IEEE 802.11a: 54 Mbit/s, 5 GHz standard (1999)

IEEE 802.11b: Enhancements to 802.11 to support 5.5 and 11 Mbit/s (1999)

IEEE 802.11c: Bridge operation procedures; included in the IEEE 802.1D (2001)

IEEE 802.11d: International (country-to-country) roaming extensions (2001)

IEEE 802.11e: Enhancements: QOS, including packet bursting (2005)

IEEE 802.11g: 54 Mbit/s, 2.4 GHz standard (backwards compatible with b) (2003)

IEEE 802.11h Spectrum Managed 802.11a (5 GHz), European compatibility (2004)

IEEE 802.11i: Enhanced security (2004)

IEEE 802.11j: Extensions for Japan (2004)

IEEE 802.11k: Radio resource measurement enhancements (2008)

IEEE 802.11n: Higher throughput improvements using MIMO

IEEE 802.11r: Fast BSS transition (FT) (2008)

IEEE 802.11w: Protected Management Frames (September 2009)

IEEE 802.11y: 3650–3700 MHz Operation in the U.S. (2008)

**Technologies and Applications**

**Network Technologies**

Digital Spread Encoding 1991

Spread Spectrum 1995

OFDM 2006

MIMO/Adaptive Beamforming 2008

1988

1988

2001

2004

**Applications:**

**Radical**

Precise global positioning  
Wide area networks  
Satellite based

Precise urban positioning, Real-time location  
Local area networks/wireless broadband  
Novel wireless connectivity (critical device monitoring, monitoring and  
Communications control in adverse environments)  
Automatic building control, Wireless sensor networks

**Incremental**

Mobile TV  
Services, texting, picture  
messaging, video calling,  
secure mail  
Data over broadcast  
Networks (subtitling &  
video text)

Personal area networks/Cable replacement (computer mice,  
keyboards, printers, head sets, headphones)  
Contactless payment  
Supply chain improvement  
Consumer electronics (Wi-Fi radio, STBs)  
Identification (RFID - Humans, Animals, Goods)  
Remote controls

## Major Handsets Launched

6/29/07 AT&T Apple iPhone  
11/19/07 VZW LG Voyager  
4/1/08 Sprint SamsungInstinct  
7/10/08 Apple iPhone 3G  
7/11/08 AT&T HSDPA iPhone 3G  
9/23/08 T-Mobile Android G1  
10/21/08 AT&T Samsung Epix  
11/4/08 AT&T Blackberry Bold  
11/20/08 Sprint HTC Touch Diamond  
11/21/08 VZW Blackberry Storm  
2/24/09 AT&T Matrix Pro  
2/26/09 VZW LG Versa  
3/2/09 Sprint Palm Pre  
4/1/09 MetroPCS Samsung Finesse  
7/13/09 VZW & Sprint Blackberry Tour  
9/21/09 Cellular South HTC Hero  
(Android)  
EOY 2009 LG Watch Phone

### Sources:

Gerald R. Faulhaber and David J. Farber, *Innovation in the Wireless Ecosystem: A Customer-Centric Framework (2009)* for exclusive license standards major handset launches; Wi-Fi Alliance, Wi-Fi Certified Products, [http://www.wi-fi.org/certified\\_products.php](http://www.wi-fi.org/certified_products.php) for Wi-Fi-enabled devices

## Examples of Certified Wi-Fi-Enabled Devices: (Hundreds of companies/Thousands of Devices)

### Networking Equipment - Access Point/Router

Access Point for Home or Small Office (Wireless Router) Enterprise Access Point, Switch/Controller or Router Mobile AP

### Networking Equipment - Gateway

Cable, DSL or Other Broadband Gateway (Integrated Home Access Device)

### Consumer Electronics - Cameras

Digital Still, Portable Video, Networked Web

### Consumer Electronics - Audio Devices

Digital Audio - Stationary (speakers, receiver, MP3 player)

Digital Audio - Portable (MP3 player)

### Consumer Electronics - Video Devices

Set Top Box, Media Extender, Media Server

Display Device (eg. television, monitor, picture frame)

### Consumer Electronics - Gaming Devices

Game Console or Game Console Adapter

Gaming Device - Portable

### Consumer Electronics - Storage and Servers

Media Server or Media Adapter

Network Storage Device (networked hard drive)

### PCs and Computing Devices - Adapter Cards

External, Internal Wi-Fi Adapter Card

### PCs and Computing Devices - Computers and PDAs

Laptop Computer, Ultra-mobile PC, PDA

### PCs and Computing Devices - Printers

Printer or Print Server (includes scanner and fax)

### Voice-Capable Devices - Phones

Phone, dual-mode (Wi-Fi and cellular)

Phone, single-mode (Wi-Fi only)

Smartphone, dual-mode (Wi-Fi and cellular)

Smartphone, single-mode (Wi-Fi only)

### Other

Barcode Scanner

Sources: Richard Thanki, *The Economic Value Generated by Current and Future Allocations of Unlicensed Spectrum*, Perspective, 2009, pp. 37-39).

Revolutions happen when groups of these innovations can together cause a huge, far-reaching impact. The computing revolution was achieved because of thousands of new technologies including the microprocessor, the telephone and the television. Globalisation, the Human Genome Project, and the Lunar Landing would not have been possible without it.<sup>308</sup>

## Enhancing Coverage

Complementarity will be necessary to solve the problem of geographic coverage<sup>309</sup> by evolving new institutions to deal with interference.

- Cellular service providers must shrink cell size, which means moving the base stations closer to consumers.<sup>310</sup> They will not get close enough to deliver the exaflood of data directly to the consumer over their licensed spectrum, however. The amount of data flowing in unlicensed spectrum is likely to rise.
- Users of unlicensed spectrum will have to find ways to ensure quality of service as their reach expands. The unlicensed use model will have to exercise greater control over interference with rules that place greater limits on what people can do (controlled access or managed commons), or with some limits on the number of users.

## **Diversity as a Systemic Benefit of Shared Use with an Expanding Role in the Digital Economy**

Beyond the traditional economic reasons for making spectrum available for shared use, systemic diversity provides an independent justification. Diversity has come to be recognized as a uniquely important characteristic of economies and economic systems because it reinforces desirable economic traits of the system.<sup>311</sup> Diversity creates value, enhances innovativeness, builds resilience, and promotes other social values like pluralism.

This account underscores several fundamentally important characteristics of the success of shared public use spectrum.

- First, since exclusive licenses for cellular service and the setting aside of bands for shared use were roughly contemporaneous, it is notable that the shared use model delivered many services more broadly, more quickly. The movement of traffic from the exclusive licensed spectrum to the shared use spectrum that has occurred after the *Economist* piece affirms the adaptability of the shared use space.
- Second, shared use spectrum replicates the successful model of the internet itself, with the initial instigation provided by government action and government policy that favored a decentralized approach. As discussed in section V, the offloading of traffic from the exclusive use spectrum to the shared use spectrum reflects this characteristic.
- Third, the government action was followed by industry self-regulation to manage widespread implementation and commercialization. The development of self-regulatory standards has been central to the success of shared use.
- Fourth, the process undergoes constant renewal as successive generations of technologies and standards expand the possibilities and applications.

The contribution of the unlicensed use model to the wireless ecology is driven by spectral efficiency,<sup>312</sup> deepening complementarity between licensed and unlicensed uses,<sup>313</sup> and the continual development of new arrangements that integrate the technologies and ownership models.<sup>314</sup> In the case of the cellular embrace of Wi-Fi, necessity is the mother of acceptance.<sup>315</sup> The reliance on Wi-Fi is much more than just a convenience; it represents a fundamentally different approach to provisioning initial connectivity that some analysts believe is the inevitable long-term solution for wireless broadband communications. The key to the efficiency of offloading traffic onto unlicensed use spectrum as implemented by the FCC is the fact that all unlicensed use spectrum is available to all users all the time. This has the effect of making more available to every user, as long as interference is effectively controlled by the rules of sharing.

### **Complementarity**

The expansion and nimble integration of unlicensed use technologies with exclusive licensed models has played a key role in the development of broadband data service. It is likely to continue to play a vital part in promoting an efficient solution to the long-run challenge of

provisioning mobile data services.<sup>316</sup> Unlicensed use of frequencies is one of the key technologies providing a platform that makes much more intensive use of spectrum.<sup>317</sup>

Unlike traditional services where dedicated connections are provisioned, broadband services can leverage unlicensed connections that are 'virtualized' according to principles developed for Internet- and Web-based network technologies. Tremendous performance gains and capital efficiencies can be achieved with intelligent scheduling and bandwidth management techniques...

Notable innovations are particularly focused toward enabling low cost platforms for small cells, software defined radio configurations, and automated configuration and provisioning management. Many of these innovations capitalize on technical capabilities derived from the Internet.

## **Rivalry**

While we have seen and expect future complementarity and functional specialization, we should not dismiss the possibility of rivalry, as well. At a minimum, exactly where the line between the services will be drawn is an open question that should be decided in the marketplace, not determined by policies that decide the outcome by allocating spectrum to one model and not another.

A leading Wall Street analyst of the communications space has recently described two possibilities that are emerging in the marketplace that rely on the ubiquity of unlicensed spectrum-based Wi-Fi.<sup>318</sup> For cable operators, he sees the continuing extension of broadband as the driving force behind the adoption, as we have noted above.<sup>319</sup> He also sees the potential for a full-purpose wireless service to develop that relies primarily on Wi-Fi. A link to cellular wireless would be maintained for voice, not broadband data. The key factor in this hybrid model is the increasing density of Wi-Fi.<sup>320</sup>

Most basically, open wireless strategies have exhibited rapid innovation, filling services that only a few years ago would have been considered to require licensed exclusivity. The freedom to operate and innovate, by anyone for any purpose, that permission to operate without a license provides has allowed the kind of distributed, diverse innovation we have come to associate with computers and the Internet, more than the innovation model of more centralized models.<sup>321</sup>

The past two decades have demonstrated that the effectiveness of ownership models is an empirical matter. Unlicensed spectrum has proven to be at least as effective as, and probably more effective than, exclusive licensing in preventing interference/congestions, inciting investment, and stimulating innovation and economic activity. Even the holders of exclusive licenses who use it for cellular communications have recognized the immense value of unlicensed use spectrum and have relied on it to lower their own costs and expand their service offerings. The success of unlicensed use and the strong complementarity between the unlicensed use and exclusive licensed models supports the conclusion that spectrum should be made available for both models. Public policy that fails to allow for both models to expand is likely to reduce the output of the spectrum. Therefore, assuring that adequate spectrum is set aside for unlicensed use should be a goal of public policy.

The immediate question confronting policy makers is whether auctions are a good mechanism to achieve that goal. The answer is no. "Any such auction would be decisively biased against unlicensed uses, even in cases where the unlicensed uses would be far more valuable than the licensed ones."<sup>322</sup>

## **Growing Quantity and Diversity of Service Needs**

The challenge of delivering wireless data as usage expands will be made more complex by the fact that different types of communications place different demands on the network. Variety creates complexity. However, it may also alleviate some of the traffic flow problems because different types of communications place less demand on the network. As shown in the upper graph of Figure XII-2, opportunities can be assessed in a variety of ways. The upper graph uses coverage and connection time. The middle graph uses connectivity and data rate/latency. The lower graph uses congestion tolerance and spectrum capacity needs. The point is that, in an expanding and diverse marketplace, innovation and entrepreneurship will select the best applications, and unlicensed spectrum has proven it is the equal, if not superior, approach. The challenge is to ensure continued availability of spectrum for unlicensed use.

## **LARGE, INCUMBENT CELLULAR PROVIDERS DOMINATE AUCTIONS**

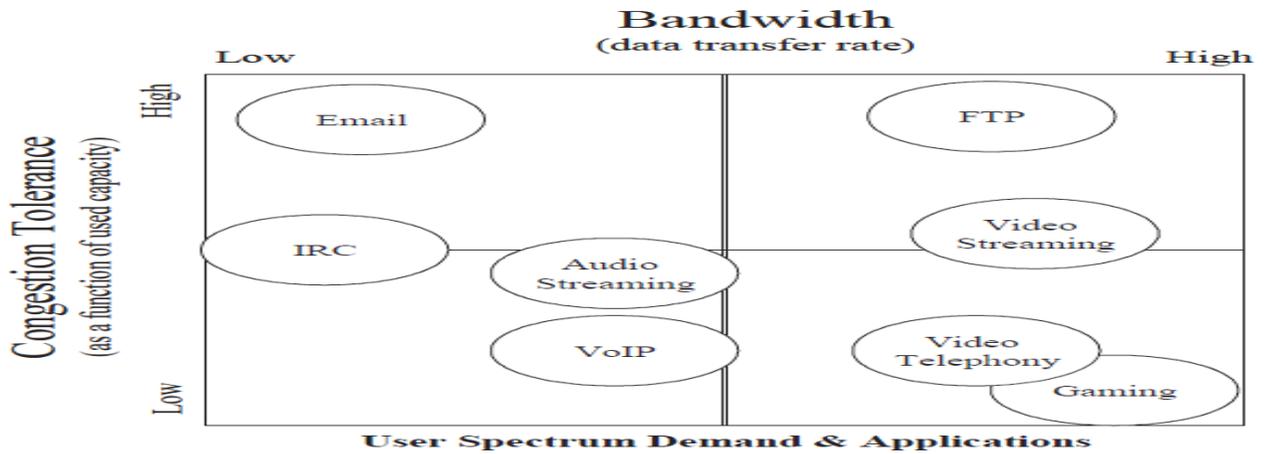
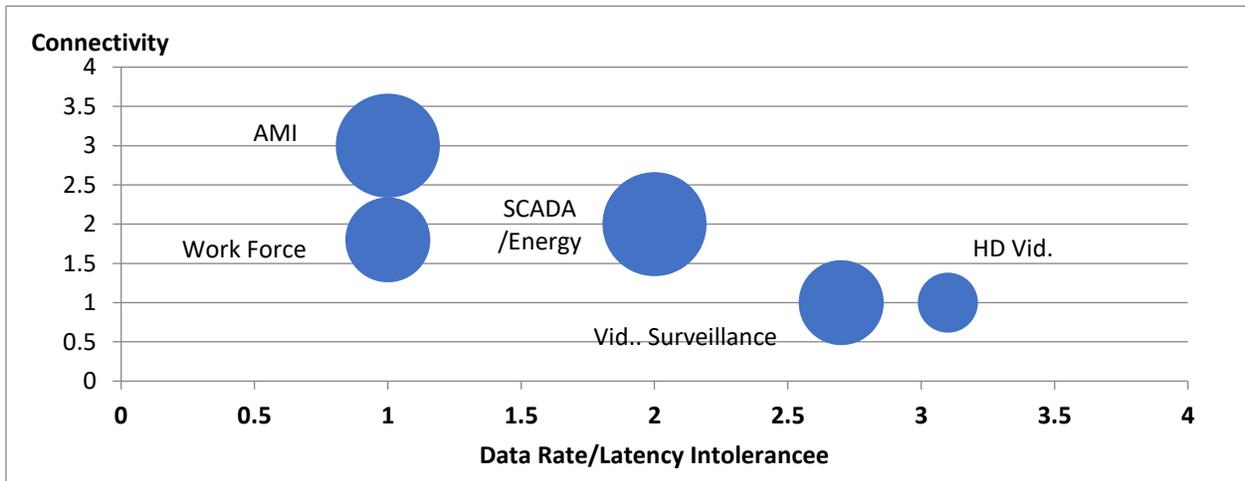
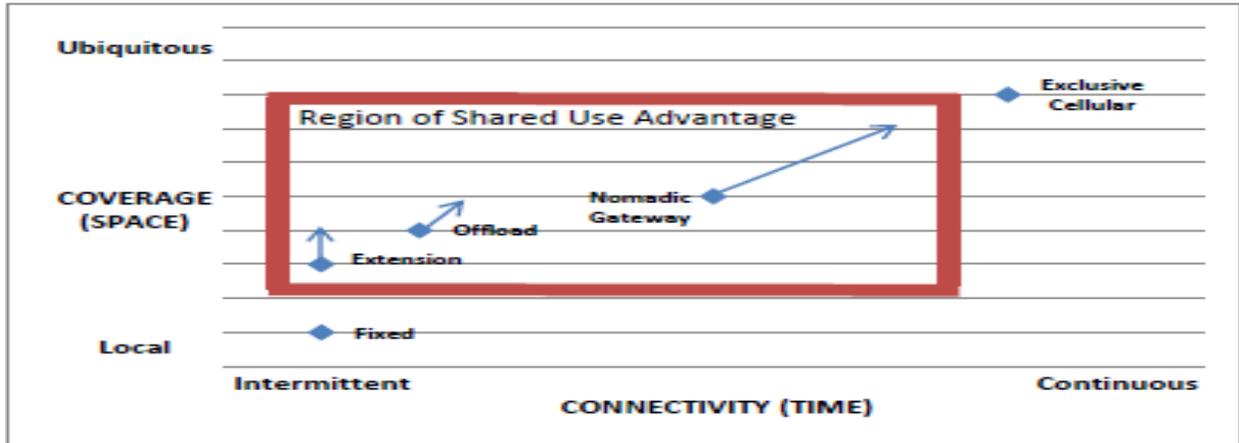
Auctions are certain to result in little, if any, spectrum being allocated to the unlicensed use model.<sup>323</sup> Given the history of spectrum auctions in the United States, they will fail to address the problem of the market power of the incumbent cellular providers and fail to reflect the externalities and transaction cost efficiencies of unlicensed use spectrum. Opponents of setting aside spectrum for unlicensed use have put forward a highly implausible model in which groups of companies interested in exclusive licenses are pitted against groups of companies interested in unlicensed spectrum.<sup>324</sup> Such a contest would be totally one-sided – loaded in favor of the group pursuing exclusive licenses.

Looking at auctions in the last decade and subsequent mergers and acquisitions, two-thirds of all spectrum auctions ended up in the hands of the top two companies (see Exhibit VIII-1). The top four firms have acquired 80% of the spectrum. Post-auction mergers, acquisitions, and joint ventures have increased the concentration of control of spectrum. Here, it is important to recognize that the marketplace would put virtually all of the auctioned spectrum in the hands of the dominant incumbents through auction, merger, and acquisition in less than a decade if regulators do not stop the process. Whether or not the proposed acquisitions are allowed to close by regulatory authorities, they make it clear that the largest incumbent cellular operators thoroughly dominate the exclusive licensed space.

Incumbent cellular service providers are likely to be the big winners in auctions for spectrum for several reasons.<sup>325</sup> Incumbents

- have deep pockets,
- already possess communications infrastructure,
- concentrate demand and decision making,
- are primarily telecommunications companies, and
- have a strong incentive to bid to foreclose competition.<sup>326</sup>

**FIGURE XIII-2: FUNCTIONAL ADVANTAGE OF SHARED USE FREQUENCIES AND POTENTIAL GAINS FROM ACCESS TO HIGHER QUALITY FREQUENCIES**



Source: Cooper, Mark, 2012, *Efficiency Gains and Consumer Benefits of Unlicensed Access to the Public Airwaves The Dramatic Success Of Combining Market Principles And Shared Access*, Consumer Federation of America, January.

Indeed, in the context of auctions of spectrum in a communications sector that has become highly concentrated, the cellular service providers have an incentive to keep competition

out. By denying spectrum to potential or actual competitors, they increase their own ability to extract the rents that flow from their market power.

Unfortunately, an auction that awards the spectrum to the bidders with the highest values may not assure efficiency because of the bidders' private values for the spectrum may differ from social values as a result of market structure issues. For example, an incumbent will include in its private value not only its use-value of the spectrum but also the value of keeping spectrum from a competitor. Effective policy must recognize competition issues in the downstream market for wireless services...

Moreover, the incumbent can potentially limit entry, and hence competition, by purchasing additional spectrum that would otherwise go to the incumbent... part of the willingness to pay in the auction for the incumbent comes from the value of deterring entry, which is bad for overall efficiency for the standard market power reasons and may be bad for the dynamic evolution of the service if the threat of competition is necessary to speed up build out and development of new technologies.<sup>327</sup>

The push by incumbent cellular network operators to prevent the FCC from imposing any conditions on the auction of spectrum, following the failure of past auctions to stimulate competition and amid vigorous efforts by the incumbent wireless carriers to obtain more spectrum through mergers and acquisitions, shines a bright light on the effort of the incumbents to deny additional high-quality spectrum for the unlicensed model. The unlicensed space has long been the most competitive area of the wireless market and, as we have seen in the discussion of future development, it may be the last hope for meaningful competition in the broadband space.<sup>328</sup>

As the debate over spectrum auctions has unfolded, the facade of concern about revenues has been pierced by several issues that raise alternative explanations. For example, the steadfast opposition of the dominant incumbents against allowing the FCC to design auctions that guarantee a procompetitive impact highlights the market structural aspects of the debate.

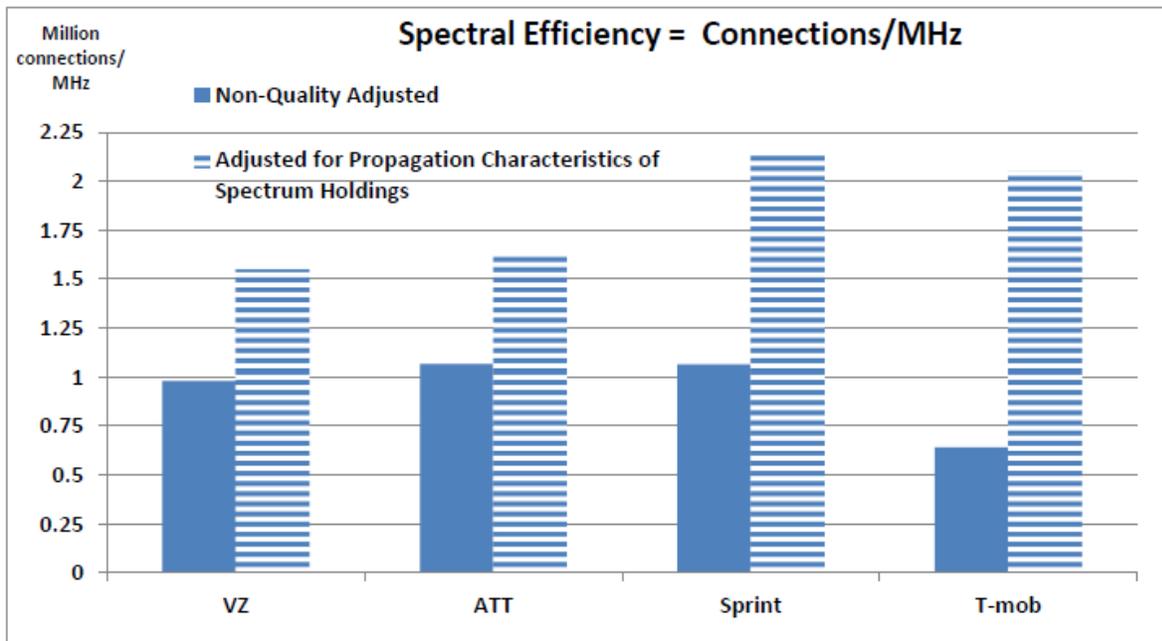
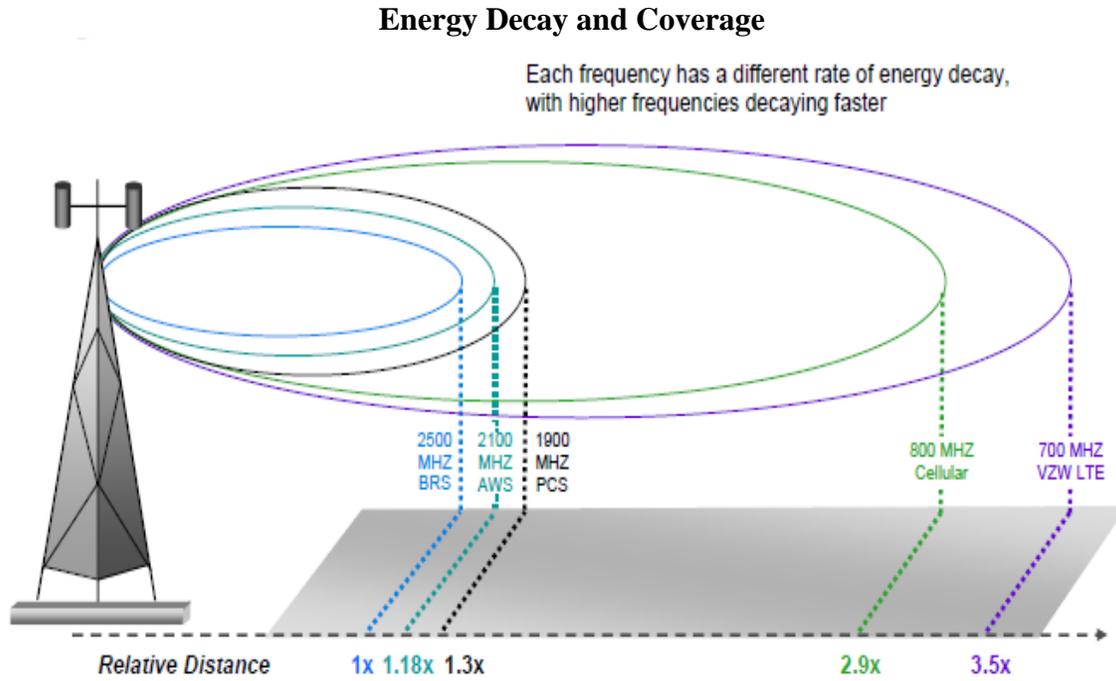
Wireless Competition Bureau Chief... said the agency's two major "sticking points" with the GOP bill are restriction on the FCC's ability to "foster competition in the market" and to decide how much spectrum should be dedicated for "unlicensed" use.<sup>329</sup>

## **AUCTIONS WILL NOT MAKE SPECTRUM AVAILABLE FOR UNLICENSED USE**

Cellular providers will certainly not take care of unlicensed use spectrum. In the context of an auction to allocate exclusive licenses, it is highly unlikely that if the winners are in the cellular communications business, they will act in a manner that reflects the value of the two models. It is highly unlikely that licensees will allow access to the exclusive licensed spectrum that they have obtained in an auction in a manner that is as unfettered as under the unlicensed use model. The behavior of the incumbent occupants of spectrum strongly suggests that license holders do not share easily or well. Having bid for spectrum, winners are not likely to then set aside the spectrum for unlicensed use.<sup>330</sup> While they already have a huge advantage in spectrum holdings, because they were gifted the most valuable spectrum prior to the initiation of the auction process and have used auctions to lock up the best spectrum, as shown in Figure XIII-3, they are much less efficient in utilization of spectrum. They will have a strong economic incentive to exclude "free riders" and charge for use of "their" spectrum. Access will be "authorized" and costly. They are certain to encumber access to the spectrum, charging for its use, resisting applications that might compete with their core businesses, seeking rents from new applications that do not compete, etc. Thus, they will create the problems that setting aside

spectrum for unlicensed use is intended to solve. They will become gatekeepers, recreating and exploiting the spectrum barrier-to-entry the unlicensed access removed.

**FIGURE XIII-3: PROPAGATION CHARACTERISTICS AND SPECTRAL EFFICIENCY OF MAJOR WIRELESS PROVIDERS**



Source: 16<sup>th</sup> Annual Report, Connection Table 13, Spectrum Table, 18; Propagation Adjustment; Richard Thanki, 2009, *The Economic Value Generated by Current And Future Allocations of Unlicensed Spectrum, Perspective*, p. 59; Tony Melone, Verizon Wireless – Senior VP & CTO, *Wells Fargo Securities Technology, Media & Telecom Conference*, November 10, 2010.

Pitted against this small group of large, specialized communications companies is an ill-defined and diverse set of companies and end users that may use unlicensed spectrum for a small part of their overall economic activities.

An advantage of open access, service neutral, unlicensed bands is that there seem to be innumerable applications which were not predictably lucrative enough to justify the cost of securing a license, but which proved valuable in the aggregate once they existed... So, it is highly desirable to have space in the radio frequency spectrum for mass market experiments. Many see an analogy with the Internet: the ability to release new content and applications to a potentially global audience at relatively low cost and without difficult authorization procedures seems to stimulate creativity and new business activity like nothing else.<sup>331</sup>

Those who benefit from unlicensed use spectrum are unlikely to be able to win at auction for several reasons.<sup>332</sup>

- Diffuse and unforeseeable future benefits mean that potential users will undervalue unlicensed public use spectrum.
- The public is not likely to be eligible to bid, and the transaction costs of enabling public bidding would be staggering.
- Each individual non-telecommunications company that might bid will be self-interestedly short-sighted, unable to see the potential future value.
- Because of the decentralized nature, it is highly unlikely that the army of potential users can band together to claim the spectrum at auction, or that the auctioneer can aggregate their bids to set aside spectrum.
- The hospitals, libraries and universities that have been blanketed with Wi-Fi and other unlicensed spectrum applications are very unlikely bidders, as are the infinite array of enterprises that will benefit from RFID applications.<sup>333</sup>

It is interesting to compare the companies who have been offered up as potential future bidders for unlicensed use spectrum to the telecommunications giants who have, and are likely to bid for, exclusive licenses.<sup>334</sup>

- Many of the companies in the unlicensed use category did not exist when the unlicensed use spectrum model was first implemented in 1985 (Google, Skype, Frontline, Yahoo, Ask.com, Cisco, Juniper Networks, Panera Bread).
- Many did not exist when the spectrum auctions began. It is exactly these unforeseeable beneficiaries whose interests are not taken into account at an auction.
- The only company that was primarily a telecommunications company has gone out of business (Frontline).
- Others have bleak futures (Yahoo).
- Those that have been around for a long time (e.g. Marriot, Starbucks) are in a completely different line of business.

On the other hand, the telecommunications giants who are identified as likely bidders (AT&T, Verizon and T-Mobile)

- have been around from the beginning,

- have dominated the auctions in the wireless data era, and
- are, on average, ten times the size of the members of the group of presumed bidders for unlicensed use spectrum.

If the asymmetry between incumbents and new entrants who are in the communications business is a problem, as noted above, that problem is greatly magnified when firms that are not in the communications business at all are required to put a value on communications service.

In short, economic analysis that purports to show that spectrum auctions could be designed to meet the needs of the unlicensed use model are based on two sets of assumptions that are contradicted by reality. They incorrectly assume that exclusive licensed spectrum is better equipped to manage interference and to maximize economic value. They also incorrectly assume that the auction represents a level playing field between the beneficiaries of exclusive licensed use and unlicensed use spectrum.

**XIV. FAIR AND REASONABLE NONDISCRIMINATORY ACCESS TO  
DISTRIBUTION NETWORKS: KEYS TO CONSUMER CHOICE AND CONTENT  
INNOVATION**

**A GOLDEN AGE OF TELEVISION REQUIRES ACCESS TO AUDIENCES**

The contemporary video marketplace is frequently described as being in a golden age, as more independent producers bring content into the market. Things have certainly improved since the Department of Justice put heavy restrictions on Comcast’s behavior in controlling NBC (restrictions repeated in the Charter-Time Warner merger), making it clear that it would not allow content providers or distribution networks to strangle the incipient competition being born in the online video space.

If one is looking for a true golden age, however, we suggest that the 1970s and 1980s, when the Department of Justice and the Federal Communications Commission broke the stranglehold that the major TV networks had on distribution of prime-time content, are a much better candidate. As shown in Table XIV-1, the long running series that independents brought to prime time under FinSyn achieved remarkable diversity and mass market staying power.

**TABLE XIV- 1: LEADING INDEPENDENT TV SERIES CONTRIBUTING TO CONTENT DIVERSITY DURING THE FULL IMPLEMENTATION OF THE FINANCIAL AND SYNDICATION RULES**

Series	Start	1st Year in Top 30	Last Year	Number of Years	
				In 1st Run	In Top 30
Mary Tyler Moore	1970	1970	1977	8	6
All in the Family	1971	1971	1983	12	11
Sanford and Sons	1972	1972	1977	6	6
The Waltons	1972	1972	1981	10	6
Maude	1972	1972	1978	7	4
Good Times	1973	1973	1979	7	4
Streets of San Fran.	1972	1973	1977	6	3
Chico & the Man	1974	1974	1978	5	2
Rhoda	1974	1974	1978	5	3
Jeffersons	1975	1975	1985	11	8
One Day at a Time	1975	1975	1982	10	8
Welcome Back Kotter	1975	1975	1979	5	3
Barney Mill	1975	1978	1982	8	4
Tony Randall Show	1976	1976	1978	3	1
Lou Grant	1977	1978	1982	6	2
Benson	1979	1979	1986	7	1
Hill Street Blues	1981	1981	1987	8	3
Kate & Allie	1984	1984	1989	6	4
Cagney and Lacy	1982	1983	1988	6	2
Cosby show	1984	1984	1993	10	10
Golden Girls	1985	2985	1992	8	7
Moonlighting	1985	1985	1989	5	3
A Different World	1987	1987	1993	7	5
Roseanne	1988	1988	1997	10	7
Seinfeld	1990	1992	1998	9	7

Source: Mark Cooper and Derek Turner, *The Negative Effect of Concentration and Vertical Integration on Diversity and Quality in Video Entertainment*, Telecommunications Policy Research Conference. shows from William M. Kunz, *Culture Conglomerates* (New York, Rowman and Littlefield, 2007), chapter 5. Prime Time rankings from Tim Brooks and Earle Marcsh, *The Complete Directory to Prime Time Network and Cable TV Shows: 1946-Present* (New York: Ballantine Books, 2003), Appendices 2 and 3.

These shows shattered the illusory image of a lily white, suburban America, where fathers worked and knew best and mothers prepared meals. There is a stunning list of independently produced TV shows that reminded the public, in primetime and before huge audiences, that America was black, white and brown; male and female; married, divorced, widowed, or abandoned; more urban than rural, more working class than not; where single moms of both races worked in interesting and sometimes dangerous occupations while raising families on their own, and older Americans were more than just grandparents fawning over grand kids, but lived real lives with human appetites and frailties. While the most frequently cited examples, *All in the Family* and *The Cosby Show* appear on the list and are the most spectacular in their success and their spin-offs, the breadth of independently produced shows should get attention, too. Over two dozen shows from almost a dozen different producers broadened and enriched television with different images and issues during the period of FinSyn. These shows won more than half the Emmys for Best Comedy or Best Drama series in the twenty-year period that FinSyn was firmly in place.

Thus, while it may be a bit of an exaggeration to say that most of the groundbreaking, socially relevant diversity in the history of television was brought to the TV screen by independents who owed their opportunity to the implementation of FinSyn, the list of shows in Figure VI-1 demonstrates that it is not much of an exaggeration. And this is not a comprehensive list of successful independent shows; just a list of those that seem to have made a unique contribution to diversity. Indeed, the exhibit emphasizes the possibility of succeeding commercially while contributing to diversity. The exhibit demonstrates that these shows, which dealt with important social issues, were not only critically acclaimed, but also successful. Many had long runs with long periods in the top thirty rated shows.

Leaving aside which golden age is better, the thing they have in common is that the flowering of content took place under strict rules of nondiscriminatory access to audiences. The three decades between these two “golden ages” was a much darker period in which vertical integration and the abuse of vertical leverage stifled innovation and denied consumer choice. The lessons we draw in this section, by studying the anticompetitive reign of abuse by a tight oligopoly of vertically integrated firms, are that policies to ensure access to consumers are the key to creating an innovative and consumer-friendly video market.

## **The Importance of Market Structure and Vertical Integration**

The key elements of the video entertainment product space fit a pattern that the literature on industrial organization describes as the exercise and abuse of market power. These elements include:

### **Market Structure and Market Power**

- Market shares that have risen to the level traditionally defined as a source of concern about concentration setting the stage for the abuse of market power.
- Substantial barriers to entry in the industry.
- A history of anticompetitive practices.

### **Vertical Integration**

- Barriers to entry increased by vertical integration.

- The foreclosure of markets to unaffiliated producers through favoritism of affiliated upstream production and the subsequent exit of upstream product suppliers from the market.
- Parallelism and reciprocity among the dominant firms in the oligopoly.
- A rush to integrate and concentrate across the sector.

### **Monopsony (buyer) Power over independent producers.**

- The imposition of prices that squeeze unaffiliated producers and terms that shift risk onto those producers.
- Indications of a decline of quality in product attendant on the abuse of monopsony power.
- Flooding of downstream outlets with integrated product.

This analysis of the process and impact of vertical integration and abuse of leverage after the repeal of FinSyn is directly relevant to the current market terrain. As the DOJ put it:

In sum, as DirecTV itself has explained: “[V]ertical integration of programming and distribution can, if left unchecked, give the integrated entity the incentive and ability to gain an unfair advantage over its rivals. This ultimately results in higher prices and lower quality service for consumers.” (6)

AT&T itself has previously stated that access to some of the most popular television programming is “critical to preserve and promote competition and diversity in the distribution of video programming.” This merger would give the combined firm control over AT&T/DirecTV’s massive video, wireless, and internet distribution network as well as Warner’s popular and valuable TV networks and studio. It would give the merged firm the power to make its current and potential rivals less competitive. The effect of the merger would likely be substantially to lessen competition. It would violate the antitrust laws and therefore should be enjoined. 7-8)

AT&T itself has noted the high levels of concentration within the pay-tv industry and their stabilizing effect... AT&T noted that, after the merger, the merged company and just three other companies would control a large portion of all three levels of the industry: television studio revenue, network revenue, and distribution revenue. AT&T went on to explain that—given these high levels of concentration—its “Core Belief #1” is that, notwithstanding the emergence of online video distributors, “[t]he economic incentives of major pay-tv players will encourage stability as the ecosystem evolves.” (Emphasis added.) ... Moreover, after the merger, AT&T/DirecTV and Comcast/NBCU, which together have almost half of the country’s MVPD customers, would have an increased incentive and ability to harm competition by impeding emerging online competitors that they consider a threat, and increasing the price for the networks they own. (20)

### **THE EMERGENCE OF A VERTICALLY INTEGRATED OLIGOPOLY IN TELEVISION**

This section shows that the abuse of vertical market power by dominant, integrated production/distribution firms is the central policy mistake that led to a pervasive market failure. It examines the impact of three major policy changes in the early and mid-1990s on the production and distribution of video content (primarily broadcast television programming in America): the repeal of the Financial Interest and Syndication rules, and the enactment of both the Cable Act of 1992 and the Telecommunications Act of 1996. These policy changes led to the formation of a vertically integrated oligopoly in television entertainment and a dramatic shrinkage of the role of independent producers of content.

Under the Financial Interest and Syndication rules, theatrical movie studios and broadcast television were almost entirely separate, while cable television was just developing as a primary outlet. In each of these markets there was a substantial independent sector. Major studios provided about one-third of the product shown on network primetime television, while the networks themselves accounted for just 15%. Non-major studios, known as “independents,” supplied nearly one-half. One set of independents sold movies to broadcasters. Another set sold series and other programming. A few produced and sold both. Vertical integration has changed that situation.

At the end of the 1980s, policies to disperse ownership in broadcast television were in place. Though they had been debated intensely throughout the 1980s, the policies remained and limited holders of broadcast licenses to one per market. These stations were known as O&Os (owned and operated). Holders of broadcast licenses could have O&O stations that reached no more than 25% of the nation’s television households. The national broadcast networks were restricted both in the amount of primetime content they could own, and in their participation in the syndication of non-primetime programming (the Financial and Syndication Rule). The broadcast networks filled out their national networks by entering into affiliation agreements with stations they did not own or operate. There were extensive rules that governed the relationships between the affiliated stations and the networks. Over the course of a decade, the content aired on prime-time network television, TV syndication, and basic and pay cable channels. Theatrical movies came to be dominated by a handful of vertically integrated entities. Dozens of independent entities that produced video content were replaced by a handful of firms that owned national broadcast networks, major movie studios, and television production units, holding multiple broadcast licenses and own the dominant cable networks.

In the 1990s, policy changes triggered a series of acquisitions and product developments over the course of the decade. These created a vertically integrated oligopoly in the television industry (see Table XIV-2). Most directly, the networks could monopolize access to audiences in primetime broadcast television, foreclosing the streams of revenue that sustained production of all forms of content. Each of the big three networks merged with a major studio and acquired cable programming over the course of the 1990s. Interestingly, Fox was vertically integrated but remained below the threshold for being subject to the FinSyn rules. For the big three networks who were subject to the rules, the repeal of FinSyn made mergers between networks and studios profitable, as self-supply was now allowed.

Fox had taken a different path to vertical integration. After being rebuffed in an effort to acquire Warner studio, News Corp. acquired Twentieth Century Fox and a number of television stations in major markets in 1985. Since the late 1970s, Twentieth Century Fox had been one of the least active of the major studios in providing television programming. Fox’s focus through the 1990s would not be on original programming as traditionally defined for primetime. It would focus on sports in programming and broadcast duopolies distribution

The economic terrain of cable television has also changed for independents. The vertically integrated media companies own twenty-four of the top twenty-five cable channels. The independents’ share of pay cable programming also continues to decline as a percentage of programming, dropping by some 15% since the late nineties. Independent product was also squeezed out of syndication. Independent product is increasingly consigned to the far less

visible and less financially rewarding basic cable channels where license fees are much lower and, in many cases, inadequate to cover production costs. Additionally, product placed on basic cable does not have the same potential to realize foreign sales that pay cable product enjoys.

**TABLE XIV-2: VERTICALLY INTEGRATED OLIGOPOLY, EARLY 2000S**

**Ownership**

	ABC	NBC	CBS	TW	FOX
<b>Distribution</b>					
# of National Networks	1	2	2	1	1
# of TV stations	10	28	17		35
% video homes passed	24	34	39		39
Duopolies		6			9
<b>Production</b>					
	Walt Disney + 5 others	Universal	Paramount	Warner Bros. +5 others	20 <sup>th</sup> Century Fox +3 others
<b>Audiences</b>					
Number of top 30 shows	6	1	7	5	1
Viewers (million)	9	13	19	10	11
<b>Genres and Suites</b>					
General	ESPN Lifetime	USA	NICK	TBS TNT	(Fox Sports)
News	(ABC news)	CNBC, MSNBC	(CBS news)	CNN	FOX News
Emerging Mass	Family	SciFi	TV Land	Court	
Older Trending	A&E <del>Bravo</del> History			(TMC)	(FMC)
Trending	Disney (Toon Dis)		Comedy MTV NickToons	(TOON)	FX
Emerging Niche	(LMN) (Soapnet) ESPN2 ESPN Class		BET Jazz CMT, Spike VH1, class, country MTV2, Espam., Hits Nick Gas, Noggins	Oxygen	Speed Nat. Geog

Source: Federal Communications Commission, *Cable Competition Reports*, various, Columbia Journalism Review, *Who Owns What*, various.

The business practices used to accomplish this dramatic shift in the flow of content in the video product space exhibit characteristics that clearly fit the pattern of abuse of market. By controlling distribution and vertically integrating into production, five of the dominant broadcasters have become gatekeepers who favor their affiliated content, restrict independent access to the market, and impose onerous terms and conditions on independent producers that have further shrunk the sector.

As a result, this oligopoly engaged in a number of predatory business practices that both limit competition from independents and deprive the public of new, fresh voices. They foreclosed the market to independents by leveraging their vertical market power and by self-supplying product. They exercised their market power as buyers of content (monopsony power) with two practices that are especially damaging to competition from independent producers. First, networks often demanded that they be given an equity participation in an independently developed television series in order for it to be placed on the primetime schedule. Second, basic

cable channels owned by members of the oligopoly would not pay license fees that are commensurate with the production values and the scope of licensed rights they demand in independently produced TV movies.

Note that each of the entities has a presence in all of the key areas of video production and distribution. Each owns studios that produce video product for both television and theatrical release. Each has substantial ownership of television distribution. The four national broadcast networks are represented here. The broadcasters have substantial ownership of TV stations. The fifth entity, Time Warner, is a major cable operator. As a result of the recent Adelphia acquisition and exchange of cable systems with Comcast, Time Warner dominates the two entertainment centers in the U.S. – New York and Los Angeles. It also has a share in the new broadcast network, CW, to which its production operations are providing content.

Each of the five also has substantial cable offerings. Indeed, twenty-four of the top twenty-five cable channels, as measured by homes passed, are owned by these five entities. In terms of actual viewers, as opposed to homes where programming is available, these five entities account for the vast majority – as much as 85% -- of prime time viewing.

By the HHI and the CR-4 and the operant definitions, the video market became a concentrated, vertically integrated, tight oligopoly (see Table XIV-3). While the overall concentration is at the edge of the thresholds for highly concentrated, primetime and program development were more concentrated.

#### **PRIME TIME ON BROADCAST/NETWORK TELEVISION**

The central empirical fact at the core of the narrative of the 1990s is the dramatic and swift change in the ownership of primetime programming after the repeal of the FinSyn rules. Studies of primetime programming just prior to the repeal of the FinSyn rules find that the networks owned around 15% of shows aired in primetime. Major studios owned about one-third and independents accounted for about half.

Within five years, the role of the independents had been dramatically reduced to less than one-fifth of the programming. Networks had grown to almost 40%. The major studios still accounted for around 40%. The mergers of the networks and studios followed, and the vertically integrated entities came to dominate prime time, accounting for over three-quarters of the programs. In 1989, fifteen entities produced two percent or more of the programming on prime time. By 2002, that number had shrunk to five. The programming produced by independents in 2006 was largely reality shows, not scripted programming, as had been the case in the recent past. The vertically integrated major studios and broadcasters accounted for over 75% of broadcast primetime television programming, while independents accounted for less than 20%. The few independents that get on primetime television produce reality shows, not scripted programming. As a result, independents have been virtually shut out of the lucrative syndication market, and now account for just 18% of all first-run syndication programming hours and none of the programming hours for shows that have gone into syndication over the last two years.

**TABLE XIV-3: DOMINATION OF TELEVISION AND MOVIE PRODUCTION AND DISTRIBUTION**

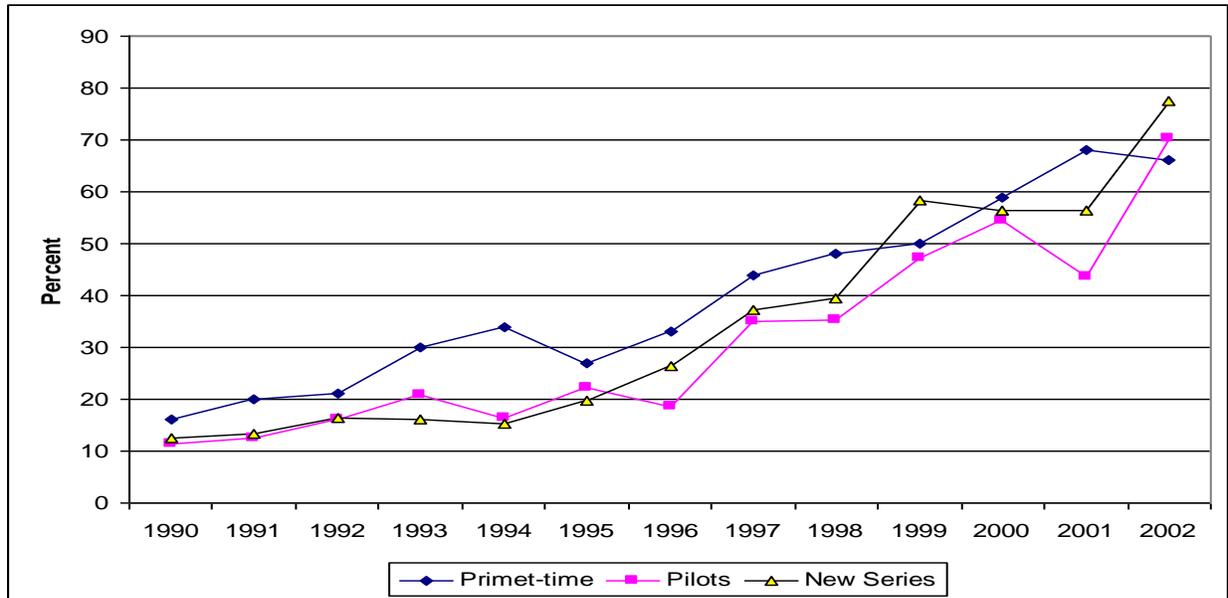
	TELEVISION					MOVIES/DVD (U.S. Revenue)			
	Subscribers*		Writing Budgets		Programming	Share of	Box Office Video		
			Expenditures		Prime Time	%	%		
	#	%	\$	%	\$	%	%	%	
Million	Million	Million							
FOX/LIBERTY	1250	21	236	19	3803	9	3	11	10
TIME WARNER	925	15	206	17	7627	18	10	22	20
CBS/VIACOM	910	15	45	12	9555	22	28	8	7
ABC/DISNEY	705	12	132	11	6704	16	21	20	22
NBC/Universal**	<u>720</u>	<u>12</u>	<u>159</u>	<u>13</u>	<u>3879</u>	<u>9</u>	<u>21</u>	<u>12</u>	<u>15</u>
Subtotal	4315	75	772	72	31568	74	83	73	74
<b>TOTAL</b>	<b>6000</b>	<b>100</b>	<b>1225</b>	<b>100</b>	<b>43212</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>HHI</b>		<b>1179</b>		<b>1084</b>		<b>1226</b>	<b>1775</b>	<b>1213</b>	<b>1258</b>
<b>FOUR FIRM CR</b>		<b>63</b>		<b>61</b>		<b>65</b>	<b>70</b>	<b>65</b>	<b>67</b>

Source: Notes and sources for market structure calculations: \* Subscribers includes broadcast and cable homes passed. \*\* Universal added to NBC to project post-merger market. Federal Communications Commission, In the Matter of Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, CC Docket No. 00-132, Seventh Report, Tables D-1, D-2, D-3, D-6, D-7; Television Market Report: 2001 (Washington, D.C.: BIA Financial Network, 2001); Comments of the Writers Guild of America Regarding Harmful Vertical and Horizontal Integration in the Television Industry, Appendix A. Federal Communications Commission, In the Matter of Implementation of Section 11 of the Cable Television Consumer Protection and Competition Act of 1992; Implementation of Cable Act Reform Provisions of the Telecommunications Act of 1996 The Commission’s Cable Horizontal and Vertical Ownership Limits and Attribution Rules Review of the Commission’s Regulations Governing Attribution Of Broadcast and Cable/MDS Interests Review of the Commission’s Regulations and Policies Affecting Investment In the Broadcast Industry, Reexamination of the Commission’s Cross-Interest Policy, CS Docket No. 98-82, CS Docket No. 96-85, MM Docket No. 92-264, MM Docket No. 94-150, MM Docket No. 92-51, MM Docket No. 87-154, January 4, 2002; Bruce M. Owen and Michael G. Baumann, “Economic Study E, Concentration Among National Purchasers of Video Entertainment Programming,” Comments of Fox Entertainment Group and Fox Television Stations, Inc., National Broadcasting Company, Inc. and Telemundo Group, Inc., and Viacom, In the Matter of 2002 Biennial Regulatory Review – Review of the Commission’s Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996, Cross Ownership of Broadcast Stations and Newspapers, Rules and Policies Concerning Multiple Ownership of Radio Broadcast Stations in Local Markets, Definition of Radio Markets, MB Docket No. 02-277, MM Dockets 02-235, 01=317, 00-244, January 2, 2003; Federal Communications Commission, Program Diversity and the Program Selection Process on Broadcast Network Television, Mara Epstein, Media Ownership Working Group Study 5, September 2002, pp. 26; David Waterman, Hollywood’s Road to Riches (Cambridge: Harvard University Press, 2005), pp. 21, 25. Prime Time: Calculated from Mara Einstein, *Media Diversity: Economics, Ownership and the FCC* (Mahwah: Lawrence Erlbaum, 2004), p. 169.

Figure XIV-1-1 shows the pattern of ownership by the networks of primetime programming, new shows and pilots. We observe a modest increase in network ownership in the early 1990s, as the FinSyn rules were partially repealed, debated and litigated. With final repeal of the rules in 1995, we see a rapid and steady increase in network ownership. Traditional measures of market concentration used in economic analysis reinforce this observation. As Figure IV-3 shows, the primetime market moved very quickly from an unconcentrated competitive market (CR4=34%; HHI=541) to a tight oligopoly (CR4=74%) well up into the moderately concentrated range (HHI=1596). If the calculations are based only on series (i.e.

excluding movies), the concentration is even greater. Within a decade after the repeal of FinSyn, the market was a highly concentrated (HHI=2070) tight oligopoly (CR4=84).

**FIGURE XIV-1: NETWORK OWNERSHIP OF PRIME-TIME PROGRAMMING 1990-2002**



**Concentration of Prime-Time Programming (hours)**

Year	All Prime-Time		Series only	
	Four Firm	HHI	Four Firm	HHI
1989	35	541	40	703
1995	47	776	57	1165
2002	74	1596	84	2070

Source: Calculated from Mara Einstein, *Media Diversity: Economics, Ownership and the FCC* (Mahwah: Lawrence Erlbaum, 2004), p. 171; William T. Bielby and Denise D. Bielby, "Controlling Prime Time: Organizational Concentration and Network Television Programming Strategies," *Journal of Broadcasting & Electronic Media*, 47: 4 (2003), p. 588.

**Self-Dealing and Internal Dealing in First-Run Syndicated Programming (2004)**

Type of Transaction	% OF Hours	
	All Shows	Shows Less than 2-years Old
Self-Dealing (Subsidiaries of Big 5 syndicating to themselves)	32%	61%
Internal Dealing (Subsidiaries of Big 5 syndicating to Big 3 station groups)	41	16
Independents syndicating to Big 3 Station Groups	18	0

Sources and Notes: Calculated from Goro Oba and Sylvia M. Chan-Olmstead, "Self-Dealing or Market Transaction?: An Exploratory Study of Vertical Integration in the U.S. Television Syndication Market," *Journal of Media Economics*, 19 (2), 2006, p. 113. Big 3 station groups are CBS/Viacom, Fox and ABC; Big 5 syndicators are King World, Paramount, 20<sup>th</sup> Century Fox, Buena Vista, WB and Universal. Other Major is Sony (Columbia). Independents are "other." There are 22.5 hours per week of first-run syndicated programming in the 9am to 8pm day part analyzed (77 hours).

## THE CRITICAL ROLE OF GATEKEEPING IN THE VIDEO PRODUCT SPACE

A key role in the process was played by the absorption of the major studios. Interestingly, David Waterman's economic history of the major studios is based on the premise that the most important feature of the studios is their role as *distributors*, and we often refer to them by that term. By controlling distribution, the studios act as gatekeepers. They decide which movies get produced and how they are made, and they also largely determine when, at what price, and on which media viewers get to see them.<sup>335</sup>

The key gate keeping role of distribution in the video entertainment product space was integrated and consolidated with production in single entities in the first fifty years of the movie industry. While there is a debate about the factors that shaped the role of the major studios, Waterman pinpoints two critical issues that parallel the core of my analysis of the video product space in the 1990s. One was a policy decision that forced de-integration.<sup>336</sup> The second factor that shaped the market for theatrical movies was the growth of television.<sup>337</sup> Waterman reckons that the technological factor played a large part in shaping the video entertainment space, although not so much in determining concentration as altering the types of products the sector produced and the marketing patterns of those products. However, from the point of view of the analysis in this paper, the critical point is that the convergence of the same two factors – integration policy and multiple distribution platforms – that worked to weaken the gatekeeper role of the studios in the 1950s, worked in the opposite direction for the broadcasters in the 1990s. Removing the policy restriction on vertical integration opened the door to reintegration of the production and distribution of video product and the merger of production (studios) and distribution (broadcasting and cable).

At the center of all this vertical integration following the policy decisions of the 1990s stand the broadcasters as gatekeepers of access to audiences. Before the FinSyn rules were in place, networks asserted ownership over primetime programming.<sup>338</sup> The broadcast networks also had a history of antitrust problems in their role as gatekeepers of access to the television audience. In 1978 they lost an antitrust case that paralleled the *Paramount* case.<sup>339</sup>

After a twenty-year period in which the networks were restrained by the FinSyn rules, the broadcasters moved to reassert ownership in primetime programming once the rules were repealed.

Since the rules were repealed in 1995, the economic structure of the industry changed drastically. The television networks have become vertically integrated institutions with the ability to produce programming through internal business units. Corporate parents put pressure on the networks to purchase programming internally to achieve synergies and, of course, increase profits...<sup>340</sup>

The networks each have at least a 50% stake in the programming on their air and some have as high as 70% and even 90%.<sup>341</sup> The networks could never achieve those kinds of ownership numbers without requesting a stake in the programming that appears on their air. It is no secret to anyone that the networks do this.<sup>342</sup>

As this process unfolded, the impact was felt in more than just access to audiences. The leverage that the vertically integrated core of the industry acquired also dramatically changed the

terms of trade between the independents and vertically integrated conglomerates. With a small number of vertically integrated buyers and a large number of much smaller product sellers, the core oligopoly gains monopsony power. They can impose onerous terms on the supplier, appropriating maximum surplus. With all of the major distribution channels under their control, the vertically integrated oligopoly can slash the amount they are willing to pay for independent product.

The experience in the video product space over the two decades in which the vertically integrated oligopoly emerged suggests that vertical integration increased barriers to entry into the television sector “because they have to do so on so many levels – production, distribution, cable outlets, and so forth.”<sup>343</sup>

In the increasingly deregulated business environment, the enhanced market power of the corporations that control access to channels of distribution has made it more difficult for independent suppliers of new television series to survive in the industry. Moreover, the high cost of producing episodic television makes it extremely difficult to operate through channels of distribution outside of network television, such as first-run syndication or cable (especially when those off-network venues are increasingly controlled by the same corporations).<sup>344</sup>

### **Favoring Affiliates**

The gatekeeper role translates into leverage because “with increased vertical integration, independent producers have less access to audiences, or they must align themselves with studios or networks to get their shows on the air.”<sup>345</sup> Integration favors internally produced product – “all things being equal, an internally produced show is going to get an airing over one in which the network does not have an interest... also more likely to get a better time slot and be kept on the air longer.”<sup>346</sup>

Clearly inferior shows are aired primarily because the vertically integrated media conglomerate owns them. Although there is a difference of opinion on how prevalent this outcome is, there is no doubt that shows “were put on the schedule for no other reason than the network studio produced them.”<sup>347</sup>

Indeed, according to one producer, a network’s financial stake in a proposed series “practically guarantees” a slot in the primetime schedule. “Without question, if I know that I am gonna lose, I just want to know that at the end of the day the shows that beat me out did so because they are better shows and not just because they’re co-owned by the network.”<sup>348</sup>

More generally, owned-programming gets an inside track and is chosen when there are close calls.<sup>349</sup> Owned programming is given better time slots,<sup>350</sup> kept on the air longer,<sup>351</sup> clogs syndication, and provides an opportunity to increase income by abusive transfer pricing.

If the vertically integrated company sells the show internally, it is at a heavily discounted price, which means that the profit participants are cheated out of their rightfully earned money. By selling internally, the companies have almost created a new form of warehousing. Rather than keeping a show off the market, they are keeping the show off the market to competitors.<sup>352</sup>

The pattern of acquisition of shows and movies also suggests that when the oligopolists are not self-supplying, they engage in reciprocal dealing, buying shows from one another. The field is simply not level.

### **Monopsony Power**

The monopsony power problem is evident in the TV video space as well. Broadcasters have the leverage to extract equity shares for shows not developed internally.

[I]f the show is not internally produced, then the ability to have equity ownership in an externally produced show is expected for inclusion on the prime-time schedule...<sup>353</sup> because access to the airwaves depends on giving the networks a financial interest in the program.<sup>354</sup>

Of even greater concern... is an increasingly common practice by the networks of commissioning pilots from independent producers then demanding a financial stake as a condition of picking up a series for the prime-time schedule.<sup>355</sup>

Networks gain market power to meddle with the creative process.<sup>356</sup> The pervasive control over distribution channels on TV allows the integrated firms to dictate terms and conditions that squeeze the independents. These include license fees that do not cover the costs given the quality that is demanded, extremely long license periods, and claims to back-end rights (home video, foreign sales and digital distribution) that limit the ability of independents to make up for the inadequate license fees.

The exercise of this monopsony power has gone so far as to allow the buyers to repurpose content to “higher value” distribution channels without additional compensation for the independent producers. It should be evident from these examples that the existence of multiple cable outlets does not alter the already restricted television landscape because the networks have captured a substantial hold over the most important cable networks.

One way that networks are ensuring a faster return on investment is by having a secondary distribution channel usually in the form of a general entertainment cable channel. These channels are used as a secondary outlet through which they can distribute their programs.... Each of these networks present programming on the broadcast network that is then re-presented (or repurposed) on the secondary outlet. This will lead to more redundant programming and less new content through more outlets. Networks are also making their prime-time programming available through video-on-demand and DVD collections.<sup>357</sup>

“Repurposing” involves exhibiting each episode of a series on an affiliated broadcast or cable network immediately after the initial network broadcast.<sup>358</sup>

## **THE DEBATE OVER QUALITY**

### **Qualitative Observations**

The question of the relationship between vertical integration and declining quality has been hotly debated. The exercise of monopsony power is clearly affecting the structure of the industry. Two effects have been noted. First, the number of entities engaged in the process has been reduced sharply because the distribution of risk and reward has been shifted in favor of the

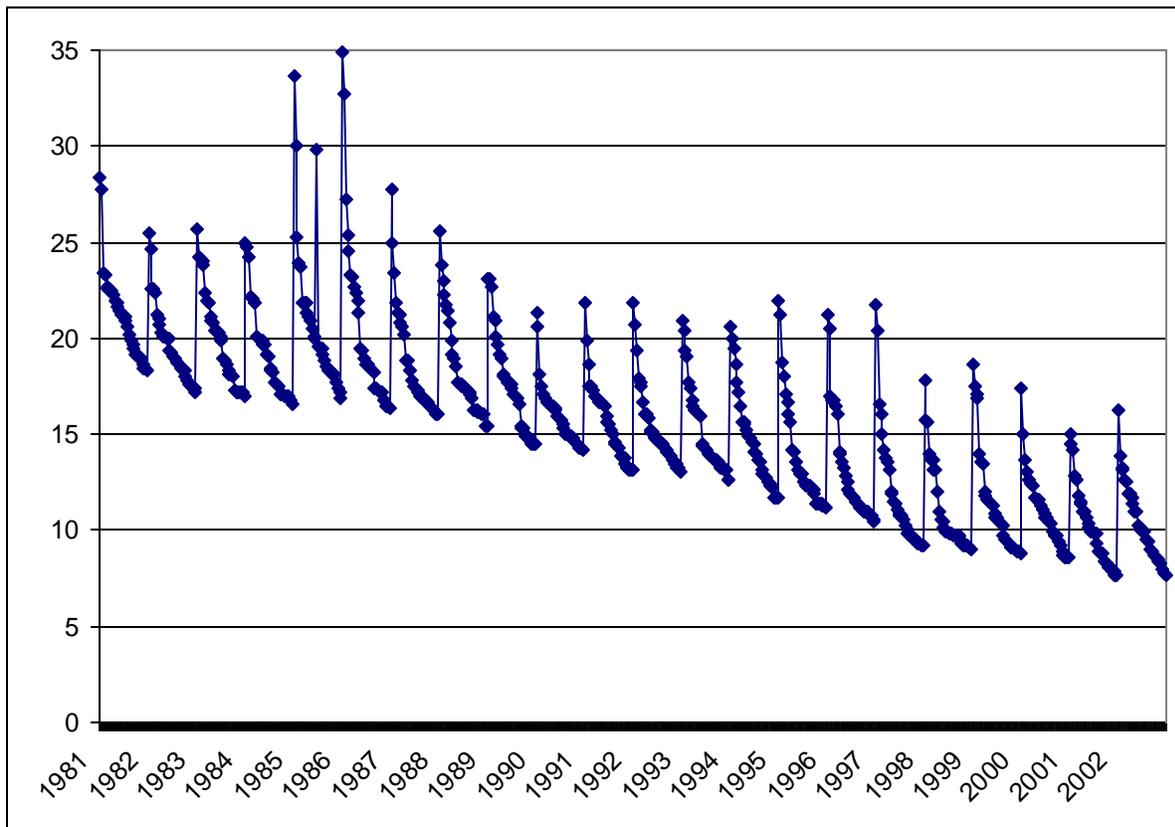
networks.<sup>359</sup> The second effect is to eliminate the creative tension that once existed between the producer and the distributor of product.<sup>360</sup>

One aspect of the debate over quality that is intriguing but little studied is the potential relationship between integration, declining quality and declining ratings. As Bielby and Bielby note:

In 1999, *Advertising Age* editorialized that ABC was “auctioning” its most desirable prime-time time slot to the program supplier willing to give the network a financial stake, part of a trend that is making it “increasingly clear the broadcast networks are more interested in financial deals than putting the best shows they can find on the air.” The trade publication warned that the ratings decline experienced by the networks would accelerate if “financial packages rather than program quality determine what gets on the schedule.”<sup>361</sup>

The ratings decline certainly did continue, as integrated ownership of programming increased. The debate over the impact of vertical integration on quality is difficult to resolve, as many factors were affecting the industry. Still, the pattern of declining ratings observed over a twenty-year period is consistent with the claim that self-dealing had an impact (see Figure XIV-2).

**FIGURE XIV-2: DECLINING RATINGS OF THE TOP 30 TV SHOWS**



Source: Tim Brooks and Earle Marsh, *The Complete Directory to Prime-Time Network and Cable TV Shows: 1946 – Present*, (New York: Ballantine, 2003), Appendix 3; Beta Study System database.

The exhibit shows the average rating of the top thirty shows for each year. There are two shifts downward – one in the early 1990s as the FinSyn rules came under attack, and one in the late 1990s and early 2000s as the integration of major studios took place. The correlation with the changing pattern of program acquisition discussed earlier is clear. While the quantitative and qualitative evidence on quality cannot prove that vertical integration was the culprit in the decline of quality, it makes a strong case that independents were eliminated not because of an inability to produce high quality and popular content, but rather as a result of a poorly run marketplace for production.

Waterman notes that the claimed efficiency benefits of conglomeration have come into question.

When merger plans are announced, industry analysts often cite efficiencies, such as workforce combinations, or marketing advantages, such as the ability to cross-promote movies using television, magazines or other media assets also owned by the conglomerate... The economic advantages of such operating efficiencies (often called economies of scope) are plausible. However, real multimedia exploitation within the same conglomerate is apparently infrequent and other efficiency claims have come into recent disrepute – notably in the cases of AOL-Time Warner and the ABC-Disney mergers.<sup>362</sup>

What we may be left with are the market power advantages of a tight oligopoly in the video entertainment space, which impose a heavy price in terms of diversity and quality, and do not yield efficiency gains.

## CONCLUSION

To briefly summarize the evidence examined in this paper, we can return to the thematic outline in Table I-2. We have shown that traditional antitrust principles articulated in *Merger Guidelines* across half a century identify concerns about the likely impact of mergers on market structure, competition and consumers. While attention has traditionally centered on horizontal mergers (between firms that compete head-to-head in the same market), concern about non-horizontal mergers has been growing and is an area where many antitrust theorists and practitioners believe the *Guidelines* need to be updated.

This need to look much more closely at vertical leverage and mergers is reinforced by developments in the broader analysis of economics, which has identified an expanding number of market imperfections that can be addressed by policy. The need is also magnified by the increasing importance of platforms in the communications sector that give network owners control over chokepoints that can be manipulated to promote their own interests at the expense of competition and consumers.

The Microsoft case set the direction, making it clear that technological change and dynamic innovation do not eliminate the need for vigorous efforts to prevent the abuse of market power and protect competition. It showed that in high-tech industries control of chokepoints becomes a critically important source of market power and over-the top competition (or efforts to undermine it) are likely the best hope for consumers. A vast empirical economic literature rejects the theoretical arguments used to explain and excuse high levels of concentration

traditionally associated with the abuse of market power. Microsoft's use of many of these arguments in its defense was to no avail.

Our empirical analysis examines the extensive economic literature that rejects the main elements of the defense of market power, including potential competition, contestability, one monopoly rent, and overbroad efficiency claims. The strengthening concerns about abuse of vertical leverage, and the weakening of defenses to excuse market power, have led the Department of Justice to successfully oppose a string of mergers (Comcast-NBC, Comcast-Time Warner, Charter-Time Warner Cable, and AT&T/T-Mobile), blocking some while placing conditions on others. The AT&T-Time Warner merger not only fits squarely within this terrain defined by theory, evidence, and past practice, but it falls much closer to the "just say no" side of the field.

The unique characteristics of the communications sector, which we describe as a tight oligopoly on steroids, magnify the concerns about the threat to competition posed by the merger. The digital communications space is not just a tight oligopoly with every product market above the threshold, but the same four firms dominate every market – multi-channel video, true high-speed broadband, wireless and business data services. The number of competitors is inevitably small because the minimum efficient scale in the industry is large, and numerous factors increase the possibility of implicit and explicit coordination. Thus, market power in digital communications markets is a particular concern because oligopoly coordination is facilitated by geographic separation, technology specialization, product segmentation, the historical legacy of market power from the franchise period, multi-market contact, and parallel behaviors that reinforce market power. This is the "steroids" part.

The abuse of market power by the tight oligopoly on steroids is evident in each of the product markets, eliminating any doubt that the firms have the incentive and ability to commit such abuse. Of course, the merger significantly increases the incentive and ability of AT&T, which our analysis shows is one of (if not the) leading firms in the oligopoly.

Our analysis also shows that efforts to prevent abuse of chokepoints in communications markets deliver significant benefits to consumers and competition. Because communications are infrastructure industries, ensuring access has a substantial benefit for the broader economy. Our review of three policies that ensured nondiscriminatory access (network neutrality, unlicensed spectrum, and limitation of ownership of primetime programming) not only shows the positive benefits of keeping chokepoints open, it also shows that abandonment of those policies quickly leads to abuse of market power.

Thus, the DOJ is on firm antitrust and economic grounds in concluding that the result of the merger would be severely detrimental to competition and consumers.

## **APPENDIX A: CONCEPTUALIZING AND MEASURING THE ABUSE OF MARKET POWER**

This appendix provides more technical discussion of the economic analyses of the various product markets and the estimation and linkage of key concepts, concentration, overcharges and excess profits,

### **THE WELFARE ECONOMICS OF THE ABUSE OF MARKET POWER**

To appreciate the focus on performance and the interconnection between prices, profits, efficiency, and equity, we turn to a standard analysis of the welfare economics of market or monopoly power. The incentive for dominant firms to raise prices and increase profits is basic to a balanced economic evaluation of market performance and public policy, and a central pillar of economic analysis. As exemplified in the notes for Figure III-1, we cite well-known liberal and conservative economists throughout this analysis.

When a firm with market power raises prices, it loses some sales (determined by the elasticity of demand). Why would it risk that? It will do so if the increase in revenue from the remaining sales is larger than the lost revenue from forgone sales, net of costs. The framing of the answer, shown in Figure III-1, appears in every basic textbook on economics, including all of the sources cited herein.

As shown in the upper graph of Figure III-1, in a competitive market, firms must sell at the competitive price, which “shares” the economic surplus between the consumer and the producer. Firms with market power raise prices, shooting for the point where the marginal revenue equals marginal costs. This maximizes their profits. It lowers consumer surplus but increases producer surplus. It creates some deadweight loss (inefficiency) and the total social surplus is diminished, but that is not the concern of the producers. They care only about their profits and increasing producer surplus.

As shown in the lower graph of Figure III-1, in a competitive market, when the cost of producing goods declines through, for example, technological progress, the supply curve shifts and the total surplus expands. Both consumers and producers should enjoy the benefits of an increase in surplus.

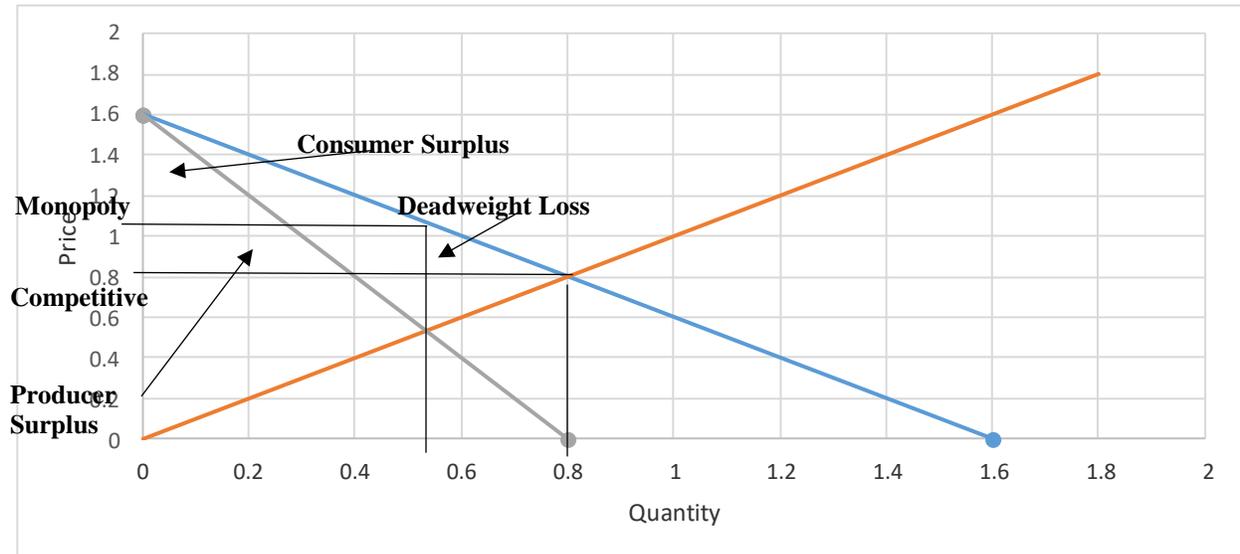
The distribution of the gains (called the incidence, and frequently analyzed as tax incidence) is determined by the elasticities of demand and supply. Market power enables the sellers to capture a disproportionate share of the increase in surplus.<sup>363</sup> Prices may go down, but they do so less than they would in a competitive market. Consumer surplus increases less than it otherwise would, while producer surplus increases more than it should. Deadweight loss increases. If demand were more elastic or entry of competitors easier, consumers would get a larger share (because producers would compete harder to keep their business by passing through more of the cost savings).<sup>364</sup>

On the other hand, if, as in these communications markets, demand is growing and becoming less elastic as these services become “necessities,” then market power may result in increasing prices and falling consumer surplus. The transfer of wealth to producers increases even more and imposes increased deadweight losses on society. The outcome depends on the

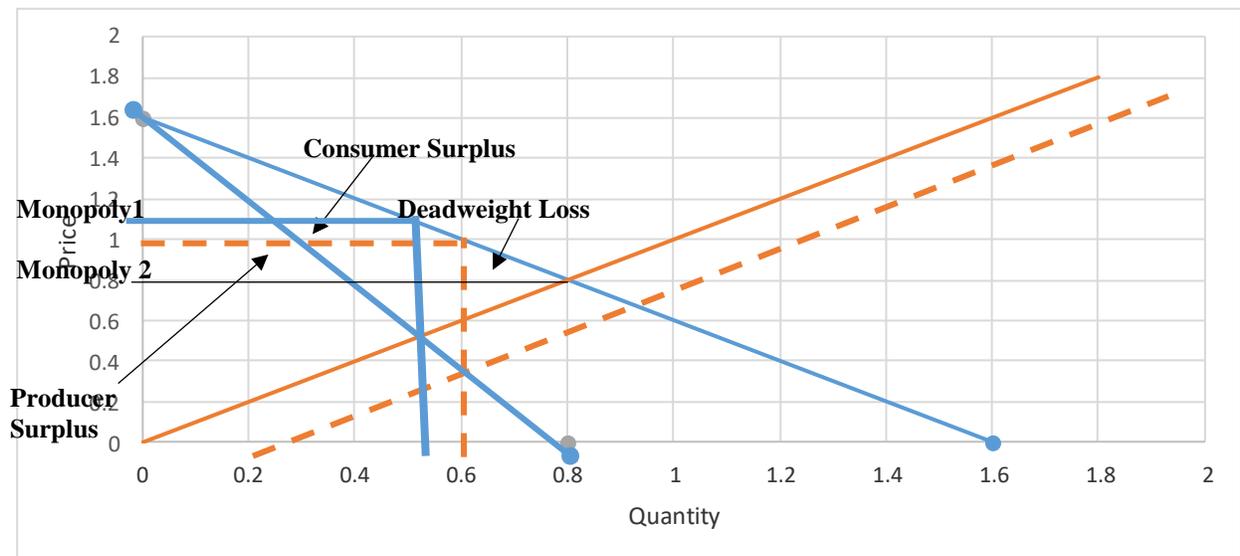
magnitude of the shifts in costs and demand. The important point is that technological progress is no guarantee against the abuse of market power.

**FIGURE A-1: ABUSE OF MARKET POWER**

**Increasing Prices, Wealth Transfers, and Efficiency Losses**



**Declining Cost and the use of Market Power**



Source: Scherer, F.M. and David Ross, *Industrial Market Structure and Economic Performance* (Boston: Houghton Mifflin, 1990), p. 34; William G. Shepherd, *The Economics of Industrial Organization* (Englewood Cliffs, NJ: Prentice Hall, 1985), p. 31; Viscusi, Kip, John M. Vernon, and Joseph E. Harrington Jr., *Economics of Regulation and Antitrust* (Cambridge: MIT Press, 2000), p. 79; John B. Taylor, *Economics* (Boston: Houghton Mifflin, 1998), p. 71.

**OPERATIONALIZING KEY ANALYTIC CONCEPTS**

The key market characteristics identified above—concentration, price, cost, and profits—have been captured in two indices that are interrelated: the Lerner Index (L) and the Hirschman-Herfindahl Index (HHI). Table IV-1 presents a series of key formulas that have been developed by both progressive and conservative economists to analyze industry structure and the exercise of market power.

**TABLE A-1: KEY MATHEMATICAL FORMULAS IN THE ANALYSIS OF MARKET STRUCTURE AND MARKET POWER**

1. Lerner Index Traditional Formulation

$$L = \frac{(P - MC)}{P} = \frac{1}{E^d}$$

Where P = price, MC = marginal cost, E = the market elasticity of demand

2. Landes and Posner Formulation of the Lerner Index

$$L = \frac{(P - C)}{P} = \frac{1}{E^d} = \frac{\sum S_d}{e_m^d + e_j^s (1 - S_i)}$$

Where  $S_d$  = the market share of the dominant firm,  $e_m^d$  = elasticity of demand in the market,  $e_j^s$  = elasticity of supply of the competitive fringe,  $S_i$  = market share of the fringe

3. The HHI Index

$$HHI = \sum_{i=1}^n S_i^2 * 10,000$$

4. Relating the HHI to Market Power through the Lerner Index

$$S_1 * \frac{(P^1 - MC^1)}{P^1} + S_2 * \frac{(P^2 - MC^2)}{P^2} + \dots + S_n * \frac{(P^n - MC^n)}{P^n} = \frac{HHI}{10000 * E^d}$$

5. Ordoover, Sykes and Willig formulation of the Lerner Index adding a “conjectural” factor

$$L = \frac{(P - C)}{P} = \frac{1}{E^d} = \frac{\sum S_d * k}{e_m^d + e_j^s (1 - S_i)}$$

Where  $S_d$  = the market share of the dominant firm,  $e_m^d$  = elasticity of demand in the market,  $e_j^s$  = elasticity of supply of the competitive fringe,  $S_i$  = market share of the fringe

**Sources:** Scherer, F.M. and David Ross, *Industrial Market Structure and Economic Performance* (Boston: Houghton Mifflin, 1990), pp. 70–71; William M. Landes and Richard A. Posner, “Market Power in Antitrust Cases,” *Harvard Law Review* (94): 1981; Viscusi, Kip, John M. Vernon, and Joseph E. Harrington Jr., *Economics of Regulation and Antitrust* (Cambridge: MIT Press, 2000), p. 149; Ordoover, J.A. and R.D. Willig, “Herfindahl Concentration, Rivalry, and Mergers,” *Harvard Law Review* (95): 1982.

The Lerner Index is a measure of how much prices exceed costs in the market. Scherer and Ross describe the attractiveness of the Lerner Index as follows:

Its merit is that it directly reflects the allocatively inefficient departure of price from marginal cost associated with monopoly. Under pure competition, [the Lerner Index equals zero (LI = 0)]. The more a firm’s pricing departs from the competitive norm, the higher is the associated Lerner Index value.<sup>365</sup>

In words, formula 1, above, says that the Lerner Index is a ratio. It is the markup above cost (P – MC) divided by the price. The Lerner Index is frequently expressed as the inverse of

the elasticity of demand. If consumers have the ability to switch to other products, sellers will not be able to increase the price significantly above costs because they will lose their customers.

While the Lerner Index is attractive from a theoretical point of view, there are generally uncertainties about the estimation of marginal cost. Even in antitrust proceedings where data is subject to subpoena, it is difficult to calculate.<sup>366</sup> Therefore, economists frequently consider several other measures of monopoly profits that are the aggregate manifestation or the result of the underlying pricing abuse.

In a seminal 1981 *Harvard Law Review* article,<sup>367</sup> William Landes and Robert Posner, two of the leading Chicago school law and economics practitioners, use these concepts. They ask, “What degree of market power should be actionable?” They respond, “The answer in any particular case depends on the interaction of two factors: the size of the market (total volume of sales) and the antitrust violation alleged.”<sup>368</sup> In a section titled “Market Share Alone Is Misleading,” Landes and Posner argued that antitrust authorities should take market fundamentals into account. In assessing the potential impact of market power, “the proper measure will attempt to capture the influence of market demand and supply elasticity on market power.”<sup>369</sup> Their intention was to convince antitrust authorities to ease up on enforcement, but the proposition should work in both directions. Markets that have low elasticities of supply or demand, or high total dollar stakes, could certainly demand more scrutiny, not less.<sup>370</sup> Infrastructure industries deliver service with relatively low elasticities, high value, and great importance.

In formula 2, Landes and Posner rendered the Lerner Index in a somewhat different formulation, which is useful in the analysis below. In evaluating mergers and market structures, it is necessary (and preferable) to consider the market power of individual firms and sum these across all firms in the market. In words, formula 2 says that the markup of price over cost will be directly related to the market share of the dominant firm and inversely related to the ability of consumers to reduce consumption (elasticity of demand) and the ability of other firms (the competitive fringe) to increase output (elasticity of supply).

There was an extensive debate over this formulation and another index was cited: the Hirschman-Herfindahl Index (HHI),<sup>371</sup> shown in formula 3. The HHI is a measure of market concentration. Viscusi, Vernon, and Harrington note that “the HHI has the advantage of incorporating more information about the size distribution of sellers than the simple concentration ratio does.”<sup>372</sup> The HHI is calculated by taking the market share of each firm in the market, squaring it, and summing across all firms. The index is converted to a whole number by multiplying by 10,000.

The HHI and the Lerner Index can be directly related in the analysis of market power, as shown in formula 4. As Viscusi, Vernon, and Harrington put it, “The HHI is directly related to a weighted average of firms’ price-cost margins for the Cournot [oligopoly] solution.”<sup>373</sup> In words, formula 4 says that the markup of price over cost in a market will be directly related to the market share of the firms (as captured by the HHI) and inversely related to the ability of consumers to reduce consumption (the elasticity of demand).

Ordover, Sykes, and Willig offered further qualitative refinement to the analysis in formula 5 that is extremely important in the highly-concentrated communications markets that are made up of dominant conglomerates.<sup>374</sup> This adds

“conjectural variation” of the firm ( $k$ ), which measures firm  $i$ 's perception of its interaction with the other nonprice taking firms. Where the conjecture is positive, the interaction is perceived to be parallel... the more positive its  $k$ , the more likely firm  $i$  will be to depress its output... to take advantage of the implicit cooperation expected from other firms in elevating the industry price.

As described below, the communications firms are non-price-taking firms with multiple market interactions and have exhibited a wide range of parallel and even coordinated behaviors.

### CONCEPTUAL CLARITY, EMPIRICAL COMPLEXITY

The conceptual clarity of the Lerner Index encounters many complexities because “it is almost impossible to gather the necessary information on prices and particularly costs” (Wikipedia). The Lerner Index can be estimated indirectly by dividing the HHI by the elasticity of demand for the firm's product. However, the latter is difficult to measure and changes over time.

Analysts turn to accounting costs that are frequently used in financial evaluation of communications firms. The most frequently used accounting concept is earnings before interest, taxes, depreciation and amortization (**EBITDA**). When expressed as a percentage of total revenue, this is the **EBITDA margin**.

However, because the firm must be able to invest in capital equipment, variable or operating costs (even including a normal rate of return on capital) may not resolve the estimation problem in industries that are capital intensive. This can be funded out of what is left over after costs are subtracted from revenues. Analysts frequently calculate **EBITDA minus capital expenditures** to take capital expenditures into account (as the FCC did in recent wireless competition reports).

Another simple accounting measure that is used to some extent is the **return on equity** or **return on invested capital**. These measures are uncertain because the firm's cost of capital is not known and comparison firms of similar risk are difficult to identify.

Another complexity arises because of the dynamic technological revolution occurring within the communications sector. Dramatic cost reductions are taking place in virtually every aspect of the delivery of digital communications services. In a competitive market, we would expect prices to be declining, but the abuse of market power precludes or diminishes this process. Thus, even flat prices do not prove that consumers are not being overcharged. **Analysis of broad cost and price trends can shed light on this issue**

These complexities are compounded in industries that have been monopolies, or where the existence of market power has persisted for a long period of time. Because they have not been subject to competitive pressures, **significant inefficiencies** may be embedded in their cost structure. While these inefficiencies do not appear as excess profits, they do result in unnecessary costs imposed on consumers that can be considered overcharges. Some light can be shed on inefficiencies by comparisons with different regulatory or business models.

Yet another complexity occurs when firms sell multiple products, some of which are regulated or face very different levels of competitive pressures. In this case, there is an incentive to allocate costs to the regulated or less competitive services where the market may bear higher costs. The pattern of margins reflects these **strategic choices** about cost allocation, not underlying costs.

## **TYING THE EMPIRICAL AND CONCEPTUAL ANALYSIS TOGETHER**

The importance of this framework as background becomes readily apparent when the full scope of merger review laid out in the *Merger Guidelines* is considered. Although the analysis is merger and fact specific, the *Guidelines* include extensive discussion of the type of factors the antitrust analysis will consider in making a final determination on the likely competitive effect of a proposed merger. The conditions identified as increasing the vulnerability of markets to the abuse of horizontal market power in the *Guidelines* can be related to the earlier discussion of the abuse of market power and the Lerner index, but noting that each of the factors tends to increase the Lerner Index, as in Figure A-2.

Some factors increase the numerator of the Index, others reduce the denominator. The market structural condition in place in 1996 were very challenging for competition to grow as hoped for in the 1996 Act and the threat of the abuse of market power was very great. Antitrust and regulatory authorities underestimated the challenge and plowed ahead with deregulatory policies and lax oversight on the mistaken belief that competition was just around the corner.

### **Multiple Measures, Multiple Data Sources**

**Measures:** Thus, the estimation of overcharges must reflect a complex pattern of price/cost/profit relationships. Given the complexity, in the analysis below we examine multiple indicators to arrive at a cautious estimate of overcharges.

The analysis in each section begins with concentration to demonstrate that the potential for the abuse of market power exists. As shown in Table 1, we find that all the product markets examined in this paper are highly concentrated tight oligopolies.

Next, we look at price and cost trends. Because many of these product markets have not experienced vigorous competition, we make a number of comparisons.

With respect to prices and cost, we examine:

- comparisons to broad cost in the economy and the communications sector,
- periods in which competition for a specific product was more effective,
- periods in which cost-based regulation for a specific product was in place,
- similar U.S. products or markets that are subject to greater competition, and
- similar international products.

With respect to financial performance, we examine:

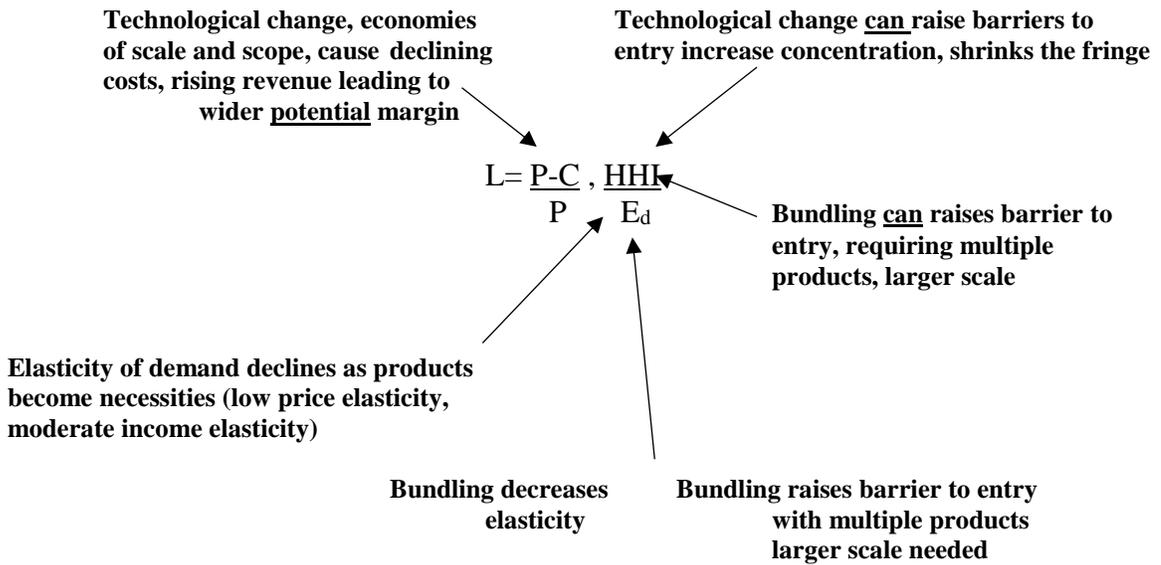
- EBITDA,

EBITDA minus CapEx, and three broader indicators of the existence of overcharges at the firm level.

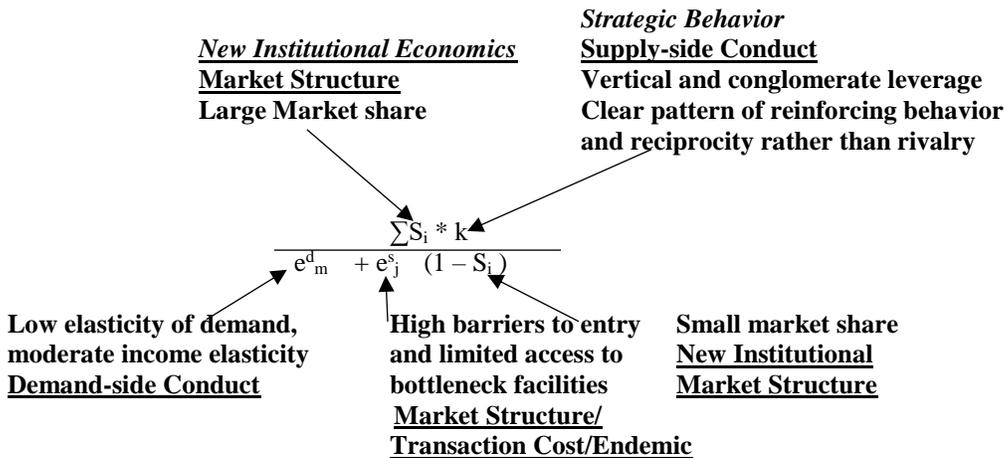
- Return on Investment
- Total Yield
- The throw-off of cash

**FIGURE A-2: LINKING THE STRUCTURE CONDUCT PERFORMANCE PARADIGM TO ABUSE OF MARKET POWER**

**Practical Contemporary Empirical View**



**Broader Analytic Framework**



EBITDA minus CapEx is the primary basis for our estimate of overcharges, located within this broad analysis of prices, costs, and profits. The specific estimate of current overcharges focuses on the past five years. However, we use the period since the passage of the Telecommunications Act of 1996 to provide context for the estimate of overcharges, particularly the past fifteen years; the period in which the digital revolution penetrated deeply into the sectors that provide the primary consumer communications.

## DATA

In this paper, we strive to introduce rigor into the analysis not only by grounding the empirical measures on strong theoretical constructs, but also by looking at multiple sources of data for each construct.

Table A-2 summarizes the framework for the analysis of market structure, identifying the key factors that determine market performance used in this paper. The left side of Table II-5 identifies the key factors that affect market structure and performance. The right side of the table presents the data and assumptions used to arrive at the estimation of abuse. Some of the data is widely available from multiple sources; some is more difficult to find. By and large, we try to rely on official government sources. The bottom line measures we use to describe the harm are the result of this intensive data-gathering undertaking. We believe these estimates are quite cautious.

**TABLE A-2: OVERVIEW OF DATA SOURCES**

Element	Source	Intl Gov't	Financial Analysts	Public Interest	Company Reports
Market Structure					
HHI, CR4	FCC, DOJ	OECD	Moffet, Others	Numerous Regulatory	Annual
Market Size					
Subscribers	FCC, Census DOJ	OECD	Leitchman	Pew	Annual Regulatory
Revenue	FCC		Moffett, Others		Annual
	BLS-CPI	OECD CRTC	Moffett Others	New Am. CFA	Regulatory
Cost/Earnings	FCC		Moffett, Others		Annual

Official documents are of three primary types. First, we have official annual reports. The FCC has long-standing reports on these industry characteristics. The coverage of these reports has shrunk because the FCC cancelled several of them. However, because of the recent changes in policy and the extreme importance of communications, we have a series of annual reports on the state of the industry. Reports on the state of competition were mandated in the 1990s as deregulation policies were instituted.

Second, regulatory proceedings exist in which specific policies that affect the market are considered. Here the agency will seek information, form an opinion, and seek comment. The official proceedings elicit extensive comments from the affected parties and the public.

The third type of official document is produced when potential mergers are analyzed. Mergers are extremely important events in determining market structure and performance, so they call forth very intensive efforts to evaluate their impact. The FCC has a formal process in which the merging parties must explain the basis for the merger, and other parties can petition to deny the merger. The DOJ investigates and generally only makes detailed findings public when it opposes a merger (makes a complaint) or, in some cases, agrees to the merger with conditions (settlement). Because two major mergers have recently been rejected (Comcast/Time Warner and ATT/T-Mobile) and two approved with extensive conditions (Comcast/NBC and Charter/Time Warner), we have a great deal of detailed data on current market structure and performance in the communications sector.

We also have financial analysts who spend a great deal of time providing information, primarily for investors. Many of these are ongoing analyses of the sector, frequently tied to financial performance, which is a key element of the harm analysis. These analysts also tend to handicap the outcome of mergers with more detailed analysis of the individual firms involved in the merger transaction. Companies' Annual Reports are our primary source of financial data.

The level of concentration, estimated based on number of subscribers and/or total revenues, is the central characteristic, since it tells us whether there may be a problem of market power. Government documents address this issue, as do analysts' reports. Industry comments in merger proceedings do, as well.

The strategy, as summarized in Table A-3 was to develop multiple measures based on multiple sources to offer a cautious estimate. In a sense this undertaking is no different than what happens in a merger review, where the antitrust authorities develop a projection of the likely impact on prices, competition, quality and market behaviors (e.g. incentive to innovate). The difference is that this analysis looks backward at what has happened to market structure and prices as the result of the merger wave and the growth of the tight oligopoly on steroid, rather than forward.

Table A-3 locates the estimate of overcharges in the context of the several sets of data. Working from the top to the bottom, the analysis can be summarized as follows.

The top of the table shows the estimates of concentration, which is the first step in the analysis. There is no doubt that these markets are highly-concentrated tight oligopolies. We round to the nearest hundred for the HHI.

The price/cost comparisons based on standard consumer price indices and a specialized index of costs shows a large price/cost gap.

The estimates of overcharges based on price comparisons exhibits a wide range.

**TABLE A-3: PRICES, MARGINS AND OVERCHARGES FOR SPECIFIC PRODUCTS**

<u>Market Concentration</u>	<u>Wireless</u>		<u>Video/Broadband Bundle</u>	
	Basis	Value	Basis	Value
HHI > 2500 is highly concentrated	National	2900	National	1900
	Local	3100	Local	3100
			Broadband	
			National	3300
			Local	7000
Tight Oligopoly, Top 4-firm Market share > 60%	National	98%	National	83%
	Local		Local	98%
			Broadband	
			National	77%
			Local	99%
<u>Annual Rates of Change in Costs and Quality Adjusted Prices</u>				
<u>Economy-Wide</u>	<u>General</u>			
<u>Equipment</u>				
All (1995-2014)		-11.0		
Network (1995-2009)			-16.1	-11.6
Customer Prices (1997-2015)				
CPI-All Item		2.2		
Info Service		-1.5		
Wireless			-3.3	
Cable				3.7
Landline Intra				-1.0
Landline Inter				-2.6
<u>Product Specific Prices</u>				
Service Level Price	(\$/subscriber/month)		(\$/household/month)	
Greater competition	Pre-consolidation	\$20-\$30	Ownership type	NA
	CPI-projections	\$25	OECD Matched	\$31
			Set-top Box Cost	\$3-\$7
Similar international services	OECD Matched	\$20-\$30	1992 Cable Act + inflation	
<u>Customer Premise Equipment</u>	Hand Set Cost	\$3		
	Companies			
<u>Financial Performance</u>				
EBITDA-based overcharge	T-Mobile as base		2002 as base	
EBITDA (2010-2015)	FCC + Companies	\$10-\$15	FCC + Companies BB	\$25
EBITDA - CapEx. (2010-2015)	FCC + Companies	\$10-\$15	FCC cost-regulated	\$10
<u>Bottom line</u>				
Monthly Overcharge (2015)		\$10		\$25
Total Overcharges (Billions, 2015)	(\$/Monthly*12*units)		(\$/Monthly*12*units)	
	\$10*12*270m	\$32.4	\$25*12*80m	\$24
(Business Data Services ~ \$20)				
<u>Excess Cash Throw-Off</u>				
Average annual (2011-2015)	ATT + Verizon	\$45.1	Comcast + New Charter	\$35.8
Acquisitions		\$18.6		\$23.0
Accumulation of liquid Assets		\$10.1		\$10.3
Excess Dividends		<u>\$16.4</u>		<u>\$ 2.5</u>

We base our estimates of the overcharges on the EBITDA based figures, which yields an overcharge estimate at the bottom of the range of price comparisons. We show the business data services, which are assume to be accounted for in the overall estimate).

Finally we “account for” the overcharges by estimating the throw-off of cash by the dominant firms. Our estimate of overcharge is substantially below the estimate of excess cash.

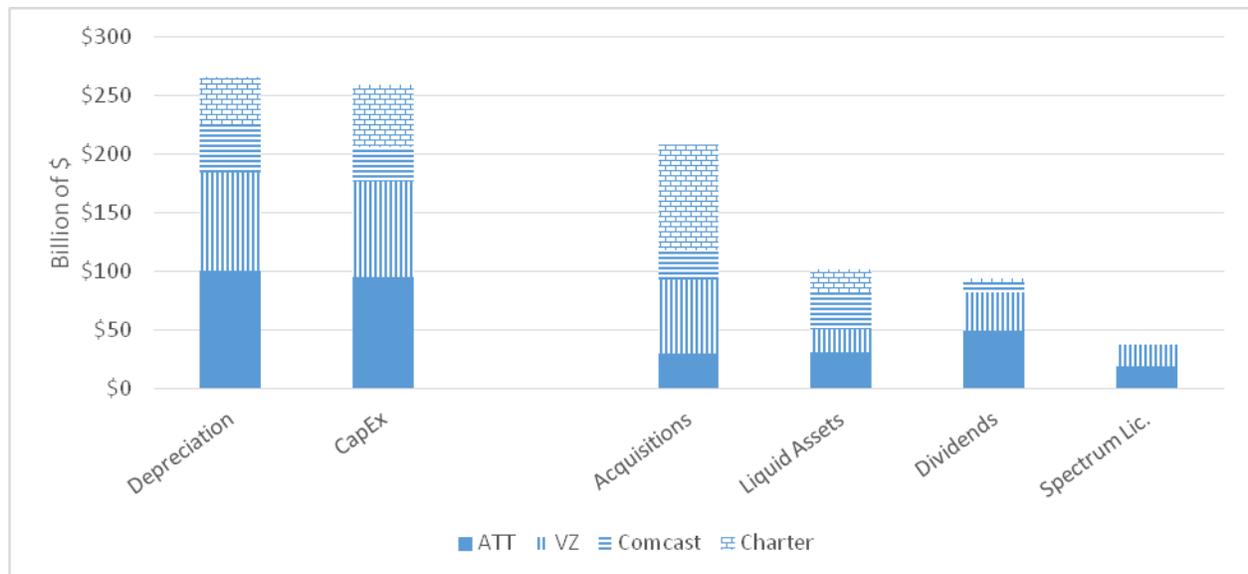
**WHERE DOES ALL THE MONEY GO: ACCOUNTING FOR OVERCHARGES AND EXCESS PROFITS**

Combining the consumer pocket overcharges, we conclude that the total is almost \$60 billion per year. While the overcharges have mounted, the total for the past five years is in the range of \$250 billion or more. These overcharges represent a huge sum, although we have emphasized that this represents less than a quarter of the total revenues of the companies imposing them. Is it possible that rates could come down that much and not harm the communications sector? Put another way, where does all the money go? Placing this figure in historical perspective provides a clear answer. There are three factors that indicate rates could and should come down by that much.

First, competition would lower costs in the industry. The comparative rate and cost analysis suggests that there is a significant amount of fat that could be cut by competition.

Second, as shown on the left side of Figure A-3, stockholders are not putting new net investment into the industry; consumers are fully funding the investment in the industry. Depreciation exceeds capital expenditures substantially for the cable operators, while, for the telephone companies, it is somewhat less than Capital Expenditures (although that is primarily caused by capital costs carried on the books for local telephone services). The companies do not need excess charges to fund the level of capital investment they are making.

**FIGURE A-3: EXCESS CASH THROWN OFF FROM THE COMMUNICATIONS GIANTS**



Source: Corporate Annual Reports, various.

Third, the industry throws off a huge amount of cash that is not put back in to improve or expand the operation of the sector.

Mergers and acquisitions ate up over \$200 billion.

Increased liquid assets (retained earnings and stock repurchases) alone came to over \$300 billion.

Dividends add almost another \$100 billion to the throw-off of cash. While some dividends must be paid, the dividend rate, driven by the dominant wireless/landline companies, is about twice the national average. This category might represent as much as another \$50 billion in excess rewards to stockholders.

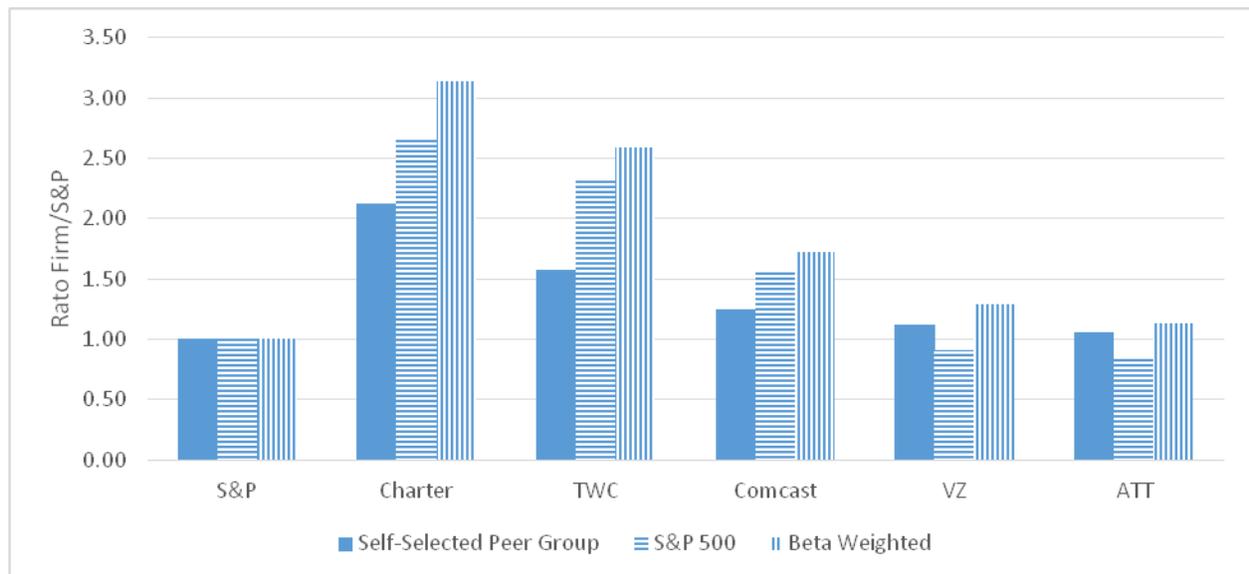
Finally, the prices paid for auctioned spectrum can also be seen as excessive, since the dominant incumbents pay a premium to keep spectrum out of the hands of potential competitors. This would increase the total amount of excess cash used for purposes that do not contribute to the growth of the sector.

Thus, excess returns to shareholders easily account for the excess prices paid by consumers. Reducing this waste and taking cost-reducing competitive measures would add to total consumer savings.

### Pumping Up Stockholder Returns

The companies understand exactly what they are doing with their excess profits. They tout their ability to increase shareholder returns and build shareholder value. The company annual reports present two comparisons that are thoroughly misleading, as shown in Figure A-4.

**FIGURE A-4: COMPARISON OF 5-YEAR TOTAL RETURN**



Source: 5-year total return from Annual Reports; Betas from *Value Line*, July 8, 2016.

On the one hand, they show the Standard and Poor's 500, without acknowledging that the S&P 500 firms face, on average, a lot more risk than the communications giants do. We would

expect the S&P returns to be higher. On the other hand, the companies present an index for a “peer” group of communications companies. Unfortunately, many of the companies included in the peer group are likely to be abusing their market power. The only conclusion one could draw is that the communications giants are capturing about the same amount of excess returns as the others.

In Figure XIV-2, we present a meaningful comparison. We weight the yield by the riskiness of the enterprise, using a standard measure of risk, the Beta, which we take from *Value Line*. Cable companies’ risk-weighted five-year total return is twice that of the S&P 500, as shown in Figure XIV-2. For the telephone companies, the excess is about 20%, on a much larger asset base and market capitalization. Simply put, as we showed in the analysis of the welfare economics of market power, the abuse of market power is great for shareholders but bad for consumers.

### The “Give-Up Gap”

Some analysts argue that pumping up short-term profits is shortsighted. As noted in the *New York Times Business Section*, “One of the best arguments against stock repurchases is that they offer only a one-time gain, while investing intelligently in a company’s operations can generate years of returns.”<sup>375</sup>

Robert Colby has proposed a simple comparison called the “Give-Up in Growth,” which asks, “What rate of return is required on investing the buyback funds to grow the Net Profit and EPS at the same rate as the Earnings per Share (EPS) grew due to the buyback?”<sup>376</sup> He compares the rate of growth of earnings per share (which can be increased by stock buybacks because treasury stock is not included in the calculation) to the rate of growth. He identifies 30 firms with large buyback programs, none of them communications giants. The mean was 5%. He describes the average Give-Up of 30 stocks with significant buyback between 2008 and 2015 as follows: “Using the averages, the Give-Up is 5.0% [per year], which is an enormous difference in the amount of cash generated.”

ATT, which has a relatively low Give-Up in terms of stock buybacks, has the highest dividend rate by far. In fact, some analysts see dividends and stock repurchases as alternative approaches to increasing yield to stockholders. The criticism of share buybacks compared to dividends is not about what is better for the company, but what is better for the stockholder v. management. As Shauna O’Brien notes,

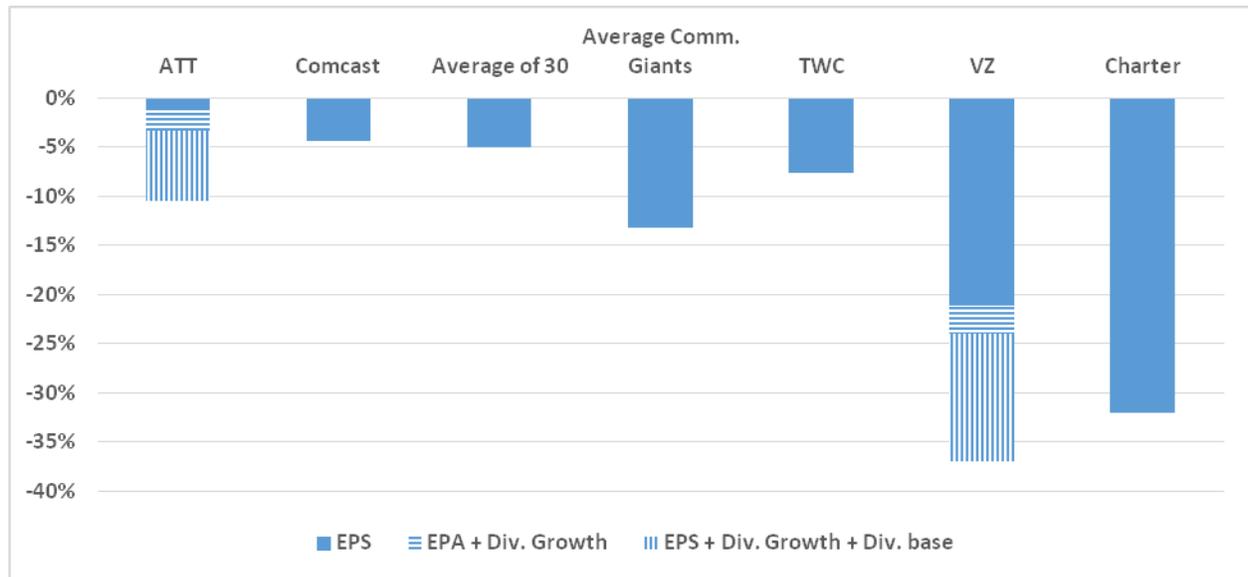
Company buybacks occur when a company decides to repurchase shares of its stock either on the open market, or directly from shareholders in private transactions. Companies partake in share buybacks as a way of “investing” in their company with their excess cash flow. Many investors erroneously believe that share buybacks are somehow profitable to them, but in reality, they are designed to benefit the corporation and its insiders—not shareholders...

Buying back shares is a common technique to artificially increase earnings per share (EPS). This process helps the company meet or exceed analysts’ estimates, as well as the company’s own internal company targets. Share repurchases can also help temporarily keep a stock’s price afloat — not because the market believes the stock is of high quality, but simply because the company is throwing its own money at its own stock.<sup>377</sup>

Figure A-5 shows the Give-Up numbers for the communications giants that are the focal point of this analysis. Their average is twice that of the group studied by Colby as presenting a problematic Give-Up position. Four of the five companies are well above the average.

Company buybacks occur when a company decides to repurchase shares of its stock either on the open market, or directly from shareholders in private transactions. Companies partake in share buybacks as a way of “investing” in their company with their excess cash flow. Many investors erroneously believe that share buybacks are somehow profitable to them, but in reality, they are designed to benefit the corporation and its insiders—not shareholders...

**FIGURE A-5: GIVE-UP ANALYSIS: INCOME GROWTH/EARNINGS-PER-SHARE GROWTH OF COMMUNICATIONS GIANTS COMPARED TO 30 FIRMS**



Sources: Average of 30, Colby, Robert L., 2016, *30 Stocks with Significant Buyback between 2008 and 2015*, May 4. Communications Giants: Annual Reports, Dividend Yields, *Value Line*, July 8, 2016.

Buying back shares is a common technique to artificially increase earnings per share (EPS). This process helps the company meet or exceed analysts’ estimates, as well as the company’s own internal company targets. Share repurchases can also help temporarily keep a stock’s price afloat — not because the market believes the stock is of high quality, but simply because the company is throwing its own money at its own stock.<sup>378</sup>

Figure A-5 factors this in with two steps. First, we compared the dividend yield of Colby’s 30-Gap stocks (i.e., the 30 firms he identified as having large buyback) to the *Value Line* market average. It was close at about 2%. Having observed that AT&T and Verizon are well above that level, we calculated the rate of growth of dividends and added that to the Give-Up analysis. This increases the Give-Up by a small amount, but it does not take into account that the dividend yield started well above the national average. In the second step, we add the additional throw-off of cash above the market average. With excess dividends included in the analysis, the telephone companies are shown to be no better than the cable companies in terms of misdirecting cash to pump up stock prices; they just do it in a different way. In short, from the point of view of the welfare economic framework, there is an immense amount of waste to account for the excessive charges, and a great deal of excess profits enjoyed by stockholders and management, all to the detriment of consumers.

## Return on Capital

Using the return on invested capital to identify excess profits is tricky. The calculations are almost always done at the corporate level, but the communications giants have multiple lines of business with very different rates of profit. Moreover, finding firms for comparison to identify a normal rate of profit is extremely complicated. Broad categories do not capture important differences. In the S&P framework, video falls in the consumer discretionary category and wireless falls in the telecommunication services framework. But we argued that these services have become more like necessities with respect to consumer demand, so utilities might be a better comparison.

While we have estimates of the return on invested cable operations from Moffett, AT&T and Verizon present much more complex entities, offering wireless, broadband, and video operations, as well as traditional telecommunications services. The EBITDA for wireless operations is almost 2.5 times as high as the EBITDA for the rest of the company. Moreover, it appears that capital costs are dumped into the wireline category. For wireless, depreciation is just under one-third of EBITDA; for wireline, depreciation accounts for three-quarters of EBITDA.

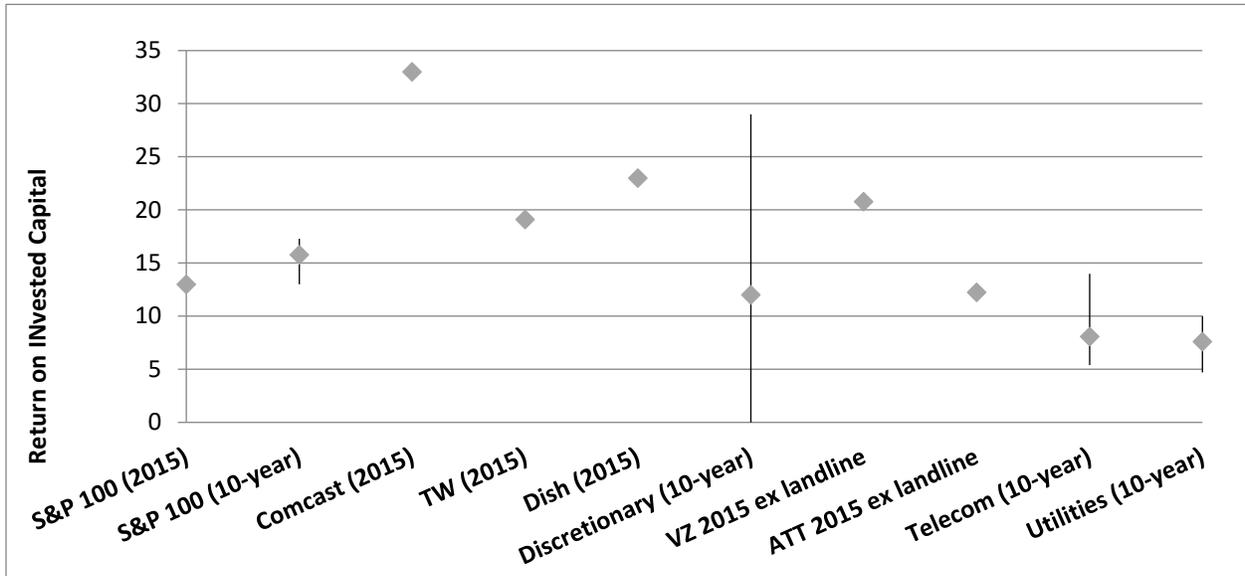
Figure A-6 presents estimates of the return on invested capital. The upper graph uses current and 10-year return on invested capital with the Standard and Poor's 100 and the two groups (consumer discretionary and telecommunications service) in to which the communications firms are placed by S&P. We adjust the Verizon and AT&T overall corporate return by assuming the wireless segment outperforms on ROC by the same ratio as it outperforms the overall corporation on EBITDA.

The lower graph uses the 10-year return on capital calculated by Joel Greenblatt of GuruFocus. The comparison groups are global telecommunications services and global PayTV. Here, we show his original calculation and one that is adjusted for wireless superior performance.

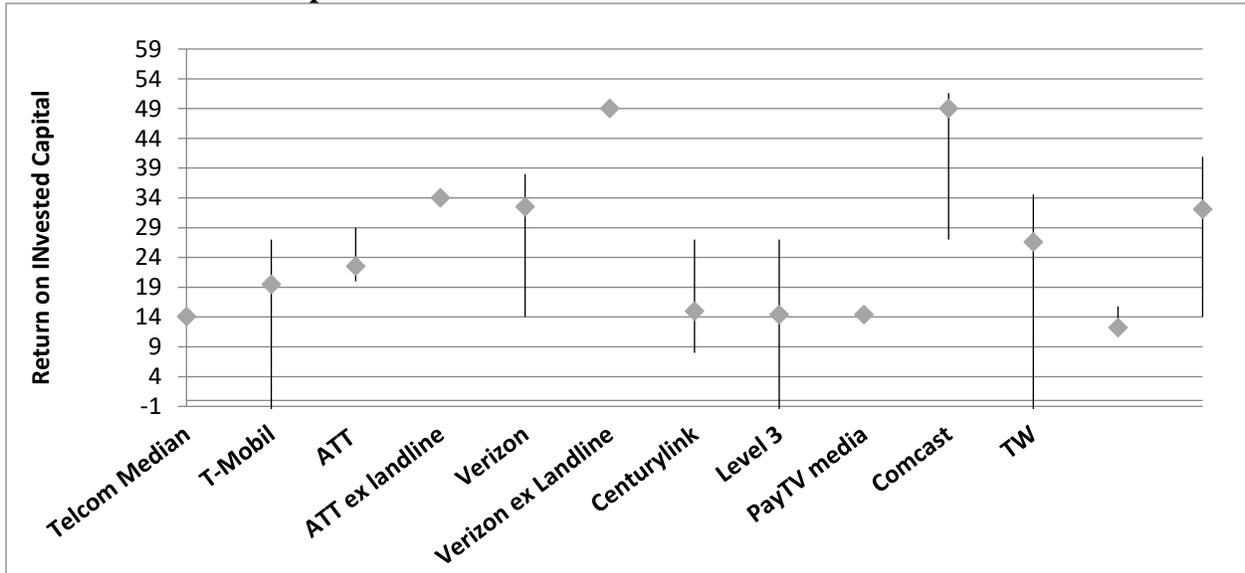
In all cases, we find the dominant firms earning much higher rates of return than the median. Similar to the total return analysis, Comcast and the cable operators have much higher rates of profit.

**FIGURE A-6: RETURN ON CAPITAL**

**10-Year Return on Invested Capital, (except as noted)**



**10-Year Return on Capital**



Sources: J. Brett Freeze, *Return on Invested Capital: Its Role in Market Valuations*, May 26, 2016; GuruFocus for ROIC for telecommunications companies, 2015 Annual Report for EBITDA.

## **APPENDIX B INTERNATIONAL COMPARISONS**

### **WIRELESS**

International comparisons provide additional support for the overall analysis. Many such comparisons have been made, generating a great deal of debate and becoming more refined over time. Figure B-1 reflects these refinements in several ways. First, it is based on the analysis of regulatory bodies. Second, it models the cost of specific typical bundles. Third, it focuses attention on reasonably comparable nations.

The evaluation of wireless pricing in large nations such as Australia, France, and the United States supports and provides insights into our analysis in two regards. First, the U.S. price is substantially higher. For the larger bundles, the differences are in the range of the earlier analysis (\$20–\$30 per 7 month). Second, the effects of competition have been noted in these studies.

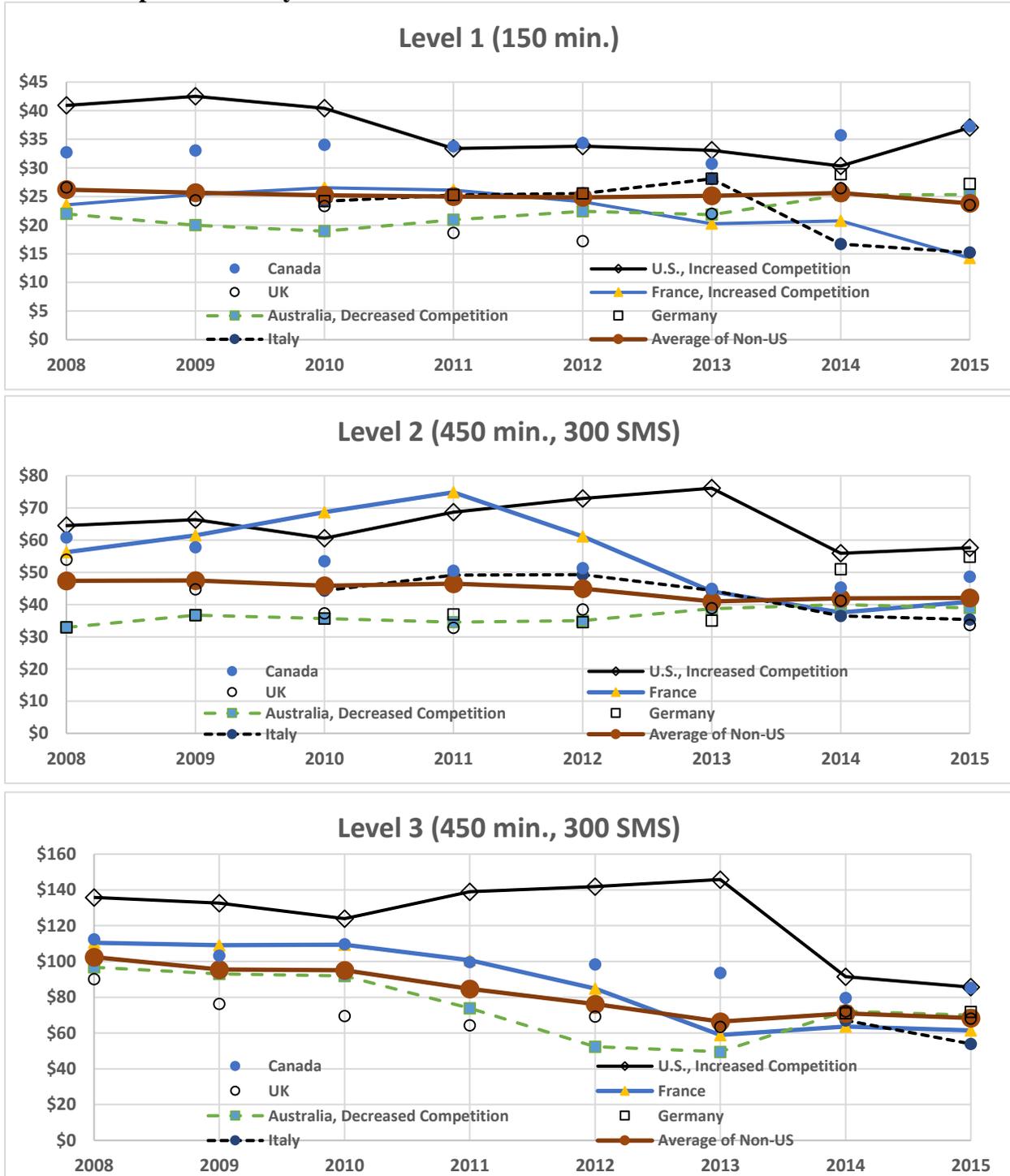
Countries that introduce competition experience price declines. Countries that reduce competition experience price increases. The analysis selects large, reasonably comparable nations with respect to income levels. Many cross-national comparisons are plagued by the inclusion of nations with different sizes, densities, and income levels.

### **PRICE COMPARISONS OF BUNDLES ACROSS NATIONS AND OWNERSHIP TYPES**

Although international comparisons of cable/broadband access rates have been a significant bone of contention for several years, they strongly support the conclusion that market power is being exercised in the United States. The driver in these comparisons is the notion that the marketplace is better regulated in other nations through a variety of interconnection and rate-setting policies that result in lower prices. Meanwhile, operating under the assumption that competition would prevent abuse, the United States allows the unfettered abuse of market power by dominant service providers. As shown in the upper graph of Figure B-2, the international comparisons provide additional evidence for our conclusion.

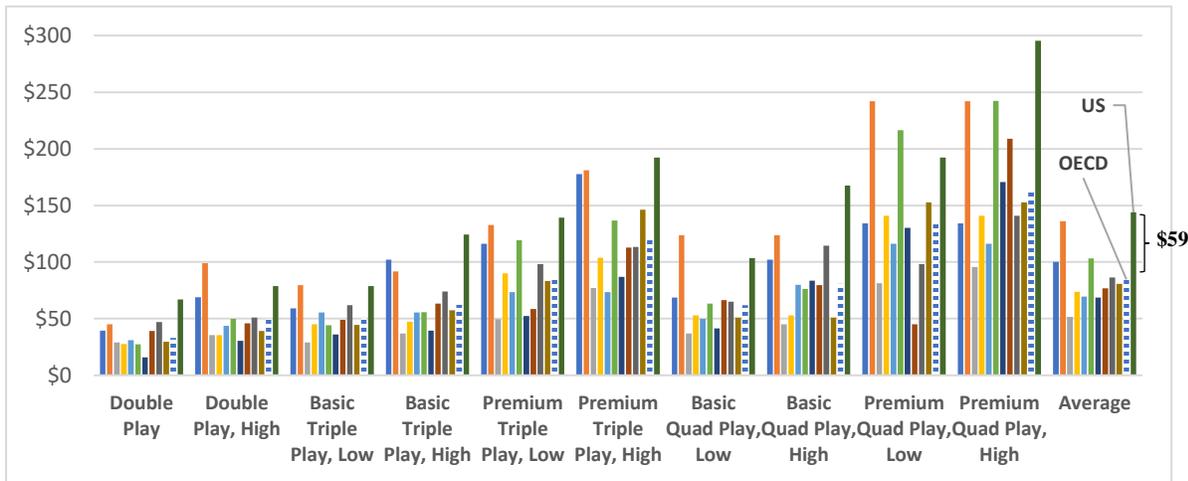
The United States has higher prices in every bundle of service compared to the broad set of advanced economies. The national and international rate analyses put the average excess at around 40% of the monthly bill. The lower graph in Figure B-2 breaks out two subsets of OECD nations to highlight and correct for some of the pitfalls in these comparisons. Costs in telecommunications are driven significantly by population density, while prices are influenced by income (what the market will bear). Australia and Canada are very low-density nations. The United States is about nine times as dense as those nations.<sup>379</sup> Germany and France are high-density nations. The U.S. density is one-fifth the average of those two nations. All of the nations are large geographically and are wealthy, although the United States is the largest and wealthiest.<sup>380</sup> Despite the fact that it is denser and wealthier than the low-density nations, prices in the low-density nations are almost 20% lower. The high-density nations have prices that are over 50% lower. Placed in this context, the average difference of about 40% in the upper graph makes the CPI-based estimates presented above seem reasonable.

**FIGURE B-1: MOBILE SERVICE: MONTHLY BILL CRTc RATE COMPARISONS AND OECD Competition Analysis**

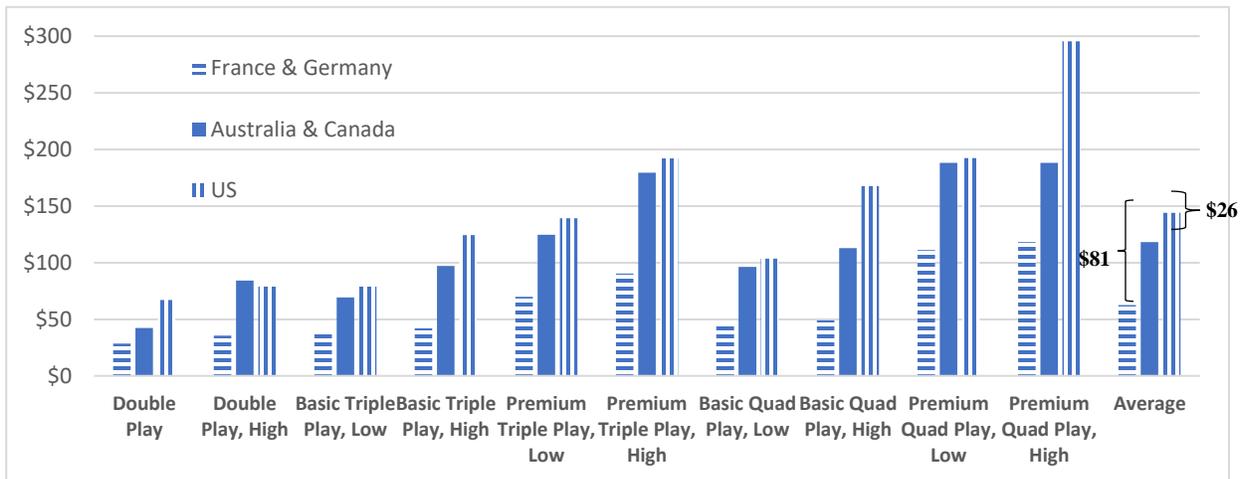


Source: Wall Communications Inc., 2015, *Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions*, 2015 edition, prepared for the Radio-television and Telecommunications Commission and Industry Canada, March 30. OECD (2014), "Wireless Market Structures and Network Sharing," *OECD Digital Economy Papers*, No. 243.

**FIGURE B-2: INTERNATIONAL AVERAGE MONTHLY CHARGES: ALL BUNDLE OFFERINGS**



**U.S. Compared to Large, High-Density (France & Germany) and Low-Density (Australia and Canada) Advanced Economies**



Sources: OECD (2011), “Broadband Bundling: Trends and Policy Implications,” *OECD Digital Economy Papers*, No. 175, <http://dx.doi.org/10.1787/5kghtc8znnbx-en>.

Comparisons have also been made between ownership types, operating under the belief that different types of owners have different incentives. Analysts who generally supported the cable/telco point of view were particularly adamant in criticizing publicly owned (generally municipal) providers of MVPD/BIAS services. Yet, as pressures mounted on the set-top box issue, one of those organizations, the Phoenix Center, resorted to a comparison of charges for set-top boxes between investor-owned MVPD/BIAS companies and municipal providers.<sup>381</sup>

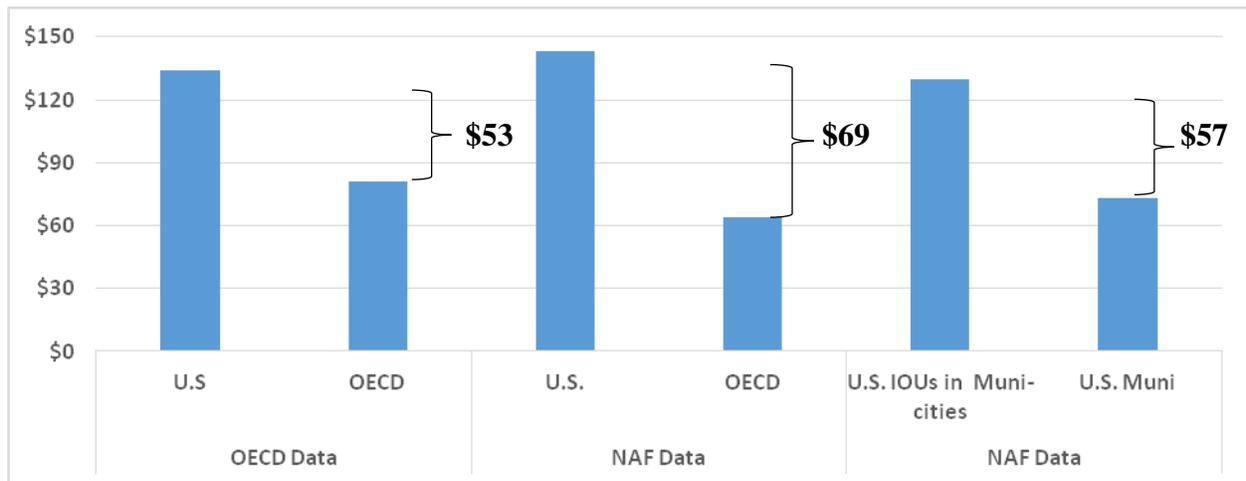
Ironically, the analysis of the quick and dirty survey they conducted noted that “perhaps the prices provide very little information, since the customer cares only about the sum of the cost of video and any related equipment. In many cases, at least one set-top box is provided at no cost, indicating that the cost of that box is rolled into rates.”<sup>382</sup> We have pointed out that just as consumers worry about the bottom line, producers care about their bottom line and have a significant ability to influence it when they possess market power.

Although, the Phoenix Center paper noted that full cost comparisons may be more relevant, it did not present any such analysis. Since the survey was based on prices available at websites, it would have been easy to compare the total service prices advertised. Invoking a comparison between investor-owned MVPDs and Munis, and suggesting that the total monthly bill is what matters, opens a line of analysis that the dominant MVPD/BIAS operators and their supporters have tried aggressively to close.

Figure B-2 shows why they did not make such a comparison. The rate comparison would have been devastating to the investor-owned MVPDs. Figure B-2 shows the results of a CFA analysis of data gathered by the New America Foundation (NAF) to explore both the cross-national and cross-ownership questions. Since the timing of that survey was similar to that of the OECD data discussed above, we have included that as well. Moreover, we focus on triple-play bundles because that is what the municipal providers specialize in and what investor-owned cable companies emphasize in their sales efforts. This introduces a control for bundles. We also show cities in which both Munis and investor-owned MVPDs are found – another form of control.

We find that the U.S. rates identified in the OECD data and the NAF data are similar. In the full NAF sample, U.S. prices are a little higher, while OECD prices are a little lower. In the subsample of cities where Munis operate, we find that the rates charged by “well-regulated” OECD service providers are similar to those charged by municipal providers. Across these comparative analyses, we observe a range of estimates of excess charges, but the central tendency is slightly over 40% of the average monthly bill.

**FIGURE B-2: COMPARISON OF MONTHLY BILLS FOR TRIPLE PLAY SERVICE: U.S. VERSUS OECD, IOUS VERSUS MUNICIPAL SERVICE PROVIDERS**



Sources: OECD from, OECD (2011), “Broadband Bundling: Trends and Policy Implications,” *OECD Digital Economy Papers*, No. 175, <http://dx.doi.org/10.1787/5kghtc8znnbx-en>; NAF from: Mark Cooper, “Comparing Apples-to-Apples: Municipal Wireline and Non-Baby Bell Wireless Service Providers Deliver Products That Are More Consumer-Friendly,” Consumer Federation of America, November 21, 2013.

## BUSINESS DATA SERVICES

A recent study filed in the ongoing proceeding provides an independent source of data that supports the estimate of the harm imposed by the abuse of market power in the provision of special access service.<sup>383</sup> The study adopts the same welfare economic framework used in this paper. It launches from the observation that in other nations where special access was not deregulated, prices are much lower. In the U.K., which is the primary focus, rates are half of the U.S.<sup>384</sup>

The study then estimates consumer welfare transfers due to market power, deadweight efficiency losses and indirect macroeconomic costs, called spillovers. It makes a counterfactual back-cast. ‘What if rates had been driven down to cost in the past five years (*i.e.* 2011 to 2016)?’

For 2016 the study estimates consumer welfare transfers plus deadweight losses (both of which come out of consumer surplus) at \$2.8 billion and spillovers at \$5.9. The five-year totals are \$13 billion and \$28.3 billion respectively. These estimates are not directly comparable to the ARMIS-based estimates, but several simple adjustments show that the results are actually quite close to those discussed above.

First, the WIK-study deals only with Ethernet service, which in the U.S. is only 40% of the market. Scaling the results to the total market more than doubles those numbers (as shown in Table B-1). Second, the price reduction in the study is less than half of the reduction suggested by the ARMIS-based analyses. There is a ready explanation for this.

**TABLE B-1: RECONCILING ESTIMATES OF HARM (billions of dollars)**

Cost Period & Component	WIK Study	Adjustments		ARMIS Elasticities		
		TDM	Price	-1.5	-1.6	-1.7
In 2016						
Welfare + Deadweight	2.8	7	14	18	18	18
Spillover	5.9	14.75	29.5	33.2	41.2	50
Total	8.7	21.75	43.5	51.2	59.2	68

Source: WIK-Consult Report, Ethernet Leased Lines: An International Benchmark, January 2016, Attached as an Appendix to “Reply Comments of BT Americas,” *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, February 19, 2016. EI refers to Stephen E. Spiwak, *Economic Benefits of Special Access Price Reductions*, March 2011; As described in text, ARMIS refers to Susan Gately, et al., *Longstanding Regulatory Tools Confirm BOC Market Power*, Economics and Technology Inc., January 2010, Charles W. McKee, *Special Access: The Unregulated Monopoly*, Sprint, Mark 4, 2009.

The WIK-study is based on a survey of rates that may have excess costs imbedded. For example, the rate of return on U.K. special access (even though it is regulated) is twice the level that was allowed in the U.S., which we have shown is too high. This is the same problem as in the U.S., where the productivity factor bears no relationship to the actual decline in costs. The

cost estimate would be doubled again. The survey of rates includes the cost of new entrant special access services, which are higher than the cost of incumbent services. At the market share of the largest competitor in each market in the U.S. (10%), CLEC costs are twice as high as incumbent costs.<sup>385</sup> If this excess cost is imbedded in the benchmark, it would be 20% too high ( $2 \times .1$ ). Thus, the price reduction necessary to make rates and profits reasonable would be at least twice as large as modeled in the WIK study. Therefore, scaling up to include all special access service and doubling the price reduction, renders the ARMIS-based and international studies reasonably close.

Table B-4 shows the effect of a rate reduction that is twice as large. The spillover effect appears to be much larger because the multiplier is assumed to be much larger and notwithstanding the fact that the elasticity of demand is lower. On balance, these adjustments suggest that the estimates are actually reasonably close. Although the failure of the FCC to collect and publish data on costs, prices and profits in the special access market make it difficult to estimate the magnitude of overcharges and excess profits with precision, it is clear that the harm is quite large, in the range of \$50 billion per year.

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## ENDNOTES

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<sup>1</sup> Cooper, 2016a.

<sup>2</sup> Kimmelman, 2016.

<sup>3</sup> As discussed below, it has abused its market power in BDS and shown utter disdain for antitrust in proposing to acquire the number four wireless firm, while denying that it competes with that firm. It has also been active in defending the exercise of market power in the network neutrality debate.

<sup>4</sup> Sallet, 2016.

<sup>5</sup> Elsewhere we argue that regulation is necessary to constrain market power in areas that antitrust cannot reach on a day-to-day basis to create a space where competition can thrive when protected by antitrust. (Kimmelman and Cooper, 2015)

<sup>6</sup> Here, again, given his perspective on the execution of the key responsibilities of both agencies, Sallet's (2015) observations are instructive. His discussion points to the similarities in the approach of the agencies in terms of intensive fact and data driven analysis with similar methods that are both quantitative and qualitative, and use similar thresholds. While they share a strong concern about competition, the FCC's much broader goal of protecting the public interest is notable and gives particular weight to public interest commitments, something that is alien to the antitrust authority. There is also a sharp difference in the general discussion of enforcement. In the antitrust context he notes the concern about the difficulty of enforcing behavioral remedies, pointing out that the Policy Guide to Merger Remedies contemplates that structural approaches – blocking or divestiture may be necessary; in the FCC context he stresses approaches to ensuring effective enforcement of conditions.

<sup>7</sup> Cooper, 2016a, filed in testimony before the Senate Antitrust Committee. Earlier described in Consumer Federation of America, et al., 2002.

<sup>8</sup> Cooper, 2015, 2016a; Kimmelman and Cooper, 2015.

<sup>9</sup> Cooper, 2001; 2002a, Consumer Federation of America, et al., 2002b.

<sup>10</sup> Early examples include Cooper, 1987, 199, 2008; with more recent analysis in the Cooper, 2014 and 2016a, 2016b.

<sup>11</sup> Cooper, 2014a, 2014b, 2016a.

<sup>12</sup> Cooper and Kushnick, 2016, Cooper 2016a, 2017.

<sup>13</sup> Cooper, 2011b, 2016a.

<sup>14</sup> Cooper, 2015, 2016a, 2016b.

<sup>15</sup> Regulatory comments span two decades from Cooper, 1998 and Consumer Federation of America, 2000a, 2000b, to Cooper 2106a, and Consumer Federation of America, 2013, 2014a. Academic articles have a similar spread, see Cooper, 2000, Cooper 2002 2006, 2015.

<sup>16</sup> Cooper, 2005, 2006b, 2011b.

<sup>17</sup> Cooper and Turner, 2007, Consumer Federation, 2002a.

<sup>18</sup> U.S. Department of Justice, 2010, *Horizontal Merger Guidelines*, revised August.

<sup>19</sup> Id.

<sup>20</sup> The HHI can be converted to equal-size equivalents as follows:

$$\text{Equal-size voice equivalents} = (1/\text{HHI}) * 10,000.$$

<sup>21</sup> Friedman, J.W., *Oligopoly Theory* (U.K.: Cambridge UP, 1983), pp. 8–9.

<sup>22</sup> Shepherd, 1985, p. 4.

<sup>23</sup> In the case of 5.5 equal-size firms, the four firm concentration ratio would be 72%.

<sup>24</sup> The leading firm proviso appears to have been dropped not because such a firm is not a source of concern but because that concern was subsumed in the broad category of “unilateral effects.” A market with a dominant firm is well above the highly concentrated threshold. A merger involving a dominant firm would violate the *Guidelines* if it sought to acquire a competitor with only a 1.5% market share, and “be presumed to be likely to enhance market power.”

<sup>25</sup> DOJ/FTC, 2010, p. 19.

<sup>26</sup> Id., p. 19.

<sup>27</sup> Selten, 1973; Davies and Olczak, 2008; Friedman, 2014; Rux and Thoni, 2015; Horstmann and Kramer, 2015.

<sup>28</sup> U.S. Department of Justice, 2010, p. 24.

<sup>29</sup> Id.

<sup>30</sup> Id., p. 25.

<sup>31</sup> Id., pp. 25-27.

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- <sup>32</sup> Given this inherent need for prediction, these Guidelines reflect the congressional intent that merger enforcement should interdict competitive problems in their incipiency and that certainty about anticompetitive effect is seldom possible and not required for a merger to be illegal. (DOJ/FTC, 2010, p. 1) Pursuant to the Clayton Act's incipiency standard, the Agencies may challenge mergers that in their judgment pose a real danger of harm through coordinated effects, even without specific evidence showing precisely how the coordination likely would take place. The Agencies are likely to challenge a merger if the following three conditions are all met: (1) the merger would significantly increase concentration and lead to a moderately or highly concentrated market; (2) that market shows signs of vulnerability to coordinated conduct (see Section 7.2); and (3) the Agencies have a credible basis on which to conclude that the merger may enhance that vulnerability. (DOJ/FTC, 2010, p. 25)
- <sup>33</sup> Id.
- <sup>34</sup> The Agencies consider whether a merger may lessen competition by eliminating a "maverick" firm, i.e., a firm that plays a disruptive role in the market to the benefit of customers. For example, if one of the merging firms has a strong incumbency position and the other merging firm threatens to disrupt market conditions with a new technology or business model, their merger can involve the loss of actual or potential competition. Likewise, one of the merging firms may have the incentive to take the lead in price cutting or other competitive conduct or to resist increases in industry prices. A firm that may discipline prices based on its ability and incentive to expand production rapidly using available capacity also can be a maverick, as can a firm that has often resisted otherwise prevailing industry norms to cooperate on price setting or other terms of competition (DOJ/FTC, 2010: 3-4).
- <sup>35</sup> Scherer and Ross, pp. 526-527; Shepherd, p.280 – 304; Asch and Senaca, 985, p. 248; Krattenmaker and Salop, 1986); Ordovery, Sykes and Willig, 1985 in F. M. Fisher (Ed.), Antitrust and Regulation (Cambridge: MIT Press, 1985). On the cable industry see Ordovery, and Willig, 1982.
- <sup>36</sup> Scherer and Ross, 1990, p. 522. Relaxation of the simplifying assumptions shows that monopoly power *may be* (but is not necessarily) enhanced through vertical combinations.
- <sup>37</sup> Scherer and Ross, pp. 526-527; Shepherd, p.280 – 304; Asch and Senaca, 985, p. 248; Krattenmaker and Salop, 1986); Ordovery, Sykes and Willig, 1985 in F. M. Fisher (Ed.), Antitrust and Regulation (Cambridge: MIT Press, 1985). On the cable industry see Ordovery, and Willig, 1982.
- <sup>38</sup> One of the key aspects of the network neutrality debate is the problem of vertical leverage that the incumbent network operators have, when they are vertically integrated into complementary product markets. Their incentive and ability to frustrate competition in those complementary market is substantial and several of the key disputes swirled around behaviors that appeared to have anticompetitive effects.
- <sup>39</sup> Viscusi, Smith and Harrington, 2000, p. 213, sweep a number of mergers under the heading of conglomerate: "Conglomerate mergers involve firms that are not sellers in the same market nor do they stand in a buyer-seller relationship... Two other categories of conglomerate mergers discussed were product extension and market extension.... These latter two categories are more likely to be challenged by the antitrust authorities. The reason is concern for reducing potential competition."
- <sup>40</sup> Viscusi, Smith and Harrington, 2000, pp. 215...216.
- <sup>41</sup> Id., pp. 215...216, Numerous anticompetitive claims have been made against conglomerate mergers. They have been charged with creating the opportunities for reciprocal dealing and predatory pricing, producing politically undesirable giant size, and eliminating potential competition.... Although the potential competition principle is certainly correct in theory, there are difficult problems involved in establishing empirically who the potential competitors are and what their respective costs are.
- <sup>42</sup> Id., p. 216.
- <sup>43</sup> Shepherd, 1985, p. 304
- <sup>44</sup> Id., p. 302.
- <sup>45</sup> Id., p. 302, Cross-subsidizing... The effect of such support depends mainly on the market position of branch B. If branch B is dominant, the support will tend to entrench if further. But if branch B has a small market share, the support will tend to entrench it further... If all branches of a diversified firm are dominant in their markets, their pooled resources are likely to increase their dominance through greater price discrimination, threats of punitive actions, and so forth
- <sup>46</sup> Id., p. 302, *Reciprocity* is an exchange of favors... Customers will normally try to induce the firm to make reciprocal deals. Yet such favors are usually departures from strict rational choice. The Chicago-school view is that reciprocity is irrational.... The degree of its effect will depend on the situation. One must judge such possibilities carefully. A conglomerate with only minor market share positions can scarcely reduce competition.
- <sup>47</sup> Id., p. 304, If an important potential entrant buys up a dominant firm (or vice versa), competition will be doubly reduced. Even so, the total effect may not be sharp. That depends on the degree of actual and potential competition that remains, and on the market power of the parent firm. Each conglomerate merger presents a

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different set of conditions. One can still say, roughly that the potential competition and toehold issues do not usually pose large effects on competition.

<sup>48</sup> Shepherd, 1985, p. 304

<sup>49</sup> Id., p. 302.

<sup>50</sup> Scherer and Ross, p. 524. “Substitution elasticities of unity and less normally imply that inputs are indispensable, that is, that no output can be produced until at least some use is made of each relevant input. When the monopolist of an input indispensable in this sense integrates downstream, it can make life difficult for remaining downstream competitors. It can refuse to sell the input to them, driving them out of business. Or it can sell it to them at a monopoly price, meanwhile transferring input at marginal cost to its affiliated downstream units, which, with their lower costs, can set product prices at levels sufficiently low to squeeze the rivals out of the market.

<sup>51</sup> Scherer and Ross, p. 526.e

<sup>52</sup> Scherer and Ross, pp. 526-527.

<sup>53</sup> Shepherd, p. 290.

<sup>54</sup> Id., p. 302.

<sup>55</sup> Id., p. 304,

<sup>56</sup> Asch, and Seneca: 1985), p. 248. Subsidization: The conglomerate firm can choose to behave in a predatory fashion in one market, subsidizing its predation from profits earned elsewhere. The simple concept involved in cross subsidizing is that conglomerates can use profits from branch A to support deep, “unfair” price cuts by branch B ... Shepherd, p. 302. If all branches of a diversified firm are dominant in their markets, their pooled resources are likely to increase their dominance through greater price discrimination, threats of punitive actions, and so forth. By contrast, a string of small-share branches is more likely to promote competition than to reduce it, if it can help its members at all

<sup>57</sup> Id., p. 302.

<sup>58</sup> Id., p. 302.

<sup>59</sup> Taylor, 1998, p. 303.

<sup>60</sup> Id., p. 305

<sup>61</sup> Id., pp. 284-285.

<sup>62</sup> Viscusi, Vernon, and Harrington, 2000, pp. 62–63.

<sup>63</sup> Scherer and Ross, 1990, p. 4.

<sup>64</sup> Id.

<sup>65</sup> Scherer and Ross, pp. 53–54.

<sup>66</sup> With the emphasis on the impersonal process of competitive markets and freedom to choose, competitive economic markets are also preferred, because they provide a strong basis for democratic political systems.

<sup>67</sup> Landes and Posner, 1981, two of the leading Chicago school law practitioners of laissez-faire economics, focus on the key question from the point of view of competition in markets, asking, “What degree of market power should be actionable?”

<sup>68</sup> Viscusi, Vernon, and Harrington, 2000, pp. 2-3.

<sup>69</sup> Canoy and Onderstal, p. 73.

<sup>70</sup> Herrera-Gonzalez (2015, p. 1) expressed concerns on the other side of the issue that “If *ex-ante* regulation on oligopolies is to be imposed, it should be justified on sound economic theory proving that regulation enhances social welfare. Otherwise it should be avoided.” This paper demonstrates that record and economic literature support *ex ante* regulation and reject the theory of “sufficient competition,” in general and, particularly as applied to BDS markets,

<sup>71</sup> Elhauge, 2009.

<sup>72</sup> Gavin and First, 2014.

<sup>73</sup> Id., p. 310.

<sup>74</sup> Id., p. 315.

<sup>75</sup> Eisenach and Lenard, 1999, p. 2

<sup>76</sup> Gavil and First., 2014, p. 17.

<sup>77</sup> Id., p. 314.

<sup>78</sup> Although a topic for another paper, it is important to note that In fact, that durable approach has long existed in communications – a regulatory structure that puts a ring fence around the most dangerous, persistent, even inevitable, sources of market power, while encouraging competition wherever it is possible in the space protected by the ring fence. The overlap of antitrust and regulation is deeply embedded in the history of the communications sector, with the Interstate Commerce Act (1887) and Sherman Act (1890) adopted within three

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years of each other and extended to telecommunications almost simultaneously (1910, Interstate Commerce Act extended to telecommunications; 1913, Department of Justice/American Telephone and Telegraph consent decree), not to mention the breakup of AT&T (an antitrust action, 1984) that led to a major regulatory overhaul (the Telecommunications Act of 1996). To appreciate the need for overlap we must understand the structure and conduct that led to this seminal antitrust case as a contemporary context for understanding the implications of the conditions that obtain in communications markets.

<sup>79</sup> Gavin and First, 2104, pp. 101-10

<sup>80</sup> Id., p. 244.

<sup>81</sup> Id., p. 114.

<sup>82</sup> Id., p. 114.

<sup>83</sup> Katz and Shapiro, 1999.

<sup>84</sup> Katz and Shapiro, 1999.

<sup>85</sup> Martin, 2000, provides a comprehensive critique based on early conceptual (Dixit, 1982; Knieps and Vogelsang, 1982; Schwarts and Reynolds, 1983; Shepherd, 1984, 1988; Schwartz, 1986; Kessides, 1986; Stiglitz, 1987; Bhaskar, 1989; Martin, 1989, Seabright, 1990; Lambertini, 1992) and empirical analyses, with airlines, chosen as the original example, *par excellence*, of the theory, as the first target (Call and Keeler, 1985, Kessides, 1988, Morrison and Winston, 1987, Stockton, 1988, Bailey and Williams (1988), Hurdle, et al., 1989), but other industries were swept in as the theory was broadly misapplied (see e.g. Tye, 1985, on railroads). Later studies have reaffirmed the finding that the theory does not apply in reality (see, for example, Pearson, 2006, on liner shipping; Shoesmith on petroleum refining, Burke and Rhoades, 1989, on banking; Pancharatnam, 1999) Competitive contracting

<sup>86</sup> Masters, 2000p p. 24.

<sup>87</sup> Master, 2000, p. 29.

<sup>88</sup> Dixit, 1982, p. 16.

<sup>89</sup> Mazzeo (2003, pp. 294-295); Vogt and Town, 2006, p. 1, reach a similar conclusion for hospital mergers, “Research suggests hospital prices increased by 5 percent or more as a result of consolidation. When two hospitals merge, not only does the surviving hospital raise prices but so do its competitors. Evidence of the impact of consolidation on quality of care is limited and mixed, but the strongest studies show a reduction in quality. Hospital consolidation does modestly reduce the cost to hospitals of providing care.”

<sup>90</sup> Kang Hua Cao, et al., 2016, p. 43.

<sup>91</sup> Recent examples that corroborate much of the early analysis include Kwoka, Hearle and Alepin, 2016, Bachwich and Whitman, 2017.

<sup>92</sup> Jamison, 2004, finding that UNE price drive investment suggest that the bottleneck is in the ubiquitous network.

<sup>93</sup> Cowie 2012, p. 4780; See also Lang and Sealy, 2000.

<sup>94</sup> Cowie, 2012, p.4784.

<sup>95</sup> Peteraf, 1995, Martin, 1994.

<sup>96</sup> Peteraf, 1995, pp. 290-292

<sup>97</sup> Salop, 2014.

<sup>98</sup> As part of the response to Elhaug, First, 2009, p. 8, suggests that tying of product consumed in fixed proportions should not be legal *per se*, but should trigger an obligation on the part of the tying firm to show that the tie is efficient.

<sup>99</sup> Fisher, 2001.

<sup>100</sup> Cooper, 2014.

<sup>101</sup> Elhaug (2010), identifies three exceptions that push tying out of the rule of reason analysis, none of which apply to these network firms, he “excludes ties without market power, ties of items routinely bundled in competitive markets, and fixed ratio ties of products that lack separate utility and create no substantial foreclosure share,” and they possess the key characteristics by which the impact of ties should be judged. which is the theoretical considerations indicate that ties in the relevant set will usually reduce both consumer welfare (the actual antitrust standard) and ex ante total welfare.

<sup>102</sup> Salop, 2018, p. 20.

<sup>103</sup> Id., p. 11.

<sup>104</sup> Id., p. 18, A vertical merger may increase the downstream merging firm’s ability to negotiate lower prices from other (rival) input suppliers because it can threaten to turn to its upstream partner. In the Anthem/Cigna horizontal merger, however, the court indicated significant skepticism whether such “procurement efficiencies” actually would benefit consumers, and indeed, it suggested that consumers may be harmed on balance.<sup>81</sup> While increased bargaining leverage might lower the costs of the merged firm, it raises a number of factual issues

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regarding whether it will lead to consumer benefits. The input price decrease might lead to lower quality inputs, may take a long time to occur, or may not be passed on to consumers. Instead of bargaining for lower prices for itself, the firm instead may bargain for the suppliers to raise the prices they charge its downstream rivals. This could involve an MFN-plus contractual provision, or it might be more informal. Or it may lead to the upstream firms having incentives to raise their prices to the other downstream firms. Finally, using a merger to increase bargaining power over input suppliers might harm the competitive process by creating buyer-side market power.

<sup>105</sup> Baker, 2013.

<sup>106</sup> *Id.*, pp. 30...23.

<sup>107</sup> *Id.*, p. i.

<sup>108</sup> *Id.*, p. 64.

<sup>109</sup> *Id.*, p. 67.

<sup>110</sup> Weiss, 1989, presents a thorough discussion of the unfolding of the debate over concentration and price through the 1980, before the contestability issue had been disposed of, with a careful rebuttal of claims that the relationship did not exist, along with numerous case studies. The Council of Economic Advisors, 2016, discusses more recent analyses in a similar vein. This is not to say that there are not contrary findings on both contestability and the fundamental impact of market structure on performance (e.g. Kessides, 1986, 1988, Eklund, Ford and Koutsky, 2000, Toivan and Walker, 2005, Haas-Wilson and Garmon, 2011, Tenn, 2011) but not overwhelming evidence is on the other side.

<sup>111</sup> Selton, 1973, made the case on theoretical grounds, but as discussed below five firms appeared to be the dividing line in many, but not all cases.

<sup>112</sup> Huck and Oescher, 2004, is frequently cited as the launch pad for demonstrations that four is few.

<sup>113</sup> Before contestability occupied so much attention in the mid-1980s and 1990s, food had been intensively studied. Marion, et al., 1979, Hall Schmitz and Cothorn, 1979; Lamm, 1981, Cotterill, 1983; Cotteril, 1986, Weiss, 1989, Marion and Mazo, 1995. A recent study supports the general finding. Bresnaha Ezeala-Harrison and Baffoe-Boinnis, 2016, "The empirical analysis shows a consistent result for the price-concentration relationship in all the regions. It indicates that as the market become more concentrated, prices of grocery products rise, with the largest price increase occurring in the West as evidenced by the magnitude of the coefficient of the concentration variable; while, with the exception of the South, a larger store size reduces grocery prices. These results may suggest that the pricing patterns observed between the retail companies in the grocery industry may be largely due to covert tacit collusion among these retail firms, whereby each firm seems to adopt a strategy that results in a cooperative solution in an otherwise inherently non-cooperative game setting. This appears to bear out evidence of a general tendency for quasi-price fixing at best, and outright tacit collusion at worse."

<sup>114</sup> See for example, Bresnahan and Reiss, 1991, Cetorelli, 2002.

<sup>115</sup> Hall, Schmitz and Cothorn, 1979, Goetz and Gugler, 2006, Sen and Townley, 2010.

<sup>116</sup> Fan and Yang, 2016, p. 1, Our findings show the market contains too few products and that a reduction in competition decreases both product number and product variety. These results suggest that merger policy should be stricter when we take into account the effects of a merger on produce choices in addition to those on pricing.

<sup>117</sup> Morrison and Winston, 1987.

<sup>118</sup> e.g. Bergman and Rudhom, 2003.

<sup>119</sup> Asplund and Sanden, 1999, p. 366.

<sup>120</sup> Seamons, 2011.

<sup>121</sup> Lestage, et al., 2013, p. 41.

<sup>122</sup> Peteraf, 1995, p. 290.

<sup>123</sup> Another specification that used the number of competitors in a fixed effects model had only 4 of 24 coefficients statistically significant. This resulted from the fact that by including the number of competitors as a fixed effect, "the standard errors... have become much larger... so that the competition test has less power." Five of the six coefficients on the second competitor are statistically significant. Two of the five for larger numbers of competitors are statistically significant, in once the third firm has a large impact than the second; in another the fifth firm has an impact that is three quarters of the second.

<sup>124</sup> See also, Davies and Olczak, 2007.

<sup>125</sup> For example, see, Sobel, 2005, Doruk and Santos-Pinto, 2013, p. 50., We find that collusion is easier to sustain when firms have a concern for reciprocity towards competing firms provided that they consider collusive prices to be kind and punishment prices to be unkind. Thus, reciprocity concerns among firms can have adverse welfare consequences for consumers."

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- <sup>126</sup> For example, corroborating Genovese and Mullins (2001), Fonesca and Theo-Norman, 2012, p. 25, note “Communication helps firms coordinating on a price or more sophisticated pricing patterns (like taking turns in placing the low bid). This is in stark contrast to the treatments without communication where firms virtually never coordinated successfully, not even the duopolies. It appears that talking removes the strategic uncertainty present otherwise and only with communication do firms manage to coordinate on a price, sometimes even among a large number of firms. Communication is, secondly, frequently used for dispute mediation in our experiments. Defections occur, but they do frequently not lead to price wars. In fact, conflict mediation to avoid the decline of prices appears to be among the central uses of communication. Finally, we find that communication has a long-lasting effect on cooperation (hysteresis): collusion is more effective without communication if it is preceded by a phase of communication, as has been observed in other social dilemmas.”
- <sup>127</sup> Cooper and Kuhn, 2009.
- <sup>128</sup> Roux and Thoni, 2015, p. 1, We find strong evidence that targeted punishment enables firms to establish and maintain collusion. More so, we find that the collusive effect of targeted punishment is even stronger in markets with more competitors, suggesting a reversal of the conventional wisdom that collusion is easier the fewer the firms.
- <sup>129</sup> Fonseca and Norman, 2014, p. 225.
- <sup>130</sup> Moellers, Theo-Norman and Snyder, 2017, p. 214.
- <sup>131</sup> White, 2001, p. 6.
- <sup>132</sup> There are many other issues debates, particularly with respect to the effectiveness of fines as a deterrent. For example, see Genoveses and Mullin, 2001, Connor and Bolotva, 2005, and Connor and Lande, 2008; Boyer and Kotchoni, 2015.
- <sup>133</sup> See for example, Nevo, 2001, p. 336; “Most economists are familiar with this industry from the research of Schmalensee, 1978, which lays out the economic argument at the foundation of the FTC's "shared monopoly" case against the industry in the 1970's. Even though the standard description of the complaint will include a claim of cooperative pricing, the core of the case was brand proliferation and its use as a barrier to entry, not cooperative pricing. As much as I would like to claim that this paper proves or disproves the FTC's case, I cannot do so. I find that the high observed PCM are primarily due to the firms' ability to maintain a portfolio of differentiated brands and influence the perceived quality of these brands by means of advertising. In a sense my analysis suggests that, whether right or wrong, the FTC's claim focused on the important dimensions of competition. “
- <sup>134</sup> In addition to the examples discussed in test, see Siemans, 2001, p. 1 The results also imply a large payoff to geographic differentiation since only the closest rivals exert strong competitive pressure on store profitability.
- <sup>135</sup> Dranove, Gronz, and Mazzeo, 2003, pp. 450-451.
- <sup>136</sup> Id., p. 454.
- <sup>137</sup> Cookson, 2015, p. 1.
- <sup>138</sup> Seamons, 2010.
- <sup>139</sup> Gomez-Martinez, Onderstal and Sonnemans, 2016.
- <sup>140</sup> McCann and Vroom, 2009.
- <sup>141</sup> Greenstein, and Mazzeo, 2006, in addition, the effects of the costs of interconnection were significant, as more CLECs were present in 1999 in cities where the UNE-Loop rate was lower. (p. 15) Lower margins typically result from lower market concentration; however, differentiating on the basis of geographic footprint appears to insulate CLECs from the effects of additional competitors. (p,18)
- <sup>142</sup> Nevo, 2001, p. 307, I conclude that prices in the industry are consistent with noncollusive pricing behavior, despite the high price-cost margins. Leading firms are able to maintain a portfolio of differentiated products and influence the perceived product quality. It is these two factors that lead to high price-cost margins. Nevo, 2001, p. 336 Even though the standard description of the complaint will include a claim of cooperative pricing, the core of the case was brand proliferation and its use as a barrier to entry, not cooperative pricing. As much as I would like to claim that this paper proves or disproves the FTC's case, I cannot do so. I find that the high observed PCM are primarily due to the firms' ability to maintain a portfolio of differentiated brands and influence the perceived quality of these brands by means of advertising. In a sense my analysis suggests that, whether right or wrong, the FTC's claim focused on the important dimensions of competition. In order to make claims regarding the anti-competitive effects of brand introduction and advertising one would have to extend the model to deal with these dimensions explicitly. Mazzeo, 2002., p. 1. The presence of any market competitor drives down prices, but the effect is much smaller when the competitor is a different product type. Differentiation is optimal product choice behavior because the resulting competition among firms is less tough when their products are differentiated.

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- <sup>143</sup> Conlin and Kadiyali, 2004, We find that there is higher investment in capacity relative to demand (i.e. idle capacity) in markets with larger Herfindahl index and by firms with larger share of market capacity. These results are consistent with the entry deterrence literature that suggests firms in more concentrated markets and firms with larger market share have greater incentive to invest in entry deterring capacity
- <sup>144</sup> Thomas, 1999, whose findings for airlines parallels cable finding discussed above.
- <sup>145</sup> Id., p. 10) The normalized price is predicted to be higher as a consequence of increased concentration as measured by a higher HHI. (positive significant coefficient on HHI). For a given level of excess capacity (EXCESS), an increase in HHI will increase PRICEDAC and at a faster rate (see positive and significant coefficient on EXCESS\*HHI). This result supports the efficacy of the HHI as an indicator for markets that The role of excess capacity in our results tends to support the traditional view that the presence of excess capacity leads to lower prices. Increases in the variable, EXCESS reduce PRICEDAC (see negative and significant coefficient on EXCESS) but at a slower rate (see positive and significant coefficient on EXCESS\*HHI).
- <sup>146</sup> Ewing, Bradley, and Kruse, 2010.
- <sup>147</sup> Conlin and Verinda, 2004, p. 1.
- <sup>148</sup> Molinar 2013.
- <sup>149</sup> Ellison and Ellison, 2011, who argue that natural barriers come first and strategic behaviors come second, with U shape with the greatest impact at moderate size.
- <sup>150</sup> Goetz and Shapiro, 2012.
- <sup>151</sup> Shi, 2016.
- <sup>152</sup> Prince and Simon, 2015.
- <sup>153</sup> Aguirregabiria and YuHo, 2010.
- <sup>154</sup> Shi, 2016.
- <sup>155</sup> Frank and Salkever, 1995.
- <sup>156</sup> Seo, 2008, Economides, 2004, Greenstein and Mazzeo, 2006. Evaluation of price effects have become complex Abel, 2002, due to price discrimination, (Verlinda, 2005), dynamic pricing, (Gedge, Roberts and Sweeting, 2014) and selective responses (Simon, 2005).
- <sup>157</sup> Seamans, 2010.
- <sup>158</sup> Savage and Wirth, 2005.
- <sup>159</sup> Heeb, et al., 2009.
- <sup>160</sup> Id., p. 218.
- <sup>161</sup> Id., p. 227.
- <sup>162</sup> Id., p. 217.
- <sup>163</sup> Id., pp. 229-230.
- <sup>164</sup> Id., p. 217.
- <sup>165</sup> Id., p. 219.
- <sup>166</sup> Id., p. 221.
- <sup>167</sup> Id., p. 225.
- <sup>168</sup> Kahn, 1988.
- <sup>169</sup> Kahn, 1988, p. 11.
- <sup>170</sup> Id.
- <sup>171</sup> Cooper, 2014.
- <sup>172</sup> This remains true, even in the case of a recent example in the digital age – peering between interconnected networks. For a significant period, the national transmission networks engaged in unbilled interconnection and carriage. That approach worked well, only as long as it did not matter. As soon as the networks became differentiated by size or market, voluntary unbilled peering broke down. Big charged little and transmission dominant networks (those who simply transported the bits) charged eyeball heavy networks (those who were selling the content to their customers). Commercial negotiations became contentious and disputes and disruptions occurred.
- <sup>173</sup> Id.
- <sup>174</sup> Id. at 114.
- <sup>175</sup> Taylor, 1994, p. 262, “Taylor identifies three characteristics of necessities – inability to replace the good, large relative size of the expenditure, and importance of the good in a broad sense. ‘The point of departure will be to remind ourselves of a point this is probably too often forgotten: that price elasticity consists of two components, an income effect and a substitution effect. The substitution effect is a measure of the extent to which goods and services can substitute for one another when there is a price change without making the consumer any worse off in terms of consumer welfare. The income effect, on the other hand is a measure of the extent to which the

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consumer's real income is changed when there is a change in price. Ordinarily, the importance of the income effect is represented by the importance of the good whose prices has changed in the consumer's budget. Goods whose expenditure account for a small proportion of the consumer's total expenditures will have a small (or even tiny) income effect, while a good whose expenditures account for a large portion of total expenditure will have a possibly large income effect. Goods that in ordinary discourse are seen as necessities (such as heating fuels and telephone service) will also have relatively larger income effects the lower the level of income."

<sup>176</sup>*Id.*, p. 262, "In assessing income effects, however, a point that is usually overlooked is the effect on the consumer's welfare of not consuming a good because of a price increase. In the case of making or not making a phone call because it has become more expensive, the question that needs to be asked is what are the consequences (not necessarily in monetary terms) of not making the call. For residential consumers, this cost is usually cast in term of the utility (or satisfaction) that is given up by the call not being made. For many calls, however, this is not the correct measure of cost, for the call may be important to the *earning* of income. In this case, the actual income effect of not making a telephone call may be large, although the decrease in real income, (as customarily measured), occasioned by the price increase may be extremely small.

<sup>177</sup> Kahn, 1998, p. 11.

<sup>178</sup> On broadband see Hausman, 1999, Hausman, 2000, Schmidt and Haucap, 2004, Burton and Hicks, 2005, Cadman and Dineen, 2008. On mobile see, Ahnand Lee, 1999, Rodini, Ward and Woroch, 2002, New Zealand Commerce Commission, 2003, Competition Commission, 2003, and Grybowski, 2008. Bot services show not only inelastic demand but declining elasticity as demand and income grow

<sup>179</sup> Associated Press, 1945.

<sup>180</sup> Cooper, 2013, 2016.

<sup>181</sup> Cooper, 1994, 2002, 2003b,

<sup>182</sup> Cooper, 1999, Consumer Federation of America, 2008.

<sup>183</sup> Federal Communications Commission, 2011b.

<sup>184</sup> The interconnection between the wireless and wireline networks has been subject to FCC authority under title III throughout.

<sup>185</sup> *Id.* at 21 (noting each of the short periods of competitive access gives way to monopoly markets.)

<sup>186</sup> Cooper, 2002

<sup>187</sup> Viscusi, Smith and Harrington, 2000, p. 258

<sup>188</sup> Scherer and Ross, 1990, p. 70.

<sup>189</sup> Viscusi, Smith and Harrington, 2000, p. 200.

<sup>190</sup> Viscusi, Smith and Vernon, p. 112, "When firms' products are so differentiated that consumers do not even perceive them as being substitutes, each firm is effectively a "local" monopolist and charges the monopoly price for its market.

<sup>191</sup> DOJ/FTC, 2010, p. xx

<sup>192</sup> [http://en.wikipedia.org/wiki/Interstate\\_Commerce\\_Act\\_of\\_1887](http://en.wikipedia.org/wiki/Interstate_Commerce_Act_of_1887)

<sup>193</sup> [http://en.wikipedia.org/wiki/Mann%E2%80%93Elkins\\_Act](http://en.wikipedia.org/wiki/Mann%E2%80%93Elkins_Act)

<sup>194</sup> 47 U.S.C. § 151 (1996).

<sup>195</sup> [http://en.wikipedia.org/wiki/Sherman\\_Antitrust\\_Act](http://en.wikipedia.org/wiki/Sherman_Antitrust_Act)

<sup>196</sup> Federal Trade Commission, FTC, *Guide to Antitrust Laws*, <http://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws>.

<sup>197</sup> The first consent decree was entered in 1906 in *United States v. Otis Elevator*, available at <http://scholarlycommons.law.wlu.edu/cgi/viewcontent.cgi?article=3452&context=wlulr>.

<sup>198</sup> *See United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982).

<sup>199</sup> As is frequently the case in the U.S. federal system, state activity in these areas preceded and laid the groundwork for federal action.

<sup>200</sup> *See Use of the Carterfone Device in Message Toll Telephone Service*; *Thomas F. Carter and Carter Electronics Corp., Dallas, Tex. (Complainants), v. American Telephone and Telegraph Co., Associated Bell System Companies, Southwestern Bell Telephone Co., and General Telephone Co. of the Southwest (Defendants)*, Decision, 13 FCC 2d 420 (1968).

<sup>201</sup> Federal Communications Commission, 1968, 1980, 1990.

<sup>202</sup> The First Report and Order is dated 1985, [http://www.marcus-spectrum.com/resources/RandO\\_81-413.pdf](http://www.marcus-spectrum.com/resources/RandO_81-413.pdf)

<sup>203</sup> Hemphill and Wu, 2009.

<sup>204</sup> *Id.*, p. 1185.

<sup>205</sup> *Id.*

<sup>206</sup> *Id.*, p. 1212.

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- <sup>207</sup> Id., p. 1195.
- <sup>208</sup> The first decade is recounted in Cooper, 2006, the second in Cooper 2014.
- <sup>209</sup> Comcast, 2010,.
- <sup>210</sup> Department of Justice, 2011a.
- <sup>211</sup> Federal Communications Commission, 2011a.
- <sup>212</sup> Id., , p.35.
- <sup>213</sup> Department of Justice, 2011a.
- <sup>214</sup> The lead Comcast experts did not cite the internal proprietary documents in the Comcast-NBC case, nor do they do so in the proposed merger. Instead they just regurgitate management arguments. In this case the lead experts (Rosston and Topper) cite interviews with Comcast executives as their source over 60 times.
- <sup>215</sup> Department of Justice and the Federal Trade Commission, 2010, p. 2.
- <sup>216</sup> The area of greatest activity has been health care (see e.. Dranove, 2014).
- <sup>217</sup> Federal Communications Commission, 2011, 26, 37, emphasis added.
- <sup>218</sup> United States Department of Justice, et al. v. Comcast, et. Al, Complaint, 2011, pp. 19...21
- <sup>219</sup> Federal Communications Commission, 2011, p. 20.
- <sup>220</sup> Department of Justice, 2011a, DOJ Competitive Impact Statement, p. 19.
- <sup>221</sup> Federal Communications Commission, 2011,
- <sup>222</sup> Economist, 2014.
- <sup>223</sup> Cooper, 2014b.
- <sup>224</sup> Comcast, 2014,
- <sup>225</sup> See Cooper, 2014, p. 6.
- <sup>226</sup> *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 12-203, Fifteenth Report ¶ 137, Table 9 (rel. July 22, 2013) (“MVPD Competition Report”).
- <sup>227</sup> Consumer Federation of America, 2010c.
- <sup>228</sup> Federal Communications Commission, 2010P.
- <sup>229</sup> Bode, 2014. Welch, 2014.
- <sup>230</sup> Caves, Holt and Singer, 2013.
- <sup>231</sup> Cooper, 2014, at 5 *Id.* at 2.
- <sup>232</sup> Indeed, there is some indication that it already has. See, Hastings, 2014, Level 3, 2014, However, a merger would only increase Comcast’s ability to demand interconnection fees that bear no relationship to actual network costs by substantially adding to its captive customer base.
- <sup>233</sup> Department of Justice, 2011a., § III.A.5.
- <sup>234</sup> Federal Communications Commission, 1999.
- <sup>235</sup> AT&T, 2002.
- <sup>236</sup> These flip-flops in policy position, as corporations changed hands from lacking market power to those that have it have been dramatic, particularly on crucial issue, as when AOL changed sides on the network neutrality issue when is shifted from being a stand-alone Internet Service Provider to a subsidiary of a Time Warner (see Consumer Federation of America, 200.
- <sup>237</sup> NASUCA, 2014. p, i
- <sup>238</sup> <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BE46EDB40-99B2-4664-8BE4-A9646D09BBBF%7D>
- <sup>239</sup> Verizon, 2015, p. 23
- <sup>240</sup> Id., p. 10.
- <sup>241</sup> Because the cost of services and depreciation in the VZ-NY financials are higher than the VZ-SEC books, we do not attribute additional costs. To the extent that there are additional costs that should be accounted for in the NY financial, the margin would be lower.
- <sup>242</sup> The efficiencies of larger units under these circumstances must be balanced against the increase in market power to arrive at a bottom-line assessment. We believe the net effect was to increase the abuse of market power, and this is one of several factors that make our assessment of the magnitude of abuse conservative.
- <sup>243</sup> AT&T data from Annual Reports, various.
- <sup>244</sup> Federal Communications Commission, he 16th Report (p. 39) puts the penetration rate at 72%; the 18th Report (p. 9) puts the total number of connected devices at more than 380 million.
- <sup>245</sup> Federal Communications Commission, 2011, Staff Analysis, ¶ 45.
- <sup>246</sup> Id.
- <sup>247</sup> Economist, 2016.
- <sup>248</sup> Id., p. 2.

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- <sup>249</sup> In 2004, on the eve of entry by the telephone companies, overbuilders accounted for only 1 percent of the market (FCC 11th Annual Report, Cable).
- <sup>250</sup> Cooper, 2003, 2004a.
- <sup>251</sup> Id., pp. 34–35, and the sources cited therein, note that the DBS variable had the wrong sign, which elicited a comical effort to explain away the finding (one which had been consistent across years).
- <sup>252</sup> Leichtman Research Group, 2015.
- <sup>253</sup> Kang, 2010; Ammori, 2010; Cooper, 2010.
- <sup>254</sup> [www.gurufocus.com/news/268374/3-reasons-to-invest-in-comcast-for-the-long-run](http://www.gurufocus.com/news/268374/3-reasons-to-invest-in-comcast-for-the-long-run)
- <sup>255</sup> De Sa, Chun, and Zheng, 2015.
- <sup>256</sup> Pew Center for American Life.
- <sup>257</sup> Grunes and Stucke, 2014, p. 4, cite cable industry “veteran” John Malone, who states, “In broadband, other than in the FIOS area, cable’s pretty much a monopoly,” a sentiment also expressed by Comcast CEO Brian Roberts.
- <sup>258</sup> Cooper, 2000, 2002, 2004, 2016, recounts the long history of the opposition to network neutrality and the anticompetitive practices that were implemented when restraints on those practices were in doubt.
- <sup>259</sup> FCC, Order, In the Matter of Expanding Consumers’ Video Navigation Choices, ¶7, puts the cable card market share at approximately 1% of the cable MVPD subscribers.
- <sup>260</sup> Markey and Blumenthal, 2015.
- <sup>261</sup> Inflation from FCC, 2014, *Report on Cable Industry Prices*, MM Docket No. 92-266, p. 10, updated with Bureau of Labor Statistics, CPI.
- <sup>262</sup> Cell Phone, 1994: \$950 (average of 1993 and 1995) from [www.gottabemobile.com/2011/12/28/history-of-cellphones-shrinking-sizes-and-prices-infographic/](http://www.gottabemobile.com/2011/12/28/history-of-cellphones-shrinking-sizes-and-prices-infographic/); 2015: \$100 (widely available from “Smartphones connect users with many of the functions of a laptop computer,” <http://electronics.costhelper.com/smartphone.html>. Set-top Box, 1994: \$2.60 (FCC, DA94-767); Computers and TVs from the Consumer Price Index.
- <sup>263</sup> [https://en.wikipedia.org/wiki/Mobile\\_phone](https://en.wikipedia.org/wiki/Mobile_phone); [www.webpronews.com/samsung-leads-u-s-smart-tv-market-1g-on-the-rise-2014-03/](http://www.webpronews.com/samsung-leads-u-s-smart-tv-market-1g-on-the-rise-2014-03/), [www.multichannel.com/news/next-tv/roku-tops-us-streaming-device-sales-study/393140](http://www.multichannel.com/news/next-tv/roku-tops-us-streaming-device-sales-study/393140),
- <sup>264</sup> Cooper, Mark, 2016, “Cable Market Power: The Never Ending Story of Consumer Overcharges and Excess Corporate Profits in Video and Broadband,” attached to Comments of the Consumer Federation of America, Federal Communication Commission, *In the Matter of Expanding Consumers’ Video Navigation Choices* (MB Docket No. 16-42, Commercial Availability of Navigation Devices) CS Docket No. 97-80, April.
- <sup>265</sup> Kushnick, 2015a, 2015b.
- <sup>266</sup> Moffett, 2009, p. 50.
- <sup>267</sup> Wang et al., 2001.
- <sup>268</sup> Id., compare pp. 23 and 29, without digital boxes.
- <sup>269</sup> Id., p. 10 compared to p. 8 for cable.
- <sup>270</sup> Id., p. 27.
- <sup>271</sup> Moffett, 2009, p. 50.
- <sup>272</sup>
- <sup>273</sup> Perez, 2002.
- <sup>274</sup> Shane, 2010.
- <sup>275</sup> Cohen 2010, pp 177-181.
- <sup>276</sup> Greenstein, 2010:489-490.
- <sup>277</sup> Greenstein, 2010:517.
- <sup>278</sup> Id.
- <sup>279</sup> Wesley M. Cohen, “Fifty Years of Empirical Studies of Innovative Activity and Performance,” *Handbooks in Economic Volume I*, 2010:172.
- <sup>280</sup> Wu, 2010, pp. 190-191.
- <sup>281</sup> Bar, et. al., 1999, cited in Cooper, 2002:68-69.
- <sup>282</sup> Greenstein, 2010: 479.
- <sup>283</sup> Cohen, 2010:137-138...139.
- <sup>284</sup> Greenstein, 2010: 492-493,
- <sup>285</sup> Greenstein, 2010:497
- <sup>286</sup> Greenstein, 2010: 93.
- <sup>287</sup> Greenstein, 2010: 94.
- <sup>288</sup> Cooper, 2006
- <sup>289</sup> Northnet, Inc. 2000.

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- <sup>290</sup> Cooper, 2000.
- <sup>291</sup> Cohen, 2010:154.
- <sup>292</sup> Cooper, 2001, pp. 815-816, citing *Unites States v. Microsoft*.
- <sup>293</sup> Greenstein, 2007:69... 70...71.
- <sup>294</sup> Lemstra and Groenewegen, 2011, p. 4.
- <sup>295</sup> Wehrbach, 2004.
- <sup>296</sup> The first two licenses were given to incumbent wireline telecommunications providers.
- <sup>297</sup> Wehrback, 2004.
- <sup>298</sup> Hovitz., 2007, p. 4
- <sup>299</sup> Milgrom, et. al, 2011, p. 2. "Leaving a portion of the radio spectrum unlicensed has created multiple benefits, including encouraging the development of complementary technologies that enhance the effectiveness of devices that use licensed spectrum, triggering the development alternative technologies that compete with licensed uses, and promoting innovative business models and technologies that have brought unexpected benefits.
- <sup>300</sup> Milgrom, et. al. 2011, p 2.
- <sup>301</sup> Milgrom, et al., 2011, 13, For radio spectrum, history suggests a mixed innovation and investment story, with licensed spectrum having been valuable to encourage the necessary network infrastructure for wireless mobile handsets and unlicensed spectrum encouraging a long series of novel, valuable, and unanticipated uses.
- <sup>302</sup> Lemstra and Groenwegen, 2011b, p. 373, "Multiple product vendors and, later, service providers have been seen to be willing to invest in the development of products and service to exploit the unlicensed part of the RF spectrum." One could argue that this is the result of the return on investment largely being based on the sale of Wi-Fi equipment, and not on the exploitation of a service requiring complementary and deep investment in the creation of a network infrastructure, as is the case in mobile cellular communications.
- <sup>303</sup> Milgrom, et al., 2011, 13.
- <sup>304</sup> Von Hippel, 2005; Cooper, 2006 has emphasized the importance of user innovation. Cooper, 2006, discusses the importance of end-user innovation and local knowledge in collaborative production in digital product spaces, including Wi-Fi and mesh networking.
- <sup>305</sup> The intensity of the debate over ownership models is equaled or exceeded by the intensity of the debate over whether the dramatic increase in concentration of the cellular service sector has resulted in the abuse of market power. Cooper, 2011b, shows that economies of scale and scope and industry concentration have both typified the decade of development of wireless broadband, making it difficult, if not impossible, to disentangle the two.
- <sup>306</sup> Milgom, et al., 2011, p.11, use the concepts of depletion and congestion interchangeably, but they should be distinguished. A spectrum that is congestible may not be depletable. Cooper, 2005, discusses the importance of the characteristics of the resource in the context of common pool resource management.
- <sup>307</sup> Thanki, 2009, reviews the battle of counterfactual arguments about the regimes for allocating spectrum that has resulted from the recognition of the inefficiency that the granting of exclusive licenses to specific individuals for specific uses creates. On the one side is the argument for property. Could history have prevented the inefficiency if common law had continued to develop along a path that allowed the spectrum to be treated as the property of individuals, a path that was short circuited by the Radio Acts of 1912 and 1927 (Hazlett, 1990)? On the other side is the argument for shared use. Would the presence of different technologies that allow the efficient sharing of spectrum compel the common law to allow sharing to promote freedom of speech (de Vries, 2008). Thanki argues that since the legal pillar on which regulation stands is interference the second thought experiment is compelling because the burden on free speech is less., since the exclusive licensed "in some circumstances... can prove a cumbersome method for enabling communications using the radio spectrum (71) " Cooper 2005, 2006b, applied the framework developed by Ostrom to mesh networks, discussing the eight sets of rules that have been identified. The FCC boiled the management challenge down to primarily one set of rules – position rules that define what users of the resource are allowed to do. Milgrom, et al. (p. 14), describe the FCC approach to shared public use spectrum as a "managed commons. " In fact, it has succeeded because it relies on as little management as possible to get the job done.
- <sup>308</sup> Thanki, 2009, p. 38.
- <sup>309</sup> Chain and Lehr, 2010, Chapin and Lehr, 2011, p. 21, "The move to smaller cell sizes that is driven, in part, by spectrum scarcity, makes infrastructure sharing between dedicated and unlicensed (range restricted) spectrum easier. It is important to note that cell density does not need to increase to the point that unlicensed bands can be used to reach any mobile device. Unlicensed spectrum can be used for mobile devices that are close to the infrastructure antenna, with dedicated CMRS spectrum used to reach mobile devices that are further from the antenna. The cell density merely needs to be reduced to the point that a substantial fraction of mobile users are within range of the unlicensed band from an infrastructure antenna, in order to provide significant offload."

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- <sup>310</sup> Chapin and Lehr, 2011, p. 32, “A key driver of the need for increased sharing among CMRS operators is the need to shrink cell sizes. Smaller cell sizes enable efficient spatial reuse of spectrum and support lower power operations, as well as a number of other technical options such as network MIMO. Lower power operation has many benefits, including ameliorating concerns about any potential health risks. Moreover, lower power operation facilitates the sharing of spectrum. There are multiple reasons for this, including the fact that it provides better range matching between licensed and unlicensed spectrum and the technology for frequency agility is more advanced and affordable.”
- <sup>311</sup> Stirling, 2000; Benhamou, et al., 2009.
- <sup>312</sup> Rysavy, 2010b, p. 10, Cisco, 2011a, p.1; Higginbotham, 2011,
- <sup>313</sup> Cisco, 2011a, p. 1,
- <sup>314</sup> Higginbotham, 2011,
- <sup>315</sup> Iluna, 2011. Woyke, 2011, Lamberth, 2011, “
- <sup>316</sup> Wirelesse2e, 2010, “In summary, choice for the wireless network executive is not a simple bifurcation between spectrum and additional cell-sites.” Instead a multi-pronged approach is the advisable path: Deploy the technology advances (spectrum efficiency), Make spectrum purchases to plan for traditional macro, micro cell deployments for dense urban, urban and rural coverage, Identify hotspots (those 3-4% of sites that will carry 30-40% of total network traffic) and find ways to use dense Wi-Fi deployments to off-load traffic, Work with device manufacturers to promote the adoption of higher orders of MIMO for 802.11n and the use of 5 GHz band.”
- <sup>317</sup> Rysavy, 2010b, p. 10.
- <sup>318</sup> Moffet, 2011.
- <sup>319</sup> Moffet, 2011, p. 3, “If there is an opening for cable operators in the wireless industry, it is far more likely to be in offering WiFi than in offering LTE... Their strategy is to give away WiFi service for free. They’ve made wireless a *feature*. The strategy actually makes sense. They rely on free spectrum and low cost WiFi equipment. They leave it to consumers to foot the bill for equipment (i.e. The Wi-Fi chips that are already build into iPhones and iPods and laptops), meaning there’s little or no subscribe acquisition costs.”
- <sup>320</sup> Moffet, 2011, pp. 3-4.
- <sup>321</sup> Benkler, 2011, pp. 19-20.
- <sup>322</sup> Milgrom, et al., 2011, p. 26.
- <sup>323</sup> If public policy is to reflect economic reality, it must reflect the fact that the two models are effective solutions to the coordination problem. Economic analyses or public policies that assume exclusive licenses are superior to shared use spectrum are simply wrong. The suggestion that auctions can be configured to yield the “socially” optimal amount of shared use spectrum has been thoroughly criticized. First Rose argues that the game theoretic outcomes that demonstrate the superiority of auctions are based on biased assumptions about the ability of institutional models to manage interference and congestion. The dice are loaded, so to speak, by the assumption that the exclusive license model is one that is assumed to work best in managing interferences. Rose, 2011, p. 9, “The game, bluntly put, and rigged in such a way as to make unlicensed spectrum simply a spurned modality of licensed spectrum..., do these games and etiquettes resemble anything which empirically obtains in the world? The answer has to be no.” In fact the past decade has shown that, if there is anything, the shared use model has proven more adept at managing interference and congestion, Rose, 2011, p. 5, “This is particularly pertinent if the advantages of digital technology – which allow the possibility of intelligent devices and modes of user interaction which make spectrum far closer to a non-rivalrous than a rivalrous good – hold...This is particularly tragic because the reasons for which auctions, arguably promote efficiency for licensed spectrum do not apply to unlicensed spectrum. In fact, just the opposite applies. Milgrom et. al., 2011, argue that the distribution of incentives and resources of bidders do not reflect reality. The small number of large cellular license holders has resource and organizational advantages in the auction process that bias the outcome of the auction in their favor at the expense of the large number of much smaller beneficiaries of shared use spectrum. License holders have an incentive to overbid for spectrum to keep it out of the hands of potential competitors. Shared use beneficiaries face obstacles that lead them to underbid, or prevent them from bidding altogether.
- <sup>324</sup> Bykowsky, Olson, and Sharky, 2008,
- <sup>325</sup> Cramton, et al., 2011 p.1. Most spectrum auctions, however, are held in a... complex environment. In particular, a common asymmetry in the auction is the distinction between an incumbent and an entrant. The incumbent has existing customers, network infrastructure, and spectrum; the entrant does not.
- <sup>326</sup> Milgrom, et al., 2011, p. 13, identify a foreclosure premium that incumbent license holders may pay – bidding prices up to keep potential competitors from entering the market – “[A]uction theory tells us that the type of mechanism used to allocate spectrum, if they work well, will tend to maximize industry profits, and one expects industry profits to be higher with more concentration.”

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- <sup>327</sup> Cramton, et al., pp.1...2..
- <sup>328</sup> Chapin and Lehr, 2010 p. 27.
- <sup>329</sup> Dailywireless.org, 2011.
- <sup>330</sup> Lamberth, 2011, “Even though the FCC has already approved unlicensed use of TV white spaces, several members of the U.S. congress proposed auctioning access to TV white spaces during the summer’s debt ceiling debates. While the legislators are hoping for a financial windfall to help close the U.S. budget gap, industry insiders wonder why anyone would pay for non-exclusive access to intermittently-available spectrum.
- <sup>331</sup> Horvitz, 2007, 4.
- <sup>332</sup> Milgrom, et al., 2011, p. 3, “What makes such ideas untenable is that too many of the beneficiaries – future innovators and consumer in the case of unlicensed spectrum – are difficult or impossible to identify at the time of the auction... ignorance about who the future individual users will be or what their value will be cannot justify overlooking those users and values, as would surely happen with such an auction (2)... “While allowing market forces to determine the allocations between licensed and unlicensed might superficially appear to be an attractive option, it is not a practical alternative. Auction markets work best when one can identify the relevant bidders in advance, bring them to auction, inform them what is for sale, and motivate them to bid... (p. 25) [T]here is a diverse and emerging group of devices that use and benefit from unlicensed spectrum... Even the group of existing beneficiaries is too large and diverse to be identified, informed and motivated to bid, particularly when individual beneficiaries cannot expect their bids to have any effect on the outcome. And without knowing how many other users there might be or how much interference might arise, they would be unable to make realistic estimates of value.... Moreover, the importance of innovation to capture the full benefits of unlicensed spectrum would make it even more implausible that beneficiaries of unlicensed spectrum could be assembled. For potential innovators who may use unlicensed spectrum, the main problems are that they are numerous, their identities are unknown; their participation is costly, making it hard to bring them to auction; and the very nature of innovation makes their information about future benefits unreliable.”
- <sup>333</sup> Lamberth, 2011, “Worse, the proposal would allow a single bidder to swoop in and outbid the total of all other bidders for white space access. In that case, the single bidder would gain an exclusive license to use white spaces, effectively killing public and community access to white spaces.”
- <sup>334</sup> Bykowsky, Olson, and Sharky, 2008,
- <sup>335</sup> Waterman, 2005, p. 16.
- <sup>336</sup> Id., p. 30.
- <sup>337</sup> Id., p. 23.
- <sup>338</sup> Einstein, 2004, p. 179
- <sup>339</sup> Id., p. 60.
- <sup>340</sup> Id., pp. 179-180.
- <sup>341</sup> Id., p. 217.
- <sup>342</sup> Einstein, 2004, p. 217.
- <sup>343</sup> Id., p. 217.
- <sup>344</sup> Bielby and Bielby, 2003, p. 341.
- <sup>345</sup> Einstein, 2004, pp. 180-181.
- <sup>346</sup> Id., p. 194-195, Bielby and Bielby, 2003, p. 581.
- <sup>347</sup> Einstein, 2004, p. 194-195.
- <sup>348</sup> Bielby and Bielby, 2003, p. 581.
- <sup>349</sup> Einstein, 2004, pp. 180-181, 187.
- <sup>350</sup> Id., p. 217.
- <sup>351</sup> Id., p. 192.
- <sup>352</sup> Id., pp. 198-199.
- <sup>353</sup> Id., pp. 180-181.
- <sup>354</sup> Id., p. 192.
- <sup>355</sup> Bielby and Bielby, 2003, p. 581.
- <sup>356</sup> Id., p. 580.
- <sup>357</sup> Einstein, 2004, pp. 218-219.
- <sup>358</sup> Bielby and Bielby, 2003, p. 592.
- <sup>359</sup> Id., p. 593.
- <sup>360</sup> Einstein, 2004, p. 194-195.
- <sup>361</sup> Bielby and Bielby, 2003, p. 581.

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- <sup>362</sup> Waterman, 2005, p. 30; Peltier, Stephanie, “Mergers and Acquisitions in the Media Industries: Were Failures Predictable,” *Journal of Media Economics*, 17(4), 2004.
- <sup>363</sup> A graph focusing on the division of surplus and the most complete discussion can be found in Viscusi, Vernon, and Harrington, pp. 77–78; Shepherd, pp. 19–21; and Scherer and Ross, pp. 24–29.
- <sup>364</sup> Taylor, 1998, *Economics*, pp. 275–278, 378–381, discusses these dynamics of welfare economics.
- <sup>365</sup> Scherer and Ross, 1990, pp. 70-71: “A related performance-oriented approach focuses on some measure of the net profits realized by firms or industries.”
- <sup>366</sup> Landes and Posner, 1981, p. 941: “If marginal cost were known, the Lerner Index could be determined directly (assuming the price is observable), without measuring the firm’s elasticity of demand. But because marginal cost is a hypothetical construct—the effect on total cost of a small change in output—it is very difficult to determine in practice, especially by the methods of litigation.”
- <sup>367</sup> Id.
- <sup>368</sup> Landes and Posner acknowledged this in some respects. In all of the examples, the effect of adopting the approach advocated in this paper was to reduce or eliminate the inference of market power drawn from market share data. In most cases, this will probably be the result of our approach simply because exclusive and uncritical focus on market share data tends to produce an exaggerated impression of market power. In some cases, however, our approach will result in correcting an underestimation of market power based on market share. Id.
- <sup>369</sup> Id.
- <sup>370</sup> Id.
- <sup>371</sup> Four Responses, 1982. Schmalensee, Kaplow, Brennan, and Ordover, Sykes and Willig.
- <sup>372</sup> Viscusi, Vernon and Harrington, 2000, p. 147.
- <sup>373</sup> Id., p. 149.
- <sup>374</sup> Ordover and Willig, “Herfindahl Concentration, Rivalry, and Mergers,” *Harvard Law Review*, 95: 1982.
- <sup>375</sup> Morgenson, 2015.
- <sup>376</sup> Colby, 2016.
- <sup>377</sup> O’Brien, Shauna, 2014, *Share Repurchase vs. Dividend: It’s a No Brainer*, Dec 12. See also Dividend Growth Investor, 2009.
- <sup>378</sup> O’Brien, Shauna, 2014, *Share Repurchase vs. Dividend: It’s a No Brainer*, Dec 12. See also Dividend Growth Investor, 2009.
- <sup>379</sup> Department of Economic and Social Affairs Population Division, 2013. ["World Population Prospects."](#)
- <sup>380</sup> [World Economic Outlook Database-April 2016](#), [International Monetary Fund](#).
- <sup>381</sup> Ford, 2016.
- <sup>382</sup> Id., p. 4.
- <sup>383</sup> WIK-Consult Report 2016., (Hereafter, WIK-study)
- <sup>384</sup> WIK study, Figures 19 and 21.
- <sup>385</sup> CostQuest and Windstream, 2015, pp. 12-13.