APPENDIX B

THE EFFECTS OF THE FCC'S PROGRAM EXCLUSIVITY BAN

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[*] I thank Harold Furchtgott-Roth for insightful comments and David Osinski, Carolina Czastkiewicz, Andrew Demers, Federico Mini, Seth Sacher, and Xuejuan Su for excellent assistance. All mistakes, however, are my own.

I. Introduction

Existing regulations generally ban vertically integrated cable operators from entering into exclusive agreements for the distribution of their programming. Any economic justification there may have been for this ban in the early 1990s -- when consumers could generally choose only among broadcast television, cable, or video rentals (or purchase) for in-home viewing -- is no longer true today due to greatly increased competition in video programming and distribution.

Today's market bears little resemblance to the market of even a few years ago. Consumers can choose from a wide range of distribution platforms—including cable, satellite, traditional broadcast, downloads and streaming video from the Internet, and new competition from the incumbent telephone companies who are investing billions of dollars in fiber distribution networks.

Despite unsubstantiated claims to the contrary, there is no such thing as "must have" programming. Hundreds of programming networks are available on the market, most of which are not owned by cable, and entry into the video programming market is not difficult. While sports programming is commonly called "must have" content, ESPN has ratings only half that of Nickelodeon. No empirical evidence suggests that lack of access by a video distributor to an RSN harms consumers. Because no programming can be considered "must have" and because the video production market is competitive, it is unrealistic to believe that a cable company could behave anticompetitively by retaining exclusive rights to some programming.

Indeed, the ability to enter into exclusive agreements is an important key to competition. DBS is a prime example of the importance of exclusive offerings. DirectTV, for example, has differentiated itself by offering exclusive content such as *NFL Sunday Ticket*, *Extra Innings*, and *NASCAR Hotpass*.

Exclusive deals are also important for encouraging innovation and investment in programming by allowing the innovator or investor to enjoy appropriate returns to the investment. Reducing the potential returns to an investment in programming by barring exclusive deals reduces incentives to invest. In this case, an exclusivity ban reduces the incentives to invest in programming.

Finally, the exclusivity ban has unintended consequences. In particular, vertically integrated cable companies are largely unable to compete by offering different programming from their competitors. Were cable companies able to offer unique programming, rivals might respond with new content of their own, or with new packaging options. Under the current regime of compelled sharing of programming, distributors have less incentive to invest in differentiated programming since regulations allow a competitor to immediately and precisely match their offerings. If cable companies had the ability to offer a greater lineup of exclusive programming, all distributors in the market might have more of an incentive to compete by offering different content rather than by mimicking the content offerings of one another.

Even without the ban, only a small amount of programming, if any, is likely to become exclusive. Indeed, most cable networks are not owned by cable companies and thus not

necessarily subject to the ban, yet relatively few are offered exclusively. It makes sense to keep content exclusive only if the revenue gain from increased subscribership attributable to exclusive programming outweighs the revenue loss from diminished viewership of competing distribution networks. As the penetration of competing video distribution platforms continues to increase those losses simultaneously increase. Given this consideration, the ban becomes increasingly likely to bar only exclusive deals that would be beneficial to consumers. With today's broad video distribution market and competitive programming market, banning vertically integrated cable companies from offering exclusive content makes little economic sense.

II. Exclusive contracts are a common business practice that can be an important competitive tool

Exclusive contracts are a common feature of a well-functioning market economy. Indeed, competition frequently relies on firms' abilities to offer different products to consumers. To the extent differentiation increases competition, a given competitor may fare worse when another firm enters into an exclusive contract, but the key issue is the contract's effect on consumers, not on competitors.

Exclusive deals can be beneficial and efficient. They can help align the incentives of two firms so that, for example, a distributor has an incentive to promote content without fear of other distributors free riding on promotional efforts. They can also help ensure that a programming innovator can appropriate greater returns from her innovation. Denying an innovator the right to make an exclusive deal with a licensee reduces the innovator's potential returns and ultimately harms society by reducing incentives to innovate. Similarly, investors should be allowed to realize the returns to their investments, rather than requiring them to engage in a less preferred contracting arrangement with distributors, thereby creating inefficiency and reducing incentives to invest.[1]

Firms often rely on exclusive offerings to enter a new market or to improve their competitive position. The video distribution market is a prime example of this phenomenon. Although vertically integrated cable companies are barred from offering exclusive content, DBS providers have relied on exclusive deals to attract subscribers. DirecTV today exclusively offers programs such as *NFL Sunday Ticket* and *NASCAR Hotpass*. Had DirecTV been required to make these programs available to its competitors, it would have been less likely to offer them in the first place.

Precisely because exclusive contracts can enhance welfare, U.S. courts evaluate exclusive contracts under a rule of reason: an exclusive deal between a downstream distributor and an upstream input provider is not *per se* unlawful, even if the input in question cannot be procured elsewhere.[2] Given the intense competition in the video production market (discussed below), it is unlikely that an exclusive contract could effectively serve any anticompetitive purpose.

In a competitive marketplace competitors can respond to an exclusive arrangement in many ways. If a cable operator enters into an exclusive arrangement for a particular programming network, rivals could respond by lowering prices, entering into other exclusive arrangements, investing in new content, or innovating in other ways (*e.g.*, adding new communications services or providing subscribers more flexibility in programming packages). Indeed, the essence of

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[1] Rey, Patrick and Jean Tirole, "A Primer on Foreclosure," forthcoming in *Handbook of Industrial Organization III*, edited by Mark Armstrong and Rob Porter, North-Holland. Whinston, Michael D., *Lectures on Antitrust Economics.* MIT Press: 2006.

[2] Under certain circumstances exclusive contracts may have anticompetitive aspects, but even in those cases the welfare effects of banning exclusive contracts is ambiguous —the costs of a ban to society could outweigh any benefits (E.g., see, Bernheim, B. Douglas and Michael D. Whinston. "Exclusive Dealing," Journal of Political Economy, 1998, v106 (1,Feb), 64-103).

welfare-enhancing competition involves firms innovating to improve on services provided by their competitors.

Vertical integration is common and can be economically efficient

Firms may choose to produce their own inputs or procure them in the market. As economist and Noble laureate Ronald Coase observed, it is not obvious or pre-ordained what is more efficient for a firm to produce itself and what is more efficient to purchase in the market. A key component of the decision of whether to produce or to purchase depends on the relative transactions and other costs associated with contracting in the market versus producing goods internally.[3] Moreover, there are varying degrees of vertical integration, ranging from complete ownership of input production to joint ventures between upstream and downstream suppliers to other contractual arrangements. Thus, firms may vertically integrate in a number of ways for purely competitive reasons. Vertical integration is neither inherently nor even typically anticompetitive; indeed, vertical integration tends to be competitive and to enhance consumer welfare.[4]

Vertical integration of video content and distribution and exclusive use of that content, in particular, are common. Major broadcast networks have long created their own content for exclusive broadcast on their own stations (except for possible later syndication). Vertical integration in content and distribution extends beyond the legacy broadcast networks. Disney owns ABC, ESPN, and other cable networks; NBC owns broadcast stations and also develops content for several cable networks; and Viacom owns several cable networks and until January 2006 also owned CBS broadcasting stations.[5] News Corporation owns the Fox broadcasting network, cable networks, a share of DirecTV (which it is in the process of selling), and other content distributors such as newspapers and a publisher (Harper Collins).

New entrants into the video distribution market are concluding that developing their own content is beneficial. Just as the cable industry initially competed with broadcast television for viewers by investing in unique content, Verizon is beginning to develop its own content to distribute over its fiber "FiOS" connections, including local news shows.[6] This vertical integration is likely to yield benefits both in terms of competition (Verizon becomes more competitive by offering unique programming) and in terms of direct benefits to consumers (new programming that they would not otherwise have). In other words, new entrants try to compete by offering different video choices than their competitors. If entrants were forced to make that programming available to competitors, then they would have less incentive to invest in that programming. In this case, that would mean fewer local choices to consumers who would clearly be worse off as a result.

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[3] Coase, Ronald H., "The Problem of Social Cost," *Journal of Law & Economics*, 1960, 3: 1-44. Joskow, Paul L., "Vertical Integration," *Handbook of New Institutional Economics*, C. Menard and M. Shirley, eds, 2005.

[4] Several Federal Trade Commission economists, including the former director of the Bureau of Economics recently surveyed the economic evidence regarding various vertical restraints and concluded: "Our review of the empirical evidence – which informs our priors – suggests that vertical restraints are likely to be benign or welfare enhancing." (See Cooper, James C., Froeb, Luke M., O'Brien, Dan, and Vita, Michael G., "Vertical Antitrust Policy as a Problem of Inference," International Journal of Industrial Organization, 2005, v23, Sept, 639-664.)

[5] http://www.cbsnews.com/stories/2006/01/03/business/main1176111.shtml

[6] Searcey, Dionne. "Verizon's Network Bet Relies on Games, TV." WSJ. March 7, 2007.

III. The Marketplace for Video Distribution is Competitive

When the FCC first implemented the exclusivity ban, cable had relatively limited channel capacity and was generally the only choice for consumers who were willing to pay for more video streamed into their homes than was broadcast for free over the air.[7] Today's market for video distribution bears little resemblance to the prevailing marketplace at that time.

Consumers face a wide range of choices and are no longer constrained to cable and broadcast for video streamed into the home and to DVDs (or VHS cassettes) for movies and other recorded video. Instead, two satellite DBS providers are available across the United States; the nation's two largest telephone companies, Verizon and AT&T, are investing billions of dollars to become video distributors; and rapid technological advances are dramatically increasing the number of online and other methods of obtaining video. The next subsection reviews cable and satellite, followed by a discussion of the broader choices available for video distribution.

Cable faces substantial competition from DBS

As late as the early 1990s, consumers who wanted more video streaming choices than were available over the air had few choices. Other than free over-the-air broadcast signals, they generally had access to only a single, relatively low capacity, cable network. The entry of DBS changed that situation dramatically. Most obviously, it stopped the growth in the number of subscribers to cable companies. As seen in Figure 1, DBS companies have continued to add subscribers even as the number of cable subscribers has slowly decreased.

DBS entry had both direct and indirect effects on competition. The direct effect of DBS on competition was to provide new platforms for distributing video programming directly to consumers. The indirect effect was to induce the cable industry to upgrade its technology in order to respond to the large channel capacity offered by DBS. When DirecTV began operations in 1994 it offered over 100 channels.[8] Cable systems typically had much lower capacity—in 1992 more than 65 percent of all cable systems were limited to 53 channels or fewer.[9] With the broadcast must-carry rules and other regulatory obligations such as providing public access channels, cable companies had little spare capacity. Today, however, cable systems routinely offer 200 channels or more.[10]

In other words, the entry of DBS in the early 1990s increased competition in the video distribution marketplace by providing additional choices for video consumption and increasing the number of available channels *within* each platform.

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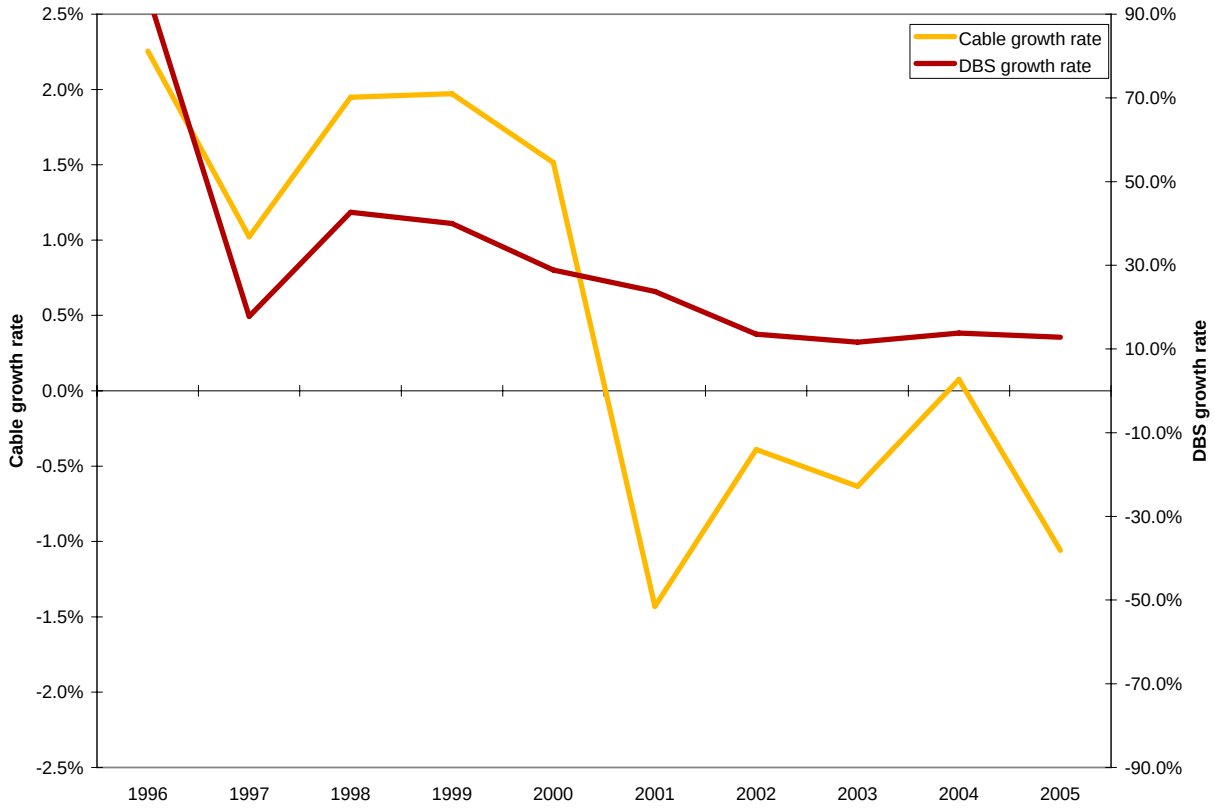
[7] Only about one-third of all households with cable subscribed to services that were capable of carrying more than 54 channels. Crandall, R. W. and Harold Furchtgott-Roth, 1996, *Cable TV: Regulation or Competition?* Washington DC: Brookings Institution.
[8] Hughes Electronics 1997 Annual Report, pg. 23.
[9] Crandall, R. W. and Harold Furchtgott-Roth, 1996, *Cable TV: Regulation or Competition?* Washington DC: Brookings Institution.
[10] For example, Comcast offers over 250 channels for premium subscribers http://stocks.us.reuters.com/stocks/fullDescription.asp?symbol=CMCSA.O

Figure 1: Growth in the Number of Cable and DBS Subscribers



Source: Annual Assessment of the Status of Competition in the Market for Delivery of Video Programming, Sixth Annual Report, Ninth Annual Report, and Twelfth Annual Report

The True Market for Video Distribution is Broad and Expanding

Cable and satellite represent only a fraction of the choices consumers face in ways to watch video at home. Since the advent of the VCR consumers have been able to rent movies of their choice rather than being limited to the movies offered on cable channels. Indeed, both cable and satellite operators increasingly offer video on demand to lure customers who would otherwise rent movies, demonstrating that movie rentals are one source of competition.[11]

Technological change has since revolutionized the market for video distribution. The maturation of IPTV, or video delivered using Internet protocols, combined with increased demand for high-speed Internet connections, is allowing firms to roll out fiber optic systems that both provide

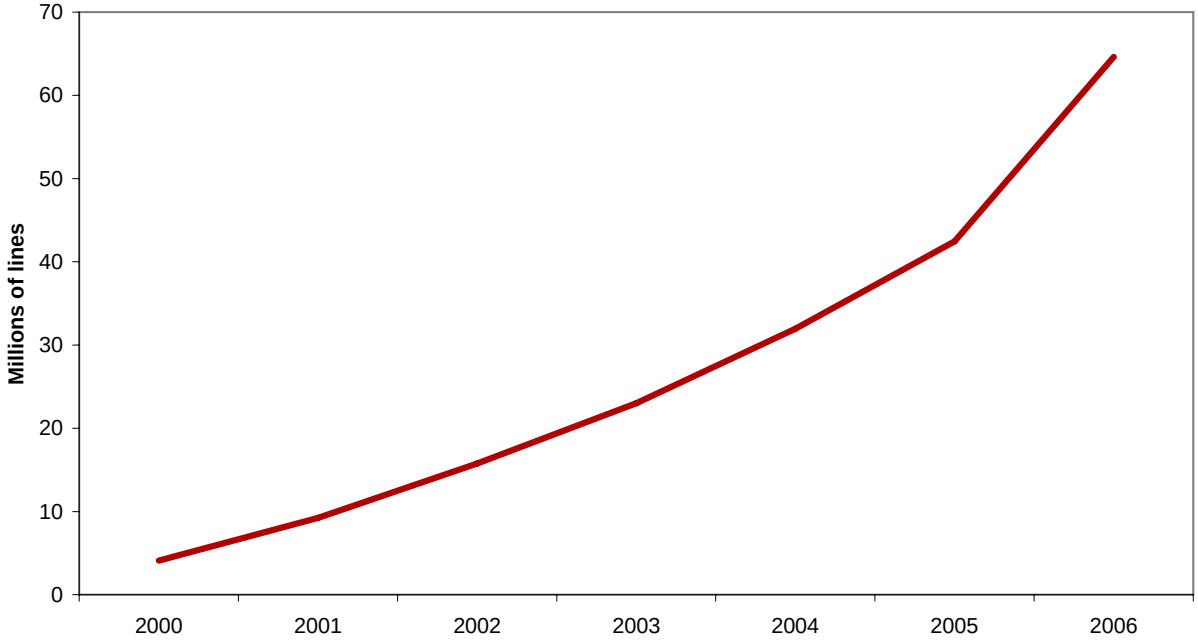
[11] Movie rentals have also become more convenient, with mail delivery from Netflix and Blockbuster, as well as Internet downloads available from a number of distributors.

high-speed broadband and video distribution. In particular, both Verizon and AT&T are investing heavily in fiber systems that will bring video services to subscribers' households.[12]

Verizon has announced plans to spend $18 billion on its fiber optic ("FiOS") buildout.[13] Consistent with this plan, in 2005 Verizon had the largest capital expenditures of any firm in the country.[14] By the end of 2006, Verizon had 207,000 FiOS TV customers, passed 2.4 million homes, and offered more than 200 video channels.[15,16] AT&T expects to reach 19 million households by the end of 2008.[17] With their large footprints, financial resources, and existing customer bases, Verizon and AT&T are poised to be major competitors in the video distribution market.

Investment in fiber is just one component of an overall surge in investment in high-speed Internet infrastructure. Figure 2 shows the increase in the number of broadband connections in the United States. In the first six months of 2006 alone (the latest data available from the FCC), the number of high-speed connections increased by 26 percent.[18]

Figure 2: Millions of High-Speed Lines in the U.S.



Source: High-Speed Services for Internet Access, FCC, January 2007

[12] Verizon and AT&T are using slightly different technologies. Verizon is building its fiber lines directly to homes, while AT&T is building its fiber to the node and using copper wire to the home. Nevertheless, both offer television video services. See http://www.igigroup.com/st/pages/fttp.html
[13] http://online.wsj.com/article_print/SB117322928784528977.html
[14] http://www.cfo.com/printable/article.cfm/5193423/c_5243641?f=options
[15] http://investor.verizon.com/financial/quarterly/VZ/4Q2006/4Q06Bulletin.pdf
[16] http://www22.verizon.com/content/FiosTV
[17] http://www.att.com/gen/press-room?pid=5838
[18] http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-270128A1.pdf

Investment and adoption of broadband Internet technology provide consumers with more choices of how to access video from their homes. As recently as a few years ago, online video consisted primarily of short clips of uneven quality. Video on the Internet is increasingly another platform for accessing a vast array of high quality, popular video from sources ranging from major producers to individuals uploading their own creations (see section 4 below on the programming market).

Investment in online video distribution has soared in the past year. The most widely known example is Google's purchase of YouTube for $1.65 billion.[19] But Google's belief in online distribution as a crucial component of video distribution is only one part of the picture. MSN, AOL, Yahoo, NBC, and Fox (including MySpace) recently announced plans to distribute video over the Internet.[20] And on March 22, 2007 AT&T announced that customers could watch 30 channels offered on its U-verse system live over any broadband connection.[21]

Table 1 shows some of the recent developments in online video distribution. Apple's iTunes, for example, offers full-length popular television shows from nearly all the major networks as well as movies and other digital content.[22] This video, moreover, is not confined to viewing on computer screens. On March 21, 2007 Apple launched a device (Apple TV) that wirelessly sends video downloaded from iTunes to a television set.[23] AppleTV has received favorable reviews for its usability.[24,25]

Apple is not alone in moving into online video distribution. Microsoft has made it possible to download both movies and television programs to its Xbox 360, which can then play the programming on the consumer's television set.[26] Likewise, Amazon is moving into video distribution (beyond selling DVDs). "AmazonUnbox" allows users to download movies and television directly to their TiVO digital video recorder for later viewing.[27] Like Apple and Microsoft, Amazon offers video from a large number of programming networks.[28]

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[19] http://www.msnbc.msn.com/id/15196982/
[20] http://www.nytimes.com/2007/03/23/business/media/23video-web.html?hp
[21] http://dallas.bizjournals.com/dallas/stories/2007/03/19/daily28.html?t=printable
[22] Networks with shows on iTunes: ABC, CBS, NBC, MTV, ESPN, Sci Fi Channel, Comedy Central, Disney, Nickelodeon, and Showtime (http://www.apple.com/itunes/store/tvshows.html)
[23] http://www.nytimes.com/2007/03/22/technology/22pogue.html?ex=1175400000&en=13d6a042abfd5538&ei=5070
[24] http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore.woa/wa/RSLID?mco=BAE33B0&nclm=AppleTV
[25] http://online.wsj.com/article_print/SB117443716237743525.html
[26] http://www.engadget.com/2006/11/06/microsofts-xbox-live-video-hdtv-and-hd-movie-downloads-for-you/
[27] http://www.amazon.com/b/ref=gw_br_unbox/102-5708124-4969767?%5Fencoding=UTF8&node=16261631
[28] According to Amazon's website, as of March 17, 2007, AmazonUnbox offered video from the following networks: A&E, ABC, Adult Swim, Animal Planet, BBC, The Biography Channel, Cartoon Network, CBS, Comedy Central, The CW, Discovery Channel, DIY, E!, Fine Living, FOX, FOX Reality, FOX Sports, FX, Fuel TV, Hanna-Barbera, HGTV, The History Channel, Logo, MTV, MTV2, The N, National Geographic, NBC, Nick at Nite, Nickelodeon/Nick Jr., PBS, Showtime, Speed, Spike, The Travel Channel, TV Land, and VH1.

Online video is not limited to recorded content. Live video is also increasingly available online. CNN, FoxNews, ESPN, and C-Span, to name a few, all offer live video. Major League Baseball offers MLB.tv, which allows subscribers to watch every out-of-market game online.[29]

Wireless as a competitor

Broadcast television itself is a competitor in video distribution. In addition, innovation is rapidly expanding the ways in which wireless technologies can become video distribution platforms. Wireless mobile companies, for example, are investing in their own high-speed data networks (typically called "3G" networks) and offer video downloads to subscribers. Sprint and Verizon both already offer video clips from major networks for viewing on handsets.[30] These services are unlikely to be perfect substitutes for home video viewing in the short run, but highlight the substantial innovation in the market for video distribution.[31]

Other potential wireless distributors include the XM and Sirius satellite technologies, which could offer video in addition to radio. On March 29th, for example, Sirius announced that it would begin transmitting three popular video channels for new Chrysler minivans.[32] WiMax technologies, often predicted to be an efficient way to deliver high-quality wireless broadband services could also be used to deliver video.[33] The FCC's upcoming 700 Mhz spectrum auction is likely to spark competition for wide-ranging wireless broadband services.

In sum, the market for video distribution is dynamic and competitive. Cumulatively, new innovations demonstrate the rapidly evolving methods of distributing video. Consumers can choose not only among broadcast, cable, and satellite, but also among competing online video distributors, and wireless companies. Innovation is delivering a steady stream of new methods of distributing video. Some of these new platforms may choose to build viewership by producing their own programming and by entering into exclusive deals, just as DirecTV has done to build its subscribership. The ban on exclusivity could make it more difficult for firms to enter and compete in the distribution market.

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[29] http://mlb.mlb.com/mlb/subscriptions/mlbtv.jsp accessed March 17, 2007.

[30] Sprint offers video from ABC, The Discovery Channel, The Weather Channel, FOX Sports and others. See (http://www1.sprintpcs.com/explore/ueContent.jsp?scTopic=multimedia&ATR_ExtraOne=uhp_services) Verizon offers live video from CBS Mobile, Comedy Central, ESPN, Fox Mobile, MTV, NBC 2Go, NBC News 2Go and Nickelodeon. See http://www.msnbc.msn.com/id/17405350/

[31] Nobody knows if mobile television will succeed. But, by one estimate, mobile TV revenues could reach nearly $2 billion by 2011. See http://www.marketwire.com/mw/release_html_b1?release_id=142329.

[32] http://www.insidebayarea.com/business/ci_5555924

[33] http://www.itbusinessedge.com/item/?ci=17918

Opportunity Cost of Exclusive Deals Increasing with Competition

Sometimes exclusive deals make good business sense. As discussed above, they can help align the promotion incentives of the video producer and distributor. Often, however, an exclusive deal would not be in the interest of a vertically integrated firm.

Typically, retaining exclusive rights to programming would be beneficial to the vertically-integrated firm only if it expects the gains from increased subscribership to offset the foregone license fees and advertising revenues (due to larger and broader viewership) generated from distribution to other distributors.

As the number of subscribers to other platforms increases, the costs of such exclusivity to the vertically integrated firm also increase. Such costs have increased substantially since the Commission last noted retaining the exclusivity ban was a "close call." In the past five years the number of DBS subscribers has increased more than 50 percent, substantially increasing the costs of excluding rivals. Moreover, those costs will continue to rise as other distribution platforms continue to mature.

The increased competition in video distribution makes exclusives less profitable regardless of whether the exclusivity occurs through vertical integration or contract. A content provider will enter into an exclusive agreement with an unrelated distributor if its benefits from the agreement exceed its costs of lost viewership. The distributor will enter into an exclusive agreement if its benefits exceed its costs, which include paying more to the content provider to compensate it for lower viewership. Just as with the vertically integrated firm, the costs to the distributor of exclusivity increase as the number of viewers using other platforms increases.

Such exclusive agreements are currently available with non-integrated cable programmers, yet rarely occur. In other words, such exclusivity is already available for some cable programmers, and marketplace evidence demonstrates that the costs of exclusivity are high. No evidence suggests that the availability of exclusive arrangements for non-integrated programmers have hurt competition or consumers.

While the ability to promote exclusive offerings is likely to remain an important part of a successful business strategy, as DirecTV's use of exclusive sports offerings demonstrates, exclusives come with a cost, and that cost increases with the number of subscribers on other platforms. As a result, it may only rarely be in the interest of the vertically integrated firm to offer such exclusives. When it is in the interest of such a firm, it is increasingly likely to be for pro-competitive reasons, meaning that the ban is increasingly likely to bar only pro-competitive arrangements.

Table 1: Video Distribution Technologies

	Availability	**Example competitors**	**Other information**
Cable	113 million households passed[34]	Comcast Time Warner	66 million subscribers[35] About 750 hours per person per year[36]
Satellite	More than 102 million households passed (with access to local television stations)[37]	DirecTV	26 million subscribers[35] About 300 hours per person per year[36]
Broadcast	Nearly universal	Univision Broadcast networks	15 million users[35] About 800 hours per person per year (including cable subscribers watching broadcast television) [36]
Fiber	2.7 million households passed[15]	Verizon, AT&T	0.25 million subscribers[15]
Movie theater	Nearly universal[38]	AMC	Americans purchased 1.45 billion movie tickets in 2006[39]
Home video (from local store)	Nearly universal access	Blockbuster Hollywood Video	About 80 hours per person per year[40] About 100 hours per person per year are spent consuming home videos across all delivery methods[40]
Home video (mail order)	Universal	Netflix (6.3 million subscribers) Blockbuster (2.2 million subscribers)[41]	8.5 million subscribers[41] About 20 hours per person per year[40] Approximately 8% penetration of U.S. TVHHs (16% penetration in San Francisco, which is considered a leading indicator) [41]
Home video (downloaded)	At least 100 million households have access to broadband[42]	Netflix Xbox NDS set-top for DBS[43] AppleTV Amazon/TiVO	84 million households had broadband access in March 2006[44]

[34] http://www.ncta.com/ContentView.aspx?contentId=54
[35] 2005 Figure. FCC, *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, (March 3, 2006), Table B.
[36] Veronis Suhler via Credit Suisse. FCC Annual Video Competition Report to Congress.
[37] DirecTV Investor Relations, November 10, 2004. See http://phx.corporate-ir.net/phoenix.zhtml?c=127160&p=irol-newsArticle&ID=642880&highlight=
[38] http://www.statemaster.com/red/graph/lif_cla_mov_the_and_dri-classic-movie-theaters-drive-ins&b_map=1#source
[39] http://www.usatoday.com/life/movies/news/2007-03-06-box-office-rise_N.htm
[40] Veronis Suhler via Credit Suisse. NetFlix 2006 Q4 earnings conference call.
[41] NetFlix 2006 Q4 earnings conference call.
[42] http://www.cybertelecom.org/data/broadband.htm
[43] Oppenheimer report on the media and broadcasting industry.

Gaming consoles	Universally available	Microsoft	16 million heavy gamers in the United States[45] Xbox offers video downloads.
Streaming proprietary video	At least 100 million households have access to broadband[42]	Joost[46] Brightcove YouTube MLB.com New NBC-Fox venture AT&T U-Verse ESPN360 Sirius	Viacom agreement with Joost[47] and suing Google[48] Distributor for videos on WSJ and other traditional media CBS sports highlights on YouTube[49] Offers a variety of subscription packages[50] Due for start-up in summer 2007[51] Launched March 22, 2007.[52] ESPN360 requires ISPs to pay an affiliate fee Satellite TV direct to vehicles[53]
User-generated video	At least 100 million households have access to broadband[42]	YouTube Metacafe	Over 100 million hits per day[54] YouTube hosts 60% of videos watched online[54]
Portable video		iPod video V Cast	Internet download plus player Mobile connection on compatible phone

[44] http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-268845A1.pdf
[45] Searcey, Dionne. "Verizon's Network Bet Relies on Games, TV." *WSJ*. March 7, 2007.
[46] http://economist.com/business/displaystory.cfm?story_id=E1_RGSDNSJ
[47] http://www.viacom.com/view_release.jhtml?inID=10000040&inReleaseID=227591
[48] http://online.wsj.com/article_print/SB117319537794228320.html
[49] http://news.com.com/CBS+teams+with+YouTube+for+NCAA+basketball/2100-1026_3-6167843.html
[50] See http://mlb.mlb.com/mlb/subscriptions/index.jsp?c_id=mlb. MLB itself has an exclusive deal with DirecTV for out-of-market games.
[51] http://online.wsj.com/article_print/SB117457218554245466.html
[52] http://dallas.bizjournals.com/dallas/stories/2007/03/19/daily28.html?t=printable
[53] http://www.insidebayarea.com/business/ci_5555924
[54] http://news.bbc.co.uk/2/hi/technology/5186618.stm

IV. The Marketplace for Video Content is Competitive

The market for video content is a crucial component in evaluating the effects of the exclusivity ban. The more competition there is in video production, and the easier it is to enter that market, the less likely it is that exclusive contracts could be used to harm competition in distribution. To the contrary, the competitiveness of the content market makes it more likely that exclusive contracts would be a crucial tool for promoting competition.

The evidence demonstrates that any video distributor can choose programming from a wide range of producers and formats. This section explains the numerous ways in which the market for video content is competitive—a number of different networks offer many options in different program categories, and vice versa. The section also demonstrates that no particular channel is truly "must-have."

The key point is that with competition and low barriers to entry in the marketplace for video content and the lack of any true "must have" programming, it is unlikely that any exclusive arrangements could have anticompetitive consequences in video distribution.

No single network or provider of content has a large share

Both satellite and cable offer packages of programming services that contain hundreds of channels of video programming, most of which are unaffiliated with cable. Today's video landscape bears no resemblance to the 36 to 54 channel universe prevailing in 1992. As of 2005, the FCC identified 531 satellite-delivered national programming networks.[55]

Virtually every type of national programming network faces ample competition. There are multiple news channels (CNN, Fox News, MSNBC), children's channels (Nickelodeon, Disney, Toon Disney, Cartoon Network), sports networks (ESPN, Fox Sports, Versus, NFL Network, NBA Network, Golf Channel, as well as the sports available on broadcast networks, FX, TNT and TBS), and music channels (VH-1, MTV, CMT, Fuse). There are also multiple educational programming services (Learning Channel, Discovery Channel, History Channel), premium movie channels (HBO/Cinemax, Showtime/Movie Channel, Encore/Starz) and general entertainment networks (USA, TNT, FX).

[55] FCC, *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, (March 3, 2006), ¶157.

Table 2 lists annual Nielsen 24-hour ratings for the top stations grouped by owner from 1996-2005. The table shows that no single program or network has a clearly dominant position. The single largest station, Nickelodeon, has a 1.70 rating. This means that an average of 1.7 percent of all households with a television (or about 1.9 million households) were tuned into Nickelodeon at any one time during a given 24-hour period. The largest single owner, Disney, has a combined 6.63 rating over 15 stations, representing approximately 7.3 million households.

Viewing the same data differently shows another way in which the market is competitive. Table 3 lists 24-hour Nielsen ratings for each station, this time grouped by programming category. The table shows multiple competitors in each major group. Moreover, the top stations in almost every programming category are under different ownership. For example, five different firms own the top six "General Entertainment" stations, three different firms own the top three "Children's" stations and three different firms own the top three "News" stations. One of the areas with the fewest owners is music, where Viacom owns almost all stations, and Sports, where Disney owns the ESPN networks. Note that Viacom acquired VH-1 as part of its CBS acquisition, which was cleared by the DOJ in 2000. As discussed below, Disney does not have a corner on the market for sports, since sporting events are shown on almost all major networks.

Table 2

Station 24-Hour Nielsen Ratings, by Owner, 1996-2005

Owner [1]	Station	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Disney	Disney Channel	1.15	1.13	1.13	0.83	0.80	0.00	0.00	0.00	0.00	0.00
	Lifetime [2]	1.00	1.00	1.14	1.22	1.23	1.11	1.02	0.94	0.83	0.84
	ESPN [3]	0.73	0.77	0.75	0.68	0.60	0.69	0.74	0.78	0.76	0.83
	ABC Family	0.59	0.57	0.46	0.51	0.53	0.52	0.49	0.64	0.61	0.66
	11 other stations	3.16	3.03	2.72	2.19	2.36	2.05	1.95	1.73	1.70	1.58
	Disney totals	6.63	6.50	6.20	5.43	5.52	4.37	4.20	4.09	3.90	3.91
Viacom	Nickelodeon/NAN	1.70	1.64	1.52	1.16	1.39	1.53	1.52	1.56	1.64	1.60
	MTV	0.64	0.58	0.56	0.52	0.50	0.57	0.60	0.50	0.45	0.48
	Spike TV	0.61	0.47	0.45	0.44	0.46	0.41	0.43	0.50	0.53	0.50
	TV Land	0.58	0.49	0.48	0.46	0.43	0.46	0.47	0.44	0.29	0.00
	9 other stations	3.25	2.74	2.40	2.06	2.13	2.11	2.21	2.25	2.03	1.62
	Viacom totals	5.59	4.96	4.48	3.74	4.02	4.21	4.33	4.31	4.12	3.70
Time Warner	TNT	1.23	1.18	1.13	0.93	0.88	0.87	0.97	0.99	1.02	1.05
	Cartoon	1.18	1.13	1.14	1.13	1.13	1.11	1.08	0.97	0.89	0.88
	TBS	0.85	0.85	0.90	0.95	1.05	1.14	1.18	1.06	1.09	1.19
	CNN	0.53	0.48	0.68	0.55	0.85	0.63	0.70	0.77	0.75	0.78
	2 other stations	0.76	0.77	0.60	0.41	0.35	0.34	0.24	0.11	0.11	0.08
	Time Warner totals	4.55	4.41	4.45	3.97	4.26	4.09	4.17	3.90	3.86	3.98
News Corp	Fox News	0.93	0.88	1.00	0.70	0.55	0.00	0.00	0.00	0.00	0.00
	FX Network	0.58	0.57	0.52	0.53	0.50	0.53	0.53	0.46	0.45	0.46
	2 other stations	0.35	0.30	0.22	0.20	0.00	0.00	0.00	0.00	0.00	0.00
	News Corp totals	1.86	1.75	1.74	1.43	1.05	0.53	0.53	0.46	0.45	0.46
Discovery/Cox/Newhouse	Discovery [4]	0.51	0.52	0.53	0.57	0.63	0.65	0.65	0.65	0.65	0.60
	TLC [4]	0.39	0.53	0.68	0.61	0.56	0.53	0.55	0.54	0.46	0.38
	Animal Planet [4]	0.35	0.35	0.37	0.33	0.35	0.30	0.26	0.22	0.16	0.00
	4 other stations	0.60	0.43	0.41	0.27	0.23	0.19	0.16	0.13	0.09	0.00
	Discovery/Cox/Newhouse totals	1.85	1.83	1.99	1.78	1.77	1.67	1.62	1.54	1.36	0.98
GE	USA [5]	0.77	0.86	0.83	0.85	0.80	0.89	0.99	0.98	0.90	0.95
	SCI FI [5]	0.42	0.46	0.46	0.43	0.39	0.44	0.40	0.39	0.33	0.38
	MSNBC[6]	0.25	0.28	0.33	0.30	0.40	0.00	0.00	0.00	0.00	0.00
	2 other stations	0.33	0.42	0.51	0.44	0.49	0.38	0.39	0.40	0.27	0.23
	GE totals	1.77	2.02	2.13	2.02	2.08	1.71	1.78	1.77	1.50	1.56
Scripps	HGTV	0.50	0.51	0.50	0.43	0.41	0.40	0.42	0.38	0.31	0.00
	Food Network [7]	0.50	0.44	0.43	0.33	0.30	0.28	0.20	0.19	0.19	0.00
	Scripps totals	1.00	0.95	0.93	0.76	0.71	0.68	0.62	0.57	0.50	0.00
Cablevision	AMC	0.50	0.45	0.43	0.40	0.45	0.00	0.00	0.00	0.00	0.00
	WE	0.18	0.18	0.12	0.18	0.00	0.00	0.00	0.00	0.00	0.00
	Fuse	0.03	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cablevision totals	0.71	0.68	0.56	0.58	0.45	0.00	0.00	0.00	0.00	0.00
Comcast	Outdoor Life	0.10	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	G4 Videogame TV	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Comcast totals	0.20	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crown Media	Hallmark	0.70	0.60	0.45	0.25	0.30	0.00	0.00	0.00	0.00	0.10
Landmark	Weather	0.33	0.33	0.29	0.28	0.27	0.31	0.32	0.32	0.32	0.37
Sony/Liberty	GSN [8]	0.25	0.23	0.30	0.30	0.30	0.50	0.50	0.40	0.00	0.00
TV Guide	TV Guide	0.20	0.20	0.24	0.30	0.28	0.26	0.25	0.25	0.24	0.28
BBC	BBC America	0.12	0.10	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00

[1] When multiple companies jointly own a channel, that channel is grouped under the company that owns the largest number of channels (not necessarily the company with the majority stake in the channel).
[2] Lifetime networks are owned by Disney (50%) and Hearst (50%).
[3] ESPN networks are owned by Disney (80%) and Hearst (20%).
[4] National Geographic is owned by News Corp (67%) and the National Geographic Society (33%).
[5] Discovery, TLC, Animal Planet, and other channels are owned by Discovery Holding (50%), Cox (25%), and Advance/Newhouse (25%).
[6] USA and SCI FI are owned by GE (95%) and other minority shareholders (5%).
[7] MSNBC is owned by GE (82%) and Microsoft (18%).
[8] Food Network is owned by Scripps (64%), Tribune (29%), Media One (5%), and other minority shareholders (2%).
[9] GSN is owned by Sony (50%) and Liberty (50%).

Source: Kagan Research, LLC

Table 3

Station 24-Hour Nielsen Ratings, by Topic, 1996-2005

Content type [1]	Station	Owner [2]	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
General entertainment	TNT	Time Warner	1.23	1.18	1.13	0.93	0.88	0.87	0.97	0.99	1.02	1.05
	TBS	Time Warner	0.85	0.85	0.90	0.95	1.05	1.14	1.18	1.06	1.09	1.19
	USA [3]	GE	0.77	0.86	0.83	0.85	0.80	0.89	0.99	0.98	0.90	0.95
	ABC Family	Disney	0.59	0.57	0.46	0.51	0.53	0.52	0.49	0.64	0.61	0.66
	TV Land	Viacom	0.58	0.49	0.48	0.46	0.43	0.46	0.47	0.44	0.29	0.00
	FX Network	News Corp	0.58	0.57	0.52	0.53	0.50	0.53	0.53	0.46	0.45	0.46
	7 other stations		2.35	2.39	2.44	2.42	2.42	2.59	2.53	2.27	1.76	1.73
		General entertainment totals	6.95	6.91	6.76	6.65	6.61	7.00	7.16	6.84	6.12	6.04
Children's	Nickelodeon/NAN	Viacom	1.70	1.64	1.52	1.16	1.39	1.53	1.52	1.56	1.64	1.60
	Cartoon	Time Warner	1.18	1.13	1.14	1.13	1.13	1.11	1.08	0.97	0.89	0.88
	Disney Channel	Disney	1.15	1.13	1.13	0.83	0.80	0.00	0.00	0.00	0.00	0.00
	3 other stations		0.80	0.63	0.50	0.30	0.30	0.00	0.00	0.00	0.00	0.00
		Children's totals	4.83	4.53	4.29	3.42	3.62	2.64	2.60	2.53	2.53	2.48
Education	History Channel [4]	Disney	0.58	0.58	0.52	0.48	0.53	0.57	0.48	0.39	0.33	0.28
	Discovery [5]	Discovery/Cox/Newhouse	0.51	0.52	0.53	0.57	0.63	0.65	0.65	0.65	0.65	0.60
	7 other stations		1.48	1.40	1.36	1.15	0.91	0.83	0.81	0.76	0.62	0.38
		Education totals	2.57	2.50	2.41	2.20	2.07	2.05	1.94	1.80	1.60	1.26
Movies	Hallmark	Crown Media	0.70	0.60	0.45	0.25	0.30	0.00	0.00	0.00	0.00	0.10
	Lifetime Movie Net. [6]	Disney	0.50	0.55	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AMC	Cablevision	0.50	0.45	0.43	0.40	0.45	0.00	0.00	0.00	0.00	0.00
	Bravo	GE	0.20	0.28	0.24	0.20	0.15	0.00	0.00	0.00	0.00	0.00
		Movies totals	1.90	1.88	1.63	0.85	0.90	0.00	0.00	0.00	0.00	0.10
News	Fox News	News Corp	0.93	0.88	1.00	0.70	0.55	0.00	0.00	0.00	0.00	0.00
	CNN	Time Warner	0.53	0.48	0.68	0.55	0.85	0.63	0.70	0.77	0.75	0.78
	MSNBC [7]	GE	0.25	0.28	0.33	0.30	0.40	0.00	0.00	0.00	0.00	0.00
	CNBC	GE	0.13	0.14	0.27	0.24	0.34	0.38	0.39	0.40	0.27	0.23
		News totals	1.84	1.78	2.28	1.79	2.14	1.01	1.09	1.17	1.02	1.01
Music	MTV	Viacom	0.64	0.58	0.56	0.52	0.50	0.57	0.60	0.50	0.45	0.48
	BET	Viacom	0.40	0.38	0.40	0.40	0.39	0.33	0.32	0.40	0.40	0.40
	VH-1	Viacom	0.34	0.28	0.27	0.21	0.24	0.27	0.28	0.27	0.21	0.18
	3 other stations		0.35	0.37	0.23	0.18	0.19	0.23	0.30	0.25	0.28	0.25
		Music totals	1.73	1.61	1.46	1.31	1.32	1.40	1.50	1.42	1.34	1.31
Lifestyle	HGTV	Scripps	0.50	0.51	0.50	0.43	0.41	0.40	0.42	0.38	0.31	0.00
	Food Network [8]	Scripps	0.50	0.44	0.43	0.33	0.30	0.28	0.20	0.19	0.19	0.00
	Travel Channel [5]	Discovery/Cox/Newhouse	0.21	0.21	0.21	0.16	0.23	0.19	0.16	0.13	0.09	0.00
	3 other stations		0.30	0.20	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Lifestyle totals	1.51	1.36	1.21	0.92	0.94	0.87	0.78	0.70	0.59	0.00
Women's	Lifetime [6]	Disney	1.00	1.00	1.14	1.22	1.23	1.11	1.02	0.94	0.83	0.84
	Oxygen [9]	Time Warner	0.23	0.23	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WE	Cablevision	0.18	0.18	0.12	0.18	0.00	0.00	0.00	0.00	0.00	0.00
		Women's totals	1.41	1.41	1.46	1.40	1.23	1.11	1.02	0.94	0.83	0.84
Sports	ESPN [10]	Disney	0.73	0.77	0.75	0.68	0.60	0.69	0.74	0.78	0.76	0.83
	ESPN2 [10]	Disney	0.27	0.27	0.24	0.24	0.22	0.24	0.25	0.25	0.26	0.24
	3 other stations		0.35	0.10	0.11	0.10	0.00	0.00	0.00	0.00	0.00	0.00
		Sports totals	1.35	1.14	1.10	1.02	0.82	0.93	0.99	1.03	1.02	1.07
Men's	Spike TV	Viacom	0.61	0.47	0.45	0.44	0.46	0.41	0.43	0.50	0.53	0.50
Civics	Court TV	Time Warner	0.53	0.54	0.40	0.41	0.35	0.34	0.24	0.11	0.11	0.08
Information	Weather	Landmark	0.33	0.33	0.29	0.28	0.27	0.31	0.32	0.32	0.32	0.37
	TV Guide	TV Guide	0.20	0.20	0.24	0.30	0.28	0.26	0.25	0.25	0.24	0.28
		Information totals	0.53	0.53	0.53	0.58	0.55	0.57	0.57	0.57	0.56	0.65

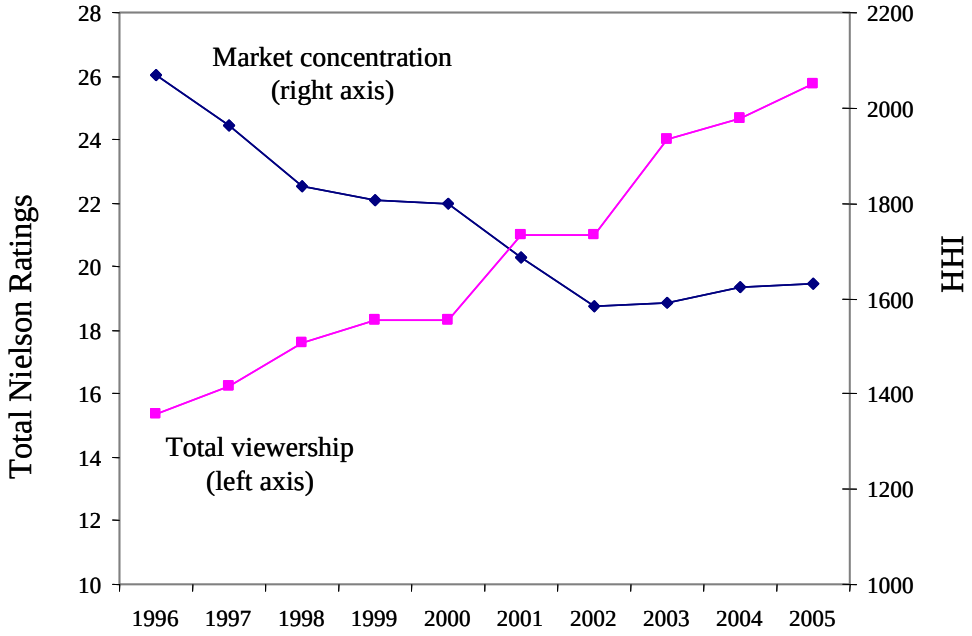
[1] Content types are obtained from the FCC's NPRM, Kagan Associates, LLC, and general knowledge.
[2] When multiple companies jointly own a channel, that channel is grouped under the company that owns the largest number of channels (not necessarily the company with the majority stake in the channel).
[3] USA and SCI FI are owned by GE (95%) and other minority shareholders (5%).
[4] History Channel, A&E, and Biography are owned by Disney (37.5%), Hearst (37.5%), and GE (25%).
[5] Discovery, TLC, Animal Planet, Travel Channel, Discovery Health, and Military Channel are owned by Discovery Holding (50%), Cox (25%), and Advance/Newhouse (2
[6] Lifetime networks are owned by Disney (50%) and Hearst (50%).
[7] MSNBC is owned by GE (82%) and Microsoft (18%).
[8] Food Network is owned by Scripps (64%), Tribune (29%), Media One (5%), and other minority shareholders (2%).
[9] Oxygen is owned by Time Warner, Carsey-Werner-MandaBach, Clarity Partners, Harpo Entertainment, and Vulcan Ventures in unspecified amounts.
[10] ESPN, ESPN2, ESPNews, and ESPN Classic are owned by Disney (80%) and Hearst (20%).

Source: Kagan Research, LLC

In addition, the above two groupings do not exhaustively show the ways in which video services compete. At any given point in time consumers may be choosing what to watch not only within a content type (e.g., channels among general entertainment) but also across content types (e.g., general entertainment versus movies), all of which are competing for viewers.[56]

Recognizing the myriad ways in which channels compete, it is possible to construct an HHI index showing concentration in video content on cable and satellite. Figure 3 presents this index and viewership over time based on the above Nielsen ratings for channels shown on cable and satellite.[57]

Figure 3
Viewership and Concentration of Cable and Satellite Programming



Source: Kagan Research, LLC

[56] Competitive pressure exists as long as enough "marginal" consumers view different types of programming as substitutes. The prevalence of "channel surfing" supports the idea that such substitution is sufficiently common that the number of marginal consumers is large. Thus it would be inappropriate to consider an individual category of programming as a separate relevant market. See U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, http://www.usdoj.gov/atr/public/guidelines/horiz_book/toc.html.

[57] Nielsen 24-hour ratings are the percentage of all households with a television (there are about 110 million television households in the United States) that are tuned into a particular channel at any one time during a given 24-hour period. The HHI refers to the Herfindahl-Hirschman Index and computed by summing the square of each firm's share of ratings in each year. The HHI ranges from 10,000 (in the case of a pure monopoly) to a number approaching zero (in the case of an atomistic market). The HHI here was calculated in terms of households viewing any subscriber network stations and omitted broadcast stations.

Figure 3 shows that even as viewership has increased, programming concentration has decreased. Data on merger challenges indicate that antitrust agencies are highly unlikely to challenge mergers with concentration indices in this range.[58] Indeed, these numbers may overstate concentration since they do not include either broadcast TV stations or other forms of video distribution discussed below.

Cable's share of video content continues to decline

The program access rules prohibit discrimination by vertically integrated programming services against competing distributors and seek to prevent a cable system from "unduly or improperly" influencing an affiliated program service's price and terms of sale to unaffiliated distributors. The main goal of these "program access" rules is to prevent vertically integrated cable MSOs from denying access to popular programming by rival distributors. However, the share of cable programming networks affiliated with cable operators is low and steadily declining. As of 2005, of the 531 satellite-delivered national programming networks, only 21.8 percent were vertically integrated with at least one cable operator.[59] Kagan Research reports that in 2005 only one in three of the forty most popular national cable programming networks were vertically integrated.

Since 2002, the percentage of programming networks owned by cable operators has declined by 50%, while the total number or programming networks unaffiliated with a cable operator has nearly doubled.[60]

The number of content providers continues to grow

Each new technology and each new entrant increases competition in an already competitive market to distribute video services. The proliferation of video content from other sources and outlets—on-demand, Internet, and mobile devices—further reduces the likelihood of any hypothetical anti-competitive advantage of withholding of any particular video network.

The quality of video experiences available over the Internet and mobile devices has increased substantially and continues to increase. Thus, the explosive popularity and

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[58] Based on data for fiscal years 1999-2003 of the 1253 relevant markets in which the Federal Trade Commission or Department of Justice challenged mergers, only 57 or less than five percent involved markets where the HHI was 1,800 or below. Further, of the 214 markets in the "telecommunications industry" in which a merger was challenged, none involved an HHI of 1800 or below. (See Federal Trade Commission and U.S. Department of Justice, "Merger Challenges Data: Fiscal Years 1999-2003 (December 18, 2003), Tables 1 and 6.)

[59] 2006 Assessment, ¶157.

[60] Compare *2002 Extension Order* ¶ 18 with *Annual Assessment of the Status of Competition in the Market for Delivery of Video Programming, Twelfth Annual Report*, 21 FCC Rcd 2503 (2006) ("*Twelfth Annual Report*"), ¶ 21

growing strength of YouTube and other Internet-based sources of video content are having a major effect on the diversity and dynamic nature of the video programming marketplace. Mobile devices such as iPod and wireless phones represent another fast growing source of video content for consumers. Any hypothetical anticompetitive behavior by cable companies would be self-defeating, as it would only accelerate such trends.

Regional news services face competition from local over-the-air broadcast stations and Internet-based news services. There are many competitors within each of these subcategories, both domestically and internationally. Movie channels face competition from on-demand movie services as well as video rentals.[61]

Video subscribers also have the ability to obtain regional sports content from a wide variety of program networks and sources. Sports are shown on every broadcast network, including ABC, NBC, CBS, and FOX as well as on many entertainment cable networks such as TNT. Any sporting event faces competition from other sports events across many networks. Team-owned and league-owned sports networks and Internet offerings provide consumers with still more sources of sports content.

There are no "must have" programming services

It has been argued that cable companies could exert market power by locking up "must have" stations. As shown previously, no single programming service or owner has enough viewers to be seriously considered "must have." Indeed, all these services and networks face significant competition and rival distributors can obtain programming from a wide range of sources. Further, as noted below, entry barriers into the creation of content are low. Thus, if cable operators deny competitors existing networks, new networks will likely enter and move into any void created by such putative "foreclosure."

Petitioners before the FCC tend to cite sports as a prevailing form of "must have" programming. However, as seen in Table 3, ESPN, the prevailing cable sports network, has a share of about 0.7, less than half of Nickelodeon.[62] All sports stations combined represent a rating of 1.35. Further, ESPN is not vertically integrated into cable and not subject to the ban.

Moreover, to say that ESPN embodies all sports programming is incorrect. In fact, ESPN airs few "big games." Playoffs in just about every major sport, including the NCAA tournament, are broadcast over networks through a variety of exclusive and non-

[61] See Netflix vs. Naysayers, *Wall Street Journal*, March 27, 2007.
[62] ESPN is one among the many prominent stations not affiliated with a cable MSO.

exclusive contracts.[63] All of the top 50 sports broadcasts in the past five years were carried by broadcast networks.[64]

RSNs are not "must have" programming

Despite claims to the contrary, RSNs cannot be considered "must-have" for several reasons.

First, RSNs are not the only provider of sports programming. Nearly every major network offers such programming. Professional and collegiate teams and other sports leagues have many licensing agreements, often with multiple networks.[65] The most significant playoffs and tournaments are almost always shown on broadcast networks.[66] DirecTV has its own exclusive deals for several professional sports packages. Thus, a substantial amount of sports programming is available outside of an RSN.

Second, if RSNs constitute must-have programming, we would expect competing video providers to carry them whenever possible. In fact, DBS companies sometimes choose not to carry RSNs even when they do not have exclusive deals with other distributors. For example, Echostar chooses not to carry MASN in DC or YES in New York, and neither DBS provider chooses to carry the RSN in New Orleans.

Finally, to the extent that some aspects of sports programming are inelastic, they stem from the fact that a particular game involving a particular team or player occurs at a particular moment. In such situations the sports leagues and teams, not the video distributor, hold the scarce resource. In other words, there may be scarcities in sports markets, but the sports teams or leagues are the source of such scarcity.[67] An exclusive contract for RSN inflicts no incremental adverse effect on consumer welfare, but a ban on such contracts precludes the marketplace from reaping the pro-competitive benefits associated with exclusivity.

Moreover, sports teams are launching their own networks. The owner of two of Denver's four major sports teams (basketball and hockey) launched a network in September 2004

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[63] For example, CBS has exclusive rights to the 2007 NCAA basketball tournament (see for instance "CBS prepares for March Madne$$", CNNmoney.com, March 6th 2007).
[64] See http://www.tvb.org/rcentral/mediatrendstrack/tvbasics/18_TopSportsShowsHH.asp.
[65] The NFL has agreements worth a combined $23.9 billion with CBS, DirecTV, ESPN, Fox, and NBC in addition to showing football games on its own NFL Network. See "Cable operators balking at NFL Network". AFX International Focus. November 22, 2006. The MLB has agreements with ESPN, Fox, and TBS. See "Going Inside MLB's latest $3 billion TV agreements", July 13, 2006, http://www.sportsbusinessnews.com/_news/news_347260.php.
[66] All of the top 50 sports broadcasts in the past five years were carried by broadcast networks. See http://www.tvb.org/rcentral/mediatrendstrack/tvbasics/18_TopSportsShowsHH.asp.
[67] This observation is akin to the one-monopoly rent theorem. E.g., Dennis W. Carlton and Jeffery M. Perloff, Modern Industrial Organization, 3d ed. (Reading, MA: Addison-Wesley, 2000), 390.

called Altitude Sports. New England Sports Network (NESN) is majority-owned by the Red Sox and is the highest-rated regional sports network for baseball.[68]

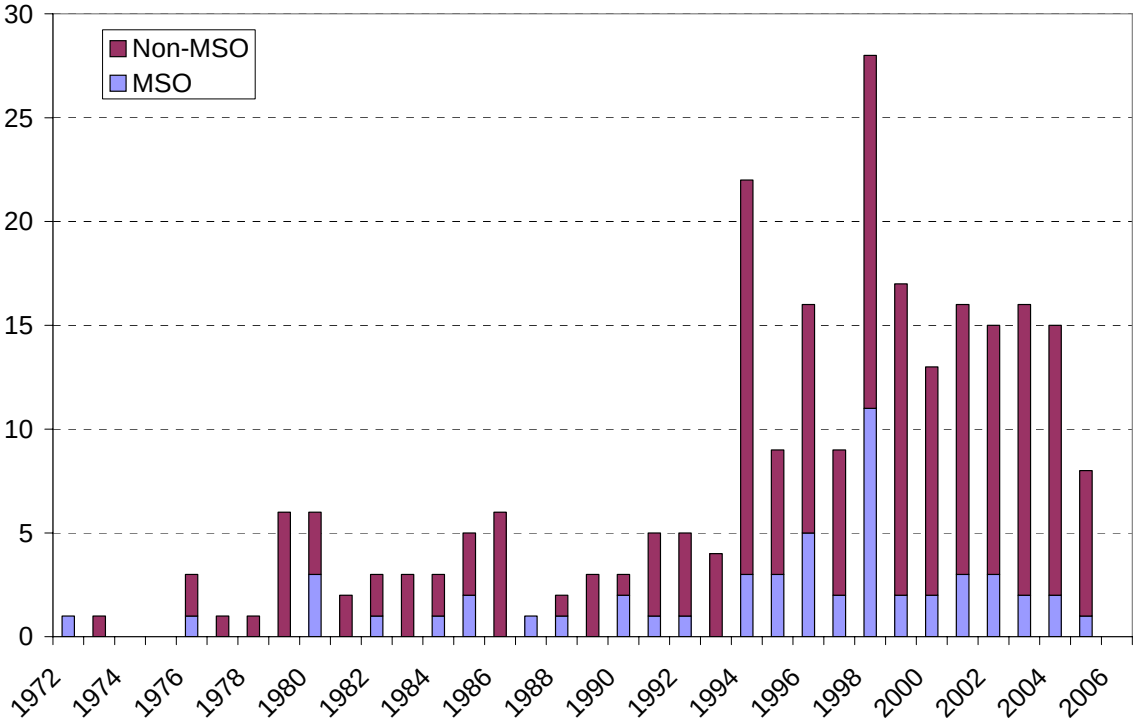
Low entry barriers into video programming

In addition to the presence of a large number of competitors, another key aspect of a competitive marketplace is low barriers to entry. Thus, even if certain networks were hypothetically important for the viability of video distributors competing with cable, with low entry barriers new content providers could enter to fill gaps created by any exclusionary strategy undertaken by video distributors. The following figure indicates that entry of new programming is common. Any concerns that competitive video distributors would suffer if vertically integrated cable companies were allowed to enter into exclusive deals are unfounded.

Figure 4 shows the number of new national programming services by year from 1972 to the present. Few new networks are affiliated with an MSO. Programming is now so diverse that channels target viewers by age group, gender, ethnicity, and sexual orientation.

[68] NESN had an average local rating of 10.6 for the 2006 baseball season. Neff, Andrew. "NESN top-rated regional sports network in nation." *Bangor Daily News*, October 27, 2006.

Figure 4: New national programming services by year



Source: FCC, Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, (March 3, 2006), Appendix C.

Entry shows no signs of slowing. As of 2005, the FCC had identified 79 new planned programming services.[69] Attempts to engage in exclusionary behavior would only further increase the incentive of content providers to enter the market. Further, eliminating the exclusivity regulations would further reduce any remaining entry barriers by increasing the incentives of cable operators to develop content.

Further, there is no basis for concluding that DirecTV, EchoStar, AT&T and Verizon—all of which are large companies with good access to capital—are less capable of developing new programming than are cable companies. If a cable company were to deny competitors access to specific content, these competitors have ample resources and incentives to remain competitive and would be likely to find replacement programming from the highly competitive programming market or even create their own.

[69]FCC, Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, (March 3, 2006), Appendix C, Table C-4.

V. No empirical evidence of harm to consumers

In its 2002 order the FCC noted complaints from DBS firms of low subscribership in Philadelphia and suggested that the cause was an exclusive RSN.[70] Simple comparisons of penetration across areas are not meaningful since so many factors affect penetration. Indeed, several major cities in which RSNs are not exclusive have lower DBS penetration than does Philadelphia.[71]

Recognizing the limitations in simple cross-city comparisons, proponents of the ban have more recently relied on an econometric analysis presented in the FCC's Adelphia Transfer Proceeding.[72] The analysis purports to show that exclusive RSN access reduces the number of DBS subscribers. As described in detail in this section, however, that analysis is flawed and reveals no information about consumer welfare or the public interest.

In its analysis presented in the Adelphia Transfer Proceeding, the FCC regressed DBS penetration in a county on several control variables plus dummy variables indicating whether the incumbent cable company is located in Philadelphia, San Diego, or Charlotte.[73] In those three regions RSNs are not offered to DBS operators. The analysis yields negative and statistically significant coefficients on the Philadelphia and San Diego dummy variables, which the FCC interprets as the effect on DBS companies of not having access to the RSN.

The FCC analysis, however, is fundamentally flawed and does not show any harm from the inability to offer an RSN.

First, the econometric specification does not actually test the effects of exclusive RSN rights on DBS penetration. The text claims that "[t]hese results are best viewed as estimates of the impact of not having access to regional sports programming on an entrant

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[70] See *2002 Extension Order, footnote 107,*" DIRECTV and EchoStar assert that their significantly lower subscribership in Philadelphia as compared to other large cities is directly attributable to their inability to access Comcast SportsNet. *Economic Assessment* at 24."

[71] For example, non-cable penetration estimates for February 2007 are 12.3% in Boston, 15.1% in Baltimore, and 16.2% in New York, all of which are lower than 16.5% in Philadelphia. http://www.tvb.org/rcentral/markettrack/Cable_and_ADS_Penetration_by_DMA.asp

[72] See *Adelphia Transfer Order* ¶ 149, "Our own regression analysis uses data from the Cable Price Survey, as well as Nielsen's data regarding the number of households that subscribe to DBS. We find that the percentage of television households that subscribe to DBS service in Philadelphia is 40% below what would otherwise be expected given the characteristics of the market and the cable operators in the DMA." ¶ 151, "We conclude that there is substantial evidence that a large number of consumers will refuse to purchase DBS service if the provider cannot offer an RSN."

[73] Control variables include monthly price for basic cable plus one additional package of channels, the number of cable channels offered by the responding cable company, whether the cable system is in a geographic market that includes a major league sports team, whether at least one DBS operators offers local broadcast channels, whether there is a competing cable company, whether the cable company offers HD service, whether the cable company offers high-speed Internet, median household income in the county, the share of households in multiple dwelling units, and the latitude of the county. All variables except the dummies are in logs.

in the MVPD market" (para 19, Appendix D), but this claim is unfounded. The analysis simply tests whether DBS penetration is different in Philadelphia, San Diego, and Charlotte than it is elsewhere, but not why it is different in those places.

Results of the FCC analysis show that the control variables do not explain all of the differences between Philadelphia, San Diego, and the rest of the nation, but provides no reason to believe that the lack of access to an RSN is the key factor. Moreover, the analysis does not specifically test the effect of RSN exclusivity. Instead, it tests whether DBS penetration in Philadelphia, San Diego, and Charlotte are different than one would expect given the control variables and attributes those findings solely to RSNs.

In order to believe that access to RSNs explains any difference, one would have to believe that the only excluded city- (or county-) specific effect that could affect DBS penetration is RSN access. This assumption, however, is not plausible. First, many variables likely to be important in explaining DBS penetration are omitted, such as the extent of local marketing of DBS, the quality of local DBS service, terrain and foliage coverage, and the extent and local marketing of cable, among others.

Second, the presence of an exclusive RSN is hardly the only relevant variable excluded from the FCC's model. Indeed, if RSNs were of such profound importance to DBS and cable penetration (for which there is no empirical evidence), the model should include some information about the number and quality of RSNs in an area. Each geographic market has different combinations of RSNs, not all of which are carried either by every cable operator or DBS operator in the region. It is not possible to capture all the relevant information related to RSNs in a dichotomous variable indicating whether there is an exclusive RSN in a region. Moreover, the analysis should *control* for city or regional fixed effects, not include a few and claim that tests the effects of RSN access. Such controls are especially important given the fact that several major cities that do not have exclusive RSNs have lower DBS penetration than Philadelphia.

Moreover, even if one believes that the model is valid, the results on the Charlotte dummy variable contradict the FCC's interpretation. DBS penetration in Charlotte does not differ statistically from elsewhere even though it is one of the areas where DBS did not have access to an RSN. In other words, if one believes the FCC's approach, then in one out of three markets, RSN exclusivity makes no statistical difference to DBS penetration. It is impossible under these circumstances to conclude that the FCC model provides any statistical support to the contention that program exclusivity affects, much less harms, DBS penetration.

Further assuming the empirics and underlying assumptions are correct, the analysis confuses harm to competitors with harm to consumers. Even if one were to stipulate that the FCC analysis and its underlying assumptions were correct and worth investigating further and one were to ignore the contradictory findings for Charlotte, the FCC model would still provide information only on the impacts of RSNs on DBS subscribership. Importantly, it tells us nothing about the effects of exclusive RSN deals on consumer welfare.

VI. Exclusivity Ban Distorts Investment and Harms Consumers and Programmers

The ban on exclusive contracts between cable companies and vertically integrated programming production was intended to "preserve and protect competition and diversity in the distribution of video programming" [47 U.S.C. § 548(c)(5)]. As discussed above, both video distribution and production are competitive. The ban, however, continues to affect both of those markets and may have other, unintended, consequences that prevent consumers from reaping further benefits from competition.

Reduces and distorts investment incentives in content and distribution

Firms compete with each other in many dimensions. In addition to price competition, they may offer differing types of services, levels of quality, and other features. Indeed, in the early days of cable television, one of the ways cable was able to compete with broadcast services was by investing in its own content. In other words, cable was able to enter and to succeed in the market precisely because it was allowed to offer its own programming to help differentiate itself from broadcast television.[74]

The current ban reduces the incentive for video distributors to develop new and innovative content in two ways. First, a vertically integrated cable company has less incentive to invest in programming because other firms can then distribute it. Second, competing (non-vertically integrated) distributors have less incentive to invest in their own programming since they know they can rely, in part, on content developed by others. With lower expected returns, some programs may never be developed at all, denying consumers new and innovative programming.

New programming, like any investment, is risky. Many programming services and offerings never make it past development. Some fail to gain sufficient distribution to justify their launch, and others fail to win enough viewers to remain viable. Guaranteed access to new programming for competitors enhances the risks and costs of content investment. In the current regulatory environment, rival video distributors can sit idly while cable operators absorb the costs associated with new programming investment and reap the benefits of the cable content investments that succeed. The result is reduced program output by all video distributors, which reduces consumer welfare and limits competition and diversity among distributors.

Programmers thus need ways of promoting their new content in order to increase its chances of succeeding. Networks, for example, heavily advertise their new programs. A vertically integrated cable company, under the exclusivity ban, has little incentive to

[74] Crandall, R. W. and Harold Furchtgott-Roth, 1996, *Cable TV: Regulation or Competition?* Washington DC: Brookings Institution. Economists Incorporated, December 3 2001. *Competition for Video Programming: Economic Effects of Exclusive Distribution Contracts*.

advertise new programs in a competitive market since that advertising may redound to the benefit of its competitors, who have the regulatory right to the same programming.

May harm creators of video content

Copyright law, like patents, is intended to encourage innovation by giving innovators the right to earn returns on their creation. Copyright holders can realize these returns by negotiating with distributors for the right to distribute their work. Exclusive deals are the norm in these industries, in which artists such as authors, songwriters, and cartoonists routinely sign contracts with a single publishing house, record label, or news syndicate.

These types of exclusive arrangements are largely unavailable for distribution by vertically integrated cable networks, which are barred by regulations from such agreements. As a result, one possible distribution method is unavailable to the copyright holder. The inability to enter into an exclusive distribution arrangement with a vertically integrated cable company may have two negative effects.

First, by removing a large potential distributor from the set of feasible contracts available, the artist may earn less for her creation. That is, the exclusivity regulations have arbitrarily reduced the number of potential bidders for an artist's work. A smaller number of bidders may mean that the winning bid for some work is lower than it otherwise would have been and that other work may not be picked up at all.

Second, by removing the cable companies as bidders for the new programming, the exclusivity ban may result in some video being distributed in ways other than it would have been in a market not distorted by regulations. In other words, the exclusivity ban may affect whether certain video is initially distributed via the Internet, satellite, cable, or other methods (e.g., only on DVD).

Can harm consumers

All of these distortions in investment incentives can ultimately harm consumers. The investment distortions will change consumers' viewing habits and prevent firms from adequately meeting the true demand for different types of programming. At the same time, consumers may see higher prices when regulations induce firms to use more costly transmission mechanisms than they would otherwise.

VII. Conclusions

Economic regulation should focus on correcting a market failure and carefully target the cause of that market failure.[75] A proposed regulation should then be evaluated to ensure that its benefits outweigh the costs. The ban on vertically integrated cable companies and exclusive programming fails both tests. No empirical evidence clearly supports the assertion of a market failure and no analysis suggests that any purported benefits of the ban outweigh its costs.

The market for video distribution is competitive and new technologies are bringing a steady stream of new entrants into the distribution market. The marketplace for video content is also competitive, with ample programming available across a wide range of program types and from a wide range of owners.

Despite the competitive nature of video distribution and creation, the ban reduces investment incentives, harms competition, and ultimately harms consumers. Given the costs of this ban and the lack of any demonstrated benefits, the ban should be allowed to sunset as scheduled.

[75] Indeed, President Bush recently amended executive order 12866 on regulatory planning so that all regulatory agencies must identify "the specific market failure" or problem the regulation addresses. http://www.whitehouse.gov/news/releases/2007/01/20070118.html

I certify that all statements made in this document are true to the best of my knowledge.

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Employment

- Senior Fellow and Director, Communications Policy Studies, Progress & Freedom Foundation, 2006 – present.
- Resident Scholar, American Enterprise Institute, 2003 – 2006.
- AEI-Brookings Joint Center for Regulatory Studies, Fellow 2003-2005, Senior Fellow 2005-2006.
- The World Bank, Economist, 1998 – 2003.
- Stanford University, Acting Assistant Professor of Public Policy and Visiting Researcher, Stanford Institute for Economics Policy Research, 1999-2001.
- President's Council of Economic Advisers, Staff Economist, 1995-1996.

Peer-Reviewed Publications

- "The Effects of Ownership and Benchmark Competition: An Empirical Analysis of U.S. Water Systems." With Katrina Kosec. Forthcoming in *International Journal of Industrial Economics*.
- "Has the Internet Increased Trade? Evidence from Developed and Developing Countries." With George Clarke. *Economic Inquiry.* Vol. 44, No. 3. July 2006.
- "The Economics of Net Neutrality." With Robert Hahn. *Economists' Voice.* Vol. 3, Issue 6. June 2006.
- "Ownership, Investment Climate, and Firm Performance." With Mary Hallward-Dreimeier and Lixin Colin Xu. *Economics of Transition.* Vol. 14, No. 4. 2006.
- "What Affects the Quality of Economic Analysis for Life-Saving Investments?" With Robert Hahn and Katrina Kosec. *Risk Analysis*. Vol. 26, Issue 3, June 2006.
- "The Economic Cost of the Iraq War." *Economists' Voice.* Vol. 3, Issue 2. January 13, 2006.
- "Returning to Victorian Competition, Ownership, and Regulation: An Empirical Study of European Telecommunications." *Journal of Economic History,* Vol. 65, No. 3, September 2005.
- "Regulation and Internet Use in Developing Countries." *Economic Development and Cultural Change,* Vol. 53, No. 2, January 2005.
- "Privatizing Monopolies in Developing Countries: The Real Effects of Exclusivity Periods in Telecommunications." *Journal of Regulatory Economics*, Vol. 26, No. 3, November 2004.

- "Of Carts and Horses: Regulation and Privatization in Telecommunications." *Journal of Policy Reform,* Vol. 6, No. 4, 2003.
- "Telecommunications investment and traffic in developing countries: The effects of international settlement rate reforms." *Journal of Regulatory Economics*, Vol. 20, No. 3, pp. 307-323, November 2001.
- "An Econometric Analysis of Telecom Competition, Privatization, & Regulation in Africa and Latin America." *Journal of Industrial Economics*, Vol. 40, No. 1, March 2001.
- "An Empirical Test of Geographic Knowledge Spillovers Using Geographic Information Systems and Firm-Level Data." *Regional Science and Urban Economics*, Vol. 31, No. 5, pp. 571-599. September 2001.
- "The effects of government-industry R&D programs on private R&D: The Case of the Small Business Innovation Research Program." *RAND Journal of Economics*, Vol. 31, No. 1, Spring 2000.

Book Chapters, Invited Publications, and Other Reports

- "Universal Telecommunications Service in India." With Roger Noll. NCAER-Brookings *India Policy Forum*, Volume 2, 2006.
- "Bandwidth for the People." With Robert Crandall, Robert Hahn, and Robert Litan. *Policy Review*, No. 127, Oct-Nov 2004.
- "New Tools for Studying Network Industry Reforms in Developing Countries: The Telecommunications and Electricity Regulation Database." With George Clarke, Luke Haggarty, Rosario Kaneshiro, Roger Noll, Mary Shirley, and Lixin Colin Xu. *Review of Network Economics*. Vol. 3, Issue 3, September 2004.
- "Internet Telephones: Hanging up on Regulation?" With Robert Crandall, Robert Hahn, and Robert Litan. *Milken Institute Review.* September 2004.
- "Has the Internet Increased Trade?" With George Clarke. *Trade and Industry Monitor.* Volume 30, June 2004.
- "The Role of Government in Regional Technology Development: The Effects of Science Parks and Public Venture Capital," in *Building High-Tech Clusters: Silicon Valley and Beyond,* Timothy Bresnahan and Alfonso Gambardella, Eds. Cambridge University Press, 2003.
- "Investment Climate in China." With David Dollar, Mary Hallward-Driemeier, Anqing Shi, Shuilin Wang, and Lixin Colin Xu. *World Bank Transition Newsletter*. Vol. 14, No. 7-9, July-Aug-Sept 2003.
- "Universal Service: Empirical Evidence on the Provision of Infrastructure Services to Rural and Poor Urban Consumers." With George Clarke. In *Infrastructure for Poor People: Public Policy for Private Provision*, Penelope J. Brook and Timothy C. Irwin, Eds. World Bank, 2003.
- "Improving the Investment Climate in Bangladesh" (lead author). World Bank Report, June 2003.
- "Domestic Policies to Unlock Global Opportunities." With Jeffrey Lewis. In *Global Economic Prospects and the Developing Countries,* 2003.
- "Household Responses to Macroeconomic Volatility." With George Clarke. In *Caribbean Economic Overview*. World Bank, 2003.
- "Improving the Investment Climate in China." With David Dollar, Lixin Colin Xu, and Others. World Bank Report, November 2002.

- "The R&D Boondoggle." *Regulation*. Vol. 23, No. 4, 2000.
- "Public-Private Technology Partnerships: Promises and Pitfalls." With Joseph Stiglitz. *Am. Behavioral Scientist*, Vol 43, No 1, Sept 1999. Reprinted in *Public Private Technology Partnerships*, P. Vaillancourt, Ed., MIT Press, 2000.
- "Telecom Reforms in Africa and Latin America." *Economic Reform Today*. Number 2, 1999.
- "Rethinking the Small Business Innovation Research Program." In *Investing in Innovation*, Lewis Branscomb and Richard Keller, Eds. MIT Press, Cambridge. 1998.

Editorials and Commentaries

- "Merger Hangups." Progress and Freedom Foundation Progress Snapshot. December 2006.
- "The AT&T-BellSouth Merger: The Real Story." AEI-Brookings Policy Matter. October 2006.
- "No More Baseball Giveaways." *Washington Times,* August 11, 2006.
- "What U.S. Broadband Problem?" With Seth Sacher. *CNET.com*, July 3, 2006.
- "Debate over Net Neutrality Misplaced," With Robert Hahn. *Financial Times,* March 26, 2006.
- "When the Saints go Marching Out." *Baltimore Sun*, Nov 16, 2005.
- "Punting the Taxpayers." *New York Sun,* March 28, 2005.
- "City's WiFi Network Won't Close Digital Divide." *Philadelphia Inquirer,* February 17, 2005.
- "A Suite Deal: Plans for D.C. Ballpark a Ripoff." *Washington Times*, October 28, 2004.
- "Cheap Net Phones Face the Threat of a Tax Hangup," with Robert Hahn and Gregory Rosston. *San Jose Mercury News*, June 17, 2004.
- "High-Tech Cluster Bombs: Why Successful Biotech Hubs are the Exception, Not the Rule." *Nature*, March 11, 2004.
- "Digital Dreams: How Regulations can Widen the Digital Divide." Syndicated worldwide through *Project Syndicate*. December, 2003.
- "Mr. President, Bring Your Academic Advisers in From the Cold," with Robert Hahn. *Financial Times*, October 30, 2003.
- "Congress Shorts Future Terror-Fighting Innovation." AEI-Brookings Joint Center Policy Matters 03-22, July 2003.
- "How Globalization Stabilizes Poor Countries." Syndicated worldwide through *Project Syndicate*. May-June, 2003.
- "Whose Life Is Worth More? (And Why Is It Horrible to Ask?)," with Robert Hahn. *Washington Post*, June 2, 2003.

Published Book Reviews

- A Review of *The State, Regulation, and the Economy*, Magnusson, Lars and Jan Ottoson, Eds. *Journal of Economic History*, Vol. 62, No. 4, December 2002.
- A Review of Jonathan Bean, *Big Government and Affirmative Action: The Scandalous History of* the *Small Business Administration*. *Journal of Economic History*, Vol. 61, No. 4, December 2001.

Working Papers

- "Antitrust policy and Innovation: The Impacts of the National Cooperative Research and Production Act." *In process*.
- "Broadband and Unbundling Regulations in OECD Countries." AEI-Brookings Joint Center Working Paper 06-16. June 2006.
- "Telecommunications Regulation in U.S. States: Its Rise and Impacts in the Early Twentieth Century." AEI-Brookings Joint Center Working Paper 06-04. March 2006.
- "Broadband Penetration: An Empirical Analysis of State and Federal Policies." AEI-Brookings Joint Center Working Paper 05-12. January 2006. (Currently in 'revise and resubmit' status, *Review of Industrial Organization*).
- "The Economic Costs of the War in Iraq." With Katrina Kosec. AEI-Brookings Joint Center Working Paper 05-19. September 2005.
- "The Billion Dollar Pitch: An Analysis of the Ballpark Omnibus Financing and Revenue Act of 2004." With Katrina Kosec. November 2004.
- "Telecommunications Policy in India." With Roger Noll. June 2004.
- "Do Science Parks Generate Regional Economic Growth?" January 2004.
- "Has Private Participation in Water and Sewerage Improved Coverage? Empirical Evidence from Latin America." With George Clarke and Katrina Kosec. December 2003.
- "Do Remittances Act Like Insurance? Evidence From a Natural Disaster in Jamaica." With George Clarke. January 2003.
- "The Investment Climate and the Firm: Firm-Level Evidence From China." With Mary Hallward-Driemeier and Lixin Colin Xu. January 2003.
- "Telecommunication Reform in Ghana." With Mary Shirley and Luke Haggarty. November 2002.
- "Universal(ly Bad) Service: Providing Infrastructure Services to Poor and Rural Consumers in Developing Countries." With George Clarke. World Bank Policy Research Paper Number 2868. July 2002.
- Bresnahan, Timothy, Alfonso Gambardella, AnnaLee Saxenian, and Scott Wallsten. "'Old Economy' Inputs for 'New Economy' Outcomes: Cluster Formation in the New Silicon Valley." SIEPR Policy Paper No. 00-43. June 2001.
- "Surveying Surveys and Questioning Questions: Learning from World Bank Experience." With Lixin Colin Xu and Francesca Recanatini. March 2000.
- "Executive Compensation and Firm Performance: Big Carrot, Small Stick." SIEPR Working Paper 99-17. March 2000.

Testimony, Presentations, and Panels

- Phoenix Center Annual Conference on Net Neutrality, 2006.
- Wilkinson, Barker, Knauer, LLP on Reverse Auctions, 2006.
- London Business School Global Communications Consortium, on Spectrum Policy and Competition, 2006.
- Progress and Freedom Foundation 2006 Aspen Summit, on broadband investment.

- Pew Internet and American Life Foundation, conference on broadband statistics, 2006.
- The Brookings Institution, on Telecommunications reforms in developing countries, 2006.
- AEI-Brookings Joint Center panel on network neutrality, 2006.
- McDonough School of Business, Georgetown University, on broadband policy, 2006.
- Presentation to National Defense University students on Iraq cost analysis, 2006.
- American Economic Association annual meeting, discussant and speaker in Transportation and Public Utilities Group sessions, 2006.
- AEI-Brookings Joint Center, OIRA 25th anniversary, moderator, 2005.
- NCAER-Brookings India Policy Forum, New Delhi, India, 2005.
- AEI, the economics of sports stadiums, 2005.
- AEI-Brookings Joint Center, the future of telecom deregulation, 2005.
- Stanford Institute for Economic Policy Research, telecommunications conference, co-organizer and discussant, 2005.
- CATO Institute, DC Baseball subsidies, November 2004.
- AEI-Brookings Joint Center, telecommunication and spectrum regulation, moderator, 2004.
- AEI-Brookings Joint Center, software and intellectual property rights, moderator, 2004.
- NCAER, telecommunications reform, New Delhi, India, 2004.
- AEI, globalization conference, 2004.
- Stanford University conference on Latin America, 2003.
- APEC conference on regulation, Mexico City, 2003.
- Economic History Association, St. Louis, 2002.
- FEEM Privatization Conference, Milan, 2002.
- Economic History Society, Birmingham, 2002.
- ISNIE 2002 Conference, Cambridge, 2002.
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- Georgetown University, 2001.
- ISNIE 2001 Conference, Berkeley, 2001.
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- Journal of Political Economy
- Journal of Industrial Economics
- RAND Journal of Economics
- Journal of Regulatory Economics
- Journal of Economic History

- Journal of Development Economics
- Journal of Comparative Economics
- Information Economics and Policy
- Telecommunications Policy
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- Cambridge University Press
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Honors

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