

RETRANSMISSION CONSENT AND LOCAL BROADCASTERS:
PART OF THE SOLUTION OR PART OF THE PROBLEM?

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During the 1980s, as cable systems grew, they began to compete more directly with local broadcasters. As the number of cable channels increased, so too did the supply of cable advertising, and as the quality of cable programming increased, cable siphoned increasing numbers of viewers away from the major networks. Because the Copyright Act of 1976 contains a statutory license for cable systems retransmission,¹ cable systems could retransmit a local broadcaster's signal without the broadcaster's consent. Moreover, because the statutory license fee is arguably far smaller than the market price of retransmission consent, local broadcasters argued that cable was using the broadcasters' own work to compete against them, and that cable posed a threat to local broadcasters' very existence. In an attempt to address local broadcasters' concerns, Congress gave broadcasters an option in the Cable Television and Consumer Protection Act of 1992 (the "Cable Act of 1992").² For successive three-year periods, a broadcaster could require carriage of its signal by a local cable system under a so-called "must-carry" regime.³ Under the must-carry regime, a cable system was legally required to retransmit a local broadcaster's signal, but could do so without directly compensating the broadcaster for the retransmission. Alternatively, a broadcaster could opt out of the must-carry regime and could thereby prohibit a cable system from retransmitting its signal absent the broadcaster's consent.⁴ Although such an election created some risk that the cable system would simply drop the

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¹ 17 U.S.C. § 111(c) (2002); *see also* text accompanying notes 17-21 *infra*.

² Pub. L. No. 102-385, 106 Stat. 1460 (codified in scattered section of 47 U.S.C.).

³ 47 U.S.C. § 534 (2002).

⁴ 47 U.S.C. § 325 (2002).

broadcaster's signal,⁵ the ability to withhold retransmission consent gave the broadcaster, at least in theory, a lever that it could use to extract a license fee for the retransmission of its signal.

The Cable Act of 1992 thus offered local broadcasters a second potential revenue stream to supplement their advertising revenues. Although the retransmission consent option only offered the opportunity to negotiate, and did not guarantee that the cable systems would agree to a cash license fee, during the debates leading to the enactment of the Cable Act of 1992, CBS Chairman Laurence Tisch said that retransmission consent could be worth \$1 billion per year to broadcasters.⁶ Yet, the hoped-for second revenue stream has not yet developed. In the first three rounds of negotiations over retransmission consent (October 1993, October 1996, and October 1999), cable systems have almost uniformly refused to agree to cash payments for retransmission licenses. When broadcasters have insisted on cash payments, as CBS did in the first round of negotiations, they have ended up with nothing.⁷ On the other hand, the networks, negotiating on behalf of their local broadcast affiliates, have had some success in tying retransmission consent to carriage of another channel. Fox first proposed this approach in 1993 and has since used the leverage retransmission consent offers to obtain carriage of its FX, Fox Sports, Fox News, and National Geographic channels on a large number of cable systems. ABC and NBC have negotiated similar retransmission consent agreements, ensuring widespread cable carriage of the

⁵ If a broadcaster opted out of the must-carry regime and the cable system had a more valuable use for the cable capacity, the cable system could drop the broadcaster's signal altogether. For that reason, although ninety percent of network TV affiliates elected to opt out of the must-carry regime in the first round of negotiations, only twenty percent of independent stations, that faced a more serious risk of being dropped altogether, opted out of the must-carry regime. See Charles Lubinsky, *Reconsidering Retransmission Consent: An Examination of the Retransmission Consent Provision of the 1992 Cable Act*, 49 FED. COMM. L.J. 99, 146 (1996).

⁶ See COMMUNICATIONS DAILY, May 28, 1992, at 8.

⁷ See, e.g., *CBS Gives Up on Retransmit Consent – For This Year*, COMMUNICATIONS DAILY, Sept. 28, 1993, at 1.

Disney Channel, Soapnet and Lifetime for ABC, and of CNBC and MSNBC for NBC.⁸

Broadcasters have not given up on their desire for cash retransmission agreements, however. In January 2002, Fox TV Network President Tony Vinciguerra suggested the possibility of seeking an antitrust exemption to permit broadcasters to negotiate retransmission consent agreements jointly with the local cable system.⁹ Others continue to push for a move to a “free” market for the retransmission of copyrighted works, arguing for the elimination of the statutory license for cable retransmissions under the Copyright Act as a way of strengthening the bargaining position of broadcasters.¹⁰

In order to analyze the consequences of these various proposals, this article develops and explores two economic models addressing optimal tariff structure and the resulting welfare considerations of using a combination of advertising and subscription revenues to support broadcast television. To set the stage for these models, we begin with a brief history of cable television and the retransmission consent provision.

I. The Legal and Historical Background to Retransmission Consent

Cable began with community antenna television (CATV) systems in the 1950s. CATV was originally designed to provide television signals to those who lived in mountainous or urban areas where broadcast signals might otherwise be blocked by terrain or high-rise buildings, or to rural towns unserved by local broadcasters. The initial CATV systems used antennae to collect

⁸ See, e.g., *Small Cable Operators Take on Big Broadcast Networks*, COMMUNICATIONS DAILY, June 24, 2001; *Broadcasters Say They Benefit From Noncash Retransmission Consent*, COMMUNICATIONS DAILY, Jan. 26, 1994, at 2.

⁹ See, e.g., *Mass Media*, COMMUNICATIONS DAILY, Jan. 31, 2002. In the absence of such an exemption, such joint action risks either private or government action under the antitrust laws. See *Justice Dept. Says Stations Cooperated Too Much on Retransmission Consent*, COMMUNICATIONS DAILY, Feb. 8, 1996, at 5 (reporting that the Justice Department was signing a consent decree with three Corpus Christi stations under the antitrust laws based upon their alleged agreement to cooperate in negotiating retransmission consent agreements with local cable operator).

¹⁰ See REGISTER OF COPYRIGHTS, THE CABLE AND SATELLITE COMPULSORY LICENSES: AN OVERVIEW AND ANALYSIS xxii, 81 (1992) (suggesting a phased elimination of the statutory license).

broadcast signals and then retransmitted the signals through a combination of cable and microwave transmission to community residents and subscribers.¹¹ As CATV systems grew and became economically more substantial entities through the 1960s, copyright owners sought a direct share of CATV systems' revenues. Specifically, copyright owners asserted that the retransmission of a broadcast signal carrying their copyrighted programs constituted a performance of their copyrighted works and hence copyright infringement. Through these arguments, copyright owners sought to require cable systems to negotiate for the consent of the copyright owners before any retransmission could occur. However, in a pair of decisions, *Fortnightly Corp. v. United Artists Television, Inc.*¹² and *Teleprompter Corp. v. Columbia Broadcasting System, Inc.*,¹³ the Court rejected the copyright owners' claims and held that the retransmission of the broadcast signal did not constitute a performance of the copyrighted works carried in the signal.¹⁴ In reaching this conclusion, the Court reasoned that because CATV systems expanded the audience for the broadcast signal, advertisers would pay broadcasters more for advertising time if the signal was retransmitted by a local CATV system.¹⁵ Because the increased advertising revenue compensated broadcasters for the retransmission, CATV systems, in the Court's view, did not "interfere in any traditional sense with the copyright holders' means of extracting recompense for their creativity or labor."¹⁶ Rather, CATV systems offered

¹¹ See *Teleprompter Corp. v. Columbia Broadcasting Sys., Inc.*, 415 U.S. 394, 399 (1974).

¹² 392 U.S. 390 (1968).

¹³ 415 U.S. 394 (1974).

¹⁴ See *Teleprompter Corp.*, 415 U.S. at 411-14; *Fortnightly Corp.*, 392 U.S. at 400-01.

¹⁵ See *Teleprompter Corp.*, 415 U.S. at 411-13. This argument is entirely plausible for the local retransmission at issue in *Fortnightly Corp.*, and Congress effectively codified this result in section 111 of the Copyright Act of 1976. 17 U.S.C. §§ 111(d)(1)(B), (d)(3) (setting license fee based upon number of distant signals retransmitted and defining those entitled to claim a share of the statutory license royalties to exclude local retransmissions). However, it is far less plausible for the distant signals at issue in *Teleprompter Corp.* As the Register of Copyrights noted in his 1992 Report, "Distant signals, however, do impact upon the value of copyrighted programming because local advertisers, who provide the principal remuneration to broadcasters, . . . are not willing to pay increased rates for cable viewers in distant markets who cannot be reasonably expected to purchase their goods." REGISTER OF COPYRIGHTS, *supra* note 10, at 28-29.

¹⁶ *Teleprompter Corp.*, 415 U.S. at 412.

broadcasters and copyright owners alike the prospect of increased revenue by augmenting the total size of the program audience.¹⁷ Because CATV retransmission was thus viewed as a complement, rather than a substitute for broadcast television, the Court determined that the retransmission did not constitute the “performance” of the copyrighted works carried in the broadcast signal, within the meaning of the Copyright Act of 1909. As a result, until January 1, 1978 – the effective date of the Copyright Act of 1976 – a cable company could, at least under copyright law,¹⁸ receive a broadcast signal, whether of a local or a distant broadcaster, and could retransmit that signal to its subscribers without the consent of the broadcaster whose signal was being retransmitted, or of the copyright owners whose programs were being carried in the signal.

In its two CATV decisions, the Court noted the difficulty of applying the provisions of the Copyright Act of 1909, “enacted more than half a century ago, when neither broadcast television nor CATV was yet conceived,” to the retransmission issue, and expressly invited Congress to step in and resolve “the many sensitive and important problems in this field.”¹⁹ In enacting the Copyright Act of 1976, Congress attempted to do so. In section 101 of the 1976 Act, Congress specifically defined the public performance or display of a work to include the transmission of a work to a public place or to the public generally.²⁰ By equating a transmission

¹⁷ *Id.* at 413.

¹⁸ Under FCC regulations, initially promulgated in the mid-1960s, the retransmission of a distant signal into one of the 100 largest television markets was prohibited without a necessity determination by the FCC. *CATV Regulation Second Report and Order*, 2 F.C.C.2d 725, ¶ 141 (1966); see also Marc Peritz, *Turner Broadcasting v. FCC: A First Amendment Challenge to Cable Television Must-Carry Rules*, 3 WM. & MARY BILL OF RIGHTS J. 715 (1994). Because of the FCC’s backlog, the requirement of a hearing created a “practical freeze over distant signal importation.” REGISTER OF COPYRIGHTS, *supra* note 10, at 9. The FCC modified the distant signal importation rules in 1972, before rescinding them in 1980. See 36 F.C.C.2d 143 (1972) (adopting Cable Television Report and Order); 79 F.C.C.2d 663 (1980) (order rescinding the distant signal importation rules); *Malrite T.V. of New York, Inc. v. F.C.C.*, 652 F.2d 1140 (2d Cir. 1981) (affirming the rescission), *cert. denied sub nom. National Football League, Inc. v. F.C.C.*, 454 U.S. 1143 (1982); see also REGISTER OF COPYRIGHTS, *supra* note 10, at 18-21, 37-38.

¹⁹ *Id.* at 414.

²⁰ 17 U.S.C. § 101 (2002) (“To perform or display a work ‘publicly’ means -- . . . (2) to transmit or otherwise communicate a performance or display of the work to a place specified by clause (1) or to the public, by means of any device or process, whether the members of the public capable of receiving the performance or display received it in the same place or in separate places and at the same time or at different times.”).

with a public performance, Congress brought the retransmission of a broadcast signal within the scope of the public performance right and rendered the unauthorized retransmission an infringement of the copyrighted works carried in the signal.²¹ At the same time, however, Congress provided in section 111 a statutory license for the retransmission of broadcast signals by a cable company.²² However, local broadcasters were largely excluded from claiming a share of the resulting royalty pool.²³ The 1976 Copyright Act gave no recognition to any property right in the broadcaster's signal as such. While broadcasters were eligible for a share of the section 111 royalties in some cases, most of the revenue from the statutory license did not go to the broadcaster whose signal was being retransmitted, but to the other entities that owned the copyrights in the programming carried in the signal.²⁴

As cable systems continued to grow during the 1980s, they began to compete more directly with local broadcasters for advertising revenue.²⁵ Although section 111(c)(3) of the Copyright Act prohibited cable companies from substituting their own advertisements for those

²¹ The House Report accompanying enactment of the 1976 Copyright Act specifically recognized the retransmission of a signal as a public performance of the works carried in the signal. *See* H.R. Rep. No. 1476, 94th Cong., 2d Sess. 63 (1976).

²² 17 U.S.C. § 111(c) (2002).

²³ Section 111(d)(3) of the Copyright Act defines three categories of copyright owners whose works were retransmitted by a cable system as being entitled to a share of the retransmission royalties: (1) copyright owners in a nonnetwork television program retransmitted “in whole or in part beyond the local service area of the primary transmitter”; (2) copyright owners whose “work was included in a secondary transmission identified in a special statement of account deposited under clause (2)(A)”; and (3) copyright owners whose work “was included in nonnetwork programming consisting exclusively of aural signals carried by a cable system in whole or in part beyond the local service area of the primary transmitted of such programs.” 17 U.S.C. § 111(d)(3) (2002). Because the Copyright Royalty Tribunal (CRT) has refused to recognize any claims for compilation value, “[b]roadcasters, both network and independent, have received little from the CRT distribution process.” REGISTER OF COPYRIGHTS, *supra* note 10, at 84-85.

²⁴ *See* REGISTER OF COPYRIGHTS, *supra* note 10, at 84 (noting that “the Motion Picture Association of America and syndicated program suppliers receiv[e] the lion’s share of the royalty pool (upwards of 70%)” and that “[t]he joint sports claimants (baseball, basketball, hockey, and the NCAA) receive around 15%”).

²⁵ As Senator Inouye explained in arguing for enactment of the retransmission consent provision in 1992: “Gone are the days when the broadcasters received their revenues from advertisers and cable received their revenues solely from subscribers. Today, as we all know, cable competes with broadcasters for local and national advertising.” *See* Cong. Rec. S561 (Jan. 3, 1992) (statement of Senator Inouye).

of the local broadcaster on signals covered by the statutory license,²⁶ cable companies began to carry a variety of alternative programming, including non-broadcast (or cable-only) signals, as well as superstation signals. For many of these, the cable company and the signal provider would contractually agree that the cable company could sell, at least some of, the signal's advertising time.

Over the course of the 1980s, the number of such non-local-broadcast channels grew, threatening local broadcasters' advertising revenue in two ways. First, the availability of cable advertising vastly increased the supply of television advertising time available in each geographic market. Consider that before the development of cable, television advertising time in a given market might be limited to the ten minutes (more or less) per hour available from the three major networks, plus (perhaps) an independent broadcaster or two. After the development of cable, the supply of television advertiser time available increased by an additional ten minutes per hour for each additional (non-premium) channel carried by the cable network. This additional supply undoubtedly placed downward pressure on prices for television advertising. Second, as the variety and quality of cable's alternative offerings increased, cable drew viewers away from the major networks and hence from the local broadcast affiliates that carried their programs.²⁷ Because prices for television advertisements are a function of the number and make-up of the program audience, siphoning viewers away from the major networks in favor of one of cable's alternative channels reinforced the downward pressure on advertising revenues for

²⁶ 17 U.S.C. § 111(c)(3) (2002) ("Notwithstanding the provisions of clause (1) of this subsection . . . , the secondary transmission to the public by a cable system of a performance or display of a work embodied in a primary transmission made by a broadcast station . . . is actionable as an act of infringement under section 501 . . . if the content of the particular program in which the performance or display is embodied, or any commercial advertising or station announcements transmitted by the primary transmitter during, or immediately before or after, the transmission of such program, is in any way willfully altered by the cable system . . .").

²⁷ See REGISTER OF COPYRIGHTS, *supra* note 10, at xxi ("The three commercial television networks have lost their formerly overwhelming share of the television audience to cable, independent stations, and other video sources . . .").

local broadcasters. While cable continued to expand the range of local broadcast signals and hence continued to augment the audience potentially available for local broadcasters, at some point, the advertising revenue lost from the first two effects (increased supply of advertising time and increased competition for viewers) begin, at least in the minds of broadcasters, to outweigh the advertising revenue gained from the larger potential audience that cable provided.²⁸

If we look at television advertising revenues historically, we find that broadcast television advertising revenue grew at average annual rate just over 10% between 1961 and 1980, with the growth rate increasing during the 1970s to 12.44% annually. During the 1980s, however, the growth rate for broadcast television advertising revenue fell to 7.66%, while cable advertising revenues, on the other hand, grew at a remarkable 32.3% annually. Moreover, from 1961 through 1980, television was the fastest growing advertising medium, with television advertising revenue growing at an average annual rate 13.6% higher than radio's, 36.9% higher than newspaper's, and 28.0% higher than the average annual growth rate for total advertising expenditures. In contrast, from 1981 through 1991, broadcast television's advantage disappeared, with its advertising revenues growing at an average annual rate only 14.2% higher than that for newspapers, and growing at an average annual rate slightly lower than the average annual growth rates for both radio and total advertising expenditures. For broadcasters, the final straw came in 1991 when their advertising revenues actually fell in nominal terms from \$26.6

²⁸ As Senator Chafee explained in 1992:

There is a legitimate debate about who benefits more when a cable system carries broadcast signals. Cable picks up the local broadcasters, and they convey them to their subscribers. Who gets the most out of it? Cable charges a fee for its services and gains an attractive marketing tool when they said they would carry the local station for 7, 8 or 9 or whatever it is. Broadcasters benefit from an expanded market penetration and improved signal reception in most instances.

billion in 1990 to \$25.5 billion. Never mind that total advertising expenditures also fell in nominal terms from 1990 to 1991 (from \$129.6 billion to \$127.5 billion), cable was the problem and something had to be done.

The proffered solution to the apparent threat that cable posed to broadcasters' revenue was the retransmission consent provision of the Cable Act of 1992. The provision essentially recognized a property right in the broadcast signal itself apart from the copyrights in the individual programs embodied in the signal. Under the provision, a local broadcaster could elect either to remain under the preexisting "must-carry" regime, where the cable company had to retransmit the local broadcaster's signal, but could do so without any fee (apart from the applicable section 111 statutory license fee). Or, for successive three-year terms, with the first three-year term beginning October 3, 1993, the local broadcaster could opt out of the must-carry regime and negotiate with the cable company directly to set the terms upon which retransmission of the local broadcaster's signal would be permitted (though, again, the cable company would still have to comply with the terms of section 111, and pay any applicable section 111 statutory license fees in addition to any agreement reached with the local broadcaster).²⁹

Through the retransmission consent provision, Congress intended to give local broadcasters a second potential source of revenue. As Representative Callahan explained during the debate over the retransmission consent provision: "This amendment would give local broadcasters the opportunity to negotiate their terms of carriage with local cable operators and develop a second revenue stream which can help support the cost of local news and other

138 Cong. Rec. S16652 (Oct. 5, 1992) (statement of Senator Chafee during the debate over whether to override President Bush's veto of the Cable Act).

²⁹ Note that the broadcaster, absent a license from the copyright owner or ownership of the copyright at issue, has no authority to license the cable company's retransmission of copyrighted programs. Because the Copyright Act of 1976 defines the retransmission as an infringement, the cable company must still comply with the requirements of section 111 (or otherwise obtain the consent of the program copyright owners) in addition to complying with the terms of the agreement it reaches with the broadcaster.

programming.”³⁰ Other members of Congress reiterated these justifications,³¹ and emphasized that the retransmission provision would merely ensure local broadcasters the opportunity to bargain with the cable system over the terms and conditions of signal carriage “like any other cable programmer.”³² Members were also careful to emphasize that the measure was intended to benefit local broadcasters, “not to serve as a subsidy for major networks.”³³

Yet, the measure did not work as intended. From the outset, the networks stepped in and negotiated the retransmission consent agreements for their local broadcast affiliates. Unable to obtain cash for their retransmission consent, the networks typically settled for securing nationwide carriage for additional network channels. Yet, these additional channels only reinforced the downward pressure on local broadcasters’ advertising revenues in much the same way as cable had more generally, by increasing the advertising supply available in each market and by drawing viewers away from the local broadcasters’ programs. While the additional channels represented an additional, potential revenue source for the networks, and some of that additional revenue may have trickled down to, or otherwise benefited, the local affiliates, only one of the networks, Fox, offered its local affiliates a direct share of the resulting revenues.³⁴

Whether because of these additional retransmission-negotiated channels specifically, or because of the continued growth of cable more generally, advertising growth for broadcast television has continued to slow since the enactment of the Cable Act of 1992, with advertising

³⁰ 138 Cong. Rec. H6487 (Jul. 23, 1992).

³¹ See 138 Cong. Rec. (Jul. 23, 1992) (statement of Rep. Holloway) (justifying retransmission consent on the grounds that the cost of providing local news “is tremendous” and with “[t]he market on advertising . . . shrinking, because the cables are getting part of it” an additional source of revenue for local broadcasters is desirable); *id.* (statement of Rep. Chandler) (emphasizing that the retransmission consent “is an issue of local stations, carrying local programming and news about local interests”).

³² 138 Cong. Rec. S561 (Jan. 3, 1992) (statement of Senator Inouye).

³³ 138 Cong. Rec. H6487 (Jul. 23, 1992) (statement of Rep. Chandler); see also *id.* (statement of Rep. Callahan) (“This right of retransmission consent . . . is a local right. This is not, as some allege, a network bailout . . .”); 138 Cong. Rec. S561 (Jan. 3, 1992) (statement of Senator Inouye).

³⁴ See, e.g., *Fox: Act II*, MEDIAWEEK, Oct. 11, 1993, at 16.

revenues for broadcast television growing at an average annual rate of only 3.62% from 1992 through 2001. A vast drop from the double-digit growth experienced from 1961 through 1980, the average annual growth rate for broadcast television advertising revenues from 1992 through 2001 fell slightly below that for newspapers (3.71%), and substantially below the average annual growth rates for both radio advertising expenditures (7.51%) and total advertising expenditures (5.72%) over the same period.

The data thus suggests that retransmission consent, rather than being part of the solution to the difficulties broadcasters face as a result of cable's development, may be part of the problem. In order to determine whether retransmission consent is part of the solution or part of the problem, we start our economic analysis with a counterfactual question: What if retransmission consent had worked as intended? The following section develops an economic model intended to answer that question and to address more generally the likely consequences of retransmission consent both as it was intended and as it has actually worked in practice.

II. The Model, Part I: The Broadcaster's Dilemma

We begin our analysis by focusing on the decision facing the local broadcaster following the Cable Act of 1992. As discussed, the broadcaster must decide whether to seek a retransmission fee from the cable company or to invoke the "must-carry" rule. We will assume that the cable company will pass along any retransmission fee as part of the fee for basic cable access and will continue to bundle the local broadcaster's signal with the other signals that constitute the basic cable package. We will further assume that there is a downward sloping demand for cable access because the alternatives available, such as receiving broadcast signals through an antennae or subscribing to a satellite provider, are not perfect substitutes for cable access. Moreover, to simplify the analysis, we will assume that the inverse demand is linear.

If the local broadcaster did not receive any revenue from advertising, the local broadcaster would set a retransmission fee that would maximize its revenue from the retransmission fee, given a marginal cost for each additional cable subscriber of zero. With advertising as a source of revenue, the issue is somewhat more complicated. Because of the uncertainties surrounding the true nature of advertising, we will adopt a very general, black-box model of advertising and assume that advertising enables a broadcaster to capture a given fraction, Φ , of the broadcaster's share of the consumer surplus associated with cable access.

We first consider the case of a single broadcaster and examine the retransmission fee per subscriber that the broadcaster should seek from the cable company. Let the inverse demand for cable access be given by:

$$P(X) = A - BX$$

or alternatively, applying the Implicit Function Theorem, let:

$$X(P) = (A - P(X))/B$$

Where $P(X)$ and P are the retransmission fee; A and B are parameters; and X and $X(P)$ are the number of cable subscribers.

The profit of the broadcaster equals:

$$\Pi = PX(P) + \Phi \int_P^A X(P)dP \quad (1)$$

With a retransmission fee, the broadcaster's profit consists of two components. The first, $PX(P)$, constitutes the local broadcaster's revenue from the retransmission fee. The

second, $\Phi \int_P^A X(P)dP$, constitutes the local broadcaster's revenue from advertising. Note that, in

this case, there is only one broadcaster, so the broadcaster has a 100 % share of the consumer surplus associated with cable access.

Taking the first derivative with respect to P , setting it equal to zero, and solving for the profit-maximizing price yields:

$$P^* = (1-\Phi)A/(2-\Phi) \quad (2)$$

The optimal retransmission fee for the broadcaster is thus a function of the parameter A , and of the effectiveness of advertising as a means for capturing consumers' reservation prices for access to the broadcaster's programs.

For example, suppose that advertising enables a broadcaster to recover each consumer's full reservation value associated with access to the broadcaster's programs. Then $\Phi=1$, and from equation (2), the optimal retransmission fee is zero. On the other hand, if advertising is not perfectly effective at recovering consumers' full reservation values, then $\Phi<1$, and the optimal retransmission fee will be greater than zero.

Given the public good nature of the programs carried on the broadcaster's signal, we know that an optimal retransmission fee greater than zero does not represent a first-best solution. With a retransmission fee in excess of zero, some consumers will be denied access to the signal and the programs contained therein, even though the marginal cost of their access is zero. A retransmission fee will thus generate a deadweight loss. Moreover, these consumers will not only be denied access to the broadcaster's programs, but to the advertisements and their informational content as well.³⁵

Yet, charging a retransmission fee will increase the local broadcaster's revenue when advertising is not perfectly effective at recovering consumers' reservation values. This increased revenue might lead to an increase in program quality that may enhance consumer welfare. As a

³⁵ Whether access to the advertisements represents a utility gain or a utility loss to consumers is not perfectly clear. While advertisements presumably have some value as a source of information to consumers, most consumers seek to avoid viewing commercials when possible, by fast-forwarding for example through commercials on programs they have previously recorded. In any event, the denial of access to the programs (and perhaps to the

result, although a retransmission fee is not a first-best optimum, it may represent the best available means of funding the public good at issue.

Whether the increased welfare from improved programs will fully offset the deadweight loss associated with reduced access is unclear. As we shall see, attempting to measure and then balance the potential utility gains and losses in the single broadcaster case will prove unnecessary because the welfare effects of charging a retransmission fee become unequivocal in a case with multiple local broadcasters. Consider then a second case with multiple local broadcasters, where the number of local broadcasters is designated N . In this case, each local broadcaster is considering whether, and if so how much, to charge for retransmission of its signal. Assume that each local broadcaster is identical, has an identical share of the total audience, and that the broadcasters move simultaneously in setting their retransmission fees. Given the symmetry built into the problem, each broadcaster will charge the same “optimal” retransmission fee, p , and define the total retransmission fees charged as, $P = Np$. Given this set-up, each local broadcaster seeks to maximize:

$$\Pi_i = pX(P) + (\Phi / N) \int_P^A X(P) dP \quad (3)$$

Equation (3) differs from Equation (1) in two important respects. First, in the single broadcaster case, the broadcaster’s revenue from the retransmission fee was a function solely of its individual retransmission fee. In Equation (3), the broadcaster’s revenue is a function of its individual retransmission fee and the total of all of the broadcasters’ retransmission fees. Second, in the single broadcaster case, the broadcaster held 100 % of the market and thus captured all of the available advertising revenues. In contrast, with multiple broadcasters, each broadcaster captures only that share of the advertising revenue representing its share of subscriber viewing. Given our

advertisements, as well) represents a source of disutility.

assumption of identical broadcasters, we are assuming that subscribers divide their viewing time evenly among the local broadcasters. Thus, each broadcaster's share of the market is $1/N$.

Taking the first derivative of Equation (3) with respect to p , with the retransmission fee for the other broadcasters taken as given, and solving for the profit-maximizing retransmission fee for each broadcaster yields:

$$p^* = [1-(\Phi/N)]A/(2N-\Phi) \quad (4)$$

These results contrast sharply with that achieved when there was only one broadcaster. In particular, when there was only one broadcaster and advertising was perfectly efficient at capturing the available surplus, the optimal retransmission fee was zero in the single broadcaster case. In contrast, with multiple broadcasters, even if advertising is perfectly efficient at capturing the available surplus, so that $\Phi = 1$, the optimal retransmission fee for each broadcaster is greater than zero.

The reason for this is that the retransmission revenue each broadcaster receives is a function of the full subscriber base, while its advertising revenue is based upon the broadcaster's share of subscribers' viewing. When a broadcaster charges a higher retransmission fee, that fee reduces the consumer surplus associated with cable access. It thus reduces directly the surplus available for capture through advertising and the total advertising revenue generated from cable access. But only a fraction of that reduction (proportionate to the broadcaster's market share) in total advertising revenues will be borne by the broadcaster that imposed the retransmission fee. The remainder will be borne by the other broadcasters. By charging a retransmission fee, a broadcaster thus receives the full income attributable to the fee, but experiences only a fraction of the resulting reduction in total advertising-generated revenue.

In examining the welfare effects of the "optimal" retransmission fee in the multiple

broadcaster case, we begin by examining the profits each producer will earn given the optimal retransmission fee set forth in Equation (4). With each broadcaster charging the optimal retransmission fee, p^* , the profit each broadcaster receives becomes:

$$\Pi_i^f = \frac{\{(\Phi/2N)A + [1 - (\Phi/2N)]Np^*\}}{B} (A - Np^*) \quad (5)$$

In contrast, if none of the broadcasters charged a retransmission fee, then each broadcaster would receive a profit of:

$$\Pi_i^n = [(\Phi/2N)A^2] / B \quad (6)$$

If we consider a case where $N=5$, representing the four major broadcast networks, plus the cable company itself (which acts as a broadcaster and sells its own commercials for the non-broadcast signals it carries), then the profit that each broadcaster receives with a retransmission fee is less than the profit that each broadcaster would receive without a retransmission fee, if and only if:

$$\frac{50}{A} < [(10 - \Phi)^2 - 35]\Phi \quad (7)$$

Given that the intercept A represents the maximum price any consumer would pay for cable access in a month, suppose that A has a value of \$ 100 as an empirical matter.³⁶ Given this value for A , we can calculate the value of Φ at which each of the five broadcasters would earn a lower profit with a retransmission fee than they would earn without such a fee. In estimating the advertising efficiency that leads each of the broadcasters to receive a lower profit with the retransmission fee, note that as $\Phi \rightarrow 0$, $[(10 - \Phi)^2 - 35] \rightarrow 65$. If we assume that Φ will be

³⁶ Given the analysis, a low A tends to increase the possibility that charging a retransmission fee will increase a local broadcaster's revenues. To ensure that our ultimate policy conclusion that charging a retransmission fee is likely to reduce social welfare is robust, we should select a lower, rather than higher, value of A . Given that cable typically runs \$30-50 a month in most regions, there is likely some consumer who would pay \$100 a month for basic cable access.

relatively small, we can let $[(10 - \Phi)^2 - 35] = 65$ and estimate the approximate cross-over point as:

$$\Phi > 0.007692^{37}$$

This suggests that even if advertising is not a very efficient mechanism for capturing the consumer surplus associated with cable access, local broadcasters would each still earn a higher profit by refusing to charge a retransmission fee if no other broadcaster charged a retransmission fee as well.

However, absent an ability to collude and set a joint retransmission fee, each broadcaster will find itself facing a prisoner's dilemma. Each broadcaster would be better off if no broadcaster charged a retransmission fee. But if the other broadcasters do not charge a retransmission fee, then each broadcaster would be better off by charging a retransmission fee.

If we examine the welfare consequences of granting broadcasters the right to charge a retransmission fee in the multiple broadcasters case, we find an unequivocal reduction in social welfare. As in the single broadcaster case, charging a retransmission fee will reduce consumer surplus and lead to a deadweight loss. In the multiple broadcaster case, however, charging a retransmission fee will also reduce the broadcasters' revenues. Rather than create a potentially offsetting increase in program quality, as it did in the single broadcaster case, the ability to charge a retransmission fee in the multiple broadcaster case appears likely to lead to reduced profits for broadcasters and hence a likely reduction in program quality. The following section examines the welfare implications more directly.

III. The Model, Part II: Welfare Implications

In this section, we begin with consumer demand for cable access. Consumers may either

³⁷ Since our calculated Φ is small, our technique for estimating Φ is valid.

subscribe to cable or they may rely on antennae to capture local broadcast signals. Because of potential interference from buildings or terrain, and because of signal deterioration with distance, signal quality will usually be higher with cable than with antennae for most consumers. Let a consumer's utility be given by:

$$U(x, Q^j, A, V^j) + b(i)$$

In the utility function itself, x is a numeraire private good, Q is the satisfaction derived from watching television per unit of time, A represents the fraction of each hour of programming that constitutes advertising, and V is the time spent watching television. The superscript j represents the quality of the signal, and may take on values of either H for high, if the person subscribes to cable, or L for low, if the person relies on an antenna. The final term, $b(i)$, represents the idiosyncratic benefit from cable access for a given individual. By definition, individuals are arranged in decreasing order, with $b(0)$ being the highest idiosyncratic value and $b(i)$ decreasing out to $b(N)=0$.

Both Q^j and V^j are functions of some underlying program quality and associated signal quality. Thus, $Q^H = \Theta^H q(S, A)$ where Θ^H represents a multiplier for high signal quality, and the inherent quality of the programming, q , is a function of the quality of the programs, S , and the number of interruptions for commercials, A . Because Q^j and V^j are not separable, we will assume that they are perfect complements. The utility of a consumer with cable access (and the consumer's participation constraint) is thus:

$$x_0 - p + f(A) + \min(Q^H, V^H) + b(i) \geq 0.$$

Where p is the price of cable access. Note that A enters the consumer's utility function in two places. First, $f(A)$ represents the utility associated with the informational or signaling content of the advertisement. By assumption, $f(0)=0$, and $f(A)$ is increasing and strictly concave. Second,

A is also an implicit part of Q^H . In the Q^H term, A represents an interruption that diminishes the satisfaction otherwise derived from viewing a television program; thus, $\frac{dQ^H}{dA} < 0$.

The utility of a consumer without cable access (and the consumer's participation constraint) is:

$$x_o + f(A) + \min(Q^L, V^L) \geq 0.$$

At the optimum, $Q^H = V^H$ and $Q^L = V^L$. Moreover, so long as the signal quality is higher with cable access for all consumers, $\Theta^H > \Theta^L$, which implies that $V^H > V^L$ and $Q^H > Q^L$.

For the indifferent consumer, $x_o - p + f(A) + \min(Q^H, V^H) + b(n) = x_o + f(A) + \min(Q^L, V^L)$. Because the shows and advertisements are the same whether the signal is received through a cable line or an antenna, the number of consumers who will subscribe to cable are a function of the price of cable access, the programming quality, $q(S, A)$, and the difference in the quality of the signals, reflected by Θ^H and Θ^L . As the price goes up, $b(\cdot)$ for the indifferent consumer goes down, and because $b(i)$ is a strictly decreasing function of i , n goes down as well. As the difference in signal quality between cable and antenna increases, $b(\cdot)$ increases, and n goes up as a result. Note that if the price of cable access is set exactly equal to $V^H - V^L$, everyone will subscribe to cable access. We can therefore define n as:

$$n = n(p, q(S, A), \Theta^H, \Theta^L) \tag{8}$$

If we begin with the case of a single broadcaster whose retransmission fee is the sole charge consumers face for cable access, the broadcaster chooses the price of advertising, the retransmission fee (which here equals the cable access price), and the quality of the programs carried in its signal in order to maximize its profits. The broadcaster's objective function and participation constraint is thus:

$$\text{Max } \Pi = Ap_A + np - c(q(S, A)) \geq 0 \quad (9)$$

Where p_A is the price the broadcaster charges for advertising time and p is the retransmission fee. Note that the broadcaster's costs are a function of both the quality of its programming, S , and the amount of time each hour devoted to advertisements, A . As a broadcaster devotes more of each hour to advertising, its programming costs decrease. At the extreme, a broadcaster might simply sell a half-hour or longer block of airtime to a third-party, for an infomercial perhaps, and hence incur no programming costs whatsoever.

To determine the demand for advertising at a given price, p_A , we must consider the problem facing advertisers. Advertisers derive a total net benefit from advertisements as a function of the information conveyed by the advertisements, the time consumers spend watching television, less the price of the advertisements:

$$B_A = Nf(A) + nQ^H(\Theta^H, q(S, A)) + (N-n)Q^L(\Theta^L, q(S, A)) - Ap_A \quad (10)$$

From the first order condition, we can define the demand for advertising and the participation constraint for advertisers:

$$A^* = A(n, S, p_A) \geq 0 \quad (11)$$

Because consumers with cable access receive a higher quality signal, they spend more time watching television. The demand for advertising will thus increase as the number of cable subscribers increases. The demand for advertising will also increase as the quality of the programs increases. The demand for advertising will fall as the price of advertising increases.

Social Planner's Perspective: Welfare Maximization

If we assume a utilitarian social welfare function, then the social planner seeks to maximize the sum of utilities for consumers, broadcasters, and advertisers.

$$W = \int_0^n b(i)di + Nx_o + nQ^H + (N - n)Q^L + Nf(A) - c(q(S, A))$$

If the social planner sets S , A , and n directly, subject to participation constraints for broadcasters, consumers, and advertisers, then the socially optimal levels for S , A , and n are defined by the participation constraints and:

$$\frac{db(n)}{dS} + \frac{dn}{dS}(Q^H - Q^L) + n\left(\frac{dQ^H}{dS} - \frac{dQ^L}{dS}\right) + N\frac{dQ^L}{dS} + N\frac{df}{dS} = \frac{dc}{dS} \quad (12)$$

$$N\frac{df}{dA} = \frac{dc}{dA} - n\left(\frac{dQ^H}{dA} - \frac{dQ^L}{dA}\right) - n\frac{dQ^L}{dA} \quad (13)$$

$$\frac{db(n)}{dn} = -(Q^H - Q^L) \quad (14)$$

Equations (12) and (13) represent the familiar Samuelson conditions for the optimal production of the television programs and the advertisements as information, where the sum of individual utilities associated with an increase in program quality or advertising equals the marginal social cost of the associated increase. Equation (14) represents the optimal pricing decision for cable access where the price for access is set equal to the marginal benefit from access, and everyone subscribes.

Broadcaster's Perspective: Profit Maximization

We can compare these results to those when the broadcaster sets p_A , S , and p to maximize its own profits. Substituting (8) and (11) into (10) and differentiating with respect to p_A , S , and p , we obtain three first-order conditions that, together with the participation constraints for the advertisers and consumers, define the solution to the broadcaster's objective function:

$$A^* = \frac{dc}{dp_A} \quad (15)$$

$$p \frac{dn}{dS} + p_A \frac{dA}{dS} = \frac{dc}{dS} \quad (16)$$

$$p \frac{dn}{dp} + n + p_A \frac{dA}{dp} = \frac{dc}{dp} \quad (17)$$

Equation (16) suggests that if the broadcaster chooses not to charge a retransmission fee, then the broadcaster will increase the quality of its programs until $\frac{dc}{dS} = p_A \frac{dA}{dS}$. In other words, when $p^*=0$, the broadcaster's only source of revenue is advertising. With advertising as the sole source of revenue, the broadcaster will choose that level of quality that sets the marginal cost of quality exactly equal to the marginal advertising revenue from quality. If the broadcaster charges a retransmission fee, then the broadcaster would receive both advertising and per-subscriber retransmission revenues. In that case, equation (16) suggests that the broadcaster will increase quality until the marginal revenue from quality, now from both sources of revenue, exactly equals the marginal cost of quality.

If we consider equations (16) and (17) more generally, we find that our broadcaster must balance a number of competing factors in setting the optimal retransmission fee. The first order effects of an initial increase in the retransmission fee are to reduce the number of cable subscribers, while providing the broadcaster with an additional source of revenue. The availability of revenue from the retransmission fee in turn leads to an increase in program quality that may increase the number of cable subscribers. Depending on which effect dominates, the net increase (or decrease) in cable subscribers as a result of a retransmission fee will in turn increase (or decrease) the demand for, and likely price of, advertising. The broadcaster must then balance the resulting effect on advertising revenue against the retransmission revenue available to determine the optimal retransmission fee.

In evaluating the social welfare implications of the retransmission fee, our analysis

suggests two conclusions. First, the optimal retransmission fee from the broadcaster's perspective will likely exceed the optimal fee from the Social Planner's perspective, and will thus serve to restrict cable access to the public goods, the television programs and the advertisements, carried on the broadcaster's signal. However, if we compare equation (16) to the Samuelson condition in equation (12), equation (16) suggests that the optimal retransmission fee is zero only when the marginal cost of additional programming quality equals the marginal advertising revenue from additional programming quality. In contrast, equation (12) suggests that program quality will be optimal where the marginal cost of additional programming quality equals the sum of consumers' marginal benefit from additional programming quality. To the extent that the marginal advertising revenue from additional quality does not fully capture the sum of consumers' marginal benefit from additional quality, the additional revenues a broadcaster may capture through a retransmission fee may bring us closer to the Samuelson optimum for program quality despite the denial of access to some consumers.

Second, if we extend our analysis to a case involving multiple broadcasters as we did with the first model, we would confirm that the opportunity for each to charge independently a retransmission fee that then becomes part of the price for cable access to any of the broadcasters will create a prisoner's dilemma. As equation (9) suggests, by charging a retransmission fee, a broadcaster receives directly that fee for each of the cable subscribers. While charging a retransmission fee will likely reduce the number of cable subscribers somewhat, and thereby reduce advertising revenue, the reduction in advertising revenue will be shared among all broadcasters. As a result, the broadcaster that chooses to charge a retransmission fee will bear only a fraction of the resulting reduction in advertising revenues. This leads to the prisoner's dilemma identified with the first model where each broadcaster would be better off if no

broadcaster charged a retransmission fee. But if the other broadcasters do not charge a retransmission fee, then each broadcaster would be better off by charging a retransmission fee. Absent an ability to collude and set a joint retransmission fee, the ability to charge a fee will likely lead to lower total revenues for each broadcaster.

IV. Some Preliminary Conclusions

As is common with the private production of public goods, the production of television programs is likely to be sub-optimal. Unless advertising happens to be a perfectly efficient mechanism at capturing each consumer's valuation of the associated television program, neither advertising revenue alone, nor advertising revenue plus a retransmission fee, is likely to lead a profit-maximizing broadcaster to produce the optimal level of program quality. In the single broadcaster case, the ability to charge a retransmission fee creates a trade-off between incentives and access similar to the trade-off encountered whenever private property is used to encourage the creation of public goods. From the perspective of the broadcaster, while charging a retransmission fee will reduce the broadcaster's advertising revenue, charging some retransmission fee will nevertheless increase the broadcaster's total revenue, at least so long as advertising is not a perfectly efficient mechanism to capture consumers' reservation values associated with program access. To the extent that the cable system passes the broadcaster's retransmission fee along to its subscribers, a broadcaster's decision to charge a retransmission fee will raise the price of cable access and will persuade some potential viewers to forego cable access. At the same time, however, the additional revenues that the broadcaster would receive from retransmission fees would likely lead to improvements in program quality. In the single broadcaster case, the desirability of the retransmission consent provision turns therefore on whether we should deny access to a public good for some consumers in order to improve the

quality of the public good for others.

However, when we move from the single broadcaster case to one involving multiple broadcasters, this standard result no longer applies. Instead, with multiple broadcasters, a prisoner's dilemma develops. Again, charging a retransmission fee will tend to reduce a broadcaster's advertising revenue, but, in the single broadcaster case, the broadcaster bears the full cost of the reduction in advertising revenue. In contrast, in the multiple broadcaster case, part of the cost of each broadcaster's retransmission fee will be borne by the other broadcasters. As a result, each broadcaster in the multiple broadcaster case will set a retransmission fee somewhat higher than the fee that would prove profit-maximizing in the single broadcaster case. The resulting total fee, while seemingly the sum of individual fees intended to maximize each broadcaster's revenues, will likely lead to a net reduction in each broadcaster's revenues.

Possible solutions would include, first, eliminating the retransmission consent provision option altogether. If Congress believes that an additional revenue source for broadcasters as a group is desirable, Congress could ensure such additional revenues by expressly recognizing broadcasters as claimants for the royalty pool generated by the statutory license in section 111(c) of the Copyright Act or by creating an analogous licensing system for broadcast retransmission.³⁸ Second, and alternatively, we could also avoid the prisoner's dilemma by allowing or requiring broadcasters to negotiate as a group. Such an approach would require an antitrust exemption along the lines that Fox President Tony Vinciguerra has suggested³⁹ and could be backed by a compulsory arbitration requirement similar to the one found in the Copyright Act's satellite

³⁸ 17 U.S.C. § 111(c) (2002).

³⁹ See text accompanying note 9 *supra*. Section 111(d)(4)(A) of the Copyright Act, for example, contains an antitrust exemption to allow otherwise competing parties to cooperate with respect to the division of the royalty pool generated by the existing statutory license. 17 U.S.C. § 111(d)(4)(A) (2002).

carrier statutory license.⁴⁰ Either approach would avoid the prisoner's dilemma that individual retransmission consent would otherwise create by requiring a single entity, whether the government or broadcasters collectively, to set the effective retransmission fee for all broadcasters.

⁴⁰ 17 U.S.C. § 119(c)(3) (2002).