

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

| | | |
|----------------------------------------------|---|---------------------|
| In the Matter of |) | |
| |) | |
| XM Satellite Radio Holdings Inc., |) | MB Docket No. 07-57 |
| <i>Transferor,</i> |) | |
| |) | |
| and |) | |
| |) | |
| Sirius Satellite Radio Inc., |) | |
| <i>Transferee.</i> |) | |
| |) | |
| Consolidated Application for Authority to |) | |
| Transfer Control of XM Radio Inc. and Sirius |) | |
| Satellite Radio Inc. |) | |
| _____ |) | |

**JOINT EX PARTE SUBMISSION OF SIRIUS SATELLITE RADIO INC. AND
XM SATELLITE RADIO HOLDINGS INC.**

Patrick L. Donnelly
Executive Vice President, General Counsel and
Secretary
Sirius Satellite Radio Inc.
1221 Avenue of the Americas
36th Floor
New York, NY 10020

Dara F. Altman
Executive Vice President, Business and Legal
Affairs
XM Satellite Radio Holdings Inc.
1500 Eckington Place, NE
Washington, DC 20002

Richard E. Wiley
Robert L. Pettit
Peter D. Shields
Jennifer D. Hindin
Wiley Rein LLP
1776 K Street, NW
Washington, DC 20006
202.719.7000

Gary M. Epstein
James H. Barker
Brian W. Murray
Barry J. Blonien
Latham & Watkins LLP
555 Eleventh Street, NW
Washington, DC 20004-1304
202.637.2200

Attorneys for Sirius Satellite Radio Inc.

*Attorneys for XM Satellite Radio Holdings
Inc.*

November 13, 2007

TABLE OF CONTENTS

I. THE NAB AND ITS SURROGATES CONTINUE TO MISAPPREHEND, MISSTATE, AND MISAPPLY APPLICABLE ANTITRUST PRECEDENT AND POLICY. 1

A. CRA Supplemental Report. 2

B. Supplemental Hazlett Report..... 5

II. THE CONTINUED OPPOSITION TO THE PROPOSED MERGER BY OTHER PARTIES IS UNPERSUASIVE. 7

A. U.S. Electronics’ Unsupported Assertions of a Vertical Monopoly Have Been Addressed in the Record. 7

B. The Extreme “Divestiture” Remedy Proposed by Georgetown Partners Is Unnecessary and Would Ultimately Deny Benefits to the Groups It Seeks to Benefit. 11

C. The Latest Carmel Group Statement Does Not Disprove the Existence of a Broad Market for Audio Entertainment Services. 14

III. COMPETITION IN THE AUDIO ENTERTAINMENT MARKET CONTINUES TO INCREASE RAPIDLY..... 16

IV. THE OUTCOME OF THIS MERGER WILL NOT PRE-DETERMINE THE OUTCOME OF ANY OTHER COMMISSION PROCEEDING, INCLUDING THE FCC’S MEDIA OWNERSHIP PROCEEDINGS..... 23

V. CONCLUSION 27

EXHIBIT A CRA International, Further Economic Analysis of the Sirius-XM Merger

EXHIBIT B Thomas W. Hazlett, The Economics of the Satellite Radio Merger, Part II

FOR PUBLIC INSPECTION

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

| | | |
|----------------------------------------------|---|---------------------|
| In the Matter of |) | |
| |) | |
| XM Satellite Radio Holdings Inc., |) | MB Docket No. 07-57 |
| |) | |
| <i>Transferor,</i> |) | |
| |) | |
| and |) | |
| Sirius Satellite Radio Inc., |) | |
| <i>Transferee</i> |) | |
| |) | |
| Consolidated Application for Authority to |) | |
| Transfer Control of XM Radio Inc. and Sirius |) | |
| Satellite Radio Inc. |) | |

**JOINT EX PARTE SUBMISSION OF SIRIUS SATELLITE RADIO INC. AND
XM SATELLITE RADIO HOLDINGS INC.**

Since July 24, 2007, when Sirius Satellite Radio Inc. (“Sirius”) and XM Satellite Radio Holdings Inc. (“XM”) submitted their Joint Opposition to Petitions to Deny and Reply Comments (“Joint Opposition and Reply”)¹ in this proceeding, a number of commenters have submitted additional documents in opposition to the pending merger. These submissions have included several purported economic studies and a variety of other ex parte filings. This Joint Submission attempts to provide a comprehensive response to these various filings.

I. THE NAB AND ITS SURROGATES CONTINUE TO MISAPPREHEND, MISSTATE, AND MISAPPLY APPLICABLE ANTITRUST PRECEDENT AND POLICY.

Over the past several months, the National Association of Broadcasters (“NAB”) and its surrogates have continued to fund various papers attacking the analysis prepared by CRA

¹ Joint Opposition to Petitions to Deny and Reply Comments of Sirius Satellite Radio Inc. and XM Satellite Radio Holdings Inc. (July 24, 2007) (“Joint Opposition and Reply”).

International (“CRA”).² In substantial part, these filings argue that satellite radio constitutes its own narrow product market and that CRA, in describing a broader market for audio entertainment, has abandoned the Department of Justice’s Horizontal Merger Guidelines (“Merger Guidelines”)³ and accepted antitrust analysis.⁴ These assertions are demonstrably wrong.

A. CRA Supplemental Report.

Attached as Exhibit A is a Supplemental Report prepared by CRA that reaffirms its previous conclusions that the relevant market is broader than satellite radio; that the market is highly competitive and technologically dynamic; and that the merger will enhance competition in the market.⁵ CRA’s analysis and conclusions comport with common sense, with numerous comments on the record in this proceeding, and with consumer-oriented experience reflected each day in mass-media⁶ and trade-press⁷ stories and ads.

² CRA International, *Economic Analysis of the Competitive Effects of the Sirius-XM Merger*, (“CRA Competitive Effects Analysis”), submitted as Exhibit A to the Joint Opposition and Reply.

³ U.S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, Issued April 2, 1992, Revised April 8, 1997 (“Merger Guidelines”).

⁴ See J. Gregory Sidak, *Third Supplemental Declaration* 3-4, 8-10 (Oct. 1, 2007) (“Sidak Third Supplemental Declaration”).

⁵ CRA International, *Further Economic Analysis of the Sirius-XM Merger* (Nov. 9, 2007) (“CRA Supplemental Report”), attached as Exhibit A.

⁶ See, e.g., Christopher Stern, “Sirius, XM Offer Plan to Let Users Choose Channels,” Bloomberg.com (July 23, 2007), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aWFvZ8eu5DD8> (last visited Nov. 8, 2007); David Hinckley, “‘A la carte’ looks choice to them,” NY Daily News.com (Aug. 4, 2007), http://www.nydailynews.com/entertainment/tv/2007/08/04/2007-08-04_a_la_carte_looks_choice_to_them.html (last visited Nov. 8, 2007); Rick Aristotle Munarriz, “Get It On, XM and Sirius,” The Motley Fool (Sept. 13, 2007), <http://www.fool.com/investing/high-growth/2007/09/13/get-it-on-xm-and-sirius.aspx> (last visited Nov. 8, 2007).

FOR PUBLIC INSPECTION

Moreover, CRA's conclusions fully comport with the Merger Guidelines and applicable antitrust precedent. Critics of the pending merger are simply wrong to say that the appropriate competition analysis should focus only on short-run profits.⁸ The Merger Guidelines do not restrict the analysis to short-term economic interest. Quite the contrary: The Merger Guidelines require an evaluation of the profitability of a "snip" "*lasting for the foreseeable future.*"⁹

Merger critics are wrong to focus their analysis exclusively on *current* Sirius and XM subscribers. In fact, any analysis that looks at hypothetical price increases "*lasting for the foreseeable future*" necessarily examines the impact on both current *and potential* customers.¹⁰ This is particularly relevant to the Commission's consideration of the pending transaction under its broad "public interest" mandate.¹¹

Merger critics also ignore the fact that satellite radio is an emerging sector of a broad audio entertainment market that includes the omnipresent terrestrial radio and other products.

⁷ SatNews Daily, "CEI: XM-Sirius Merger Should Go Forward," July 10, 2007, <http://www.satnews.com/stories2007/4735/> (last visited Nov. 8, 2007); Sky Report, "League: Sirius/XM is not Echostar/DirecTV," June 25, 2007, http://www.skyreport.com/archives/view/?publication_id=1&release_id=569 (last visited Nov. 8, 2007); Sky Report, "Women's Group Supports Merger," June 25, 2007, http://www.skyreport.com/archives/view/?publication_id=1&release_id=569; Orbitcast, "A Look at the Audio Entertainment Market," Apr. 17, 2007, <http://www.orbitcast.com/archives/a-look-at-the-audio-entertainment-market.html> (last visited Nov. 8, 2007).

⁸ The prior 1982 merger guidelines limited the investigation of a hypothetical price increase to one year. That language, however, was removed in the 1992 merger guidelines and no longer appears in the current Merger Guidelines. CRA Supplemental Report ¶ 9.

⁹ Merger Guidelines, § 1.11 (emphasis supplied) ("In attempting to determine objectively the effect of a 'small but significant and nontransitory' increase in price, the Agency, in most contexts, will use a price increase of five percent lasting for the foreseeable future."). See CRA Supplemental Report ¶ 8.

¹⁰ Merger Guidelines, § 0 ("[T]he picture of competitive conditions that develops from historical evidence may provide an incomplete answer to the forward-looking inquiry of the Guidelines."); CRA Supplemental Report ¶ 10.

¹¹ See 47 U.S.C. § 309(a).

FOR PUBLIC INSPECTION

Both XM and Sirius are engaged in “penetration pricing” aimed at driving rapid growth in the number of subscribers, not maximizing short-term profits.¹² The merged firm would have an even greater incentive for penetration pricing and other demand-enhancing investments because significant “external demand spillovers” will be taken into account.¹³ In addition, the large merger-specific cost savings and the ever increasing competition among audio entertainment devices will further eliminate any incentive to raise the price of satellite radio.¹⁴

Finally, and most fundamentally, merger critics miss the essential point that the Merger Guidelines expressly shun a mechanical, one-size-fits-all application of merger standards.¹⁵ To the contrary, the Merger Guidelines specifically state that the standards should be applied “reasonably and flexibly” to accommodate the “particular facts and circumstances” of the merger.¹⁶ By attempting to limit the Commission’s analysis, these critics urge the Commission to exclude a broad range of evidence that is routinely reviewed by enforcement agencies, accepted and employed by courts and required under the Merger Guidelines.¹⁷ Consideration of

¹² CRA Supplemental Report ¶¶ 110-112.

¹³ CRA Supplemental Report ¶¶ 98-102; CRA Competitive Effects Analysis ¶¶ 117-119.

¹⁴ CRA Competitive Effects Analysis ¶ 86; CRA Supplemental Report ¶ 142.

¹⁵ Merger Guidelines, § 0.

¹⁶ *Id.*

¹⁷ *See, e.g., FTC v. Whole Foods Market, Inc.* 502 F. Supp. 1 (D.D.C. 2007) (relying on a broad range of “practical indicia” in addition to econometrics to conclude that the market was broad; also pointing to data on regular cross-shopping between conventional supermarkets and premium natural and organic supermarkets as direct evidence that market included both shopping formats) citing *Brown Shoe Co. Inc. v. United States*, 370 U.S. 294, 325 (1962); *California v. Sutter Health System*, 130 F. Supp. 2d 1109, 1132 (N.D. Cal. 2000) (finding patient flow data supported broader relevant market); *FTC v. Tenet Health Care Corp.*, 186 F.3d 1045, 1053 (8th Cir. 1998) (finding that a narrow geographic market improperly discounted survey data on actual hospital usage and also excluded quality as important competitive dimension); *FTC v. Swedish*

this evidence is also necessary for the Commission to reach an appropriate conclusion in this case—that this merger is in the public interest. In fact, excluding this evidence and thus denying the Commission the benefit of having all of the relevant economic evidence, as the NAB wants, would provide “misleading answers to the economic questions raised under the antitrust laws.”¹⁸

B. Supplemental Hazlett Report.

Some merger critics also have criticized the conclusions of Professor Thomas Hazlett, a former FCC Chief Economist, who has described at length the pro-consumer benefits that would result from the pending merger.¹⁹ Attached as Exhibit B to this Joint Submission is a second white paper prepared by Professor Hazlett that, like CRA’s Supplemental Report, reveals some of the numerous flaws in those submissions.²⁰

First, Professor Hazlett describes some of the errors contained in several reports prepared by J. Gregory Sidak. Many of these errors arise from Mr. Sidak’s penchant for misquoting or misrepresenting Professor Hazlett’s determinations and attributing to him positions that he has

Match North America, 131 F. Supp.2d 151, 16-164 (D.D.C. 2000) (examining econometric evidence and expert testimony as well as views of competitors, statements of distributors, internal documents, etc.).

¹⁸ Merger Guidelines, § 0; CRA Supplemental Report at ¶¶ 16, 90. Confirming the flaws in his examination, Mr. Gregory Sidak’s approach reveals that each company is its own market – both XM and Sirius today are essentially monopolists in a market limited to only its offerings! CRA Supplemental Report at ¶ 94. Clearly, such an absurd result illustrates the pitfalls of a narrow analysis and underscores the merits of the more thorough factual investigation and sophisticated analysis condoned by the Merger Guidelines and undertaken by CRA.

¹⁹ Thomas W. Hazlett, *The Economics of the Satellite Radio Merger*, 5 (filed June 14, 2007).

²⁰ Thomas W. Hazlett, *The Economics of the Satellite Radio Merger, Part II* (Nov. 8, 2007) (“Hazlett Part II”), attached as Exhibit B.

not taken.²¹ In his recent analysis, Professor Hazlett corrects those problems as well as various aspects of Mr. Sidak’s misunderstanding of antitrust precedent. For example, he observes that Mr. Sidak’s desire to limit the relevant evidence of the proper market definition to information about consumer perceptions directly conflicts with the Merger Guidelines, which acknowledge the value of evidence gleaned from firms in the marketplace.²² Professor Hazlett also explains that competitor opposition to a merger, such as that displayed by the National Association of Broadcasters and its surrogates in this proceeding, is widely understood to be a sign that the transaction will produce greater efficiencies and improve welfare—a concept that Mr. Sidak strives to deny.²³ These are but a few of the mistakes made by Mr. Sidak in his voluminous submissions.

Professor Hazlett also responds to the study submitted by Professor Steven Wildman on behalf of NAB.²⁴ In particular, he addresses Professor Wildman’s contention that the merger would threaten “localism” by lowering the profits of terrestrial broadcasters and thus impairing their ability to provide locally oriented content.²⁵ As Professor Hazlett explains, this view can be fairly translated as a desire to protect *competitors* rather than consumers, a result that would preserve broadcasters’ revenues at the expense of consumers. Professor Hazlett also exposes the illogical nature of Professor Wildman’s conclusion on this subject, noting that an increase in

²¹ See, e.g., Hazlett Part II at 5-6, 8-9.

²² Hazlett Part II at 12; Merger Guidelines, § 1.11 (noting the relevance of, among other things, “evidence that sellers base business decisions on the prospect of buyer substitution between products in response to relative changes in price or other competitive variables”).

²³ Hazlett Part II at 14-16.

²⁴ Declaration of Steven S. Wildman (July 23, 2007), Exhibit A to National Association of Broadcasters’ Response to Comments, MB Docket No. 07-57 (filed July 24, 2007).

²⁵ Hazlett Part II at 30-33.

national programming by the merged company should, if anything, encourage terrestrial broadcasters to air *more* local programming.

In the end, Professor Hazlett’s analysis, like CRA’s, underscores what the record already demonstrates—that the pending merger will generate merger-specific efficiencies leading to improved service for consumers and a stronger market overall for audio entertainment services. The aspersions cast by merger opponents on these economic studies should not prevent the Commission from concluding that such an outcome would promote the public interest.

II. THE CONTINUED OPPOSITION TO THE PROPOSED MERGER BY OTHER PARTIES IS UNPERSUASIVE.

Like their economic studies, other filings by merger opponents in this proceeding provide no basis for the Commission to reject the merger.

A. U.S. Electronics’ Unsupported Assertions of a Vertical Monopoly Have Been Addressed in the Record.

In a series of filings made after the conclusion of the formal comment period on the merits of the merger, U.S. Electronics, Inc. (“USE”) has alleged that the merger would create some sort of “vertical monopoly” in connection with the market for consumer electronics equipment.²⁶ This argument—and USE’s corresponding call for an “open device requirement”

²⁶ See, e.g., Petition of U.S. Electronics, Inc. to Designate Application for Hearing, MB Docket No. 07-57 (filed Nov. 9, 2007) (“USE Petition for Hearing”); Comments on Notice of Proposed Rulemaking Submitted by U.S. Electronics, Inc., MB Docket No. 07-57 (filed Aug. 10, 2007) (“USE Rulemaking Comments”); Letter from Charles Helein to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (Sept. 4, 2007); Letter from Charles Helein to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (Sept. 25, 2007). USE also has advanced various other complaints that at times border on sheer frivolity—for example, its suggestion that, despite making twenty-five filings in this docket to date it has somehow been denied access to the Commission. The companies have responded to those claims. See Joint Opposition of Sirius and XM to Petitions to Defer Action, MB Docket No. 07-57, at 8-9 (filed Oct. 25, 2007).

FOR PUBLIC INSPECTION

as a condition on the merger²⁷—is unfounded. Moreover, any assertion by USE that Sirius and XM either before or after the merger could not enter into exclusive distributorships is wrong. Courts have routinely determined that exclusive distributorships are presumptively lawful because they are procompetitive vertical nonprice agreements almost uniformly designed to maximize sales and output.²⁸

Notwithstanding USE's insistence that this issue is so new and significant that the Commission should defer its consideration of the merger and even hold a hearing to address it,²⁹ USE's "vertical integration" theory is really nothing more than a slightly different spin on the tired "merger-to-monopoly" claim thoroughly rebutted in this record. Indeed, the premise of USE's contention is that the combined company would be a "monopolist" with the ability to exercise market power in connection with the manufacture and distribution of consumer electronics devices.³⁰ But as XM and Sirius have shown, the merged company will in fact comprise a very small part of a rapidly evolving marketplace that features a growing array of audio entertainment and, more to the point, consumer electronics devices.

²⁷ Letter from Charles Helein to Michelle Carey, MB Docket No. 07-57, at 1 (Oct. 25, 2007). USE's apparent view that it is entitled to discovery to pursue its arguments is also off base. Compare USE Petition for Hearing at ii (complaining that the Commission's recent request for information from the companies does not include specific items sought by USE), with, e.g., *Bilingual Bicultural Coal. on Mass Media, Inc. v. FCC*, 595 F.2d 621, 634 (D.C. Cir. 1978) ("[T]he FCC generally has elected to resolve factual uncertainties by conducting its own inquiry, rather than by affording petitioners discovery.").

²⁸ See, e.g., *United States v. Visa U.S.A., Inc.*, 344 F.3d 229, 241 (2d Cir. 2003) (noting that "exclusive distributorship" arrangements . . . are 'presumptively legal') (quoting *Elec. Communications Corp. v. Toshiba Am. Consumer Prods., Inc.*, 129 F.3d 240, 245 (2d Cir. 1997)).

²⁹ U.S. Electronics, Inc.'s Petition to Defer Action, MB Docket No. 07-57, at 5 (filed Oct. 12, 2007); USE Petition for Hearing at 1.

³⁰ See, e.g., U.S. Electronics, Inc. Reply Comments on Notice of Proposed Rulemaking, MB Docket No. 07-57, at ii (filed Aug. 24, 2007) (referring to "the merged entity's . . . ability to leverage the monopoly over the network into other market areas (e.g., hardware/equipment)").

This competitive landscape, already well documented in this record, will prevent the harms about which USE speculates. In order to gain and then keep any share of the listening audience in this constantly expanding market, the combined company will have every incentive to ensure the availability of low-cost, high-quality receivers—regardless of whether it engages in “sole sourcing.” Anything else would harm the combined company’s reputation and lead to fewer subscriptions. Thus, the merged entity would be in no position “to dictate consumer choice of how and with what equipment they access the network,”³¹ or to “stifle the development of new generation satellite radio receivers”³² as consumers could respond to such restrictions by turning to any number of other entertainment options.

The burgeoning audio entertainment market also creates enormous opportunities for equipment manufacturers, distributors, and retailers. In fact, USE bills itself as “an importer and distributor of *a wide variety of electronic devices* that are retailed to the American public through some of the largest retail outlets in the country.”³³ There is no reason to expect that USE’s opportunities—or those of any other distributors or retailers—would suddenly become limited as a result of the pending merger, since all such entities will continue to have access to a market that constantly is yielding new services and devices. Further, neither XM nor Sirius manufacture, import, or distribute radios themselves, instead relying on a number of third parties to handle these functions. For example, XM radios currently are available in the aftermarket under the Delphi, Pioneer, Samsung, Alpine, Audiovox, Sony, and Polk brand names, among others. And Sirius devices have been manufactured, imported, and/or distributed by companies

³¹ *Id.* at iii.

³² USE Petition for Hearing at 10.

³³ USE Rulemaking Comments at 1 (emphasis added).

such as Pioneer, Rotel, Delphi, Kenwood, Clarion, Visteon and Directed Electronics, Inc.—as well as USE.

The conditions proposed by USE are not only unnecessary but also counter-productive. For example, USE urges the Commission to prevent the merged company from directly or indirectly participating in the design of satellite radio receivers, and then to have an “independent monitor” assess the merged company’s compliance with Commission rules.³⁴ It is unclear, however, how the merged company could be expected to comply with requirements such as those relating to noninterference and interoperability if it is denied any role in the design of its own devices. Such conditions could also delay if not prevent the introduction of next-generation receivers capable of supporting a la carte programming and providing the new and innovative services that the combined company is committed to offering.

Given the abundant record evidence that XM and Sirius have presented concerning the competitive market in which they would compete as a merged company, the notion that they have “ignore[d]” or otherwise left “un-refuted” USE’s argument is hardly credible.³⁵ To the extent USE’s complaint is that the companies have not yet specifically addressed its arguments, that is the inevitable consequence of USE’s failure to raise these issues during the comment phase on the merger’s merits. Indeed, USE did not even make its “vertical integration” argument on the record until *after* the formal comment period was closed and the rulemaking phase of the proceeding had begun—which addressed only discrete issues of administrative law.³⁶ USE’s

³⁴ USE Petition for Hearing at 15.

³⁵ Reply of U.S. Electronics, Inc. to Joint Opposition to Petition to Defer Action, MB Docket No. 07-57, at 4-5 (filed Oct. 11, 2007).

³⁶ *Applications for Consent to the Transfer of Control of Licenses, XM Satellite Radio Holdings Inc., Transferor, to Sirius Satellite Radio Inc., Transferee*, Notice of Proposed Rule

recent petition to designate these and other issues for a hearing comes a full *four months* after the Commission's stated deadline for such requests, and the Commission thus should dismiss it as procedurally improper.³⁷

Finally, USE's eleventh-hour interest in FCC merger policy is obviously animated by USE's pending arbitration against Sirius relating to USE's prior role as a manufacturer and distributor of Sirius satellite radios and by its transparent desire to extend its role in the satellite radio receiver business.³⁸ The Commission should not condone USE's efforts to use this proceeding to advance its own private commercial goals in another context.³⁹

B. The Extreme “Divestiture” Remedy Proposed by Georgetown Partners Is Unnecessary and Would Ultimately Deny Benefits to the Groups It Seeks to Benefit.

Making, MB Docket No. 07-57 (rel. June 27, 2007), 72 Fed. Reg. 38055 (July 12, 2007). Prior to filing its first formal comments in this proceeding on August 9, USE expressly refrained from taking any position on the transaction. See Letter from Charles Helein to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57, at 1 (July 6, 2007).

³⁷ See Public Notice, *Sirius Satellite Radio Inc. and XM Satellite Radio Holdings Inc. Seek Approval to Transfer Control of FCC Authorizations and Licenses; Pleading Cycle Established*, MB Docket No. 07-57, DA 07-2417 (rel. June 8, 2007).

³⁸ See Sirius 2006 10-K at 24 (filed Mar. 1, 2007); *Radio maker seeks \$48 million from Sirius*, BOSTON GLOBE, Mar. 1, 2007; see also Letter from Charles H. Helein to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57, at 1 (July 17, 2007) (noting “the existence of litigations in which USE and [Sirius] are parties”).

³⁹ See *Applications of Vodafone Airtouch, PLC and Bell Atlantic Corp.*, Order on Further Reconsideration, 17 FCC Rcd 10998, 11000 ¶ 6 (WTB 2002), *reconsideration dismissed* 18 FCC Rcd 1861 (WTB 2003), *review denied in part, dismissed in part* 20 FCC Rcd 6439 (2005). See also *Cingular-AT&T Wireless Order*, 19 FCC Rcd 21522, 21552 n.222 (citing *Vodafone AirTouch, PLC, and Bell Atlantic Corp.*, Memorandum Opinion and Order, 15 FCC Rcd 16507, 16511-12 ¶ 12 (WTB, IB 2000) (“*Bell Atlantic-Vodaphone Order*”) and *Applications of Centel Corp. and Sprint Corp.*, Memorandum Opinion and Order, 8 FCC Rcd 1829, 1831 ¶ 10 (CCB 1993)). The Commission has refused to interject itself into private matters, finding that a court, and not the Commission, is the proper forum to resolve such disputes. *Bell Atlantic-Vodaphone Order*, 15 FCC Rcd at 16514 n.37 (citing *Applications of WorldCom and MCI Communications Corp.*, Memorandum Opinion and Order, 13 FCC Rcd 18025, 18148 ¶ 214 (1998)). Thus, the Commission should reject USE's attempt to force XM and Sirius to produce various documents. See Letter from Charles Helein to Michelle Carey, MB Docket No. 07-57, at 2-3 (Oct. 25, 2007).

Georgetown Partners, an entity that did not comment formally in this proceeding at any phase, has recently asserted that the Commission should deny the merger applications or at least defer its consideration of them while it explores a condition aimed at leasing 20 percent of the combined company's spectrum to a minority-controlled entity to address programming diversity concerns.⁴⁰

Georgetown Partners' proffered rationale for its opportunistic remedy is belied by Sirius' and XM's diverse programming and by the impressive record of content providers and organizations representing the interests of underserved communities supporting the merger.⁴¹ These merger proponents recognize that the merger will produce more opportunities for content providers dedicated to diverse programming and, as a result, increased choice for underserved and minority consumers. Following the merger, the combined company will have an improved ability to provide such programming and every incentive to take advantage of it, if it is to gain any audience in this vibrantly competitive marketplace.⁴²

⁴⁰ Letter from Chester C. Davenport, Managing Director, Georgetown Partners, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (Oct. 18, 2007); Letter from Chester C. Davenport, Managing Director, Georgetown Partners, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (Nov. 2, 2007); Letter from David Siddall, Counsel to Georgetown Partners, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (Nov. 2, 2007).

⁴¹ Joint Opposition and Reply at 20-21. *See* Letter from Robert G. de Posada, President, Latino Coalition, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (Apr. 16, 2007); Letter from Harry Alford, National Black Chamber of Commerce, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (Apr. 19, 2007); Letter from Brent Wilkes, Executive Director, League of United Latin American Citizens, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (May 11, 2007); Letter from Lillian Rodriguez-Lopez, President, Hispanic Federation, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (June 5, 2007); Letter from Susan Scanlan, Chair, National Council of Women's Organizations, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (June 20, 2007); Letter from Michelle D. Bernard, President and CEO, Independent Women's Forum, to Kevin Martin, Chairman, FCC, MB Docket No. 07-57 (Oct. 1, 2007).

⁴² Joint Opposition and Reply Section II.B.

FOR PUBLIC INSPECTION

In particular, the National Association for the Advancement of Colored People (“NAACP”) has endorsed the pending merger, noting both companies’ current strong commitment to diversity—in terms of programming that addresses issues of particular concern to our nation’s African American community, and in terms of efforts to recruit and to retain minority talent and leadership at all levels.⁴³ The NAACP is “convinced that the pending Sirius-XM merger will be a positive development for consumers,” and that “more diverse, accessible and appealing options at lower prices in satellite radio will help further expand the reach of this medium.”⁴⁴

Georgetown Partners fails to provide any evidence whatsoever that the NAACP’s predictions will not come to pass.⁴⁵ Its spectrum leasing proposal is unwarranted, and indeed, would affirmatively undermine many of the consumer benefits of the merger. As XM and Sirius have explained, they require *all* of their combined spectrum to realize the synergies of the merger, including in particular the merger-specific expanded programming choices and new services that will be offered by the combined company in the future. Divesting *any* of either company’s spectrum—let alone the 20 percent of their combined channel capacity that

⁴³ Letter from Hilary O. Shelton, NAACP to Chairman Kevin Martin and Commissioners Copps, Adelstein, Tate and McDowell (June 20, 2007). In addition, members of the Congressional Black Caucus submitted a letter in support of the merger. See Letter from Ed Towns, Bobby Rush, Yvette Clarke, Greg Meeks, Danny Davis, Sanford Bishop, Corrine Brown, and Alcee Hastings, *et al.* to Kevin Martin, Chairman, FCC, MB Docket No. 07-57 (Oct. 25, 2007).

⁴⁴ Letter from Hilary O. Shelton, NAACP to Chairman Kevin Martin and Commissioners Copps, Adelstein, Tate and McDowell, 1-2 (June 20, 2007).

⁴⁵ Georgetown Partners of course still has ample time to place further evidence or comment in the record, but its inexplicable decision not to weigh in at the formal comment stages of this proceeding should lead the Commission to decline its invitation to delay processing the merger.

Georgetown Partners seeks⁴⁶—would close off those benefits and millions of existing subscribers would lose some portion of their service. Moreover, divestiture would undermine the billions of dollars the companies have invested in their legacy infrastructure, harming companies that have invested millions of dollars developing products designed in reliance on the existing satellite platforms.⁴⁷

Finally, Georgetown Partners has ample opportunity to bring further diversity to the audio entertainment marketplace through other avenues, such as acquiring spectrum in upcoming auctions,⁴⁸ or utilizing a plethora of other technologies.⁴⁹ For these reasons, the Georgetown Partners proposal, which seeks to manipulate the regulatory process for private gain, should be rejected.

C. The Latest Carmel Group Statement Does Not Disprove the Existence of a Broad Market for Audio Entertainment Services.

NAB recently submitted a second report that it commissioned from the Carmel Group (“Carmel”), which purports to show the lack of competition between satellite radio and “the rest of the radio marketplace.”⁵⁰ The report does nothing of the sort. Rather, it considers satellite

⁴⁶ Letter from David Siddall, Counsel to Georgetown Partners, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57, at 1 (Nov. 2, 2007).

⁴⁷ Joint Opposition and Reply at 87-88.

⁴⁸ See Public Notice, *Auction of 700 MHz Band Licenses*, AU Docket No. 07-157, DA 07-44514 (rel. Nov. 2, 2007).

⁴⁹ See generally Joint Opposition and Reply Section IV.D and Exhibit F (Charles L. Jackson, Service and Spectrum Alternatives for Audio News and Entertainment Services (July 24, 2007)).

⁵⁰ Letter from Larry Walke, National Association of Broadcasters, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57, at 1 (Oct. 26, 2007) (attaching “Competition Belied: Opposition to the Proposed Sirius-XM Merger” (Oct. 2007)).

FOR PUBLIC INSPECTION

radio in a vacuum, focusing on selected actions taken by XM and Sirius over the years while ignoring any developments relating to “the rest of the radio marketplace.”

Carmel purports to demonstrate unique competitive effects with a so-called ping-pong chart. But the chart is as unremarkable (the fact that XM and Sirius compete with each other does not mean that they do not also compete with a variety of other entities) as it is flawed. Like the NAB Coalition’s previous attempt,⁵¹ Carmel’s competitive effects showing simply ignores the extensive record of competitive responses among a variety of audio competitors. Sirius and XM have already submitted a more complete, but by no means comprehensive, timeline of events that have occurred just in the last three years⁵² – a timeline demonstrating that satellite radio providers, terrestrial radio providers, MP3 manufacturers, Internet radio providers and others have all introduced new services and products in response to each other.⁵³

In addition, the report’s conclusions concerning the companies’ exclusive contracts are implausible. After stating that the companies seek exclusive content “for the benefit of existing and would-be subscribers,”⁵⁴ the report proceeds to predict harms to consumer that would result if the merged company eliminated that programming. But if Carmel is correct that such exclusive content benefits consumers, it is unclear why the merged company would abandon it—

⁵¹ Petition to Deny of the Consumer Coalition for Competition in Satellite Radio (“NAB Coalition”), MB Docket No. 07-57 at 8-11 (July 9, 2007).

⁵² Joint Opposition and Reply, Exhibit E.

⁵³ Carmel’s exclusive focus on satellite radio produces some truly bizarre results. For example, the report notes that both XM and Sirius announced the kick-off of their respective college football coverage in August 2007 (when the season began) and aired special coverage about Pope John Paul II following his death in April 2005. *See* Carmel Group Report at 9. The idea that these decisions represented “competitive action/reactions” between the two satellite radio providers is patently absurd. Indeed, terrestrial broadcasters and other media presented identical programming at precisely the same time.

⁵⁴ Carmel Group Report at 2.

particularly given its need to remain competitive in the burgeoning market for audio entertainment.

In the end, perhaps the most notable “ping-pong” effect reflected by the report is Carmel’s response to NAB’s sponsorship in this proceeding. Prior to being commissioned by NAB to oppose the satellite radio merger, Carmel independently concluded that “satellite radio[’s] . . . competition comes in the form of traditional analog AM & FM radio, as well as burgeoning services like MP3 players, terrestrial radio, and video- and Internet-to-the-vehicle.”⁵⁵ That Carmel changed its tune when asked by the NAB to do so—even though competition from other sources has only increased since the Carmel Group first noted its existence—should eliminate any lingering credibility that its latest report may have.

III. COMPETITION IN THE AUDIO ENTERTAINMENT MARKET CONTINUES TO INCREASE RAPIDLY.

The companies and supporters of the pending merger have presented abundant evidence that an ever-growing number of audio entertainment services have emerged to compete with satellite radio.⁵⁶ This well-documented trend has continued unabated, as various entities using all forms of technology have introduced yet more audio entertainment services—all with the same goal. As Tim Westergren, the founder of the Internet radio service Pandora,⁵⁷ recently put

⁵⁵ Jimmy Schaeffler, The Carmel Group, *Growing Another Telecom Pie: Satellite Radio’s In-Vehicle Competition*, Oct. 5, 2005, http://carmelgroup.com/publications/document/growing_another_telecom_pie/ (last visited Nov. 4, 2007); *see also* Joint Opposition and Reply at 44 n.145.

⁵⁶ *See generally* XM Satellite Radio Holdings Inc., Transferor, and Sirius Satellite Radio Inc., Transferee, Consolidated Application for Authority to Transfer Control of XM Radio Inc. and Sirius Satellite Radio Inc., MB Docket No. 07-57, Section IV (“Application”); Joint Opposition and Reply Sections III.A, III.B; CRA Competitive Effects Analysis Section II.A.3.

⁵⁷ Pandora is a popular Internet radio service that recently partnered with Sprint/Nextel to deliver service. *See* Joint Opposition and Reply at 61-62 & n.214.

FOR PUBLIC INSPECTION

it during a congressional hearing, “[W]hen I’m asked who we compete against, it’s anybody who’s trying to attract someone else’s listening hour.”⁵⁸

That competition has become more robust in just the few months since XM and Sirius filed their reply comments. Terrestrial radio, of course, remains the largest competitor in this market by a substantial margin. The *New York Times* recently reported that approximately 279 million Americans listen to terrestrial radio every week,⁵⁹ more than *seventeen times* the number of satellite radio subscribers.⁶⁰ Terrestrial radio also remains ubiquitous. While GM recently disclosed that as of October 2007 XM radio units have been installed in only 6 million GM vehicles, terrestrial radios are standard in virtually all of the more than 243 million vehicles on the road today.⁶¹

HD radio continues to offer strong competition, especially as terrestrial radio stations continue to upgrade to HD broadcast technology. The HD Radio Alliance recently increased its marketing budget to 680 million dollars.⁶² HD radio receivers are becoming increasing

⁵⁸ Transcript, U.S. Senate Committee on Commerce, Science and Transportation, Hearing on “The Future of Radio,” at 72 (Oct. 24, 2007).

⁵⁹ See Shaun Assael, *Online and on the Edge*, N.Y. TIMES, Sept. 23, 2007, available at <http://www.nytimes.com/2007/09/23/arts/music/23assa.html?ex=1348200000&en=2732fbddec1837b6&ei=5090&partner=rssuserland&emc=rss> (last visited Nov. 2, 2007) (citing Bridge Ratings).

⁶⁰ XM and Sirius recently reported that they had a combined 16.27 million subscribers as of October 30, 2007. See Franklin Paul, *Sirius Satellite loss narrows on subscriber growth*, Reuters, Oct. 30, 2007, available at http://investing.reuters.co.uk/news/articleinvesting.aspx?type=tnBusinessNews&storyID=2007-10-30T175637Z_01_N30606640_RTRIDST_0_BUSINESS-SIRIUSSATELLITE-RESULTS-DC.XML.

⁶¹ *GM Expands XM AS Standard on All 2008 Buick, HUMMER and Saab Models*, PR Newswire, Oct. 18, 2007; CRA Competitive Effects Analysis ¶ 19.

⁶² *HD Radio Alliance Renews Chart with Marketing Commitment that Takes Total to \$680 Million*, Press Release, Oct. 15, 2007, http://www.hdradio.com/i/Alliance_Charter.pdf.

available—consumer electronics stores such as Circuit City, Best Buy and Crutchfield (in addition to the stores XM and Sirius already have identified⁶³) now sell the devices.⁶⁴ HD radios also are being introduced as factory-installed options in automobiles. Along with BMW, Hyundai, and Jaguar, Mini USA now offers a factory-installed digital HD radio receiver with FM multicasting capability as an option in the all-new 2007 MINI Cooper and Cooper S hardtops.⁶⁵ Ford recently announced that HD radio will be available in almost all 2008 Ford, Lincoln, and Mercury models, and can also be installed on many earlier models from 2005 forward.⁶⁶ In total, iBiquity estimates that eleven automakers will begin offering HD radio within the next two years.⁶⁷

Internet radio also continues to expand rapidly.⁶⁸ The *New York Times* recently reported that 55 million Americans listen to Internet radio every week.⁶⁹ Internet radio can be streamed to both fixed and mobile devices, and consumers are taking advantage. For example, companies

⁶³ Application at 28.

⁶⁴ Louis Hau, *Digital Radio Lands at Wal-Mart*, FORBES.COM, Mar. 5, 2007, available at http://www.forbes.com/digitalentertainment/2007/03/02/radio-hd-satellite-tech-media-cx_lh_0305radio.html (last visited Aug. 6, 2007).

⁶⁵ Press Release, iBiquity, Mini USA Offers Factory-Installed HD Radio Receiver in 2007 Mini Cooper and Cooper S (June 7, 2007), available at http://www.ibiquity.com/press_room/news_releases/2007/1040 (last visited Aug. 6, 2007).

⁶⁶ *Ford to Offer HD Digital Radio in Nearly All Models*, Dow Jones Newswires, Sept. 29, 2007.

⁶⁷ Press Release, HD Radio, HD Radio Celebrates Major Milestone: Rollout in Top 100 Markets (May 14, 2007), available at http://www.hdradio.com/press_room.php?newscontent=92 (last visited Aug. 6, 2007).

⁶⁸ See Joint Opposition and Reply at 59-60.

⁶⁹ Shaun Assael, *Online and on the Edge*, N.Y. TIMES, Sept. 23, 2007, available at <http://www.nytimes.com/2007/09/23/arts/music/23assa.html?ex=1348200000&en=2732fbdec1837b6&ei=5090&partner=rssuserland&emc=rss> (last visited Nov. 2, 2007).

like Roku, Com One, Revo, Terratec, and Tivoli produce tabletop or bookshelf radios that allow users to tune into radio shows using internal Wi-Fi receivers that connect to wireless networks.⁷⁰ One recent report noted that 80 million Americans had listened to Internet radio in the prior month,⁷¹ and another noted that of the 30 million Americans who use wireless Internet, 75 percent (23 million) currently access Wi-Fi Internet radio. The number of wireless Internet radio listeners is expected to grow to 77 million by 2010.⁷² The total number of WiFi-enabled consumer electronic devices is projected to grow from 40 million shipped in 2006 to nearly 249 million in 2011.⁷³ A recent study predicted that within eight years of market availability, more than 23 percent of Americans will have wireless Internet technology in their cars, and 50 percent will have it within nine years.⁷⁴ More generally, the market for automotive infotainment products is expected to grow from \$28 billion currently to about \$54 billion by 2012.⁷⁵

⁷⁰ David Pogue, *Internet Radio Made Easier*, N.Y. TIMES, Aug. 9, 2007, available at <http://www.nytimes.com/2007/08/09/business/09pogue.html?ex=1187236800&en=88480857e2745b56&ei=5099&partner=TOPIXNEWS> (noting that these “freaky hybrids of the old and new” can “pull in any of 10,000 Internet radio stations from all over the world, without a single pop of static”) (last visited Aug. 9, 2007).

⁷¹ Bridge Ratings, *Digital Audio Growth Projections Thru 2020*, Aug. 15, 2007, at http://www.bridgeratings.com/press_08,15,07-digitalprojectionsupd.htm (estimating the monthly audience for Internet radio in 2007 to be 33 percent of Americans, and 40 percent in 2008) (last visited Nov. 4, 2007).

⁷² Bridge Ratings, *The Impact of Wireless Internet*, Sept. 12, 2007, at http://www.bridgratings.com/press_09.11.07-WiFi%20Impact.htm (last visited Nov. 2, 2007).

⁷³ *Id.*

⁷⁴ *Id.* (explaining that satellite radio “has found its greatest audience in-car but has the most to lose with wireless Internet radio reception”).

⁷⁵ *Microsoft, Siemens to Develop In-Car Infotainment*, REUTERS, Sept. 7, 2007.

Options for in-car media systems have continued to expand.⁷⁶ Last month, Ford launched the Ford Sync, its new factory-installed, in-car communications and entertainment system.⁷⁷ Sync, based on Microsoft Auto software, allows consumers to operate a variety of digital devices from different companies in their vehicles through voice commands or steering wheel controls using either Bluetooth wireless technology or a USB 2.0 port to connect to players such as the Apple iPod and Microsoft Zune—as well as PlaysForSure music devices and most USB media storage devices. The *Wall Street Journal* recently described the Sync as a “big step forward in integrating cellphones and portable music players into cars,” citing in particular its affordability and its versatility.⁷⁸ Ford is showcasing the availability of Sync on the revised 2008 Ford Focus, and it will be included in a total of 12 Ford, Lincoln, and Mercury products by year end, as well as on most other vehicles during the 2009 model year.⁷⁹ Ford’s aggressive marketing of Sync marks the first time Ford will launch a technology feature with the same force it would use for a vehicle launch, which is one sign that in-car media technology is more important to buyers than ever.⁸⁰

Additionally, Microsoft and Siemens recently announced plans to develop in-car entertainment and navigation products—specifically, a multimedia platform that will allow users

⁷⁶ See Joint Opposition and Reply at 59-60; 66-67.

⁷⁷ Press Release, *Ford Motor Co., Ford Teams up with Microsoft to Deliver SYNC; In-car Digital System Exclusive to Ford* (Feb. 14, 2007), available at http://media.ford.com/newsroom/release_display.cfm?release=25168 (last visited Aug. 24, 2007).

⁷⁸ Walter S. Mossberg, *Ford, Microsoft Create Car System That Lets You Ask for a Song*, WALL ST. J., Nov. 8, 2007, at B1.

⁷⁹ Amy Wilson, *Ford gives Sync Full-Court-Press Ad Campaign*, AUTOMOTIVE NEWS, Sept. 24, 2007.

⁸⁰ *Id.*

to connect devices like mobile phones and MP3 players.⁸¹ And Chrysler has unveiled its system, called MyGIG, in model year 2007 vehicles, featuring Sirius' Real-Time Traffic, AM/FM radio, CD/DVD player, a 20-gigabyte hard drive, a USB jack, line-in jack, two audio outputs, Bluetooth hands-free calling, and a 6.5-inch touchscreen with voice control.⁸²

Consumers now have more choices for accessing music through MP3 players and mobile phones.⁸³ Software like Orb Networks can turn any device that connects to the Internet into a portable digital music player.⁸⁴ MusicGremlin allows direct wireless downloads to a media player without having to connect through a computer.⁸⁵ Apple's iPod, the most popular MP3 player with 110 million sold and counting, has just gone wireless with the new iPod Touch, introduced in October 2007.⁸⁶ The iPod Touch uses a touch screen and Wi-Fi technology similar to the Apple iPhone.

⁸¹ *Microsoft, Siemens to Develop In-Car Infotainment*, REUTERS, Sept. 7, 2007. Production is expected to begin in 2009.

⁸² Bill Howard, *Chrysler MyGiG Hard Drive for Navigation, Music*, TECHNORIDE, July 14, 2006, available at http://www.technoride.com/article/Chrysler+MyGiG+Hard+Drive+for+Navigation+Music/183407_1.aspx (last visited Aug. 24, 2007). Other features include the ability to rip compact discs onto the hard drive directly in the car, plus the USB port allows users to transfer music and pictures onto the unit. *Id.*

⁸³ *See generally, e.g.*, Joint Opposition and Reply at 60-62.

⁸⁴ Orb, http://www.orb.com/en/how_does_orb_work. Orb Networks is a free software program that installs on a person's "always-on" home PC and allows the computer to act like a personal broadcasting system. The computer can stream the user's media content (such as music and video) through any Internet-connected device like a mobile phone, PDA, laptop or any other computer.

⁸⁵ Edward C. Baig, *PC-free MusicGremlin trumps rivals but could use some fine-tuning*, USATODAY.COM, June 14, 2006, at http://www.usatoday.com/tech/columnist/edwardbaig/2006-06-14-gremlin-player_x.htm (last visited Aug. 6, 2007).

⁸⁶ Roger Cheng et al., *Apple Unveils iPod Touch, Revamped Products*, Dow Jones, Sept. 5, 2007. The video iPod has been renamed the iPod Classic and has been updated to include double the storage space. The new iPod Nano features a two-inch video screen.

FOR PUBLIC INSPECTION

Meanwhile, mobile phone providers also continue to introduce new products. Verizon offers multiple new models, including the Chocolate; Alltel has the Wafer. Sprint Nextel and Samsung have teamed up to create the UpStage, which went on sale in April 2007.⁸⁷ The trend to provide Internet access in mobile phones is rapidly expanding. AT&T demonstrated its commitment to this technology in early October 2007 when it purchased spectrum licenses covering 196 million people in the 700 MHz frequency band from Aloha Partners for \$2.5 billion, strengthening its position as a competitor to satellite radio.⁸⁸

Finally, local broadcast stations recently announced a proposal to broadcast local television shows to mobile phones, video iPods and MP3 players, in-car DVD players, and other devices equipped with TV tuners after the scheduled conclusion to the digital TV transition in 2009.⁸⁹ Broadcasters can transmit their main channels for free, while charging advertisers a premium to reach larger audiences, as well as selling mobile ads that would let consumers purchase products at the touch of a button. Chips with TV tuners are being developed by LG and Samsung, among others, which are expected to add approximately \$10 to the price of a mobile device, while an add-on tuner would cost less than \$50.⁹⁰

Given the rapid evolution of media technology, it is nearly impossible to discuss every development and update. It is clear, however, that with every innovation, the field of competitors to satellite radio only strengthens and expands. These developments reinforce the

⁸⁷ See Mark Wilson, *Frankenreview: Sprint/Samsung UpStage*, GIZMODO.COM, Mar. 28, 2007, <http://gizmodo.com/gadgets/feature/frankenreview-sprintsamsung-upstage-247653.php> (last visited July 22, 2007).

⁸⁸ Press Release, AT&T, *AT&T Acquires Wireless Spectrum from Aloha Partners*, Oct. 9, 2007, at <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=24516>.

⁸⁹ Paul Davidson, *Free TV Shows May Air on Cellphones*, USA TODAY, Oct. 18, 2007.

⁹⁰ *Id.*

now-inescapable conclusion that the combined company would be but a small player in a highly competitive and constantly evolving market for audio entertainment services.

IV. THE OUTCOME OF THIS MERGER WILL NOT PRE-DETERMINE THE OUTCOME OF ANY OTHER COMMISSION PROCEEDING, INCLUDING THE FCC’S MEDIA OWNERSHIP PROCEEDINGS.

At the same time that they are vehemently opposed to the proposed merger of Sirius and XM, broadcast interests have asserted that approval of the transaction would “prejudge” various broadcast ownership proceedings in their favor.⁹¹ These parties contend that if the Commission approves the merger, “it would be compelled to reconsider other rules that it currently has in place regarding ownership restrictions on local radio intramodal competition and eliminate them.”⁹²

The Commission’s decision in the Sirius-XM merger does not need to affect the outcome in any other proceeding. There is no reason as a matter of law or policy why approval of the Sirius-XM merger would force the Commission into altering its multiple ownership rules.

This is true for a number of obvious reasons. First, by any metric, terrestrial radio overwhelmingly dominates the market for audio entertainment:

- According to Arbitron, Sirius and XM *combined* have *4.1 percent* of all radio listenership spread out over approximately 300 channels.⁹³

⁹¹ See, e.g., Letter from Lawrence R. Sidman to Marlene H. Dortch, Secretary, FCC, MB Docket No. 07-57 (filed Nov. 7, 2007).

⁹² Comments of Clear Channel Communications, Inc., MB Docket No. 07-57, at 7 (Aug. 13, 2007).

⁹³ Orbitcast, “Arbitron reports Satellite Radio listening is up” (Sept. 30, 2007), <http://www.orbitcast.com/archives/arbitron-reports-satellite-radio-listening-is-up.html> (last visited Nov. 8, 2007).

FOR PUBLIC INSPECTION

- Terrestrial radio broadcasters accounted for more than \$21 billion in revenues in 2006. Satellite radio accounted for just \$1.6 billion – less than seven percent of all radio revenues⁹⁴ – while facing disproportionately higher capital and operating expenses.
- While Sirius and XM combined had approximately 14 million subscribers at the end of last year, 230 million Americans listen to terrestrial radio every week.⁹⁵

Terrestrial radio dwarfs satellite radio and all other forms of audio entertainment, and it will continue to do so after the merger. In fact, permitting the combination of two comparatively small satellite radio companies by itself will have virtually no impact on the dominant position that terrestrial radio holds among audio entertainment providers.⁹⁶

Second, based on long-standing Commission policy, broadcast ownership rules are governed by a number of considerations that are irrelevant to the Sirius-XM merger—most particularly localism and local viewpoint diversity. The ownership proceeding now before the agency—launched in July 2006 as the result of a judicial remand⁹⁷ and a Congressionally required quadrennial review of broadcast ownership restrictions⁹⁸—is, according to the

⁹⁴ *Id.* at 50-51 n.167 & accompanying text.

⁹⁵ *Id.* at 51 nn.169, 174 & accompanying text. Similar numbers have been featured prominently in the NAB's continual we-will-bury-them rhetoric: "In 2006, we have satellite and Internet radio. . . But we have news for our competitors: 'We will beat you – as we have beaten those change agents in the past.' . . . And when people ask us are you focused on satellite radio because you're afraid of the competition – we say, 'No.' Satellite radio says it has at most 10 million subscribers, notwithstanding those 500,000 subscribers in empty car lots. But 260 million people listened to broadcast radio last week alone." Speech by David K. Rehr, President & CEO, NAB, The 2006 NAB Radio Show (September 21, 2006), http://www.nab.org/AM/Template.cfm?Section=Press_Releases1&CONTENTID=6802&TEMP_LATE=/CM/ContentDisplay.cfm (last visited Nov. 1, 2007).

⁹⁶ In addition, with the advent of HD radio, competition from terrestrial radio has increased.

⁹⁷ *2002 Biennial Regulatory Review—Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd 13620 (2003), *rev'd and remanded*, *Prometheus Radio Project v. FCC*, 373 F.3d 372 (3d Cir. 2004).

⁹⁸ *2006 Quadrennial Regulatory Review—Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, Further Notice of Proposed Rulemaking, 21 FCC Rcd 8834 (2006) ("2006

FOR PUBLIC INSPECTION

Commission,⁹⁹ to be guided by longstanding core objectives, including localism¹⁰⁰ and local viewpoint diversity.¹⁰¹

These uniquely local public interest objectives have little connection to the issues at stake in or analysis of the proposed Sirius-XM merger. Neither Sirius nor XM is licensed to individual communities. Moreover, at the insistence of broadcasters, neither Sirius nor XM may broadcast differentiated programming to local areas; all Sirius and XM programming is transmitted, and available, nationwide,¹⁰² and the FCC previously determined that government regulation is not “needed to preserve access to multiple sources of national news and public affairs information” because “[c]onsumers have numerous sources of national news and information available to them.”¹⁰³

FNPRM”). The current local radio ownership rules originally were imposed by statute in the Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996), which legislation also required the Commission to periodically review the restrictions and to repeal or modify any of the regulations that it finds are “no longer in the public interest.”

⁹⁹ See 2006 NPRM at ¶ 4 (“In the 2002 Biennial Review Order, the Commission determined that its long-standing goals of competition, diversity, and localism would continue to guide its actions in regulating media ownership. These policy objectives also will guide our actions on remand.”).

¹⁰⁰ As the FCC noted in its most recent media ownership decision, “localism continues to be an important policy objective” with respect to the regulation of broadcast ownership. 2002 Biennial Review Order at ¶¶ 73-74. This is because federal regulation of local broadcasting “has historically placed significant emphasis on ensuring that local television and radio stations are responsive to the needs and interests of their local communities”—an objective “rooted in Congressional directives to this Commission and . . . affirmed as a valid regulatory objective many times by the courts.” *Id.*

¹⁰¹ Preserving “the availability of media content reflecting a variety of perspectives” on a local basis has been another basic tenet of the Commission’s regulation of broadcast ownership. *Id.* at ¶ 10.

¹⁰² *Sirius Satellite Radio*, DA 01-2171, ¶¶ 10-11 (Sept. 17, 2001); *XM Radio Inc.*, DA 01-2172, ¶¶ 10-11 (Sept. 17, 2001).

¹⁰³ 2002 Biennial Review Order at ¶ 106.

REDACTED

FOR PUBLIC INSPECTION

In sum, neither satellite radio in general nor the Sirius-XM merger in particular has any appreciable effect on localism or local viewpoint diversity. Certainly, no outcome in the merger review would need to affect decision in the Commission's pending ownership inquiry.

V. CONCLUSION

For these reasons, the Commission should reject the arguments raised in various recent ex parte filings and approve the merger of Sirius and XM.

Respectfully Submitted,

/s/ Patrick L. Donnelly

Patrick L. Donnelly
Executive Vice President, General Counsel
and Secretary
Sirius Satellite Radio Inc.
1221 Avenue of the Americas
36th Floor
New York, NY 10020

Richard E. Wiley
Robert L. Pettit
Peter D. Shields
Jennifer D. Hindin
Wiley Rein LLP
1776 K Street, NW
Washington, DC 20006
202.719.7000

Attorneys for Sirius Satellite Radio Inc.

November 13, 2007

/s/ Dara F. Altman

Dara F. Altman
Executive Vice President, Business and
Legal Affairs
XM Satellite Radio Holdings Inc.
1500 Eckington Place, NE
Washington, DC 20002

Gary M. Epstein
James H. Barker
Brian W. Murray
Barry J. Blonien
Latham & Watkins LLP
555 Eleventh Street, NW
Washington, DC 20004-1304
202.637.2200

Attorneys for XM Satellite Radio Holdings Inc.

EXHIBIT A

**CRA International,
FURTHER ECONOMIC ANALYSIS
OF THE SIRIUS-XM MERGER**

REDACTED

FOR PUBLIC INSPECTION

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
XM Satellite Radio Holdings Inc.)
Transferor)
)
and) MB Docket No. 07-57
)
Sirius Satellite Radio Inc.)
Transferee)
)
Consolidated Application for Authority to)
Transfer Control of XM Radio Inc. and Sirius)
Satellite Radio Inc.)

FURTHER ECONOMIC ANALYSIS OF THE SIRIUS-XM MERGER

**Steven C. Salop
Professor of Economics and Law, Georgetown University Law Center
Senior Consultant, CRA International**

**Steven R. Brenner
Lorenzo Coppi
Serge X. Moresi
Vice Presidents, CRA International**

November 9, 2007

TABLE OF CONTENTS

| | | |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------|
| I. | INTRODUCTION AND CONCLUSIONS | 1 |
| II. | MARKET DEFINITION UNDER THE MERGER GUIDELINES: PRINCIPLES AND EVIDENCE..... | 8 |
| | A. The Relevant Time Period for the Hypothetical Monopolist Test for Market Definition | 9 |
| | B. Evaluating the Impact on Potential and Current Subscribers | 11 |
| | C. Market Definition Evidence | 13 |
| | 1. Market Definition Must Rely on Available Evidence | 14 |
| | 2. Cross Section Econometric Evidence of Demand Substitution between Terrestrial and Satellite Radio | 18 |
| | 3. Survey Evidence of Demand Substitution | 24 |
| | 4. Demand Substitution Evidence Based on Sellers' Business Decisions | 33 |
| III. | MARKET DEFINITION ANALYSIS AND EVIDENCE WHEN THERE ARE DYNAMIC DEMAND SPILLOERS | 38 |
| | A. Dynamic Demand and the Merger Guidelines..... | 38 |
| | B. Sidak's Misunderstandings of the Concept of Dynamic Demand | 44 |
| | C. Evidence of Dynamic Demand Spillovers, Penetration Pricing and Growth..... | 48 |
| | 1. Penetration Pricing and Market Growth | 48 |
| | 2. Recommendations by Subscribers | 49 |
| | 3. Word-of- Mouth Learning by Non-Subscribers | 51 |
| | 4. OEM Subscribers | 54 |
| | 5. Family Plan Subscriptions and Gifts..... | 55 |
| | 6. Evidence of External Spillovers..... | 56 |
| | D. Conclusions on Dynamic Demand Spillovers and Penetration Pricing | 58 |
| IV. | Sidak's Advertising Welfare Analysis..... | 59 |
| V. | Conclusions..... | 62 |
| | Appendix A: Econometric Analysis of the Relationship between Satellite Radio Penetration and Terrestrial Radio Coverage..... | A1 |
| | Appendix B: Technical Analysis of Sidak's Advertising Model..... | B1 |
| | Exhibit : Recent Satellite Radio Subscriber Projections | |

I. INTRODUCTION AND CONCLUSIONS

1. Our examination of the proposed Sirius-XM merger filed at the FCC in July reached two fundamental conclusions.¹ First, we demonstrated that the overall effect of the merger of Sirius and XM would be procompetitive and lead to consumer benefits.² Second, we concluded that the relevant market is audio entertainment devices and services, not satellite radio only.³ This submission presents additional evidence and analysis. We also respond to various criticisms levied by Gregory Sidak in his most recent declaration, none of which lead us to alter our conclusions.⁴
2. As discussed in detail below, our investigation relies on categories of evidence typically used in sound merger analysis, as set out in the Merger Guidelines and elsewhere. This evidence demonstrates that the relevant product market is audio entertainment, not simply satellite radio. In particular, the evidence demonstrates substantial demand substitution between satellite radio and other audio entertainment devices and services. The evidence also demonstrates that Sirius and XM are differentiated products and that substitution between them is further constrained by switching costs. Each service has exclusive distribution agreements with automobile OEMs, and each has exclusive audio content. This differentiation reduces the substitutability between the two products, relative to substitutability with other audio entertainment products. Thus, it tends to broaden the relevant market. This product differentiation also is expanding as the size of the OEM channel grows relative to the retail/aftermarket channel. In addition, switching from one satellite radio service to the other is more costly for most subscribers than switching to many other audio entertainment products (such as terrestrial radio). All of these factors support our conclusion that the relevant product market is audio entertainment, not simply satellite radio.

¹ Steven C. Salop, Steven R. Brenner, Lorenzo Coppi, and Serge X. Moresi, *Economic Analysis of the Competitive Effects of the Sirius-XM Merger* (July 24, 2007), Exhibit A to *Sirius-XM Joint Opposition*, MB Docket No. 07-57 (hereafter "CRA FCC Report"). Our Curricula Vitae were attached as Exhibit A to this earlier report.

² For example, see CRA FCC Report at ¶2 and ¶8.

³ For example, see CRA FCC Report ¶16.

⁴ J. Gregory Sidak, *Third Supplemental Declaration* (October 1, 2007), Submitted to the FCC October 1, 2007 by The Consumer Coalition for Competition in Satellite Radio (hereinafter "Sidak 3rd Supplemental").

FOR PUBLIC INSPECTION

3. The audio entertainment market is both highly competitive and technologically dynamic. The market has experienced, and will continue to experience, substantial innovation – continuously improving products and services with new features and functionality, and new competitors. Audio entertainment sellers respond to improvements provided by other sellers with improvements of their own, which in turn spur further improvements. Competition is characterized by both the introduction of new devices and new features and also by considerable feature convergence among types of devices and services as suppliers respond to each other. For example, satellite radio has added storage capacity and XM's partnership with Napster facilitates sales of downloads. Terrestrial radio has reduced the number of commercials and has improved sound quality and variety with the introduction of HD radio. iPods and MP3 players are introducing WiFi access, and subscription services are providing a wider array of audio selections. Indeed, Clear Channel's HD channels are beginning to allow songs to be flagged for downloading through the iTunes Music Store, similar to what XM does with Napster. Wireless phones have become audio-enabled and offer both audio streaming and downloading, including the type of services provided on radio. Sirius, XM and Clear Channel all sell their content on a wholesale basis to wireless phone companies in competition with others. At the same time, automobile companies are integrating iPods and wireless phones into their sound systems, increasing the scope of audio competition in vehicles.
4. Defining the relevant market is not the main goal of merger analysis, but a step that can throw light on the ultimate inquiry – determining the competitive impact of a proposed merger. As discussed in the recent Commentary on the Horizontal Merger Guidelines from the Federal Trade Commission and Department of Justice, "Agencies do not settle on a relevant market definition before proceeding to address other issues. Rather, market definition is part of the integrated process by which the Agencies apply Guidelines principles, iterated as new facts are learned, to reach an understanding of the merger's likely effect on competition."⁵
5. In this case, the evidence demonstrates that competition in the market for audio entertainment is already robust and is increasing over time. The merger of Sirius and XM will be procompetitive and will lead to consumer benefits, not consumer harm. As discussed in our earlier report, the merger will lead to an increase in the number of subscribers of the merged firm, not a decrease in output. The merger will likely reduce prices and increase quality, relative to what one would expect if the merger does not occur. The merger will lead to a variety of merger-specific efficiencies, including product improvements, lower costs, and incentives for deeper penetration pricing and

⁵ Federal Trade Commission and U.S. Department of Justice, *Commentary on the Horizontal Merger Guidelines* (March 2006) (hereinafter, "Merger Commentary") at 5.

FOR PUBLIC INSPECTION

other demand-enhancing and cost-reducing investments. Rather than reducing competition, the merger will create an additional spur to competition in the audio entertainment market. In fact, even if the market were erroneously defined to be satellite radio, it is clear that the merged firm will face continued and increasing inter-modal competition. For all these reasons, we conclude that consumer welfare likely will increase.

6. Sidak has criticized these conclusions and the analysis we used to support them. However, as demonstrated throughout this paper, Sidak's own analysis is contrary to sound merger analysis in general and the Merger Guidelines in particular. Sidak misunderstands or misstates the basic market definition methodology in the Merger Guidelines and rejects categories of evidence typically used in merger analysis. Sidak also mistakenly thinks that our analysis of dynamic demand is inconsistent with the Merger Guidelines. In fact, our analysis of market definition and dynamic demand spillovers is perfectly consistent with the Merger Guidelines' dictate that analysts should apply "the standards of the Guidelines reasonably and flexibly to the particular facts and circumstances of each proposed merger."⁶
7. Sidak says that the "traditional SSNIP calculus" is focused on the short-term.⁷ Sidak misreads the Merger Guidelines if he thinks that the *ssnip* analysis involves only a short-term price increase or requires consideration of only the short-run profits of the hypothetical monopolist. That is not what the Merger Guidelines say and for good reason. Taking this approach would lead to "misleading answers to the economic questions raised under the antitrust laws."⁸
8. In fact, the "hypothetical monopolist" test for market definition in the Merger Guidelines focuses on the profitability of a "non-transitory" price increase, which the Guidelines state is "lasting for the foreseeable future," not just for a single quarter or a single year.⁹ Nor does the hypothetical monopolist test focus on short-term profitability. Instead, it asks whether the non-transitory price increase would be "in the economic interest" of the

⁶ U.S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines* (Issued April 2, 1992, Revised April 8, 1997) (hereinafter "Merger Guidelines") at §0.

⁷ Sidak 3rd Supplemental at ¶77.

⁸ Merger Guidelines at §0.

⁹ The Merger Guidelines state, "[i]n attempting to determine objectively the effect of a "small but significant and nontransitory" increase in price, the Agency, in most contexts, will use a price increase of five percent lasting for the foreseeable future." Merger Guidelines at §1.11.

hypothetical monopolist, that is, whether it likely would be undertaken by a profit-maximizing firm.¹⁰

9. The “traditional calculus” that Sidak describes seems to rely on the now-outmoded methodology of the 1982 Merger Guidelines, which focused on buyer shifts within one year of the price increase.¹¹ However, this older methodology was replaced in 1992 by the more rigorous formulation of whether the “profit-maximizing” hypothetical monopolist (the “only present and future seller”) likely would implement a *ssnip*, that is, a “small but significant and non-transitory increase in price,” a price increase “lasting for the foreseeable future.”¹²
10. Sidak compounds his error by saying that the hypothetical monopolist test must focus solely on the response of current customers and should ignore the responses of potential new customers.¹³ This is not what the Merger Guidelines say and that approach would not constitute a sound antitrust analysis of a merger involving firms whose sales are rapidly growing. It obviously would make no economic sense for the hypothetical monopolist to ignore the responses of potential new customers to its non-transitory price increase. Those responses could have a large effect on the profitability of a price increase lasting into the foreseeable future. Sidak’s preferred analysis could lead to nonsensical relevant markets.
11. Sidak also misapplies the proper standards for determining what evidence is relevant and informative for evaluating market definition. The Merger Guidelines make it clear that the analysis should “take into account all relevant evidence, including, but not limited to, the following: (1) evidence that buyers have shifted or have considered shifting purchases between products in response to relative changes in price or other competitive variables; (2) evidence that sellers base business decisions on the prospect of buyer substitution between products in response to relative changes in price or other competitive variables; (3) the influence of downstream competition faced by buyers in their output markets; and (4) the timing and costs of switching products.”¹⁴ The courts similarly examine a wide array of economic evidence.

¹⁰ Merger Guidelines at §0.1.

¹¹ U.S. Department of Justice, *1982 Merger Guidelines* (hereinafter “1982 Merger Guidelines”) available at <http://www.usdoj.gov/atr/hmerger/11248.htm> (last visited October 31, 2007), at §II.A.

¹² Merger Guidelines §1.11.

¹³ Sidak 3rd Supplemental at ¶55, 63-64.

¹⁴ Merger Guidelines at §1.11.

FOR PUBLIC INSPECTION

12. For example, despite this clear directive, Sidak rejects as irrelevant the evidence of buyer substitution from terrestrial radio to satellite radio in response to changes in the competitive landscape, including improvements in the programming quality offered by satellite radio providers and buyer learning about satellite radio. Sidak also rejects evidence of seller responses on the spurious grounds that this is “supply-side” evidence, despite the Merger Guidelines’ clear statement that evidence of seller business decisions made in the prospect of buyer substitution is probative. In addition, as explained in this paper, Sidak also misinterprets other evidence that we have presented.
13. Sidak suggests that the best evidence would be a reliable econometric estimate of the own-elasticity of demand for satellite radio.¹⁵ In fact, in an earlier declaration, he attempted to “estimate” this elasticity by “eyeballing” XM’s subscriber numbers before and after the 2005 price increase, a methodology that is fatally flawed for numerous reasons we pointed out in our report.¹⁶ Unfortunately, it is impossible to obtain a statistically reliable econometric estimate of the own-elasticity, since neither XM nor Sirius price discriminate, there has been only a single price increase (by XM only), the price increase was accompanied by significant simultaneous changes in XM’s product offering and pricing structure, and the price increase was more than two years ago in a market that is trending away from aftermarket equipment to OEM-installed equipment.
14. While willing to rely on his own eyeballing of the XM data, Sidak rejects our econometric study of substitution based on the relationship between satellite radio penetration and the number of terrestrial radio stations around the country. He mistakenly claims that our study does not provide useful information on consumer substitution between satellite and terrestrial radio, and that the results are undermined because the number of terrestrial radio stations is not a perfect quality measure. He also says that we left out other possible explanatory variables, some of which make no difference to the results and others that would make no econometric sense to include. None of these objections undermine the conclusions of our analysis.
15. Sidak rejects our analysis of dynamic demand spillovers based on numerous irrelevant or faulty grounds. Sidak complains that our dynamic demand analysis represents a “novel” concept, despite the fact that the analysis derives from the classic work of Frank Bass from 1967 and is included in the leading microeconomics textbook of Jean Tirole.¹⁷

¹⁵ Sidak 3rd Supplemental at ¶26 and notes to Table 2 at 36.

¹⁶ J. Gregory Sidak, *Expert Declaration of J. Gregory Sidak Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio Inc. and XM Satellite Radio Inc.*, Prepared for the Consumer Coalition for Competition in Satellite Radio (March 16, 2007), Submitted to the FCC March 28, 2007 (hereinafter “Sidak Declaration”) at ¶22 and CRA FCC Report at n. 170.

¹⁷ See CRA FCC Report, Appendix A.

FOR PUBLIC INSPECTION

Sidak complains that our analysis is “wholly theoretical,” and that we have not articulated the conditions under which the concept applies and whether those conditions are present here, despite the fact that we have identified the conditions analytically and have pointed to numerous facts that support the analysis. The main conditions can be summarized as follows:

- Satellite radio is still early in its life cycle and demand is not close to saturation. Growth has been rapid, but penetration is still low and there is still significant growth opportunity.
 - Satellite radio involves a relatively new technology and concept (“pay radio”) whose value is not obvious to many potential customers. Satellite radio depends heavily on word-of-mouth information diffusion and recommendations from satisfied subscribers to help drive demand growth. Demand also is driven by the “market buzz” generated by consumer excitement and retailer investments, which in turn also are driven by the expectation of growth.
 - Demand spillovers have significant effects on the pricing incentives of the individual firms, giving them an incentive for “penetration pricing.” As stated plainly by Sirius CEO Mel Karmazin, the firms set lower prices in order to generate a larger subscriber base and faster subscriber growth.¹⁸ This larger subscriber base in turn leads to additional growth as more current subscribers recommend and demonstrate the product to others, and more retailers invest and promote the product.
 - The demand spillovers include both “internal” and “external” spillovers. While both internal and external demand spillovers affect the pricing incentives of the hypothetical monopolist and the individual firms in the pre-merger world, the external spillovers generate incentives for post-merger price decreases and enhanced investment. Conditions in satellite radio are consistent with significant external demand spillovers. Recommendations by subscribers of each service drive demand for both services because word-of-mouth information applies to both services, auto OEMs have exclusive distribution arrangements with one or the other service, and each service has important exclusive premium content.
16. Sidak complains that we try to “evade conventional merger analysis” by applying the concept of dynamic demand spillovers to this merger.¹⁹ Quite the contrary. We are conducting a conventional merger analysis by applying the principles of the Merger

¹⁸ Sirius Satellite Radio, *Q1 2005 Earnings Call Transcript*, April 28, 2005.

¹⁹ Sidak 3rd Supplemental at ¶8.

Guidelines to the “particular facts and circumstances” of this merger, precisely what the Merger Guidelines direct should be done. As stated there,

Because the specific standards set forth in the Guidelines must be applied to a broad range of possible factual circumstances, mechanical application of those standards may provide misleading answers to the economic questions raised under the antitrust laws. Moreover, information is often incomplete and the picture of competitive conditions that develops from historical evidence may provide an incomplete answer to the forward-looking inquiry of the Guidelines. Therefore, the Agency will apply the standards of the Guidelines reasonably and flexibly to the particular facts and circumstances of each proposed merger.²⁰

Sidak apparently would prefer that the Commission ignore the facts and apply an incorrect market definition methodology in a mechanical way. Of course, such a flawed approach likely would produce misleading answers to the economic questions and an incorrect market definition. Indeed, Sidak’s preferred methodology likely would lead to finding that XM and Sirius each comprise separate “single firm” relevant markets.

17. In his most recent Declaration, Sidak again defends his advertising model and his consumer welfare analysis of that model. Sidak’s analysis remains fundamentally flawed. The analysis relies on unsupported assumptions about the value to consumers of commercial-free satellite radio and post-merger increases in the number of commercial minutes. But, even taking these assumptions at face value, Sidak ignores our earlier criticism that the firm would have an incentive to reduce its subscription price if it were to increase the number of commercials as Sidak suggests.²¹ When this pricing incentive is reckoned into the analysis, Sidak’s results are reversed. Whenever his model predicts that the additional advertising is profitable, it also implies that the firm’s profit-maximizing subscription price falls, the number of subscribers rises, and consumer welfare increases. Thus, his own model rejects Sidak’s welfare concerns about advertising on satellite radio.
18. In short, Sidak’s most recent Declaration does not weaken our conclusions.
19. This report is organized as follow. Section II discusses the Merger Guidelines’ principles for product market definition on which we relied and demonstrates that it is Sidak, and not our analysis, that departs from those principles. It also demonstrates that, contrary to

²⁰ Merger Guidelines at §0.

²¹ CRA FCC Report at ¶150.

Sidak's claims, the evidence on which we relied to conclude that the market is broader than satellite radio service is evidence customarily used in merger analysis and acceptable under the Merger Guidelines. We also supplement this with additional evidence customarily used in merger analysis. Section III discusses our analysis of dynamic demand spillovers, showing that Sidak is wrong to claim that this analysis is inconsistent with standard merger analysis or the Merger Guidelines. We also present additional evidence of the importance of both internal and external dynamic demand spillovers. Section IV analyzes Sidak's model of the effect of increased satellite radio advertising on consumer welfare. We demonstrate that his model, when analyzed properly, contradicts his opinion because it predicts an increase in consumer welfare. Section V concludes.

II. MARKET DEFINITION UNDER THE MERGER GUIDELINES: PRINCIPLES AND EVIDENCE

20. Claiming to embrace "entirely uncontroversial" principles of market definition in the Merger Guidelines, Sidak alleges that our analysis starts "from the proposition that the market-definition principles of the Merger Guidelines are fundamentally flawed."²² The truth is quite the opposite. It is Sidak who departs from the Merger Guidelines by narrowing the hypothetical monopolist test for product market definition only to the short-term impact of a price increase on current subscribers only.
21. Sidak also claims that our evidence that the relevant product market is broader than satellite radio is not acceptable under the standards of the Merger Guidelines. To the contrary, Sidak's analysis of our evidence (a) misapplies the Merger Guidelines standards for determining what evidence is relevant and informative for evaluating market definition; (b) improperly rejects our econometric evidence of substitution based on the inverse relationship between satellite radio penetration and the number of available terrestrial radio signals; and (c) unreasonably faults our analysis for failing to provide econometric estimates of price elasticity, without acknowledging that elasticities cannot be reliably estimated given the facts and history of this industry.
22. As we shall show, his assertions rest on, at best, a misreading of the Merger Guidelines, and a misunderstanding or distortion of our analysis and evidence. Indeed, Sidak's analysis fails to adequately consider the facts of this merger, an approach that the Merger Guidelines warns can produce "misleading answers to the economic questions raised under the antitrust laws."²³

²² Sidak 3rd Supplemental at ¶11.

²³ Merger Guidelines at §0.

A. The Relevant Time Period for the Hypothetical Monopolist Test for Market Definition

23. The hypothetical monopolist test used by the Merger Guidelines to define product markets begins with the specification of a hypothetical price increase; in particular, the Guidelines call for evaluating the profitability of a “small but significant and nontransitory price increase” (“*ssnip*”).²⁴ Sidak charges that we seek to “alter the traditional SSNIP calculus – namely, a comparison of short-term profits before and after a price increase – by including additional terms for the hypothetical monopolist’s long-term profits.”²⁵
24. Sidak misreads the Merger Guidelines by claiming the Merger Guidelines require consideration of only short-term profits. Embedded in the acronym “*ssnip*” is the characteristic that it is a *non-transitory* price increase. Reinforcing the point, the Merger Guidelines of 1992 (revised 1997) go on to say that the Agency’s analysis implementing a hypothetical monopolist or *ssnip* test will use a price increase “lasting for the foreseeable future” and that the hypothetical monopolist is the “only present and future” seller.²⁶ The language of the Merger Guidelines is clear; the *ssnip* is *not* a short-term price increase that lasts only a single quarter or a single year.
25. Contrary to Sidak’s insistence that only the short-term profit impact of a short-term increase matters, the Merger Guidelines expressly ask whether a “hypothetical profit-maximizing firm that was the only present and future seller of those products (‘monopolist’) *likely would* impose at least a ‘small but significant and non-transitory’ increase in price.”²⁷ By “likely would,” the Guidelines are evaluating whether the price increase (“lasting for the foreseeable future”) would be in the “economic interest” of a profit-maximizing hypothetical monopolist.²⁸ Nowhere do the Merger Guidelines suggest that the hypothetical monopolist would consider only *short-term* profits when setting a price that would last for the foreseeable future. Nor would it be economically rational for

²⁴ Merger Guidelines at §1.0.

²⁵ Sidak 3rd Supplemental at ¶77.

²⁶ The Merger Guidelines state, “[i]n attempting to determine objectively the effect of a “small but significant and nontransitory” increase in price, the Agency, in most contexts, will use a price increase of five percent lasting for the foreseeable future.” Merger Guidelines at §1.11.

²⁷ Merger Guidelines at §1.11, emphasis added.

²⁸ Merger Guidelines at §0.1 (“the analysis is focused on whether consumers or producers ‘likely would’ take certain actions, that is, whether the action is in the actor’s economic interests”) and §1.0 (A market is defined such that “a hypothetical profit-maximizing firm...that was the only present and future producer...likely would impose” a *ssnip*). The Merger Guidelines expressly assume that the hypothetical monopolist will “pursue maximum profits in deciding whether to raise the prices of any or all of the products under its control.” Merger Guidelines at §1.11.

the hypothetical monopolist, or any other firm, to consider only the near-term profit consequences of a non-transitory price increase if those differed from the total impact of its choice of price on profits over time.²⁹

26. Sidak's so-called "traditional SSNIP calculus" actually appears to be an outmoded formulation explicitly replaced fifteen years ago by a newer formulation of the hypothetical monopolist test for market definition.³⁰ The 1982 Merger Guidelines were closer to Sidak's approach, stating that "as a first approximation, the Department will hypothesize a price increase of five percent and ask how many buyers would be likely to shift to the other products within one year."³¹ However, this 1982 formulation was replaced entirely in the 1992 Merger Guidelines (and the 1997 revision) by language calling for an analysis of the profit-maximizing hypothetical monopolist's incentives to institute a price increase lasting "for the foreseeable future."³²
27. Were the hypothetical monopolist erroneously assumed to consider myopically only short-run effects, then the market definition *ssnip* test would have no grounding in real world market conditions and would not reflect the real world pricing incentives of the merged firm or of the hypothetical monopolist. Such a divergence of analysis and fact would, as the Merger Guidelines warn, "provide misleading answers to the economic questions raised under the antitrust laws" in many instances, including this one.³³ In sum, the principles articulated in the Merger Guidelines are not consistent with Sidak's call for

²⁹ The notion that it is not always optimal for firms to maximize profits in the short-term is not novel. For example, Greg Werden has written: "Short-run profit maximization is a reasonable assumption in most cases, but the pursuit of longer run objectives may take precedence over short-run profit maximization. For example, prices are sometimes set below the short-term profit maximizing level to build market share, and such possibilities must be considered." *Demand Elasticity in Antitrust Analysis*, 66 Antitrust L.J. 363 (1998) at 381. The specific example cited by Werden may or may not involve dynamic spillovers, but his general point applies in any case.

³⁰ Sidak 3rd Supplemental at ¶77.

³¹ 1982 Merger Guidelines at §II.A.

³² This formulation of the hypothetical monopolist test in the 1992 (and 1997) Merger Guidelines represents a clear evolution of the analytic framework from earlier versions of the Guidelines. The 1982 Merger Guidelines stated that, "as a first approximation, the Department will hypothesize a price increase of five percent and ask how many buyers would be likely to shift to the other products within one year." 1982 Merger Guidelines at §II.A. The 1984 Merger Guidelines involved some evolution, and introduced some ambiguity, by referring to the *ssnip* as a price increase lasting for one year "in most contexts." US Department of Justice, 1984 *Merger Guidelines* (hereinafter "1984 Merger Guidelines") available at <http://www.usdoj.gov/atr/hmerger/11249.htm> (last visited November 4, 2007) at §2.11. This ambiguity was eliminated in the 1992 Guidelines, which changed the language to refer to what the hypothetical monopolist "likely would" do and to make it clear that the *ssnip* typically is a price increase "lasting for the foreseeable future." This change was not an accident. See Gregory Werden, *The 1982 Merger Guidelines and the Ascent of the Hypothetical Monopolist Paradigm*, 71 Antitrust LJ 153, n. 19 (2003).

³³ Merger Guidelines at §0.

an analysis limited to short-term profitability. Restricting the analysis in this way would lead to erroneous answers and flawed public policies.

B. Evaluating the Impact on Potential and Current Subscribers

28. Sidak compounds his error by asserting that the hypothetical monopolist test must focus exclusively on the response of current subscribers; in his words, “the only class of customers whose elasticity matters for defining the relevant product market under the Merger Guidelines is existing SDARS customers.”³⁴ Sidak insists that we violate the standards of the Merger Guidelines by claiming that evidence on substitution by prospective satellite radio subscribers is relevant to market definition.³⁵ He expresses surprise that we could “misunderstand a concept so fundamental” to product market definition as that “one must determine whether those existing customers – not potential customers – would be willing to substitute to alternatives in response to a small but significant an [sic] increase in the price of those services.”³⁶
29. Sidak, however, provides no citation for the asserted “fundamental” concept that the Merger Guidelines do not allow consideration of the effect of the *ssnip* on potential as well as existing customers. Nor could he. The Guidelines direct that the hypothetical monopolist test determine if a *ssnip* is profit-maximizing for the hypothetical monopolist, with no limitation placed on which customers should be considered.³⁷ And they warn that “the picture of competitive conditions that develops from historical evidence may provide an incomplete answer to the forward-looking inquiry of the Guidelines.”³⁸ Therefore, in order to be consistent with the Merger Guidelines approach, one must consider all responses by *all* customers (both actual and potential customers) that would affect the

³⁴ Sidak 3rd Supplemental at ¶6, emphasis in original. Also see Sidak 3rd Supplemental at ¶63.

³⁵ Sidak 3rd Supplemental criticizes our use of evidence on prospective subscribers at, for example, ¶63 (switching costs faced by prospective satellite radio customers); ¶55 (evidence of supplier responses is relevant only if it indicates how current satellite radio subscribers would react to a price change); and ¶64 (the preferences of prospective satellite radio subscribers for commercials or nationwide availability of satellite radio is irrelevant as a matter of merger law).

³⁶ Sidak 3rd Supplemental at ¶63. Sidak goes on to assert that existing satellite radio subscribers are “the only class of customers whose elasticity matters for defining the relevant product market under the *Merger Guidelines*...” *Id.*

³⁷ The Merger Guidelines say that the hypothetical monopolist test begins with each product sold by the merging parties and asks what will happen if the hypothetical monopolist imposes a *ssnip*. The Guidelines, however, say nothing about looking only at the impact of this price increase on existing customers. Instead, they say that the test is to ask if, “in response to the price increase, the reduction in sales of the product would be large enough that a hypothetical monopolist would not find it profitable to impose such an increase in price....” Merger Guidelines at §1.11.

³⁸ Merger Guidelines at ¶0.

profitability of the non-transitory price increase. This approach of the Guidelines also makes economic sense, as it is founded on how a profit-maximizing firm would behave.

30. A profit-maximizing firm in the satellite radio business certainly must consider the impact of a price increase on prospective as well as current subscribers. Both satellite radio companies are adding new subscribers by the hundreds of thousands each quarter. The price of satellite radio service affects how many potential new subscribers actually will sign up next month and in the months and quarters after that. The response of potential subscribers who would choose not to subscribe if price were increased will affect the profitability of that increase, both for the stand-alone Sirius and XM, and for the hypothetical monopolist used in the market definition test.³⁹
31. Sidak also is wrong to claim that a focus on the switching costs faced by current subscribers to Sirius and XM would lead to a market comprised solely of satellite radio.⁴⁰ In fact, as discussed in our earlier report, any “lock-in” created by these switching costs applies to XM or Sirius *individually*, rather than to satellite radio generally.⁴¹ These switching costs reduce substitution between XM and Sirius. If anything, focusing on the switching costs only of current subscribers might well lead to a conclusion that XM and Sirius should each be placed in separate, *single-firm* relevant markets. So small a fraction of *current subscribers* might substitute away in response to a significant and non-transitory price increase by one service to make the increase profit-maximizing, if only current subscribers were considered, since each firm currently sets prices by considering its effects on potential as well as current subscribers.⁴²

³⁹ In a mature industry that is not adding new customers and faces static competitive conditions, only the responses of existing customers might need to be considered to evaluate the profitability of a snip. But that is not the case for satellite radio. Indeed, given the growth rates and churn rates of XM and Sirius, a large fraction of the current subscriber base at the end of 2008 likely will have subscribed in 2007 and 2008 and were not part of the base at the end of 2006. This can be illustrated with a simplified example. Suppose that the churn rate is 20% and the gross addition rate is 40%. Suppose further that one firm started with 100 customers at the end of 2006 and gained 40 in 2007. At the end of 2007, it would have 120 subscribers – that is, the 40 new subscribers plus 80 left from the original 100 in 2006 (having lost 20). At the end of 2008, it would have 144 subscribers, that is, 48 new subscribers (i.e., 40% of 120) plus 96 from the 120 remaining from 2007 (having lost 24). Those 96 would be comprised of 64 from the 2006 base plus 32 left from the new subscribers joining in 2007. Thus, of those 144 subscribers at the end of 2008, only 64 were part of the base in 2006, or 44%.

⁴⁰ Sidak 3rd Supplemental at ¶63.

⁴¹ CRA FCC Report at ¶74.

⁴² This outcome is even more likely when the analysis takes into account penetration pricing incentives. Due to the presence of dynamic demand spillovers, XM and Sirius currently set relatively low “penetration prices” to encourage growth. Therefore, short-term profits earned solely from current subscribers might well rise following a unilateral price increase by a single firm’s service. The use of penetration pricing is a relevant factor when testing for market definition, both because it affects the level of current, pre-merger prices that is the benchmark, and

32. Furthermore, if market definition tests based only on current subscribers did not place each firm in a single-firm relevant market, the analysis likely would expand each candidate market beyond satellite radio rather than to the other satellite radio firm. When subscribers to one satellite radio service deactivate their service, only a small fraction substitute to listening to the other satellite radio service. [REDACTED] of disconnecting subscribers switch to the other satellite radio service. [REDACTED]
33. Properly applying the principles of the Merger Guidelines to the “particular facts and circumstances” of the proposed merger – as the Guidelines say must be done – requires that the analysis consider the impact of a non-transitory price increase on prospective subscribers as well as current subscribers.⁴³ One can think of different industries with different facts – perhaps industries that are declining or adding no new customers – where a price increase would affect only current customers. But those are not the facts of satellite radio. Like his view that the analysis should be restricted to short-term profitability, Sidak’s rejection of evidence on demand by prospective satellite radio subscribers is inconsistent with the Merger Guidelines and rigorous economic analysis.⁴⁴

C. Market Definition Evidence

34. Sidak misapplies the proper Merger Guidelines standards for what evidence is relevant and informative for evaluating market definition. He demands evidence that history has not provided and rejects relevant information that exists and that we supplied. And having done so, he claims that we have failed to provide evidence that is acceptable (by his unique standards) to demonstrate that the relevant market is broader than satellite radio services. This section shows that Sidak’s attempt to prevent the Commission from examining the customary evidence analyzed in merger review is inconsistent with mainstream economics, the Merger Guidelines, and relevant antitrust precedent.

because the hypothetical monopolist’s profit-maximizing price will be affected by the magnitudes of subscriber growth and of dynamic spillovers (both internal and external).

⁴³ Merger Guidelines at §0.

⁴⁴ Sidak’s discussion makes it clear this would affect the conclusions. As he explains, “[t]here can be no doubt that the cross-price elasticity of demand of potential SDARS customers (between SDARS and HD radio) is more sensitive than that of existing SDARS subscribers.” Sidak 3rd Supplemental at ¶63.

1. Market Definition Must Rely on Available Evidence

35. Sidak claims that our report fails to present the direct demand-side evidence of buyer substitution that is needed to show the market is broader than satellite radio service.⁴⁵ He implies that the only acceptable evidence consists of estimates of the own-price elasticity of demand for satellite radio services, or of the relevant cross-price elasticity of demand, and he faults our Report for not providing such evidence.⁴⁶
36. Sidak's own track record on such evidence provides an appropriate warning. In his first Declaration, Sidak attempted to "estimate" or quantify this elasticity by "eyeballing" XM's growth and churn rates before and after the 2005 price increase.⁴⁷ Our previous report pointed out numerous methodological flaws in Sidak's exercise and concluded that it failed to provide reliable evidence on the elasticity of demand for XM or for satellite radio.⁴⁸ Sidak subsequently claimed that he never intended to offer a "point estimate for the actual elasticity of demand facing a hypothetical monopoly provider of SDARS," and he apparently does not now claim to have an estimate of the own-price elasticity of demand for satellite radio.⁴⁹
37. The facts make it impossible for either Sidak or us to develop reliable econometric estimates of these price elasticities. Unfortunately, it is impossible in this matter to obtain a reliable econometric estimate of the own-elasticity for satellite radio. The reasons for this include the following.
- Lack of cross-sectional variation or other price discrimination in the subscription prices offered to subscribers.
 - No price changes by Sirius since its entry in 2001.

⁴⁵ For example, see Sidak 3rd Supplemental at ¶2.

⁴⁶ Sidak 3rd Supplemental at ¶26. Also see note to Table 2, where these elasticities are the only examples given of acceptable evidence on buyer substitution in response to a change in prices or quality-adjusted prices. Sidak 3rd Supplemental at p. 36.

⁴⁷ Sidak Declaration at ¶22.

⁴⁸ CRA at note 170. See also Thomas W. Hazlett, *The Economics of the Satellite Radio Merger* (June 14, 2007) at 30-31 (commenting on Sidak's analysis of this information).

⁴⁹ J Gregory Sidak, *Second Supplemental Declaration of J Gregory Sidak*, Attachment A to *Response of the Consumer Coalition for Competition in Satellite Radio* (July 24, 2007), MB Docket No. 07-57 (hereinafter "Sidak 2nd Supplemental") at ¶25, stating that his earlier statement was not offered as a "point estimate for the actual elasticity of demand facing a hypothetical monopoly provider of SDARS" but was "intended to demonstrate the general insensitivity of demand for SDARS." The defects of his earlier analysis, however, mean that it cannot provide a reliable indication even of the "general insensitivity of demand for SDARS." Also see Sidak 3rd Supplemental at ¶26, which does not offer any estimate of elasticity.

- Only a single price change by XM, in 2005.
- Other XM changes at the time of the price increase: beginning to broadcast all Major League Baseball games; changing its price structure (offering Opie & Anthony and internet access as part of the basic service package, rather than for additional charges); changing the relationship between the charge for a first and additional (family plan) radios; permitting subscribers to “grandfather” previous subscription price by prepaying for a period of time.⁵⁰
- Changes in Sirius programming to which consumers were reacting at the time of the XM price increase.⁵¹
- Introduction of new iPod models within a few months of the XM price increase.

Given these and other complications, it is impossible from this single episode reliably to estimate the demand elasticity for XM, let alone an own-price demand elasticity of satellite radio.⁵²

38. Furthermore, even if it were possible to obtain reliable estimates of demand elasticities as of 2005, conditions since then have changed sufficiently that one could not presume those elasticity estimates would be meaningful or accurate for predicting pricing incentives and behavior in 2008 and beyond. Since 2005, the competitive landscape has changed. Many more consumers have iPods or other MP3 players, and new related services to deliver content have developed since 2005.⁵³ Mobile telephone providers have introduced mobile phones that access, play, and store music and other audio programming, as well as services to deliver such content.⁵⁴ HD radio has been introduced and the number of

⁵⁰ Given the additional programming that was made available at this time and the change in the price structure, it is possible that the \$3 increase in the base subscription fee actually involved a reduction in the quality-adjusted price, not an increase.

⁵¹ Sirius had announced a few months earlier that Howard Stern would broadcast on Sirius. Stern began to broadcast on Sirius in January 2006.

⁵² There are still other estimation difficulties. Terrestrial radio service is free, so there have been no variations in that price. (There is, however, geographic variation in the quality of terrestrial radio service, and we provided evidence exploiting this information, as discussed below.) Prices of wireless phones and iPods/MP3 players have changed, but there have been large improvements in the quality of these products, as there have been for Sirius and XM. The demand for equipment and subscriptions also are linked. In addition, econometric estimation is made much more complicated because of the dynamic demand spillovers, as well as the continuous product introductions and product improvements in many of the products that compete with the satellite radio services.

⁵³ See CRA FCC Report at, for example, ¶19 and ¶41-42.

⁵⁴ See CRA FCC Report at ¶37-39. Sidak criticizes this evidence, arguing that it is difficult to play content on a mobile phone in a car, and audio services are too costly after adding the cost of data packages to be substitutes. Sidak 3rd Supplemental at ¶43-47. But mobile phones often can be connected to vehicle audio systems using the auxiliary jacks available in many new vehicles and appropriate cables and plug adapters or using a wireless

channels is growing rapidly, while HD radio equipment is becoming less expensive and now is increasingly becoming available in vehicles.⁵⁵ Finally, the demand for satellite radio itself has evolved, with substantial shifts in the relative importance of the aftermarket and OEM channels.⁵⁶

39. This situation differs from those in cases where demand elasticities have been estimated for mature industries using information on variation in prices and sales over time or locations or both.⁵⁷ In this matter, there are no good natural experiments for estimating the own-price elasticity for satellite radio. (Nevertheless, as discussed below, we were able to use another natural experiment – geographic variation in the number of terrestrial radio signals and satellite radio penetration – to generate reliable econometric evidence that consumers view satellite and terrestrial radio as substitutes.)
40. Moreover, Sidak is mistaken to suggest that the Commission should not consider other evidence. The Merger Guidelines do not exclude the use of other information where reliable econometric evidence of demand elasticities is unavailable. Indeed, other evidence typically is used even in investigations and cases where econometric estimates have been available.⁵⁸ The Merger Guidelines say that, “the Agency will take into

Bluetooth connection when that is available. They also can be connected to new systems that are being developed, such as the Sync system developed by Ford and Microsoft. (For discussion of the capabilities of the Sync system, see Kevin Massy, *Ford and Microsoft in Sync for in-car infotainment*, CNET Reviews (January 7, 2007), available at http://reviews.cnet.com/8301-12760_7-9672096-5.html (last visited October 31, 2007) and Thom Cannell, *2008 Ford Focus Sync Review*, TheAutoChannel.com, available at <http://www.theautochannel.com/news/2007/10/08/066147.html> (last visited October 31, 2007).) As for the cost of mobile phone data packages, Sidak fails to acknowledge that these costs will not represent incremental costs of audio content for many consumers. Such packages provide access to data-based services besides audio content and an increasing number of mobile phone subscribers are using such data services. Similarly, the Sprint Power Vision services provide subscribers access to a variety of services other than audio content. See CRA FCC Report at ¶39.

⁵⁵ See CRA FCC Report at ¶32-33. Since then, the number of HD stations have grown from about 1350 near the end of July to 1520 as of October 31, 2007. See http://www.ibiquity.com/hd_radio/hdradio_find_a_station (last visited October 31, 2007). In addition, Ford recently announced that it is making HD Radio equipment available on nearly all 2008 models – and for many 2005, 2006, and 2007 models as well. Ford Motor Company Press Release, *Ford to Make HD Radio Available Across Nearly All Product Lines* (September 26, 2007) available at http://media.ford.com/newsroom/feature_display.cfm?release=26070 (last visited October 31, 2007).

⁵⁶ For evidence, see CRA FCC Report at ¶105 and the further discussion and evidence below.

⁵⁷ For example, see *New York v. Kraft General Foods, Inc.*, 926 F.Supp.321 (S.D.N.Y. 1995). See also the matters listed by the Merger Commentary at 9, 14, 29-31.

⁵⁸ For example, see *Federal Trade Commission v. Staples, Inc.*, 970 F. Supp. 1066 (D.D.C. 1997); *New York v. Kraft General Foods, Inc.* The Department of Justice and the Federal Trade Commission make it clear in their Merger Commentary that they rely on non-econometric, as well as econometric, evidence. The Merger Commentary states that, “In the vast majority of cases, the Agencies largely rely on non-econometric evidence, obtained primarily from customers and from business documents.” Merger Commentary at 9.

account *all* relevant evidence, including, but *not* limited to, the following,” and then lists several categories of evidence, including: (1) evidence that buyers have shifted or have considered shifting purchases between products in response to relative changes in price or other competitive variables; (2) evidence that sellers base business decisions on the prospect of buyer substitution between products in response to relative changes in price or other competitive variables; (3) the influence of downstream competition faced by buyers in their output markets;⁵⁹ and (4) the timing and costs of switching products.⁶⁰

41. The Merger Guidelines are not alone in allowing a variety of types of evidence to be used. The FCC also has considered other evidence where it was not possible to perform a “quantitative demand” analysis. For example, in its Memorandum Opinion and Order considering the merger of Verizon and MCI, the Commission stated:

“We note that the evidence in the record is insufficient for us to perform a quantitative demand analysis to estimate the likely consumer response to a small but significant change in the price of a particular service. Instead, we consider indicia of demand substitution between possible services, including: (1) the attributes and relative prices of possible competing services; (2) evidence that consumers view the possible competing services similarly, and have shifted or have considered shifting purchases between these services in response to relative changes in price or other competitive variables; (3) evidence that service providers consider the prospect of buyer substitution between services in response to relative changes in price or other competitive variables; and (4) the costs a consumer could incur to substitute between traditional services and services provided on an alternative platform.”⁶¹

42. In a recent article on market definition cited in our report and apparently endorsed by Sidak, Professor Baker identifies five categories of evidence that may be used to evaluate buyer substitution patterns in the event of an increase in price.⁶² One category consists of the responses of buyers to changes of relative prices in the past, a category which will be

⁵⁹ This evidence is less relevant here because most subscriptions are to final consumers.

⁶⁰ Merger Guidelines at §1.11.

⁶¹ Federal Communications Commission, *Verizon Communications Inc. and MCI, Inc. Applications for Approval of Transfer of Control, Memorandum Opinion and Order*, WC Docket No. 05-75 (November 17, 2005) at n. 251, citing the Merger Guidelines at §1.11.

⁶² Jonathan B. Baker, *Market Definition: An Analytical Overview* 74 Antitrust L.J. 129 (2007) at 139-141. Cited by CRA FCC Report at ¶29; also see Sidak 3rd Supplemental at ¶57 and n. 74.

in short supply in this case for the reasons just discussed. But Professor Baker also identifies other categories of useful evidence on buyer substitution. These are: (a) survey evidence on buyers' responses to price changes; (b) information about the characteristics of products, including information about switching costs, from which buyer substitution patterns may be inferred; (c) evidence on how sellers respond, including evidence of how "firms monitor and respond to the price changes and new product introduction of rival sellers," and (d) evidence of the views of industry experts.⁶³ Professor Baker's last two categories involve "relying on informed actors other than buyers to assess and integrate the direct evidence as to buyer substitution."⁶⁴

43. Furthermore, Professor Baker is clear that, within each category, various types of evidence may be used, even though, in Professor Baker's words some types of evidence "can be used to calibrate the magnitude of the likely buyer response to a specific percentage price increase more closely than can others."⁶⁵ Professor Baker notes that the "quantitative aspects of the market definition approach of the Merger Guidelines provide conceptual clarity, but they do not mandate a systematic preference for quantitative evidence."⁶⁶
44. This is the approach that we followed in our analysis, drawing on the evidence that was available as a practical matter. Nevertheless, Sidak claims that the Commission should not use or even examine this evidence, even though such evidence is routinely used by the antitrust enforcement agencies in accordance with the Merger Guidelines and is accepted by the courts.

2. Cross Section Econometric Evidence of Demand Substitution between Terrestrial and Satellite Radio

45. While it is impossible to obtain reliable econometric estimates of demand elasticities here, we were able to use a natural experiment – geographic variation in the number of terrestrial radio signals – to generate reliable econometric evidence that consumers view satellite and terrestrial radio as substitutes. We found a systematic inverse relationship between satellite radio penetration and the number of terrestrial radio signals available in different areas – satellite radio penetration was lower where there were more AM and FM

⁶³ Jonathan B. Baker, *Market Definition: An Analytical Overview* 74 Antitrust L.J. 129 (2007) at 139-141.

⁶⁴ *Id.*

⁶⁵ Jonathan B. Baker, *Market Definition: An Analytical Overview* 74 Antitrust L.J. 129 (2007) at n. 63.

⁶⁶ *Id.*

stations. This analysis was discussed in our previous report filed with the FCC; further details are provided in Appendix A to this report.⁶⁷

46. This analysis examined the geographic variation across ZCTAs (Census Bureau areas that closely approximate ZIP codes) in satellite radio penetration and the number of terrestrial radio signals received. We analyzed how variation in the number of terrestrial radio signals received – and thus in the relative quality of terrestrial radio versus satellite radio – affects the demand for satellite radio service, holding constant the price of satellite radio.⁶⁸ A larger number of terrestrial radio signals reduces the quality advantage of satellite radio relative to terrestrial radio.
47. If consumers view satellite radio and terrestrial radio as substitutes, the proportion of consumers purchasing satellite radio should fall with increases in the number of AM/FM signals (which is a proxy for the relative quality of terrestrial radio), *ceteris paribus*.⁶⁹ This inverse relationship is exactly what is displayed in Figure B2 of our earlier Report. Controlling for other factors that affect the demand for satellite radio – such as income, the percentage of people in each ZCTA who live in urban areas, the percentage who are female, the percentage who commute by car, and the interaction between the percent commuting by car and the percentage living in urban areas – satellite radio penetration falls as the number of AM/FM signals available to consumers increases.⁷⁰ This is strong evidence that satellite radio and terrestrial radio are seen by consumers as substitutes.

⁶⁷ CRA FCC Report at ¶28 and Exhibit B.

⁶⁸ Sidak seems to concede that our analysis could provide information on buyer substitution in response to changes in the relative quality of terrestrial radio and satellite radio. He does not, however, acknowledge that this is evidence that consumers view the two as substitutes. Sidak 3rd Supplemental at ¶29-30.

⁶⁹ We can use a simple analogy to illustrate the idea. Assume that Hershey Chocolate Bars sell for the same price everywhere, while the price of Mars Bars varies from city to city. One could infer that consumers consider Mars Bars and Hershey Chocolate Bars to be substitutes by observing whether, all else equal, the sales of Mars Bars are lower in areas where its relative price is higher. One could exploit time-series or cross-sectional variation in the relative prices and sales to analyze buyer substitution econometrically and to obtain estimates of demand elasticity. Alternatively, assume that there is no variation in the prices of Mars Bars and Hershey Chocolate Bars, but instead that the size of Mars Bars varies geographically, while that of a Hershey Chocolate Bar does not. In this situation, the relative quality of the two products changes as the size of a Mars Bar changes. Evidence that, all else equal, consumers purchase fewer Hershey Bars in areas where Mars Bars are larger, and thus its relative quality is greater, is likewise evidence that consumers view the products as substitutes. This is true even though size is not a perfect proxy for value. By exploiting geographic variation in the number of terrestrial radio signals and satellite radio penetration, our econometric analysis does this. Note, however, that this analysis provides information on substitution only between satellite radio and terrestrial radio as the relative quality of these two substitutes change. An increase in the price of satellite radio would induce substitution not only to terrestrial radio, but also to the other substitutes we have cited.

⁷⁰ CRA FCC Report at ¶28 and Table B2.

48. Sidak, however, denies that our results are evidence that satellite radio and terrestrial radio are substitutes. He presents three objections. First, he says the relationship “ultimately is uninformative because it does not capture buyer substitution between terrestrial radio and SDARS in response to a relative change in price.”⁷¹ Second, he denies that the number of terrestrial radio stations is a proxy for the quality of terrestrial radio service. Third, he claims the analysis in our report fails to control adequately for various factors. All of these objections are flawed.
49. Of course the nominal prices of terrestrial radio and satellite radio do not vary across localities, so Sidak is correct that our analysis does not show the effects of changes in nominal prices. Sidak errs, however, in arguing that the systematic inverse relationship between satellite radio penetration and terrestrial radio is not evidence of buyer substitution between the two services. The Merger Guidelines explicitly recognize the relevance of evidence that buyers shift purchases between products “in response to relative changes in price *or other competitive variables*.”⁷² The Merger Guidelines do not provide a list of such competitive variables, but it is clear that, as a matter of basic economics, product quality is a relevant competitive variable.
50. Despite the explicit reference in the Merger Guidelines, Sidak is very suspicious of evidence of responses to “other competitive variables.” He states that, “A Westlaw search produces no cases that contain the words ‘other competitive variables’ and ‘Merger Guidelines.’ There is no specific or extensive discussion of what that phrase means in any antitrust treatise. Therefore, as a practical matter, any attempt to invoke the phrase should immediately tip off the antitrust agencies that the parties cannot produce evidence of buyer substitution in response to a relative change in price.”⁷³ Sidak’s Westlaw search and assertion ignore several recent antitrust cases that consider other (non-price) competitive variables.⁷⁴

⁷¹ Sidak 3rd Supplemental at n. 32.

⁷² Merger Guidelines at §1.11, emphasis added.

⁷³ Sidak 3rd Supplemental at note 19.

⁷⁴ For example, see *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098 (N.D. Cal.2004) at 1121 (“a differentiated product ‘market’ is a market in which sellers compete along more dimensions than price”); *FTC v. Tenet Health Care Corp.*, 186 F.3d 1045 (8th Cir. 1999) at 1054 (“The district court rejected the Cape Girardeau hospitals as practicable alternatives because they were more costly. In so doing, it underestimated the impact of nonprice competitive factors, such as quality.”); *FTC v. Whole Foods Market, Inc.*, 502 F. Supp. 1 (D.D.C. 2007) at 25-26 (discussing the importance of quality of service at various markets and customer substitution in response to changes in the relative quality).

51. Sidak's second objection is that the number of AM/FM stations may not be a "reasonable proxy" for the quality of listening to terrestrial radio in a given area.⁷⁵ It is surprising to find this criticism in a Declaration on behalf of the Consumer Coalition for Competition in Satellite Radio ("C3SR"). After all, the C3SR submitted for the record on this merger application data on the number of AM/FM stations in different geographic areas, using these data to measure the number of consumers in areas it labeled "unserved" and "underserved."⁷⁶ What possible relevance could this evidence have if the number of AM/FM signals were not a reasonable proxy for the quality of service available over AM/FM?
52. Sidak offers two reasons why the number of AM/FM signals might not be a good proxy for quality of AM/FM service: (1) adding stations with duplicative formats might not improve quality; and (2) our analysis did not control for variations in commercial time across stations. Neither is a reason to undermine confidence in our econometric results. There is no basis, as a matter of statistical inference, to expect that the use of the number of AM/FM signals as a proxy for quality biases the empirical results in our report in favor of finding an inverse relationship between terrestrial radio penetration and AM/FM coverage where none exists. Nor does Sidak provide a basis for concluding there would be such a bias.
53. Consider first Sidak's objection that additional stations may duplicate formats already available. We agree that quality depends on more than just the number of channels and that the number of channels is not a perfect proxy for quality. However, while this fact may weaken the relationship between the number of AM/FM stations and quality, it does not eliminate it. Not *all* additional stations duplicate available formats; one certainly expects that the number of formats available will be generally greater with 10 AM/FM signals than with two, and with 40 AM/FM signals rather than 10. Moreover, even the addition of stations with similar formats provides some increase in listener choice. It is reasonable to expect that the quality of AM/FM generally improves as the number of AM/FM stations increases, in which case the number of signals is a reasonable proxy for listening quality.
54. Indeed, Sidak's objection appears to be inconsistent with positions taken in his earlier declarations. In his first Declaration in this matter, Sidak argued that satellite radio has advantages over AM/FM because it has more channels, which appears to be based on the

⁷⁵ Sidak 3rd Supplemental at ¶30.

⁷⁶ C3SR, *Consumer Vulnerability to a Satellite Radio Monopoly in Rural, Unserved and Underserved Geographic Area* (July 9, 2007), Attached to *Petition to Deny of the Consumer Coalition for Competition in Satellite Radio*, FCC Filing, MB Docket No. 07-57 (July 9, 2007).

view that service quality increases with the number of channels available.⁷⁷ In his second Declaration, he claimed that a “significant number of satellite radio subscribers...are less likely to have a sufficient amount of terrestrial radio service by virtue of their geographic location...and would be vulnerable to an increase in the price of satellite radio” because, he claims, many “satellite radio subscribers reside in areas of below-average terrestrial radio coverage.”⁷⁸ This too suggests that quality of terrestrial radio service is lower and provides a poorer alternative to satellite radio where consumers can receive fewer terrestrial radio channels.

55. Moreover, Sidak misses the basic econometric point because his argument that additional signals may be duplicative cuts against his claim regarding statistical bias. To the extent that additional stations duplicate available formats, it reduces the magnitude of the increase in quality associated with an increase in the number of AM/FM stations. The smaller the change in relative quality associated with any given increase in the number of AM/FM signals, the less power our econometric analysis has to detect empirically a relationship between satellite radio penetration and AM/FM quality (using number of AM/FM stations as a proxy). The fact that our analysis finds a robust inverse relationship between satellite radio penetration and number of the AM/FM stations, even though the latter is not a perfect proxy for quality, reinforces confidence in our basic conclusion, not the opposite.
56. Sidak’s next objection is that our analysis failed to control for other factors that could affect variations in terrestrial radio quality across different areas, such as the amount of commercial time.⁷⁹ Omitting this variable, however, does not undermine the reliability of our conclusions under any of the three alternative statistical scenarios.
- First, it could be that the amount of commercial time and the number of terrestrial stations are statistically independent. In that case its omission could not bias our estimates of the relationship between the number of terrestrial radio stations and satellite radio penetration.
 - Second, it could be that terrestrial stations tend to run more commercials where there are more stations, and thus the dimensions of quality indicated by (a) the number of AM/FM signals and (b) the amount of commercial time are negatively related. In that case, failing to control separately for commercial time would imply that the number of AM/FM signals captures only the *net* effect of these offsetting influences on

⁷⁷ Sidak Declaration at ¶44.

⁷⁸ *Supplemental Declaration of J. Gregory Sidak*, Exhibit B, C3SR Petition (July 9, 2007) (hereinafter “Sidak Supplemental”) at ¶24-25.

⁷⁹ Sidak 3rd Supplemental at ¶30.

quality, which would be smaller than the effect of the number of signals alone. Such a relation would reduce the ability of our analysis to detect a negative relationship between satellite radio penetration and the number of AM/FM signals, and the magnitude of any estimated relationship would be biased toward finding *no relationship*. Again, our ability to find a strong inverse relationship between satellite radio penetration and number of AM/FM stations, *despite* failing to control for commercial time, would be reason to increase confidence in our conclusions.

- Third, it could be that terrestrial stations tend to run fewer commercials in areas with more stations, so the quality dimensions measured by number of AM/FM signals and commercial time are positively related. In that case, our analysis would be biased toward overstating the effect of the number of AM/FM stations *alone* on satellite radio penetration because those variables would capture *both* the direct effect on terrestrial radio quality of more AM/FM stations *and* the indirect effect of less commercial time. Since both of these effects are indicators of terrestrial radio quality, the finding of an inverse relationship between satellite radio penetration and terrestrial radio signals would still indicate an inverse relationship between satellite radio penetration and terrestrial radio quality.

57. Sidak also faults our econometric analysis for failing to control adequately for “demographic heterogeneity.”⁸⁰ Yet, he fails to identify which additional demographic controls should have been included to measure this unstated heterogeneity or to justify their inclusion.⁸¹ In fact, our econometric analysis controls for several standard demographic variables, such as median household income, percent female, and the percent of population that live in urban areas and commute by car. Nonetheless, we investigated the effect of adding additional demographic variables to our econometric analysis.⁸² We find that the analysis continues to show a strong inverse relationship between satellite radio penetration and number of AM/FM signals. This relationship is essentially the same as that presented in our previous FCC Report. The results of this analysis are reported in Appendix A.

⁸⁰ *Id.*

⁸¹ Sidak indicates that such controls should be included because one would expect them to be correlated with the number of terrestrial stations. The unaddressed, relevant question, however, is which variables should have been included because they are expected to have a direct and independent effect on satellite radio penetration for which variables included in the analysis do not control.

⁸² These additional variables are: (1) age composition by gender; (2) variation in educational attainment; and (3) the percentage of people who commute more than 45 minutes but do not use public transportation (interacted with the percentage of population who go to work by car).

58. Finally, Sidak objects that our econometric analysis fails to control for the size and growth of local “markets.” The only justification Sidak offers for including such measures as controls is that the size and growth of these areas are positively related to the number of AM/FM stations. That, however, would not be a sufficient econometric justification for including them as explanatory variables. An explanatory variable should only be included if it has a *direct and independent effect* on satellite radio penetration, *separate* from the impact of terrestrial radio quality, for which the analysis does not otherwise control.⁸³ Sidak provides no basis for thinking that size and growth of local areas have such a direct and independent effect on satellite radio penetration. Nor is there any obvious reason why they would.
59. Indeed, in the absence of a basis to expect that size and growth have a direct and independent effect on satellite radio penetration, Sidak’s justification for inclusion of these controls is, in fact, justification that these variables not be included. Including controls for which there is no justification, particularly those related only to the number of terrestrial radio stations, risks unnecessarily obscuring the relationship between terrestrial radio stations and satellite radio penetration.⁸⁴
60. In our earlier FCC filing, we presented econometric evidence that consumers view satellite and terrestrial radio as competitive substitutes. Evidence of this type is recognized by the Merger Guidelines and is consistent with that recognized in recent antitrust cases. Sidak presents no arguments to undermine our evidence.

3. Survey Evidence of Demand Substitution

61. Our report presented relevant historical switching information based on the behavior of XM and Sirius subscribers when they deactivated their subscriptions. Briefly stated, the evidence shows that [REDACTED]

- [REDACTED]

⁸³ The regression analysis presented in our report did control for some demographic characteristics that likely vary across local areas and could directly and independently affect satellite radio penetration: the percentage of population that is female, the percentage of population in each ZCTA who live in urban areas, the percentage who commute by car, and the percentage commuting by car interacted with the percentage living in urban areas. CRA FCC Report at ¶28, n. 28, Table B2.

⁸⁴ See Michael D. Intriligator, *ECONOMETRIC MODELS, TECHNIQUES, & APPLICATIONS* (Prentice Hall 1978) at 189: “In general, the best approach is to include only explanatory variables that, on theoretical grounds, *directly* influence the dependent variable and that are not accounted for by other included variables.” Emphasis in original. Also see William H Greene, *ECONOMETRIC ANALYSIS*, 4th Edition (Prentice Hall 2000) at 338 on the cost of including irrelevant variables.

- [REDACTED]
- [REDACTED]

This is evidence that satellite and terrestrial radio are viewed by consumers as substitutes.

62. The substitution patterns indicated by the survey evidence from deactivating subscribers are corroborated by information on switching costs. The Merger Guidelines discuss the relevance of information on switching costs.⁸⁸ Analysis of switching costs suggests that relatively few subscribers likely would disconnect from one satellite radio service and switch to the other in response to a small change in relative price. Suppose that XM attempted a *ssnip* of 5%, from a price of \$12.95 up to \$13.60 per month, an increase of nearly \$8 per year. Current XM subscribers would face substantial switching costs, relative to the magnitude of the *ssnip*, if they substituted to Sirius. XM subscribers would have to purchase new aftermarket Sirius receivers. We understand that the typical retail cost of new aftermarket satellite radio receiver is around \$100. This would amount to a substantial switching cost. It would take those subscribers over a decade to recover the price increase, even ignoring the time value of money.⁸⁹ OEM customers might suffer a loss in product quality, as well as switching costs, by moving to an aftermarket satellite radio from one that was fully integrated into the vehicle audio system.
63. In contrast, XM subscribers dissatisfied with the XM price increase would face no switching costs if they instead substituted to terrestrial radio or CD players, both of which

⁸⁵ [REDACTED]

⁸⁶ [REDACTED]

⁸⁷ [REDACTED]

⁸⁸ Merger Guidelines at §1.11. As noted earlier, Professor Baker’s analysis also lists switching costs as a relevant source of information on buyer substitution. Jonathan B. Baker, *Market Definition: An Analytical Overview* 74 Antitrust L.J. 129 (2007) at 140.

⁸⁹ There are some “entry-level” radios with fewer features that may be available for \$30 or so. Even at that price, it would take nearly four years to recoup that switching cost.

come installed in every vehicle. Those XM subscribers who already own an iPod or MP3 player, or a wireless phone with memory to store MP3s and subscriptions to the relevant services, would face no switching costs to listen to these alternatives outside of vehicles.⁹⁰ Their only switching costs to listen in vehicles would be the cost of the cables or FM transmitter to connect the vehicle sound system, if they did not already have them.⁹¹ That switching cost would be far below the \$100 or more switching cost to purchase a Sirius receiver.

64. Sidak discounts our conclusions based on the conjecture that most of the disconnecting subscribers in the surveys we cite were reaching the end of an OEM trial period. The behavior of such consumers, he says, provides no information on self-paying satellite radio subscribers who end their subscriptions.⁹² Sidak's conjecture is wrong.

[REDACTED]

65. Our report also provided information on how consumer listening behavior changed after they subscribed to satellite radio.

- [REDACTED]

⁹⁰ [REDACTED] the 30% of all Americans age 12 or over who own iPods or MP3 players, according to another recent survey. Arbitron/Edison Media Research, *The Infinite Dial 2007: Radio's Digital Platforms* at 14.

⁹¹ Those who wished to connect by cable also would have to have an appropriate input. As the CRA Report indicated, however, many vehicles sold in the last few years came equipped with easily accessible auxiliary input jacks into which such devices can be plugged with a simple cable. CRA FCC Report at ¶19, 42. Contrary to Sidak's suggestion, they would not need to have or install a USB port, or a dedicated iPod docking station. See Sidak 3rd Supplemental at ¶66.

⁹² Sidak 3rd Supplemental at ¶28.

⁹³ [REDACTED]

[REDACTED]

- [REDACTED]

[REDACTED] These are dramatic changes that suggest strong substitution between satellite radio and other forms of audio entertainment.⁹⁵

66. Sidak, however, calls this type of evidence “inconsequential” on the grounds that “what else could they have listened to before the advent of SDARS?”⁹⁶ The answer is that consumers could have listened to nothing. For example, vehicle owners without satellite radio could have spent most of their time talking on wireless phones or to traveling companions. That is, this evidence is probative is precisely because it shows that consumers view satellite radio as a substitute for terrestrial radio and other audio entertainment devices. Sidak’s suggestion that the evidence means nothing because people must have listened to these alternatives is simply a concession of how obvious it is that people substitute among different forms of audio entertainment.

67. [REDACTED]

⁹⁴ [REDACTED]

⁹⁵ [REDACTED]

⁹⁶ Sidak 3rd Supplemental at ¶31.

⁹⁷ Sidak seems to ignore this issue of the relative closeness of substitutes. In his water/whisky example, he says that “All connoisseurs of single-malt scotch whiskey were former consumers of water, but no one would argue that water and single-malt scotch whiskey belong to the same product market.” Sidak 3rd Supplemental at ¶31. Sidak’s example is peculiar because we would not expect much substitution from water to single-malt scotch. We would expect that there would be much more substitution away from blended scotch whiskey and other alcoholic beverages than from water.

68. Sidak also objects that the survey information on pre-activation versus post-activation listening shows only that the *share* of minutes spent listening to terrestrial radio and other audio entertainment alternatives falls when consumers subscribe to satellite radio. That, he says, doesn't demonstrate that the *amount* of listening to terrestrial radio declines significantly when consumers sign up for satellite radio.⁹⁸ Granted, this is an arithmetic possibility, but it is an extremely implausible interpretation of the results.

- [REDACTED]
- [REDACTED]

⁹⁸ Sidak 3rd Supplemental at ¶27; also see ¶35.

⁹⁹ [REDACTED]

¹⁰⁰ [REDACTED]

¹⁰¹ Sidak refers to the results of one survey by Arbitron that indicate satellite radio subscribers may spend more time listening to AM/FM radio than non-subscribers. Sidak 3rd Supplemental at ¶27. However, in our initial Report, we pointed out that these results compare listening by two different groups of consumers, and is therefore not evidence of how listening behavior changes when individuals become subscribers. CRA Report at ¶73.

[REDACTED] And, of course, there is evidence that the NAB is and has been concerned that satellite radio will take listeners (and listening time) away from AM/FM and HD radio. See CRA FCC Report at ¶146-148.

FOR PUBLIC INSPECTION

69. Sidak also argues that this survey information on the effect of activation and deactivation behavior on listening cannot measure elasticity of demand because consumers are not making these decisions in response to small changes in the price of satellite radio. It is true that history has provided only one natural experiment of how consumers respond to changes in the price of satellite radio, and we have already discussed the difficulties this history creates for reliable econometric estimates of demand elasticity. The only practical response, however, is to work with the information that is available, rather than to reject all less-than-ideal evidence.
70. This information on the substitution patterns of consumers who activate and deactivate satellite radio provides relevant information, even if it is not ideal. Consumers making these substitution decisions are influenced by changes in the perceived qualities and/or prices of the satellite radio services relative to each other and relative to other audio entertainment devices and services. When Sidak says that people “subscribe because they find that the value of SDARS exceeds \$12.99 a month,”¹⁰² he should have been more precise. Their choices are based on their judgments about the value of either XM or Sirius service, not generic satellite radio service. In addition, their choices depend on the perceived value of XM or Sirius relative to the prices and values of other audio entertainment devices, including the other brand of satellite radio. In other words, perceived quality-adjusted relative prices change as the devices and content evolve over time and as consumers’ information and circumstances change. [REDACTED]
- [REDACTED] The magnitude and various causes of this churn would be highly relevant to the merged firm. For example, if the merged firm is worried that a significant number of subscribers likely will decide after a while that the “value” of Sirius is worth less, say \$12.50, those likely deactivations could be avoided if the merged firm chose to charge \$11.95 instead of \$12.95 after the merger.
71. The consumer choices behind these data may not be driven by changes in nominal prices, but they do include reactions to changes in the relative quality of the two satellite services. XM and Sirius do not have constant (or identical) relative quality, and consumer preferences for these two services differ. For example, people could choose to deactivate Sirius and subscribe to XM if they decide that they are tired of Howard Stern, or if they decide that they would prefer the MLB instead of the NFL, or Deep Tracks instead of The Vault. People also might choose to deactivate Sirius and subscribe to XM if they are getting poor reception on Sirius, or if their Sirius receiver is unsatisfactory, or if they are having an insoluble consumer service problem. The observed substitution captures the potential impact of all these factors, as well as effects of changes in the

¹⁰² Sidak 3rd Supplemental at ¶27.

relative quality of alternatives to satellite radio, such as responses to the hot new iPod, improvements in Rhapsody or buying a new HD radio. The presence of all these potential substitution drivers do not make the substitution patterns irrelevant. [REDACTED]

72. The trend in new subscriber activations provides additional evidence of limited substitution between Sirius and XM. Satellite radio growth is increasingly coming from OEM rather than aftermarket subscribers. OEM subscribers are accounting for a sharply increasing proportion of net subscriber additions for both companies, and the trend is expected to continue. According to publicly released figures, OEM subscribers accounted for 91% of XM's total net subscriber additions over the first three quarters of 2007, compared to 57% for the first three quarters of 2006.¹⁰³ Similarly, Sirius OEM subscribers accounted for 77% of net additions over the first three quarters of 2007 compared to 44% for the same three quarters of 2006.¹⁰⁴ These are continuations of earlier trends.¹⁰⁵ Both the companies and analysts expect the OEM channel to continue to account for a very substantial and increasing proportion of subscriber additions.¹⁰⁶

¹⁰³ XM Satellite Radio, *Forms 10-Q* (Q1-Q3 2006 and Q1-Q3 2007). Indeed, the OEM channel accounted for all (and more) of XM's net additions in Q3 2007 as retail net additions were negative. All figures for XM's OEM net additions include a small number of rental car net additions, as XM reports a combined figure for these net additions.

¹⁰⁴ Sirius Satellite Radio, *Forms 10-Q* (Q1-Q3 2006 and Q1-Q3 2007).

¹⁰⁵ XM OEM net additions accounted for 52% of XM's net additions over the full year 2006, up from 36% for 2005. XM Satellite Radio, *Form 10-K* (2006). For Sirius, OEM net additions were 42% of total net additions for the full year of 2006 up from 29% for 2005. Sirius Satellite Radio, *Form 10-K* (2006).

¹⁰⁶ See, for example, *Q2 2007 XM Satellite Radio Earnings Conference Call – Final* (July 26, 2007), available at <http://www.seekingalpha.com/article/42535-xm-satellite-radio-q2-2007-earnings-call-transcript> (last visited November 8, 2007), statements of XM President Nate Davis (“our business-mix is increasingly OEM-centric, and while the retail sector continues to provide subscriber growth, it is an increasingly smaller portion of our gross and net additions....the OEM ramp is here now and will only get stronger in the coming quarters.”); *Q3 2007 Sirius Radio Earnings Conference Call – Final* (October 30, 2007), available at <http://www.seekingalpha.com/article/52018-sirius-satellite-radio-q3-2007-earnings-call-transcript> (last visited November 8, 2007), statements of Sirius CEO Mel Karmazin (“...this is a positive signal for the continued long-term growth in the OEM channel....having production penetration rates moving significantly higher is very positive for our long-term future....Only two years ago in 2005, SIRIUS’ production penetration rate was approximately 10% of our exclusive OEM partners’ total production. That figure is expected to grow to over 50% next year and is poised to rise even higher over the next few years.”); and *Q2 2007 Sirius Radio Earnings Conference Call – Final* (July 31, 2007), <http://www.seekingalpha.com/article/43015-sirius-satellite-radio-q2-2007-earnings-call-transcript> (last visited November 8, 2007), statements of Sirius CEO Mel Karmazin (“During the first six months of 2007, OEM subscriber growth continues to be stronger than expected and present in excess of 70% of our year-to-date subscriber growth....investors should view this as a big, positive development for the long-term growth of our business.”). For analyst views, see Jonathan A. Jacoby, *BofA Broadcast Bits – Will Price Talk be a Problem*

73. This trend has important implications for market definition and competitive effects analysis. There obviously is much less scope for substitution between XM and Sirius in response to price and quality changes for OEM subscribers than for aftermarket subscribers. This is because nearly all automobile OEMs now offer only one factory-installed satellite radio brand integrated into the vehicle's audio system. The consumer's choices for audio entertainment integrated into the vehicle's audio system are that one satellite radio brand, the integrated AM/FM radio or CD player, and, increasingly often, connecting an iPod or MP3 player through an integrated port or auxiliary jack. Subscribing to the other satellite radio service requires instead bearing the cost and inconvenience of purchasing and installing an aftermarket radio, which often includes a visible antenna cord and a power cord to the cigarette lighter outlet. For the same reasons, as noted above, the switching costs for a disconnecting OEM subscriber to acquire and install the other satellite radio service are higher than to use the vehicle's AM/FM radio or CD player. As we discussed in our earlier report, this OEM exclusivity and switching costs create a type of significant product differentiation between Sirius and XM.¹⁰⁷

74. [REDACTED]

(February 28, 2007), Bank of America, at 2 (“’07 will be the transition year from a retail driven model to an OEM driven subscriber model. Going forward, we expect new OEM gross adds to be greater than retail gross adds in every quarter – including the traditionally retail-heavy fourth quarter.”); James G. Dix, *Satellite Radio 2Q07 Preview* (25 July 2007), Deutsche Bank (“Retail continues to be weak, as model (*sic*) continues shift to OEM paradigm”); Goldman Sachs, *Sirius 3Q2007 largely in line, OEM shift accelerates maintain Sell* (October 30, 2007) at 4, referring primarily to Sirius: “Our assumption is that the OEM channel will drive nearly all (if not more than 100% if retail goes net negative like it has at XM) of the net longer-term subscriber growth.” Also see CRA FCC Report, at n. 203, citing similar views in a February 2007 report of Goldman Sachs.

¹⁰⁷ See, for example, CRA FCC Report at ¶55-56.

¹⁰⁸ Merger Guidelines at §1.11.

¹⁰⁹ Sidak might argue that it is irrelevant to cite evidence on the price sensitivity of potential satellite radio subscribers who have decided (at least so far) not to subscribe. Such an approach is inconsistent with the Merger Guidelines focus on effects over the “foreseeable future,” as discussed above, and far too rigid. Evidence that some consumers who have been unwilling to subscribe at the current price might be willing to do so at a lower price also suggests a sensitivity to a price increase among potential subscribers who may be willing to subscribe at the current price but not at a higher price. This sensitivity would affect the incentives of the merged firm (and the hypothetical monopolist). Furthermore, the evidence of dynamic demand indicates that consumers revise their views of the value

- [REDACTED]
- [REDACTED]
- [REDACTED]

- [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]

of satellite radio and their willingness to subscribe as they learn more about the services, but price sensitivity is likely to remain. In other words, since satellite radio is growing, one expects some current non-subscribers to sign up in the future, but, because they are sensitive to price, the number who do so will depend on prices.

110 [REDACTED]

111 [REDACTED]

112 [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]

4. Demand Substitution Evidence Based on Sellers’ Business Decisions

75. According to Sidak, our analysis is flawed because it relies on what he labels “supply-side evidence.” Reliance on such evidence, he insists, is inconsistent with the Merger Guidelines requirement that market definition be based on demand-side substitution.¹¹⁴ Sidak describes the difference between demand-side substitution and supply-side substitution and appeals to the Merger Guidelines and Merger Commentary for the proposition that product market definition should be based only on demand-side substitution.¹¹⁵ Our analysis, he suggests, violates these precepts by providing what he calls “supply-side” evidence.

76. The “supply-side” label, however, is Sidak’s, not ours, and he mischaracterizes our evidence by associating it with the issue of supply-substitution. We did not claim to present evidence on supply substitution or argue that market definition should be based on supply substitution. Indeed, our so-called “supply-side” evidence in our report comes directly from one of the categories of demand-substitution evidence listed in the Merger

¹¹³ [REDACTED]

¹¹⁴ See Sidak 3rd Supplemental at ¶20, n. 14 and n. 15, citing the Merger Guidelines and Merger Commentary for the proposition that product market definition depends on demand substitution. Similarly, the slide presentation by Sidak and Hal Singer to the FCC Commission staff introduce their critique of CRA’s analysis of market definition with two slides titled “Demand-Side Evidence Required,” which repeats the same citations to the Merger Guidelines and Merger Commentary. J. Gregory Sidak and Hal J. Singer, *Analysis of the CRA Submission* (October 3, 2007), *Notice of Oral Ex Parte Presentations on Behalf of C3SR*, MD Docket No. 07-57 (hereinafter “Sidak-Singer Ex Parte Presentation 10/3/2007”).

¹¹⁵ For example, see Sidak 3rd Supplemental at ¶57 (describing Professor Baker’s analysis of the relevance of supply-side substitution for market definition), and Sidak-Singer Ex Parte Presentation 10/3/2007 at slide 6 (defining demand and supply substitutes).

Guidelines: “evidence that sellers base business decisions on the prospect of buyer substitution between products in response to relative changes in price or other competitive variables.”¹¹⁶ Contrary to Sidak’s argument, the Guidelines clearly consider this relevant evidence of *buyer substitution*, even though it focuses on the *decisions of sellers*.

77. Sidak claims that “Professor Baker’s analysis likely would reject CRA’s use of supply-side evidence to define the relevant product market.”¹¹⁷ In fact, as noted above, Professor Baker lists seller responses as one of his five categories of evidence on buyer substitution: evidence on how sellers respond, including evidence of how “firms monitor and respond to the price changes and new product introduction of rival sellers....”¹¹⁸ Professor Baker’s article is not internally contradictory. Sidak’s conclusion simply switches terminology:

In summary, the single source of authority that CRA’s economists cite for their assertion that *supply-side evidence* should inform market definition is more likely to undermine than support their argument. “In practice,” Professor Baker notes, “courts rarely employ *supply substitution* to help define market in the context of merger analysis.”¹¹⁹

Thus, Sidak uses Baker’s criticism of basing product market definition on the concept of *supply substitution* to criticize the demand substitution evidence that Sidak chooses to label *supply-side* evidence. As the subtle shift in language signals, however, supply substitution and supply-side evidence are not the same. Our report did not claim that the evidence it provided on competitor responses (which Sidak labels as *supply-side*) was evidence of supply substitution.¹²⁰ Nor did we argue that market definition should be based on supply substitution.

¹¹⁶ Merger Guidelines at §1.11.

¹¹⁷ Sidak 3rd Supplemental at ¶57.

¹¹⁸ Jonathan B. Baker, *Market Definition: An Analytical Overview* 74 *Antitrust L.J.* 129 (2007) at 141.

¹¹⁹ Sidak 3rd Supplemental at ¶59, emphasis added.

¹²⁰ Sidak elsewhere seems to recognize that we were not presenting evidence of supply substitution, although he ignores the implications of this for his critique. At several places, he criticizes our “supply-side” evidence for failing to constitute evidence of supply substitution, namely, that the producers of other service would shift capacity to produce satellite radio services. Therefore, he says, our evidence does not qualify as evidence of supply substitution (which he elsewhere argues would not be relevant for market definition in any case). Sidak 3rd Supplemental at n. 21 (none of the “supply-side” evidence we presented would qualify as evidence of supply substitution under the definition adopted in the industrial organization text of Dennis Carlton and Jeffrey Perloff); see also Sidak 3rd Supplemental at ¶57 (description of Baker’s analysis of supply-side substitution followed with

FOR PUBLIC INSPECTION

78. Our report argued that evidence of seller responses is valuable because sellers are knowledgeable about buyer substitution and are betting their own money on the accuracy of their information and expertise.¹²¹ Sidak misunderstands our point, claiming that we are asking the FCC to believe that mobile telephone or internet providers are experts on the preferences of satellite radio subscribers.¹²² This characterization distorts the role of the evidence. The correct economic point is that sellers of various types of audio entertainment are experts on the preferences of audio entertainment customers who are or have been or might become their *own* customers. These suppliers have every business incentive to learn about the preferences of these customers. The competitive responses of these firms indicate that they believe that their own actual or potential customers are being attracted by the availability and improving quality over time of satellite radio and other audio entertainment devices and services. In other words, what is relevant is that these competing suppliers have expertise on what attracts satellite radio customers to their services and how to prevent their customers from substituting to satellite radio and other audio entertainment devices and services.
79. Sidak next argues that some of these new services may not be direct responses to satellite radio.¹²³ This is too narrow an understanding of what evidence is relevant for determining if satellite radio and other audio entertainment are substitutes. Seller responses should be viewed to see if they are linked and inter-related responses among competitors, rather than treating them as mutually exclusive, pairwise direct responses. Competition is multidimensional and involves multiple audio entertainment devices and services. Sellers of every device and service respond both directly and indirectly to actions taken by all the other devices.¹²⁴ These seller responses collectively form a linked pattern of

the observation that none of CRA's evidence indicates that supply substitution is likely to occur); Sidak-Singer Ex Parte Presentation 10/3/2007 at slide 11.

¹²¹ For example, see, CRA FCC Report at ¶29 and n. 30.

¹²² Sidak 3rd Supplemental at ¶54.

¹²³ For example, see Sidak 3rd Supplemental at ¶33 and n. 36.

¹²⁴ For example, XM may add storage or partner with Napster primarily in response to iPods. However, XM's response also would affect Sirius, other MP3 players, subscription services and terrestrial radio. The responses of these firms in turn might lead to further responses by wireless phone designers and service providers, which could lead to further reactions by XM and the others. To take another concrete example, Clear Channel, Sirius and XM all offer their content on a wholesale basis to wireless phone carriers. Clear Channel also is beginning to allow its HD Radio content to be flagged for downloading via iTunes. This content competes with content from subscription services like Rhapsody and other sources that are offered to the owners of MP3 players, and with the ability of XM subscribers to tag content and download it from Napster. The HD Digital Radio Alliance, composed of major terrestrial radio station owners, promotes HD radio in order to preserve terrestrial radio audiences against the competition of other audio entertainment, including but not limited to satellite radio. Specifically, the Alliance commits to maintain HD2 stations as commercial-free, to approve and coordinate their content to promote format diversity, and to spend an additional \$230 million in 2008 to promote HD Radio, bringing its total promotional

convergence of characteristics, indicating that buyers consider these services to be part of a lengthening list of alternatives.

80. Sidak also argues that evidence of competitor responses is relevant only if it reflects the reactions of consumers to a small change in relative prices or to the equivalent.¹²⁵ Sidak's restrictive interpretation of the Merger Guidelines would exclude relevant information on buyer substitution, such as responses to new product introductions, since they would not reflect small changes in relative prices.¹²⁶ Professor Baker, however, specifically refers to relevant evidence such as when "firms monitor and respond to the price changes *and new product introductions* of rival sellers...."¹²⁷ Competitors' responses can provide valuable information on which products buyers view as substitutes, even when competitors react to something other than a small change in relative prices, and even when those responses cannot provide a precise quantitative measure of buyers' responses to a small price change. Moreover, competition over product quality and product features is important to consumers, just as is price competition.
81. Furthermore, when competitors respond by adjusting the characteristics of their service to make them more similar to the features of satellite radio – as, for example, terrestrial radio did by reducing commercials, or iPods by adding WiFi access, or wireless phones by offering audio streaming and downloading – they are revealing that they believe their customers will respond to marginal changes in the relative attractiveness of their service versus satellite radio. Along the same lines, satellite radio providers have adjusted their features to better compete with these substitutes, as when they added portability and memory to allow subscribers to time shift and to store MP3 files on satellite radio receivers, or when they added content such as traffic and weather. All of this is evidence – contrary to Sidak's assertions – that consumers would substitute between these services and satellite radio in response to small changes in relative quality-adjusted prices.¹²⁸

spending to \$680 million. *See generally*, Section 11.A.3 of CRA FCC Report. On the HD Digital Radio Alliance, *see* Press Release, *HD Digital Radio Alliance Renews Charter with Marketing Commitment that Takes Total to \$680 Million* (October 15, 2007) available at http://www.hdradio.com/i/Alliance_Charter.pdf (last visited November 7, 2007).

¹²⁵ For example, *see* Sidak 3rd Supplemental at ¶21-22.

¹²⁶ *See* Sidak 3rd Supplemental at ¶23 (arguing that responses to entry provide no useful information about buyer substitution). On this point, Sidak apparently ignores the plain language of the Merger Guidelines, which states the relevance of changes in "other competitive variables," as well as price. Merger Guidelines at §1.11.

¹²⁷ Jonathan B. Baker, *Market Definition: An Analytical Overview* 74 Antitrust L.J. 129 (2007) at 141, emphasis added. Furthermore, Professor Baker notes that "evidence as to which rival products are monitored and responded to by sellers may not correspond readily to a particular percentage price increase or suggest a precise percentage for the buyer response, yet this evidence could nonetheless be strongly probative as to market definition." *Id.* at n. 63.

¹²⁸ For example, *see*, Sidak 3rd Supplemental at ¶21-22.

82. In this regard, XM and Sirius have dramatically increased their penetration over time, with subscriptions growing much faster than US population. One reason is the fact that the quality of the products offered by Sirius and XM have continually improved over time, one marginal step at a time. (Another important reason is the word-of-mouth information and recommendations generated by earlier subscribers, what we referred to as the dynamic demand spillover effect and discuss in more detail below.) These continuous quality improvements each represent marginal reductions in quality-adjusted prices. These improvements include increases in the number of channels and increases in premium content, such as MLB, NFL and Howard Stern. XM and Sirius also have improved signal quality. They also have improved the quality of aftermarket radios, for example by adding memory to permit time shifting. XM also has partnered with Napster to facilitate downloads. In response to these reductions in quality-adjusted prices, additional subscribers substituted away from terrestrial radio and other audio entertainment products. The fear of loss of actual and potential subscribers in response to marginally increased quality-adjusted prices would constrain the ability of the merged firm to exercise market power.¹²⁹

¹²⁹ For Sidak's view, see Sidak 3rd Supplemental at ¶22. Sidak also mischaracterizes the evidence that we provide that increased competition from other forms of audio entertainment has led industry analysts to revise downwards their projections for 2010. Sidak 3rd Supplemental at ¶36, citing CRA FCC Report at ¶47. Sidak claims we make the error of inferring causation from the fact that satellite radio growth projections are being revised downward at same time as sales of iPods and MP3 players is growing. In fact, we were citing the views of industry analysts following the satellite industry that the growth of this competition helped cause the downward revisions. As discussed above, the views of industry experts constitute a category of evidence on buyer substitution identified by Professor Baker. Jonathan B. Baker, *Market Definition: An Analytical Overview*, 74 Antitrust L.J. 129 (2007) at 141. We cited the views of Goldman Sachs; see Goldman Sachs, *Conundrum Squared: Why XM And Sirius Should Wait* (February 11, 2007) at 3 ("Consensus subscriber estimates remain too high, in our view, with an already competitive environment slowing retail net adds..."); at 4 ("We are lowering our subscriber estimates for both XM and Sirius in an expectation of continued slower subscriber growth owing to softening retail demand for both XM and Sirius."); at 7 ("Satellite radio already competes with an increasing array of products within the \$200-\$500 price range, with some of the products having contributed to the slowing industry subscriber growth" and exhibiting a chart showing consumer media products including iPods and MP3 players and media phones (such as the iPhone) alongside another chart showing slowing retail growth). We also cited the views of JP Morgan, *XM Satellite Holdings Inc* (January 16, 2007) at 2 ("we are now assuming that retail gross adds have peaked for XM and the industry." "This reflects our view that 2005 and 2006 retail sales were skewed by an early adopter surge that will be hard to top in the future, especially with strong competition from iPod, cell phones and other music devices.") Finally, Sidak also charged that we "cherry-picked" reports to suggest that the demand for satellite radio was declining and cited other sources for the proposition that satellite radio growth is expected to continue. Sidak 3rd Supplemental at ¶37. This is a distortion; as we clearly stated, the cited reports projected a slower rate of growth for satellite radio, not a fall in absolute demand. Indeed, as we have made clear in both this and the earlier report, we agree that satellite radio will continue to grow. That is why the analysis of market definition and competitive effects for this merger should take these conditions of growth into account.

III. MARKET DEFINITION ANALYSIS AND EVIDENCE WHEN THERE ARE DYNAMIC DEMAND SPILLOERS

83. Our earlier Report explained how the hypothetical monopolist test of the Merger Guidelines should be applied to this proposed merger in light of the dynamic demand characteristics of satellite radio.¹³⁰ Sidak claims that our report employs a “novel and wholly theoretical concept” of dynamic demand, that we “start from the proposition that the market-definition principles of the Merger Guidelines are fundamentally flawed,” and that we “attempt to evade conventional merger analysis.”¹³¹ This section explains that Sidak’s rhetorical onslaught is unfounded and incorrect. Our analysis does not reject the Merger Guidelines, but instead applies its principles to the facts and circumstances of this merger.

A. Dynamic Demand and the Merger Guidelines

84. Sidak asserts that our report is an attack on, or an evasion of, the principles of the Merger Guidelines and conventional merger analysis. It is not. Rather, we conduct a conventional merger analysis by *applying* the principles of the Merger Guidelines to the facts of this merger, precisely what the Merger Guidelines direct should be done. The first section of the Guidelines makes the following admonition and directive:

Because the specific standards set forth in the Guidelines must be applied to a broad range of possible factual circumstances, mechanical application of those standards may provide misleading answers to the economic questions raised under the antitrust laws. Moreover, information is often incomplete and the picture of competitive conditions that develops from historical evidence may provide an incomplete answer to the forward-looking inquiry of the Guidelines. Therefore, the Agency will apply the standards of the Guidelines reasonably and flexibly to the particular facts and circumstances of each proposed merger.¹³²

The approach to market definition in our report followed this instruction. We applied the general principles of the Merger Guidelines to the “particular facts and circumstances” of this merger.

¹³⁰ See CRA FCC Report at ¶76-79 and Appendix A.

¹³¹ Sidak 3rd Supplemental at ¶7, 11, 8.

¹³² Merger Guidelines at §0.

85. Similarly, the *Merger Commentary* of the Department of Justice and FTC observes that “[m]erger analysis depends heavily on the specific facts of each case.... Staff evaluates potential competitive factors ... by gathering additional information and conducting intensive factual analysis to assess both the applicability of individual analytical frameworks and their implications for the likely competitive effects of the merger.” It also states that, “[t]he Agencies examine whatever evidence is available and apply whatever tools of economics would be productive in an effort to arrive at the most reliable assessment of the likely effects of proposed mergers.”¹³³
86. Sidak cites the report to Congress by the Antitrust Modernization Commission (AMC) for the proposition that “[n]o substantial changes to merger enforcement policy are necessary to account for industries in which innovation, intellectual property, and technological change are central features.” This means, says Sidak, that it is not necessary to “rewrit[e] merger law,” as he claims we are doing in our report.¹³⁴ But, Sidak fails to note why the AMC said that changes are not needed: “[a]ntitrust analysis...is sufficiently flexible to provide a sound competitive assessment in such industries.” The AMC explains that, “as in other industries, of course, antitrust enforcers evaluating business conduct in new economy industries must ensure proper attention is paid to particular market dynamics and economic characteristics that may play a role in determining likely competitive effects.”¹³⁵
87. Sidak claims that the concept of dynamic demand in our report is “wholly theoretical.”¹³⁶ It is not. We apply the concept here because it fits the facts of the proposed merger. We readily grant, however, that there is a theoretical component to our analysis, as there ought to be. Economists utilize theoretical analysis to understand the competitive

¹³³ *Merger Commentary*, at 3 and 17.

¹³⁴ Sidak 3rd Supplemental at ¶3.

¹³⁵ Antitrust Modernization Committee, *Report and Recommendations* (April 2007) available at http://www.amc.gov/report_recommendation/toc.htm (last visited November 5, 2007) at 32.

¹³⁶ Sidak 3rd Supplemental at ¶76. Sidak also claims here that the concept of dynamic demand is “novel.” This also is incorrect. Dynamic demand is not a “novel” concept that we created for this case. The concepts of dynamic demand and product diffusion have been analyzed for years in the economics literature and the marketing literature. Appendix A to our earlier report provided both an introduction to this literature and numerous references. These references included the microeconomic textbook of Jean Tirole and the classic work of Frank Bass. See Appendix A, CRA FCC Report, citing, among other works, Everett M. Rogers, *DIFFUSION OF INNOVATIONS* (1983); Frank M. Bass, *A New Product Growth Model for Consumer Durables*, 15 *Mgmt. Sci.* 1825 (1967); and Jean Tirole, *THE THEORY OF INDUSTRIAL ORGANIZATION* (MIT Press 1990) at 71 (discussing a “goodwill effect” similar in concept to dynamic demand). Nor did we invent the terminology “word-of-mouth” or the idea that word-of-mouth information from current consumers can promote future purchases by others, which gives rise to dynamic demand. As discussed below, this common-place idea was applied to satellite radio by analysts long before the merger was announced.

implications of particular conditions. Appendices A and B in our initial report provided the economic framework and a rigorous theoretical analysis of the implications of dynamic demand spillovers for the profit-maximizing pricing behavior of both individual firms and a merged firm like Sirius/XM. That analysis showed that dynamic demand gives firms an economic incentive to set lower prices (penetration pricing) as an investment in future demand. This understanding of the implications of dynamic demand on pricing and investment is central to analyzing the competitive effects of the merger. It is also central to constructing a hypothetical monopolist test for market definition that fits the facts and circumstances of this merger and therefore will define the relevant market in a way that informs rather than obscures an understanding of the competitive effects of the merger.¹³⁷

88. We apply the concept of dynamic demand here because it is an analytical description of the facts that characterize demand and growth in satellite radio. Those demand characteristics in turn shape the pricing decisions of the individual pre-merger firms, of the merged firm, and of the hypothetical monopolist analyzed to determine market definition. Consequently, ignoring those demand characteristics, as Sidak does, leads to faulty analyses of the competitive effects of the merger and the appropriate market definition.
89. Sidak asserts that “nowhere does CRA articulate the conditions that would have to exist for the analysis to be applicable....”¹³⁸ Sidak apparently ignores multiple explanations in our report of the characteristics and consequences of dynamic demand.¹³⁹ Satellite radio demand exhibits several significant factual conditions relating to dynamic demand.
- First, satellite radio is still early in its life cycle and demand is not close to saturation. Growth has been rapid, but penetration at the end of 2006 was only about 5% of U.S. population, so there is still significant growth opportunity. As indicated in the table attached as an Exhibit to this report, analysts project demand rising from about 14 million at the end of 2006 to an average of 38 million in 2015.¹⁴⁰ Even then, penetration may not have reached its steady-state point where new subscribers merely

¹³⁷ This approach is consistent with the Merger Guidelines and standard antitrust practice. As noted above, the Merger Commentary states that the Agencies are open to applying “whatever tools of economics would be productive in an effort to arrive at the most reliable assessment of the likely effects of proposed mergers.” Merger Commentary at 17.

¹³⁸ Sidak 3rd Supplemental at ¶78.

¹³⁹ Dynamic demand and the spillovers that characterize such demand conditions are described in the CRA Report in the text and Appendix A. For example, *see* CRA FCC Report at ¶81-82 and Appendix A.

¹⁴⁰ See the discussion below of these results.

cover those that deactivate. The projected rapid growth affects the pricing incentives of the hypothetical monopolist used in the *ssnip* test for market definition.

- Second, satellite radio is a relatively new technology and concept (pay-radio), whose value is not obvious to many potential customers. Many people have not experienced satellite radio. As a result, satellite radio depends heavily on word-of-mouth information diffusion and recommendations from satisfied subscribers to help drive its demand growth. Potential subscribers rely on the information and recommendations of existing subscribers before subscribing themselves. Demand also is driven by the “market buzz” generated by consumer excitement and retailer investments. Retailer investments in turn also are driven by the expectation of growth. In our report, we referred to these circumstances as “dynamic demand spillovers.”
- Third, demand spillovers have significant effects on the pricing incentives of the individual firms in the pre-merger world as well as the hypothetical monopolist of the *ssnip* test for market definition. In our report, we explained the incentive for “penetration pricing,” that is, setting prices lower in order to generate a larger subscriber base and faster subscriber growth, which in turn would lead to additional growth as current subscribers recommend the product to others and retailers invest more.¹⁴¹ As discussed earlier, this use of penetration pricing was described by Sirius CEO Mel Karmazin in 2006, when he said that Sirius sets lower prices in order to generate a larger subscriber base and faster subscriber growth.¹⁴² This growth in turn leads to additional growth as current subscribers recommend the product to others and retailers invest more.
- Fourth, this process of information diffusion and recommendations involves two distinct types of dynamic demand spillovers – “internal” and “external” spillovers. The distinction between internal and external spillovers involves the recipient of the future sales when the current sales of a particular firm increase. Internal demand spillovers increase the firm’s own future sales. In contrast, external demand spillovers increase the sales of some or all other firms.¹⁴³ The evidence indicates the significance of both types of spillovers.
- Fifth, these external demand spillovers have a differential effect on the pricing incentives of the hypothetical monopolist (and the merged firm) versus those of the

¹⁴¹ See CRA FCC Report at, for example, ¶¶82-84 and Appendix A.

¹⁴² Sirius Satellite Radio, *Q1 2005 Earnings Call Transcript*, April 28, 2005. Cited in CRA FCC Report at n. 168.

¹⁴³ As discussed below, and contrary to Sidak’s claim, external spillovers need not affect all other competing firms in the market.

individual firms in the pre-merger world. The external spillovers generate incentives for post-merger price decreases and enhanced investment. Conditions in satellite radio are consistent with significant external demand spillovers, including the fact that consumer recommendations drive demand for the product category generally (and thus for the other service too), the exclusive distribution arrangements with auto OEMs, the importance of exclusive premium content on each service, and because subscribers to one service sometimes recommend the other service.

90. The analysis of market definition and competitive effects for a merger of Sirius and XM must be applied to these factual circumstances if it is to reliably evaluate the real economic questions and follow the directives of the Merger Guidelines.¹⁴⁴ The analysis must not be applied “mechanically,” as if one were pretending that there were different factual circumstances. In this matter, the dynamic demand spillovers are an inherent characteristic of the demand structure facing the individual firms in the pre-merger world, and thus also of the demand structure that the hypothetical monopolist would face. This demand structure affects the rational, profit-maximizing prices chosen by the pre-merger firms, (i.e. the pre-merger current prices) and by the merged firm, and also the profit-maximizing price of the rational hypothetical monopolist assumed for market definition purposes. The analysis in our earlier report showed that when a firm faces demand with dynamic demand spillovers, the price that maximizes overall profits will not be the price that maximizes profits in the short-term, but instead will be a lower price.
91. If dynamic demand conditions are ignored when implementing the hypothetical monopolist test, as they are in Sidak’s analysis, the resulting relevant product market is likely to be incorrectly defined. Demand spillovers significantly change the pricing incentives of the individual firms and the hypothetical monopolist of the *ssnip* test. The profit-maximizing price for the hypothetical monopolist will be lower because reducing price (i.e., penetration pricing) is a way to invest in higher future demand. A hypothetical monopolist test that arbitrarily assumed away dynamic demand and focused only on the short-term would be more likely to find that a *ssnip* above the pre-merger price (which already reflects penetration pricing) was profitable – even though a hypothetical monopolist rationally responding to dynamic demand conditions would not find it profit-maximizing to raise price. The result of the incorrect test would be an incorrectly defined relevant product market.

¹⁴⁴ It goes without saying that many mergers will not have the same mix of facts. It is those facts that make dynamic demand important here. More generally, our approach would be most applicable to mergers like this one, where all or most of these factual conditions exist.

92. Market definition analysis also should consider the fact of rapid subscriber growth. The hypothetical monopolist test calls for evaluating the overall profitability of a *ssnip* “lasting for the foreseeable future,” which means evaluating the longer-term effect of the price increase on profits (when the subscriber base is larger), not just its near-term effect. Rapid growth affects the analysis because it affects the magnitude of the loss of future subscribers and profits from a price increase, as the dynamic spillover effects are played out.¹⁴⁵
93. Thus, if dynamic demand spillovers and growth are ignored, the hypothetical monopolist market definition test will have no grounding in real world market conditions and pricing behavior and will give misleading answers to the real economic questions. In short, the approach to market definition taken in our report applies the principles of the Merger Guidelines to industry facts, as the Guidelines direct. Sidak’s insistence that the *ssnip* test should consider only short-term profits or only current subscribers is not.¹⁴⁶ A hypothetical monopolist of satellite radio services likely would not find it profitable to implement a *ssnip* that increased profits only in the short-term or only from current subscribers, if that price increase led to reduced profits when the impact on potential subscribers (and the longer-term impact on current and potential subscribers) are taken into account.
94. Indeed, when demand spillovers are significant, Sidak’s erroneous approach could lead to a striking result – separate *single-firm* relevant markets, one for XM and one for Sirius. As explained earlier, the individual firms in the pre-merger world set penetration prices because they face dynamic demand spillovers. Penetration prices are set below the short-term profit-maximizing level in order to generate additional future subscribers by creating more satisfied customers who will create a market buzz and evangelize the product to others. Under these circumstances, a *ssnip* by a hypothetical monopolist comprised of a single firm would erroneously appear profitable, if only short-term effects were considered. In addition, switching costs inhibit current subscribers of one satellite radio service from shifting to the other service. Thus, a single-firm would comprise a separate market under the erroneous short-term *ssnip* test recommended by Sidak. This misleading result illustrates the analytic errors that flow from of deviating from the

¹⁴⁵ As discussed in our earlier report, demand for satellite radio likely is becoming more elastic over time because of continuous innovation and feature convergence by competing audio entertainment devices in response to consumer demand. CRA FCC Report at ¶111. This also will affect the overall profitability of a price increase taken now and lasting into the foreseeable future. This is another important factor to take into consideration in evaluating market definition and the competitive effects of this merger.

¹⁴⁶ For a fuller discussion of these points, see the discussion in Section II.A-B *infra*.

Guidelines and focusing exclusively on short-term profitability in an imaginary world that deviates from the real world.¹⁴⁷

B. Sidak's Misunderstandings of the Concept of Dynamic Demand

95. Sidak moves on from his mistaken claim that our analysis of dynamic demand is inconsistent with the Merger Guidelines to address the concept itself. But Sidak's criticisms of the concept of dynamic demand and its relevance for merger analysis betray some fundamental misunderstandings of the effects of internal and external dynamic demand spillovers on the pricing incentives of XM and Sirius and of the merged firm (or, for market definition analysis, of the hypothetical monopolist).
96. First, Sidak asserts that the concept of dynamic demand "provides no basis to claim that the post-merger dynamically optimal price will not be higher," apparently because "one would expect that XM and Sirius have already been engaging in 'penetration pricing' as they compete against each other for subscribers."¹⁴⁸ Sidak's claim seems to be that dynamic demand conditions don't affect whether the merged firm would raise price because the stand-alone Sirius and XM also face dynamic demand and set penetration prices. Sidak's discussion indicates an apparent failure to understand how the full effects of dynamic demand, and especially of external spillovers, affect pricing incentives.
97. In the first place, Sidak's observation that Sirius and XM have been engaging in penetration pricing because they face poorly informed potential subscribers, which leads to dynamic demand spillovers, is neither inconsistent with nor undermines our analysis. We have been quite explicit that Sirius and XM are and have been engaging in penetration pricing – setting price below the level that would maximize short-term profits – because they face dynamic demand. As already discussed, the fact that current prices of the pre-merger XM and Sirius are set below the level that maximizes short-run profits is part of the reason that a hypothetical monopolist test for market definition that considered only the short-run profitability effects of a *ssnip* lasting for the foreseeable future would be misleading.
98. In suggesting that our analysis fails to explain why dynamic demand would not discourage the post-merger firm from raising prices, Sidak apparently misunderstands our analysis of the *external effect* of dynamic spillovers. His discussion of pricing fails to address our explanation of how and why the *external* spillover effects of dynamic

¹⁴⁷ As discussed earlier, if the market were not defined as single-firm markets, the proper market would be expanded beyond just satellite radio. This is because substitution among current subscribers between XM and Sirius is very low because of switching costs. See CRA FCC Report at ¶23.

¹⁴⁸ Sidak 3rd Supplemental at ¶78.

demand alter the pricing incentives of the merged firm relative to those of the separate, pre-merger firms.¹⁴⁹ As we explained, dynamic demand for satellite radio creates two types of spillovers that have different effects on pricing incentives of the hypothetical monopolist (and the merged firm).

99. First, higher current sales of a service lead to more sales of that same service in the future. Such spillovers – which we call internal dynamic demand spillovers – give the pre-merger XM and Sirius, and the merged firm (and the hypothetical monopolist), incentives to set lower, penetration prices than they would absent the internal spillovers.

100. Second, external dynamic spillovers give the merged firm (and the hypothetical monopolist) an incentive to set lower prices, an effect that would not be taken into account by the individual firms in the pre-merger world. As our report explained,

[S]ome consumers who learn about satellite radio from a subscriber of one service likely will purchase the other service, because they prefer the exclusive audio content of the other service or because only the other service is offered for the vehicle brand they are purchasing. This externality – the fact that a competitor captures some of the spillover benefits – is the source of the free-rider problem.¹⁵⁰

101. For example, suppose that XM reduces its prices in the pre-merger world. Because XM does not benefit much from this external effect of its lower prices on Sirius, XM will not consider Sirius' benefit in choosing its most profitable pre-merger price.¹⁵¹ The merged firm, however, will directly benefit from the effect of lower XM prices on future Sirius subscriptions (and similarly the direct effect of lower Sirius prices on future XM subscriptions), which gives it an incentive to engage in deeper penetration pricing than the stand-alone firms. This effect of external dynamic spillovers on the pricing of the

¹⁴⁹ In the next paragraph, Sidak does quote our statement that external dynamic demand spillovers reduce incentives of the separate firms to engage in demand-enhancing investment, including penetration pricing. (Sidak 3rd Supplemental at ¶79) This point is ignored, however, in his claim at ¶78 that dynamic demand “provides no basis to claim that the post-merger dynamically optimal price will not be higher.”

¹⁵⁰ CRA FCC Report at ¶119.

¹⁵¹ XM may consider the small secondary effect that more Sirius subscribers ultimately will increase the number of XM subscribers through a follow-on external spillover. But, the magnitude of this effect would be “second-order,” and would not nearly eliminate the externality.

FOR PUBLIC INSPECTION

merged firm is discussed in our report, but it is ignored in Sidak's discussion of how dynamic demand affects post-merger prices.¹⁵²

102. This analysis also applies to the hypothetical monopolist test used in the market definition analysis. The hypothetical monopolist, like the merged firm, would take external spillover benefits into account in deciding whether it was in its economic interest to raise price. The internalization of the external spillover effects reduces its economic incentives to raise price and leads to an expanded relevant market, *ceteris paribus*.
103. Sidak also mistakenly asserts that the analysis of external dynamic demand spillovers in our report is "inconsistent" with our conclusion that the relevant product market includes audio entertainment other than satellite radio.¹⁵³ The inconsistency, according to Sidak, is that the merger will not internalize all external spillovers from XM and Sirius unless those spillovers do not extend to other audio entertainment services. But, says Sidak, if dynamic spillovers only extend to satellite radio, then the product market must be limited to satellite radio.
104. This claim misunderstands the concept and source of dynamic spillovers, and their relationship to market definition. External spillovers need not affect all other competing firms in the market. External spillovers exist because information about Sirius also has some application to XM and vice versa, and such information is valuable to consumers. However, that same information would not help consumers learn more about terrestrial radio, wireless phones, iPods or other MP3 players.¹⁵⁴ For example, suppose that seeing more green Chevys on the road leads relatively more consumers to learn how attractive green cars are and thus to desire green Fords or Toyotas over silver ones. That type of external demand spillover involving different brands of green cars would not mean that there must be a relevant market comprised solely of green cars.

¹⁵² Sidak also misrepresents our analysis by claiming that our argument that the merger will generate benefits by internalizing external dynamic spillovers amounts to an argument that "competition is a bad thing." Sidak 3rd Supplemental at ¶79. In fact, our analysis was part of a competitive effects analysis designed to determine whether, on balance, the merger will increase or decrease consumers and competition. We explained that the positive effects on consumers of internalizing of external spillovers is one of several consequences of the merger that should be considered in an analysis of the effects of this merger on competition; we do not claim that the existence of external dynamic spillover effects alone justifies the merger. We do conclude that this fact, along with others including the substantial competition the merged firm faces from other audio entertainment sources, means that the merger will benefit consumers. See CRA FCC Report at ¶119-120, which is contained within the discussion of competitive effects in Section IV.

¹⁵³ Sidak 3rd Supplemental at ¶80.

¹⁵⁴ Of course consumers also are much more likely to be familiar with many of these alternatives, and especially with terrestrial radio.

105. Finally, Sidak also misunderstands our explanation of how the merger will solve free riding problems and promote the marketing of interoperable radios. Sidak says that the individual firms have not introduced interoperable radios because of a free riding problem, but because such radios would make it easier for customers to switch between XM and Sirius.¹⁵⁵ Interoperable radios would make it easier for subscribers to switch. That switching, however, generates the free riding problem.¹⁵⁶ New Sirius subscribers with interoperable radios might well subscribe to Sirius for a shorter time on average than those with non-interoperable radios, giving the service less time to recover its investment in acquisition costs. And, when a subscriber with an interoperable radio switches to the other satellite radio service, that other service would benefit by acquiring a new subscriber whose radio it did not need to subsidize. Thus, each individual firm would have the incentive to free ride by reducing the costs it incurs to market and subsidize interoperable radios, while enjoying the subsequent flow of switching subscribers who bought an interoperable radio from the other firm. Absent the merger, each firm's fear of such free riding creates a barrier to subsidizing interoperable radios.¹⁵⁷
106. Sidak, however, claims that there is "no reason to believe that such switching would occur *asymmetrically*" and thus that there is no free rider problem and no problem of monitoring costs.¹⁵⁸ The two companies could, Sidak claims, simply share development and marketing costs equally, knowing they each would receive an equal spillover benefit.¹⁵⁹ But Sidak has the analysis backwards. The pre-merger XM and Sirius would worry about asymmetric switching flows precisely *because* there is a free riding problem. Each individual company knows that if it sells fewer interoperable radios to new subscribers than the other does, it can expect to receive more switching subscribers than it gives up to the other. This gives each individual firm a free-riding incentive to sell fewer interoperable radios than the other – *e.g.*, by pricing them higher with less subsidy, featuring them less prominently in their marketing, etc. – in order to benefit from the resulting asymmetry in switching subscribers.
107. These free riding incentives mean that the two companies cannot simply agree to exert equal effort; they also would have to engage in substantial monitoring and contractual

¹⁵⁵ Sidak 3rd Supplemental at ¶81, citing CRA FCC Report at ¶127 and n. 236.

¹⁵⁶ CRA FCC Report at ¶127.

¹⁵⁷ If, despite free riding, a firm marketed interoperable radios, the other firm that is free-riding might have the incentive to reduce its subscription price to reflect its lower costs and to increase its free-riding benefits, but that would still reflect free riding.

¹⁵⁸ Sidak 3rd Supplemental at ¶81.

¹⁵⁹ *Id.*

enforcement to ensure that each made equal effort – as our previous report pointed out.¹⁶⁰ They also would need to agree on a level of the subsidy and promotional expenditures, an agreement which would raise potential antitrust concerns when carried out by independent firms. In sum, Sidak is wrong. Switching could be asymmetric and there is a free riding problem that the pre-merger firms cannot easily solve by agreement.

C. Evidence of Dynamic Demand Spillovers, Penetration Pricing and Growth

108. Contrary to Sidak’s mistaken claim that our dynamic demand analysis is “wholly theoretical,” our earlier report presented evidence on the importance of word-of-mouth information diffusion in generating future sales and on the companies engaging in penetration pricing.¹⁶¹ This section expands on that evidence. We begin with evidence of penetration pricing and growth. We then turn to the surveys that Sirius and XM have carried out in the normal course of business, surveys that provide further evidence of the pervasive importance of dynamic spillovers for the growth of satellite radio subscribers – that more subscribers today lead to more subscribers tomorrow. In particular, the surveys of the two companies show that [REDACTED]

109. This evidence indicates how information from current subscribers influences others to subscribe, increasing the number of future subscribers. Those dynamic demand spillovers in turn affect the pricing incentives for satellite radio service.

1. Penetration Pricing and Market Growth

110. Our analysis showed that it would not be rational, profit-maximizing behavior for a firm to set price solely to maximize short-run profits. Instead, it is rational to set lower penetration prices when a firm faces dynamic demand spillovers. As we noted in our initial report, company statements indicate that satellite radio firms focus on the impact of price changes on prospective new subscribers, rather than simply on their impact on short-term profits and current subscribers.

111. Indeed, in 2005, Sirius CEO Mel Karmazin stated this plainly:

“...[W]e know that there is price elasticity. What our focus today is on growing the category. It is a relatively small number of

¹⁶⁰ CRA FCC Report at ¶127.

¹⁶¹ See, for example, CRA FCC Report at n. 168 and ¶80-81.

people that are subscribing to satellite radio. We want that number to grow huge, and we think that being attractively price at retail, providing great content at good value is the way we grow the market....”

[O]ur general sense is we know that we have the ability to increase our price...Having said that, our interest as a company is in growing subscribers.”¹⁶²

112. This penetration pricing makes economic sense because satellite radio is a young market, far from demand saturation. As discussed above, Wall Street analysts project that the demand for satellite radio will grow dramatically over a projection period through 2015. We have collected a number of analyst reports. The average projected subscription level of satellite radio in 2015 for a group of recent analyst reports was about 38 million subscribers, compared to about 14 million subscribers at the end of 2006. These projections are shown in the table attached as an Exhibit. In these circumstances, taking a longer-term view to pricing makes economic sense.

2. Recommendations by Subscribers

113. As discussed above, satellite radio depends heavily on word-of-mouth information diffusion and recommendations from satisfied subscribers to help drive its demand growth. There is abundant survey evidence that [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]

¹⁶² Sirius Satellite Radio, *Q1 2005 Earnings Call Transcript*, April 28, 2005. Cited in CRA FCC Report at n. 168.

¹⁶³ [REDACTED]

[REDACTED]

○

[REDACTED]

•

[REDACTED]

•

[REDACTED]

114.

[REDACTED]

•

[REDACTED]

164

[REDACTED]

165

[REDACTED]

166

[REDACTED]

167

[REDACTED]

168

[REDACTED]

- [REDACTED]

115. [REDACTED]

- [REDACTED]
- [REDACTED]

3. Word-of-Mouth Learning by Non-Subscribers

116. Satisfied satellite radio subscribers recommend the service to others and more generally can “talk up” the service, helping to create “market buzz.” The companies have understood from the beginning that word-of-mouth recommendations and market buzz would play an important role in driving subscriber growth for satellite radio, as have industry analysts.¹⁷² A Credit Suisse First Boston analysis of Sirius in 2000 concluded

169 [REDACTED]

170 [REDACTED]

171 [REDACTED]

¹⁷² As noted above, the views of industry experts constitute one of Professor Baker’s categories of relevant information. Jonathan B. Baker, *Market Definition: An Analytical Overview* 74 Antitrust L.J. 129 (2007) at 139-141.

that “[a]s market penetration expands, word of mouth should become an increasingly powerful driver of subscriber growth.”¹⁷³ [REDACTED]

[REDACTED]

A 2003 Bear Stearns report highlighted XM survey results that over 90% of satellite radio subscribers were recommending the service, often to many people, and concluded that “we think that the word-of-mouth effect could play an extremely important role in the company’s growth going forward.”¹⁷⁵ Word-of-mouth continues to be important today.

117.

[REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

¹⁷³ Credit Suisse First Boston, *Equity Research Sirius Satellite Radio Inc.* (March 7, 2000) at 21.

¹⁷⁴ [REDACTED]

¹⁷⁵ Bear Stearns, *Equity Research XM Satellite Radio* (May 9, 2003).

¹⁷⁶ [REDACTED]

¹⁷⁷ [REDACTED]

○ [REDACTED]

○ [REDACTED]

118. [REDACTED]

• [REDACTED]

• [REDACTED]

178 [REDACTED]

179 [REDACTED]

180 [REDACTED]

181 [REDACTED]

182 [REDACTED]

4. OEM Subscribers

119. Word-of-mouth information diffusion and recommendations, and thus dynamic demand spillovers, also help drive OEM subscriptions, even though those radios come with trial periods. First, some automobile buyers must choose whether or not to pay for a trim level that includes satellite radio. Second, even those buyers whose cars contain satellite radios as standard equipment must decide whether or not to seriously consider satellite radio and to make an effort to explore the range of programming available on satellite radio and listen regularly during the trial period.

120. [REDACTED]

- [REDACTED]

- [REDACTED]

121. [REDACTED]

- [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

5. Family Plan Subscriptions and Gifts

122. Subscriptions for additional satellite radios in the same family, or subscriptions arising out of gifts, also represent dynamic demand spillovers. Most such subscriptions likely are the consequence of the first subscription in the family, or the subscription of the gift-

184 [REDACTED] Also see comments of XM President Nate Davis, Thomson StreetEvents, XMSR-Q3 2007 *XM Satellite Radio Earnings Conference Call Final Transcript* (October 25, 2007) at 3-4, citing the results for aftermarket subscribers.

185 [REDACTED]

186 [REDACTED]

187 [REDACTED]

188 [REDACTED]

189 [REDACTED]

giver. There is clear evidence that substantial proportions of satellite radio subscriptions come from families adding radios or from gift subscriptions, and thus are the result of dynamic demand spillovers.

123. Consumers who subscribe to additional radios after learning from experience how much they enjoy satellite radio service from their first subscription represent a form of dynamic spillover. Both companies report the number of additional radio subscriptions they have – what XM calls Family Plan subscriptions and Sirius calls multi-unit plans. Additional radio subscriptions account for a substantial and growing proportion of all satellite radio subscriptions. Family Plan subscribers accounted for 23.5% of total XM subscriptions as June 30, 2007, up from 20.7% a year earlier.¹⁹⁰ Multi-unit subscriptions accounted for 18% of Sirius subscriptions as of the end of June 30, 2007, up from 13% a year earlier.¹⁹¹
124. A similar dynamic spillover mechanism operates when a satisfied subscriber gives a gift to others. Gaining additional subscribers today would lead to more satellite radios being gifted in the future. The seasonal pattern of gross additions for both companies, with the greatest increases coming in the fourth quarter of each year, leads one to suspect that gift-giving plays a substantial role in the growth of satellite radio. Surveys corroborate this conjecture.

- [REDACTED]
- [REDACTED]

6. Evidence of External Spillovers

125. As explained above and in our earlier report, some dynamic demand spillovers are external spillovers, where increased sales of one satellite service today lead to increased future sales of the *other* service. The level of external spillovers are relevant for

¹⁹⁰ XM, *Form 10-Q* (Q2 2007) at 43.

¹⁹¹ Sirius, *Form 10-Q* (Q2 2007).

¹⁹² [REDACTED]

¹⁹³ [REDACTED]

competitive effects analysis because they affect the pricing and investment incentives of the merged firm. They are relevant for market definition because they affect the pricing incentives of the hypothetical monopolist. The idea of external spillovers, like that of dynamic spillovers in general, is grounded in the facts of satellite radio.

126. Survey evidence indicates that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

- [REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
[REDACTED]

127. [REDACTED]
[REDACTED]
[REDACTED]
• [REDACTED]
[REDACTED]
• [REDACTED]
[REDACTED]

128. Industry analysts also have concluded that both services likely benefit when either service adds important content because of the attention drawn to satellite radio as a whole. These

194 [REDACTED]
[REDACTED]

195 [REDACTED]
[REDACTED]

196 [REDACTED]
[REDACTED]

197 [REDACTED]
[REDACTED]

198 [REDACTED]
[REDACTED]

are indications of external spillovers. Industry analysts concluded that Howard Stern's move to Sirius benefited satellite radio as a whole, XM as well as Sirius.¹⁹⁹ A later report worried that satellite radio sales overall, those of XM as well as Sirius, would suffer in 2006 without publicity such as that generated by Howard Stern. Another thought that Oprah coming to XM could benefit satellite radio in general.²⁰⁰

129. Dynamic demand spillovers that influence OEM subscriptions are particularly likely to be external spillovers. Because virtually all OEMs now offer only one brand of factory-installed, integrated satellite radio, most potential OEM subscribers will find their choice of satellite radio service determined by their choice of vehicle, not by whether XM or Sirius was recommended to them. For example, a consumer purchasing a GM vehicle who is interested in satellite radio because of recommendations from a Sirius subscriber would find that only XM is available as factory-installed, integrated equipment in a new GM car. Given the increasing relative size of the OEM channel, this source of external spillovers is becoming increasingly important.
130. This discussion has concentrated on initial or direct external spillover effects. External spillovers include, however, not only the initial subscription induced, but additional subscriptions by others that result from that initial external spillover. For example, suppose that consumer A subscribes to XM and provides information that induces consumer B to subscribe to Sirius. That is a direct external spillover. Suppose that consumer B's subscription to Sirius has its own further (internal) spillover effect, leading to a subsequent subscription by consumer C. The subscription by C also is the result of the initial external spillover to Sirius from A's subscription to XM. Of course, the subscriptions to consumers like C may be second-order effects in terms of magnitude.

D. Conclusions on Dynamic Demand Spillovers and Penetration Pricing

131. Contrary to Sidak's claims, we do not reject the principles of conventional merger analysis. Instead, we have applied the appropriate economic analysis to the "particular facts and circumstances" of the merger, as called for by economic analysis and the

¹⁹⁹ Lucas Binder, *Satellite Radio Into 2007: Beyond the Holiday Season*, UBS Investment Research (November 2006) (with Howard Stern's move to satellite radio, "XM benefited from the increased awareness of satellite radio in 4Q05."); Jonathan A. Jacoby, *Equity Research: Radio and TV Broadcasting*, Bank of America (May 25, 2006) (finding a shift in demand for satellite radio in 4Q'05 due to the "Stern Effect:" "The satellite radio buzz created by Howard Stern likely pulled forward some demand.").

²⁰⁰ Wachovia Securities, *XMSR: Here Comes Oprah; Would Wait on the Sidelines for Now* (Feb. 9, 2006) ("We believe that net this is a positive for XM and satellite radio in general, as it should bring more 'buzz' to the product.").

Merger Guidelines. The application of dynamic demand spillovers theory to this merger is appropriate because of the specific facts of this merger. Many other mergers will not have these or similar facts, and the theory of dynamic demand spillovers will not be applicable to the analysis of those mergers.

IV. SIDAK'S ADVERTISING WELFARE ANALYSIS

132. In several submissions to the Commission, Sidak has argued that the merger will reduce consumer welfare by leading to an increase in the number of commercials aired on satellite radio.²⁰¹ To analyze this issue, Sidak developed a formal economic model of satellite radio subscriber demand that depends on the number of commercials as well as price. However, Sidak's analysis is flawed by faulty empirical assumptions and a failure to take account of the profit-maximizing pricing incentives of the firm. When his analysis is corrected, it leads to the opposite result – that consumer welfare rises.
133. Sidak creates his premise – that the merged firm would substantially increase commercial minutes – by an unsupported extrapolation from statements of Sirius CEO Mel Karmazin. One source cited by Sidak is a September *Forbes* magazine article covering Karmazin's presentation at an investor conference:

Karmazin would like to see advertising revenue eventually make up about 10% of Sirius' total revenue, up from the current 4% to 5%. He acknowledges that one challenge in boosting the numbers is the company's relatively limited reach as a subscription service. The proposed merger with XM would help. "The more critical mass we get, the more we'll have an opportunity to exponentially add advertising revenue to our model," he said.²⁰²

But, said Mr. Karmazin, it is "cast in stone" that advertising will not be introduced on music channels that are commercial-free.²⁰³

134. Mr. Karmazin also pointed to the importance of reach for allowing the merged firm to increase advertising revenue in an earlier statement made when the merger was

²⁰¹ Sidak Supplemental at ¶42-44; Sidak 3rd Supplemental at 70-75; J. Gregory Sidak and Hal J. Singer, *Written Ex Parte Presentation in Connection with the Consolidated Application for Authority to Transfer Control in Connection with the Sirius/XM Merger (MB Docket No. 07-57)* (October 8, 2007), letter to Mr. Roy Stewart (hereinafter "Sidak-Singer 10-8-2007 Ex Parte Letter").

²⁰² Louis Hau, Sirius CEO Discusses The Biz, *Forbes* (9-17-2007), available at http://www.forbes.com/2007/09/17/sirius-xmradio-advertising-biz-media-cx_lh_0917karmazin_print.html (last visited October 15, 2007). Cited by Sidak 3rd Supplemental at ¶74.

²⁰³ *Id.*

FOR PUBLIC INSPECTION

announced. He explained that the merged firm would earn more revenue because the “reach” of the advertising would increase, “[a]dvertisers look for reach, and as one company, we will have twice the reach of what either company has on its own, and as a consequence access to a greater number of advertising accounts than we have on our own.”²⁰⁴ Higher “reach” increases the efficiency of advertising spots to advertisers, which typically raises the per-listener (or per-subscriber) price in the market for the sale of advertising spots.²⁰⁵ In light of the reach premium, a doubling of the share of advertising revenues in total revenue could be achieved with less than a doubling of advertising minutes sold.

135. Sidak quotes these statements of Mr. Karmazin, but extrapolates them into a much more expansive interpretation of the merged firm’s plans for advertising. In an earlier Declaration, Sidak argued that the merged firm might *quintuple* the amount of advertising.²⁰⁶ His most recent declaration continues to claim that, “the increase in commercial time posited above – from one minute per hour to five minutes per hour – is not unreasonable.”²⁰⁷ However, Sidak’s “quintupling assumption” is not reasonable.²⁰⁸ The doubling of advertising revenue as a percent of total revenue to which Mr. Karmazin referred certainly does not imply or require a quintupling of commercial minutes per hour, particularly if reach and other increases in value make advertisers willing to pay a somewhat higher price per thousand listeners for satellite radio ad spots.²⁰⁹ Yet his latest

²⁰⁴ See Thomson StreetEvents, *Final Transcript: Siri-Sirius (sic) Satellite Radio & XM Satellite Radio to Combine in Merger of Equals* (February 20, 2007) available at <http://online.wsj.com/documents/transcript-xmsr-20070220.pdf> (last visited July 17, 2007).

²⁰⁵ See CRA FCC Report at ¶131.

²⁰⁶ Sidak Supplemental at ¶43.

²⁰⁷ Sidak 3rd Supplemental at ¶74.

²⁰⁸ We criticized the realism of Sidak’s “quintupling assumption” in our initial report. CRA FCC Report at ¶151. Based on the later submissions, it appears that he may well have in mind a sextupling. In some places, he defines the variable t as the increase in the number of commercial minutes per hour. For example, see Sidak Supplemental at ¶43; Sidak 3rd Supplemental at ¶71, 72, 73. In other places, he seems to define t as the number of commercial minutes per hour. See Sidak-Singer 10-8-2007 Ex Parte Letter at page 5 (“assume that SDARS customers on average are exposed to one minute of commercials from third parties per hour of listening.”). Still other submissions describe t both ways. See Sidak-Singer Ex Parte Presentation 10/3/2007 at slide 15 (“ t = number of commercial minutes per hour;” $k(t)$ refers to “an increase of t commercials per minute [sic].”) (emphasis added). Of course, this inconsistent exposition makes it harder to pin down the benchmark being used, and he never reports the equations and calculations in a self-contained technical appendix. However, the model seems to compare positive values for t to $t=0$.

²⁰⁹ Sidak says that Mr. Karmazin’s objective would require a “significant increase in total advertising” since satellite radio subscriptions are expected to grow rapidly. Sidak 3rd Supplemental at ¶74. But since the revenue from an advertising spot increases more or less automatically with the number of listeners given the price per thousand for advertising spots, no increase in the amount of commercial time is required for advertising revenue to keep pace with subscription revenue as the number of subscribers increases. If anything, revenue from advertising spots

iteration still assumes a *tripling* of advertising minutes per hour.²¹⁰ This is still inexplicably larger than Mel Karmazin's aspiration.

136. We also criticized the realism of Sidak's model because of its expansive assumption that *half* of the value consumers place on satellite radio results from it being commercial-free.²¹¹ His assumption is highly unrealistic and unreasonable in light of several facts.

[REDACTED]

[REDACTED] Third, Mr. Karmazin did not propose to eliminate commercial-free satellite radio channels. He said that it was "cast in stone" that music channels would be kept commercial-free, so that any additional advertising would be on the currently commercial-supported channels.²¹⁴ Therefore, even after the merger, those subscribers who dislike commercials and listen to commercial-free music channels still will not hear any advertising.

137. However, Sidak's calculations are wrong for another more fundamental *analytic* reason. Sidak apparently assumes that the subscription price is not reduced in response to the increase in advertising.²¹⁵ An assumption of constant price is analytically incorrect. As we pointed out in our initial report, higher per subscriber advertising revenue would incentivize the merged firm to reduce the subscription price in order to generate more subscribers.²¹⁶

138. This is an important oversight because those profit-maximizing price reductions in principle may provide a partial or complete offset to the magnitude of alleged consumer

should grow more rapidly than subscribers as growth increases the reach and thus the price per thousand, even without any increase in commercial minutes. Sidak, however, ignores the "reach" premium as a reason why advertising rates and revenue might rise. Sidak-Singer 10-8-2007 Ex Parte Letter.

²¹⁰ *Id.* at 5.

²¹¹ CRA FCC Report at ¶151.

²¹² [REDACTED]

²¹³ [REDACTED]

²¹⁴ Louis Hau, Sirius CEO Discusses The Biz, *Forbes* (9-17-2007), available at http://www.forbes.com/2007/09/17/sirius-xmradio-advertising-biz-media-cx_lh_0917karmazin_print.html (last visited October 15, 2007).

²¹⁵ Sidak 3rd Supplemental at ¶71, 75.

²¹⁶ This is a standard result in 2-sided markets where there are two revenue streams. The increase in ancillary advertising revenues has exactly the same effect as a reduction in variable costs. Of course, here the demand curve also shifts down. See CRA FCC Report at ¶150.

harm from additional commercials. In Appendix B of this report, we have analyzed the profit-maximizing price for our understanding of Sidak's model. In fact, that model has the property that the firm would have the incentive to reduce its price in response to the introduction of more commercials.

139. Sidak assumed that the introduction of more commercials would lead to a reduction in the number of subscribers, perhaps a very large reduction. When the subscription price is reduced, however, the subscriber loss would be mitigated or might even become a subscriber gain. In fact, when we solved Sidak's model, we found that the profit-maximizing price would fall sufficiently that the number of subscribers would rise above the initial level, as shown in Appendix B.
140. Sidak claims to show that the increase in the number of commercials would lead to a reduction in consumer welfare. If the profit-maximizing subscription price is reduced and the number of subscribers increases, the welfare loss would be mitigated. Indeed, the price decrease could cause consumer welfare to rise despite the assumed distaste for commercials. In fact, when we solved Sidak's model and allowed price to find its profit-maximizing level, we found that consumer welfare rises when advertising increases. This occurs for all the parameter values for which the increase in commercials is profitable, as shown in Appendix B.
141. These results demonstrate the fundamental errors in the conclusions Sidak has drawn from his model. Solving his model correctly leads to a conclusion of consumer benefit, not consumer harm.

V. CONCLUSIONS

142. Thus, we continue to conclude that the market is broader than satellite radio, including other audio entertainment devices, content and services. In this market, the market share of the merged firm is sufficiently low that the merger would fall within the safe harbors of the Merger Guidelines.²¹⁷ Moreover, our analysis goes beyond market definition. Our competitive analysis demonstrates that the merger of Sirius and XM is highly unlikely to reduce competition and harm consumers. (Indeed, our conclusion on competitive effects would remain the same even if the relevant market definition were erroneously defined as consisting solely of satellite radio.) The merger of Sirius and XM is not likely to raise prices, relative to the outcome without the merger. Instead, the merger is likely to benefit consumers and increase the attractiveness and the output of the merged firm. There are several reasons for this conclusion. First, continued and increasing intermodal

²¹⁷ See CRA FCC Report at ¶91-94, Exhibit C.

competition will prevent the merged firm from exercising market power. Second, the merger will reduce prices by lowering costs and benefit consumers by raising product quality. Third, the merger will lead to further consumer welfare gains by increasing the incentives for cost-reducing and quality-enhancing investments, and will increase the incentives for lower penetration pricing. Fourth, the higher product quality, lower costs and increased investment incentives of the merged firm likely also will spur greater investment and innovation by other audio entertainment competitors. For all these reasons, the merger will benefit consumers and competition.²¹⁸

143. In short, our analysis implies – and we conclude – that the merger of Sirius and XM will lead to an increase in consumer welfare. The merger will lead to (a) an increase in the number of subscribers of the merged firm, (b) a reduction in the level of prices, and (c) an increase in product quality, all relative to what likely would prevail if the merger does not occur. These are the three key markers for an increase in consumer welfare.

²¹⁸ Our competitive effects analysis did not analyze the efficacy of the parties' pricing commitments as a behavioral relief because we concluded that no remedy is necessary. Our analysis also is fully consistent with Salop's article cited by Sidak. Steven C. Salop, *Question: What is the Real and Proper Antitrust Welfare Standard? Answer: The True Consumer Welfare Standard* (November 2005) (Unpublished Paper submitted to the AMC). Sidak 3rd Supplemental at ¶86.

Appendix A

**Econometric Analysis of the Relationship between Satellite Radio
Penetration and Terrestrial Radio Coverage**

Timothy H. Savage

Martino De Stefano

Steven R. Brenner

CRA International

1. INTRODUCTION

Our earlier report filed with the FCC presented a cross-section analysis of geographic variation across ZCTAs (Census Bureau areas that closely approximate ZIP codes) in satellite radio (“SR”) penetration and the number of terrestrial radio (“TR”) signals received.¹ Included was an econometric analysis of the SR-TR relationship that controlled for a number of other important factors including income, gender mix, and the percentage of the population commuting by car.²

The analysis examined how changes in the number of TR signals received – and thus in the relative quality of terrestrial radio and satellite radio – affect the demand for SR service, holding constant the price of SR. A larger number of TR signals reduces the quality advantage of SR relative to TR.³ The analysis found a clear inverse relationship between SR penetration and the number of TR signals, which supports the conclusion that consumers view AM/FM radio and satellite radio as good substitutes. If consumers view SR and TR as substitutes, the proportion of consumers purchasing SR should fall with increases in the number of TR signals (which is a proxy for the relative quality of TR), *ceteris paribus*.

This appendix describes in greater detail the econometric analysis in our earlier report and the data on which it is based. It also presents extensions of that analysis to examine

¹ CRA FCC Report at ¶¶24-28 and Exhibit B. Curriculum Vitae for Timothy Savage and Martino De Stefano are attached as an Exhibit to this Appendix. The Curriculum Vita for Steven Brenner was attached to the earlier report.

² In this memorandum, we refer to the econometric analysis in the FCC paper as the “baseline specification.”

³ Sidak disagrees. Sidak 3rd Supplemental at ¶30. We analyze, and reject, Sidak’s objection at Section II.C.2 of this report.

REDACTED

FOR PUBLIC INSPECTION

the robustness of its results. We find that the inverse relationship between SR penetration and TR signals is not sensitive to the inclusion of additional explanatory variables or to alternative functional forms and statistical specifications.

2. DATA

The analysis discussed in the FCC paper uses data on the number of XM plus Sirius [REDACTED] subscribers by ZIP code [REDACTED]. The objective was to analyze how the availability of TR service affects consumer decisions to subscribe to SR. [REDACTED] subscribers are those subscribers who choose to pay for their subscriptions. [REDACTED]

XM and Sirius purchased data from BIA Research, Inc. ("BIA") on the number of AM/FM radio stations reaching each Census block.⁴ BIA used the 2 mV/m contours for AM stations and the 60dBu contours for FM stations to determine the number of AM and FM stations reaching the centroid of each Census block. The BIA data also included counts of the total resident population of each Census block based on the 2000 U.S. Census. In order to merge the Census block data on the number of TR stations with SR subscriber data by ZIP code, we used ZIP Code Tabulation Areas ("ZCTAs"), which were developed by the Census Bureau.⁵ ZCTAs closely approximate ZIP codes and are exact aggregations of Census blocks. From the number of AM and FM signals received in each Census block, we calculated the weighted average number of TR signals received in each ZCTA using the population of each Census block (as a share of the total ZCTA population) as weights.

Data on the average number of TR stations received in each ZCTA were then merged with data on the number of [REDACTED] SR subscribers in the corresponding ZIP code. In the process, data for [REDACTED] SR subscribers whose ZIP code information could not be matched to a ZCTA were dropped. These included subscribers for whom no valid ZIP code was reported and subscribers whose reported ZIP code corresponds to a point, such as a P.O. box. In addition, all data for ZCTAs with a Census population count of zero

⁴ Our analysis uses only information for Census blocks in the lower-48 states, as XM and Sirius historically has not been as generally available in Hawaii, Alaska, or Puerto Rico.

⁵ For a complete description of ZCTAs, see <http://www.census.gov/geo/ZCTA/zctafaq.html>. There are approximately 45,000 ZIP codes in the U.S., but only approximately 33,000 ZCTAs. The difference between the two is driven by those ZIP codes used for particular points, such as P.O. boxes, rather than those used for geographic areas.

REDACTED

FOR PUBLIC INSPECTION

were excluded (including any subscribers with those ZIP codes).⁶

The steps described to this point were used to construct the dataset used in our FCC analysis. For the analysis here, one change was made to the procedure used to construct the dataset used for the FCC analysis. [REDACTED]

[REDACTED]⁷ The resulting dataset contained information for [REDACTED] of all XM and Sirius [REDACTED] subscribers.⁸

Finally, using extracts from the 2000 U.S. Census, we merge data for variables, as described below, that measure other factors we believe may directly influence SR penetration.⁹ As a result of these multiple steps, our final analytic dataset contains ZCTA-level information on the number of XM and Sirius [REDACTED] subscribers, the weighted average number of TR signals they are able to receive, and other factors that affect SR penetration.

Using this dataset, Figure A1 at the end of this Appendix plots average SR penetration rates against the number of TR signals. Figure A1 here corresponds to Figure B1 in our earlier FCC report.¹⁰ This plot clearly shows an inverse relationship between average SR penetration and the number of TR signals. We recognize, however, that SR penetration may vary across areas for reasons other than the number of TR signals received, which motivated our further econometric analysis.

The analysis in our earlier FCC report exploits geographic variation in SR penetration to investigate the relationship between SR penetration and the number of TR signals, accounting for important factors such as income. In this analysis, we do not observe individual choices; rather, we have data on the aggregate response of groups of

⁶ [REDACTED]

⁷ [REDACTED]

⁸ This is [REDACTED] included in the dataset for the analysis presented in the FCC paper; [REDACTED]. The dataset used here includes [REDACTED]

⁹ Table A1 contains summary statistics for the SR penetration rates that we analyze and for other variables used in the analyses. Tables and figures are attached at the end of this appendix.

¹⁰ [REDACTED]

FOR PUBLIC INSPECTION

individuals (so-called grouped or proportions data).¹¹ More specifically, we have data that are grouped at the ZCTA level. Accordingly, an observation in our analytical dataset is a vector $\{N_i, \bar{P}_i, T_i, \bar{X}_i\}$, $i = 1, \dots, N$, where N_i is the number of individuals living in ZCTA i , \bar{P}_i is the proportion of those individuals who are SR subscribers (so-called penetration rate), T_i is the number of TR signals in ZCTA i , and \bar{X}_i is set of observable characteristics that affect satellite radio penetration.¹² Specifically, we model the aggregate probabilistic relationship between SR penetration and the number of TR signals, accounting for other relevant factors, as a grouped-data probit:

$$\bar{P}_i = \Phi[g(T_i, \theta) + \beta \bar{X}_i] + \varepsilon_i \quad (1)$$

where $\Phi[\cdot]$ is the standard normal cumulative distribution, $g(\cdot)$ is a flexible parameterization of the number of terrestrial radio signals, θ and β are parameters to be estimated, and ε_i is an error term.¹³

In our baseline specification, \bar{X}_i consists of variables that we believe affect the demand for SR:

- Median income and median income squared.
- The percentage of people commuting by car.
- The percentage of people who live in urban areas.
- The interaction of the percentage commuting by car and the percentage living in urban areas.
- The percentage of females.

The variable of interest in this analysis is the number of terrestrial radio signals, T_i . We

¹¹ At the individual level, the decision to subscribe to SR is a binary choice. Penetration rates at the group level are derived from the aggregation of individual choices.

¹² Satellite radio penetration is defined as number of [REDACTED] subscribers divided by total ZCTA population. For the limited number of observations for which the computed penetration rate exceeds 100%, we set the penetration rate equal to 100% for our econometric analysis. Out of a total of 31,437 ZCTAs in our dataset, [REDACTED] Generally these ZCTAs also have small populations and thus will have relatively small impacts on results given the weighting scheme. The results are robust to the exclusion of these observations.

¹³ For a discussion of this grouped-data probit specification, see William H. Greene, *ECONOMETRIC ANALYSIS*, 4th Edition (Prentice Hall, 2000), at 834-7. We note that the log likelihood function, as shown on Greene, p. 836, explicitly includes a weighting scheme such that observations with larger populations at the ZCTA level are given greater weight. Moreover, we note that the use of aggregated data induces heteroscedasticity because the variance of the error term is a decreasing function of population.

use a flexible functional form for $g(\cdot)$ to impose minimal constraints on the way in which the number of TR signals affects SR penetration. For our baseline specification, we choose a fifth-degree polynomial:

$$g(T_i, \theta) = \theta_1 T_i + \theta_2 T_i^2 + \theta_3 T_i^3 + \theta_4 T_i^4 + \theta_5 T_i^5 \quad (2)$$

Consistent with standard probability models, however, the estimated coefficients cannot be readily interpreted as the marginal effect of a particular variable on SR penetration. Our primary interest is the effect of the number of TR signals on predicted SR penetration, holding constant other factors (in this analysis, at their median values). Accordingly, we focus on the predicted SR penetration rate:

$$\hat{P}(T) = \Phi[g(T, \hat{\theta}) + \hat{\beta} \bar{X}] \quad (3)$$

where $\hat{\theta}$ and $\hat{\beta}$ are parameters estimated using maximum likelihood and \bar{X} is the vector of right-hand side variables (other than TR signals) evaluated at their median values.¹⁴ We present plots of predicted penetration rates against the number of TR signals.

3. RESULTS FOR BASELINE SPECIFICATION

Figure A2, which corresponds to Figure B2 in our FCC paper, plots the predicted SR penetration based on Equation (3).¹⁵ As in Figure A1, there is a clear inverse relationship between SR penetration and the number of TR signals, which is considerably more pronounced in those areas that receive relatively few TR signals. We find that the availability of TR signals has a substantial effect on predicted SR penetration, holding constant other factors. Predicted SR penetration is [REDACTED] in those ZCTAs with zero TR signals and [REDACTED] with one TR signal; it [REDACTED] with six TR signals and [REDACTED] with nine TR signals. [REDACTED]

4. ROBUSTNESS OF BASELINE SPECIFICATION

We now examine whether the results obtained using our baseline specification are sensitive to the inclusion of additional explanatory variables or to alternative functional

¹⁴ Tables at the end of this Appendix contain detailed regression results for all analyses discussed here. For example, Table A2 contains detailed regression results for the baseline specification that is displayed in Figure A2, Table A3 the results for the predicted penetration rates displayed in Figure A3, and so on. The results plotted here and presented in Table A2 differ from those of Figure B2 and Table B2 of our earlier FCC Report only because [REDACTED]

¹⁵ As noted above, predicted SR penetration is plotted holding all other variables constant at their median values.

forms.

a) ADDITIONAL EXPLANATORY VARIABLES

We first examine the sensitivity of the results of our baseline specification to the inclusion of additional explanatory variables.¹⁶ We add to the baseline specification variables measuring the following:

- Age composition by gender.¹⁷
- Educational attainment.¹⁸
- The percentage of people who commute more than 45 minutes but do not use public transportation, interacted with percentage of population who go to work by car.¹⁹

Based on the log-likelihood function values reported in Table A3, the inclusion of the additional variables improves the overall fit of the model. [REDACTED]

[REDACTED]

Figures A3 plots the predicted total penetration rate, setting the additional variables at their median values. Each figure also plots SR penetration as predicted by the

¹⁶ As discussed in the body of this report, Sidak claims that our earlier analysis fails to control adequately for demographic heterogeneity. Sidak 3rd Supplemental at ¶30.

¹⁷ As regressors, we use the percentage of population who fall in each of the following gender/age categories: (1) males 0 to 15, (2) males 16 to 21; (3) males 22 to 39; (4) males 40 to 66; (5) males older than 66; (6) females 0 to 15; (7) females 16 to 21; (8) females 22 to 39; and (9) females 40 to 66. Therefore, the omitted category is females older than 66.

¹⁸ As regressors, we use the percentage of population who have a: (1) graduate or professional degree; (2) a bachelor's degree; (3) a high school degree, some college, or an associate's degree. Therefore, the omitted category is the percentage of population with less than a high-school degree.

¹⁹ In this specification, we drop the interaction of the percentage of people commuting by car and the percentage of people who live in urban areas in favor of this interacted variable. We continue to include the percentage of people who live in urban areas.

²⁰ As with standard probability models, the estimated coefficients of the grouped-data probit are not marginal effects and cannot be compared directly across different specifications. We note that the additional variables generally do not alter the sign and significance of the explanatory variable used in the baseline specification.

corresponding baseline specification. While the overall fit of the model improves, the relationships between SR penetration and number of TR signals remain very similar to those found using the baseline specification, which suggests that the basic empirical finding in the FCC paper is robust.

b) FUNCTIONAL FORM

In our baseline specification, we parameterized the effect of number of TR signals on SR penetration as a fifth degree polynomial. We have confirmed that the finding of a negative relationship between TR signals and SR penetration is not sensitive to this choice of functional form. In this section, we present results based on a still more flexible functional form that uses indicator variables rather than a polynomial. We created a series of indicator variables for each area with zero to 65 TR signals, using a single indicator (which is the omitted category) for those areas with greater than 65 signals. Formally, we specify the function $g(\cdot)$ in Equation (1) to be:

$$g(T_i, \theta) = \sum_{k=0}^{65} \theta_k T_{i,k} \tag{4}$$

where $T_{i,k}$ is an indicator variable that takes on value one if the number of TR signals in ZCTA is greater than $k-0.5$ and less than or equal to $k+0.5$, and zero otherwise. Other regressors are the same as in the baseline specification. As before, the coefficients are estimated using maximum likelihood.²¹ Figure A4 plots the predicted value for total SR penetration using the variables in the baseline specification at their median values. The figure also plots the values predicted by the corresponding baseline (polynomial) specification. As can be seen, the results of the revised and benchmark specifications are very similar.

c) ALTERNATIVES TO GROUPED-DATA PROBIT

Finally, we examine whether the finding of a negative relationship between SR penetration and the number of TR signals is robust to our choice of statistical specification and estimation technique. Frequently used alternatives are the grouped-data logit and linear probability models. The grouped-data logit specifies the penetration rate to be:

$$\bar{P}_i = \exp \left[g(T_i, \theta) + \beta \bar{X}_i \right] / \left\{ 1 + \exp \left[g(T_i, \theta) + \beta \bar{X}_i \right] \right\} + \bar{\varepsilon}_i \tag{5}$$

While the linear probability model specifies it to be:

²¹ Comparing the log-likelihood values in Tables A2 and A4, we note that the use of a more flexible parameterization does not markedly improve the fit of the model.

REDACTED

FOR PUBLIC INSPECTION

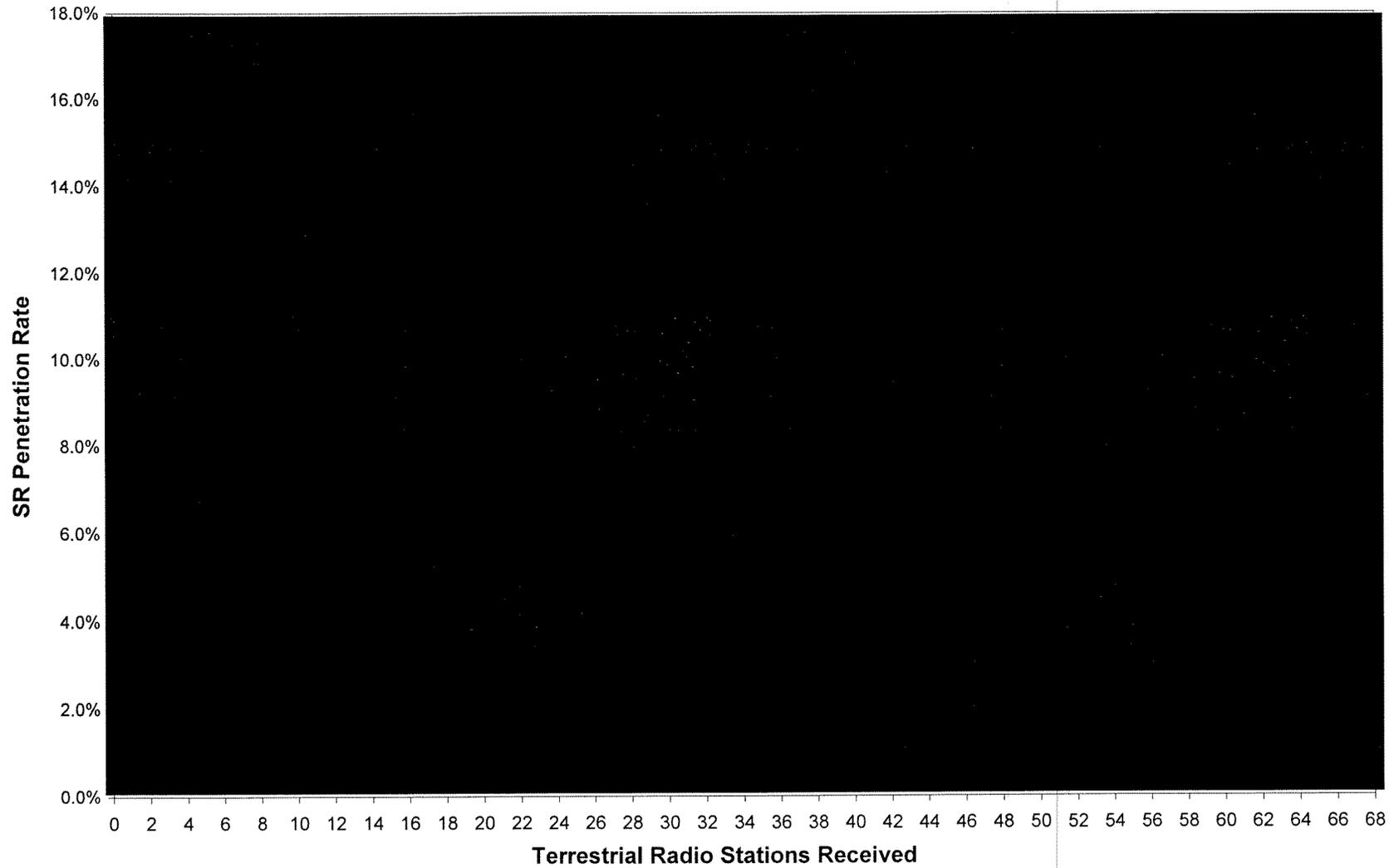
$$\bar{P}_i = g(T_i, \theta) + \beta \bar{X}_i + \bar{\varepsilon}_i \quad (6)$$

The grouped-data logit model is estimated using maximum likelihood, while the linear probability model is estimated using least squares. We have little basis to prefer the grouped-data logit to the grouped-data probit, absent strong structural or distributional assumptions. On the other hand, we tend to prefer both of these statistical specifications to the linear probability model. In part, this is because the linear probability model can predict probabilities that are outside of the unit interval. More importantly, estimates of the linear probability model may be biased and inconsistent.²² To address the issue of heteroscedasticity that is common to linear probability models, we estimate the model using ZCTA population as weights.

Figure A5 plots the predicted penetration rate for total penetration using the logit and linear probability models. Again, we have evaluated the variables at their median values. Our basic findings are robust to these alternative statistical specifications.

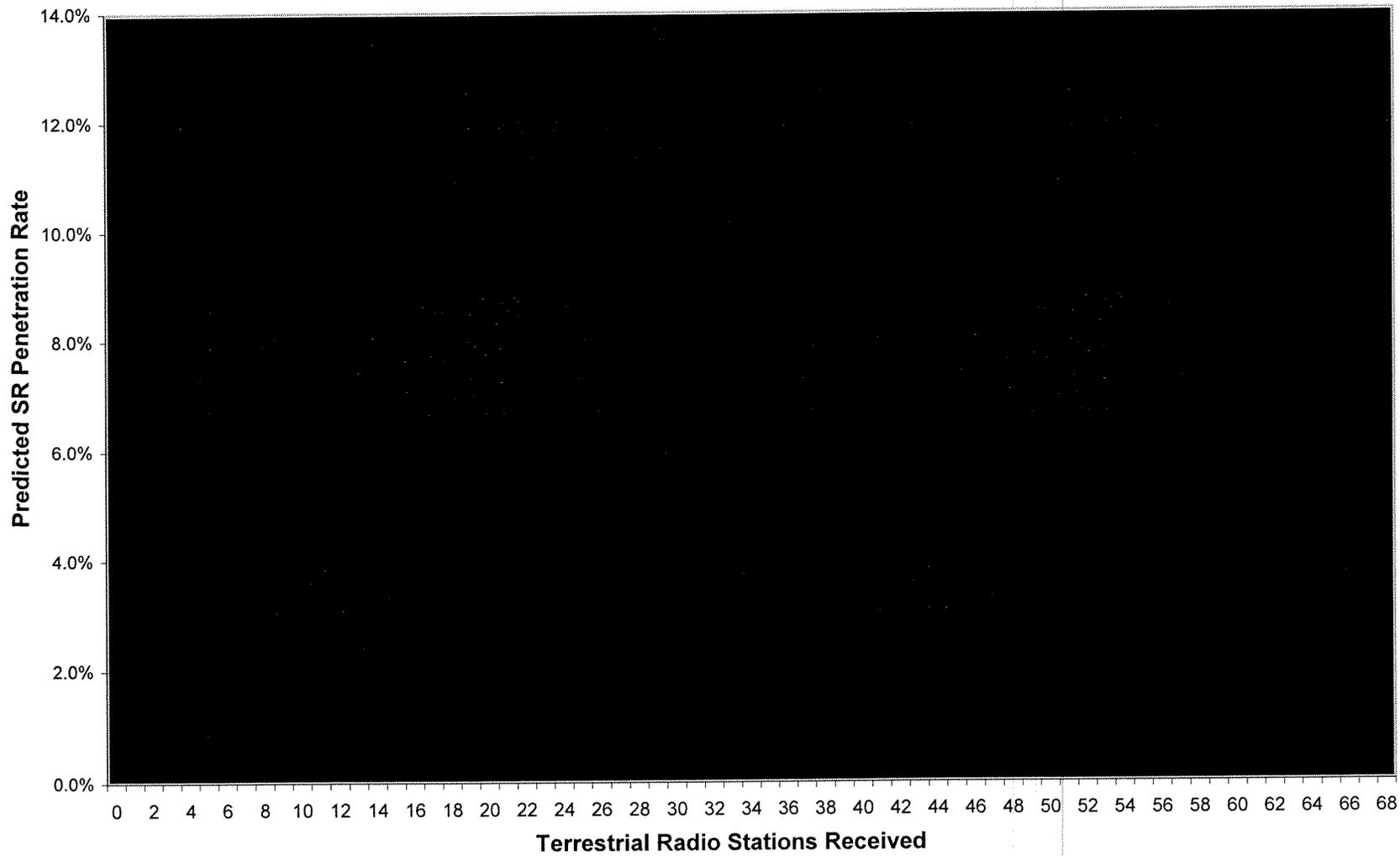
²² See William C. Horrace and Ronald L. Oaxaca, *Results on the bias and inconsistency of ordinary least squares for the linear probability model*, ECONOMIC LETTERS, Volume 90, Issue 3, March 2006, pp 321-327.

Figure A1
Relationship Between SR Penetration Rate and Number of TR Signals



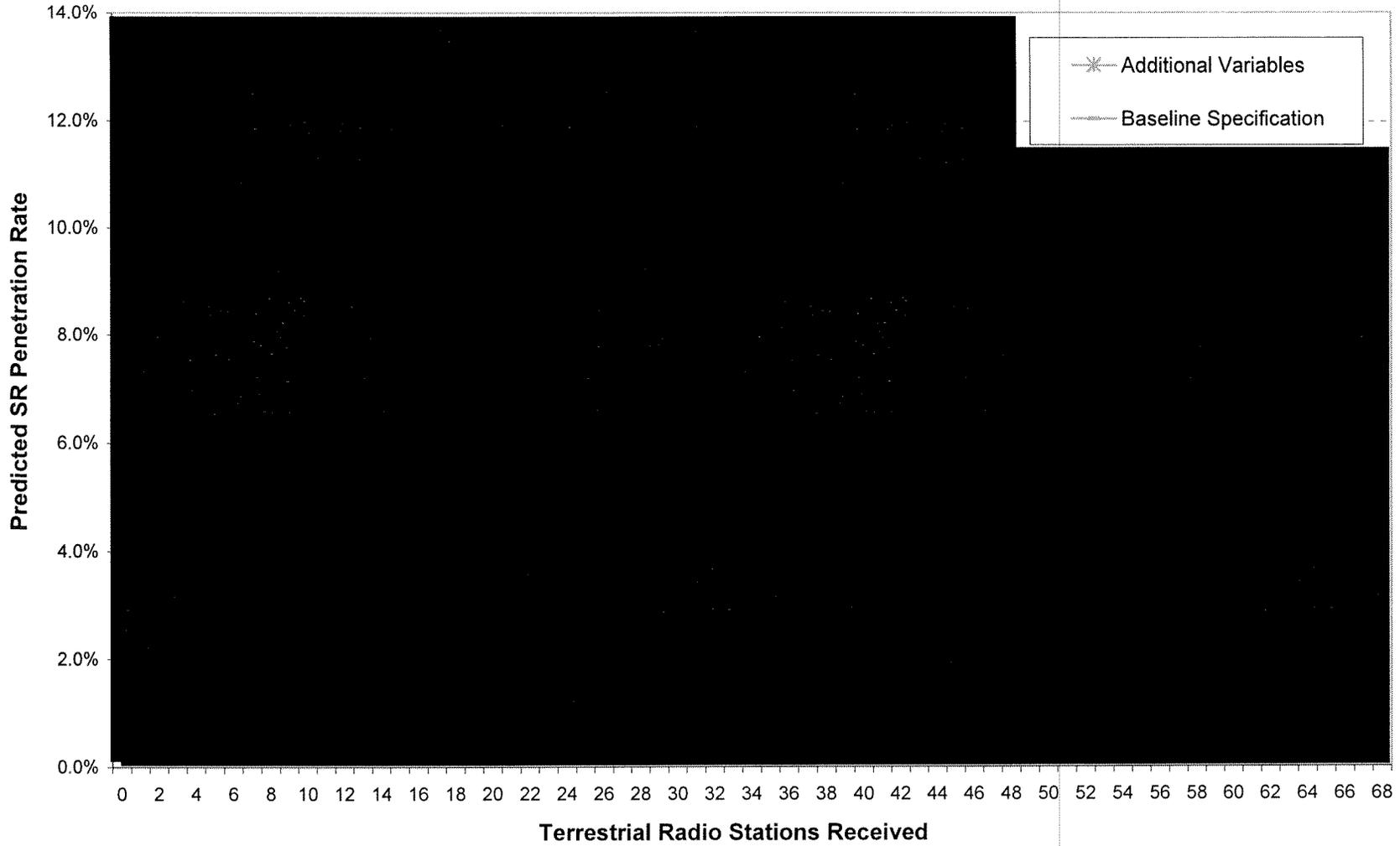
REDACTED
FOR PUBLIC INSPECTION

Figure A2
Relationship Between Predicted SR Penetration Rate and Number of TR Signals
Baseline



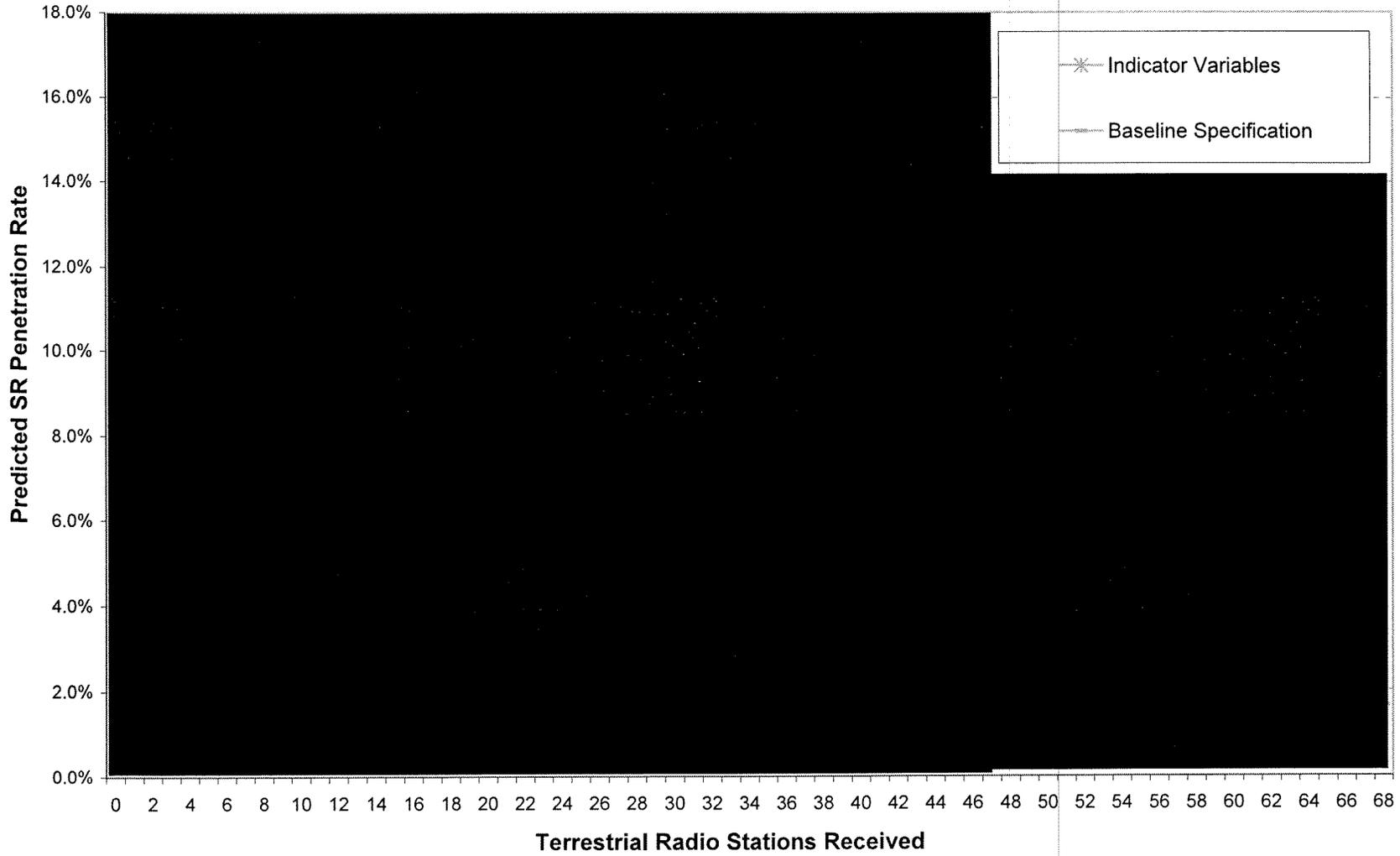
REDACTED
FOR PUBLIC INSPECTION

Figure A3
Relationship Between Predicted SR Penetration Rate and Number of TR Signals
Additional Explanatory Variables Included



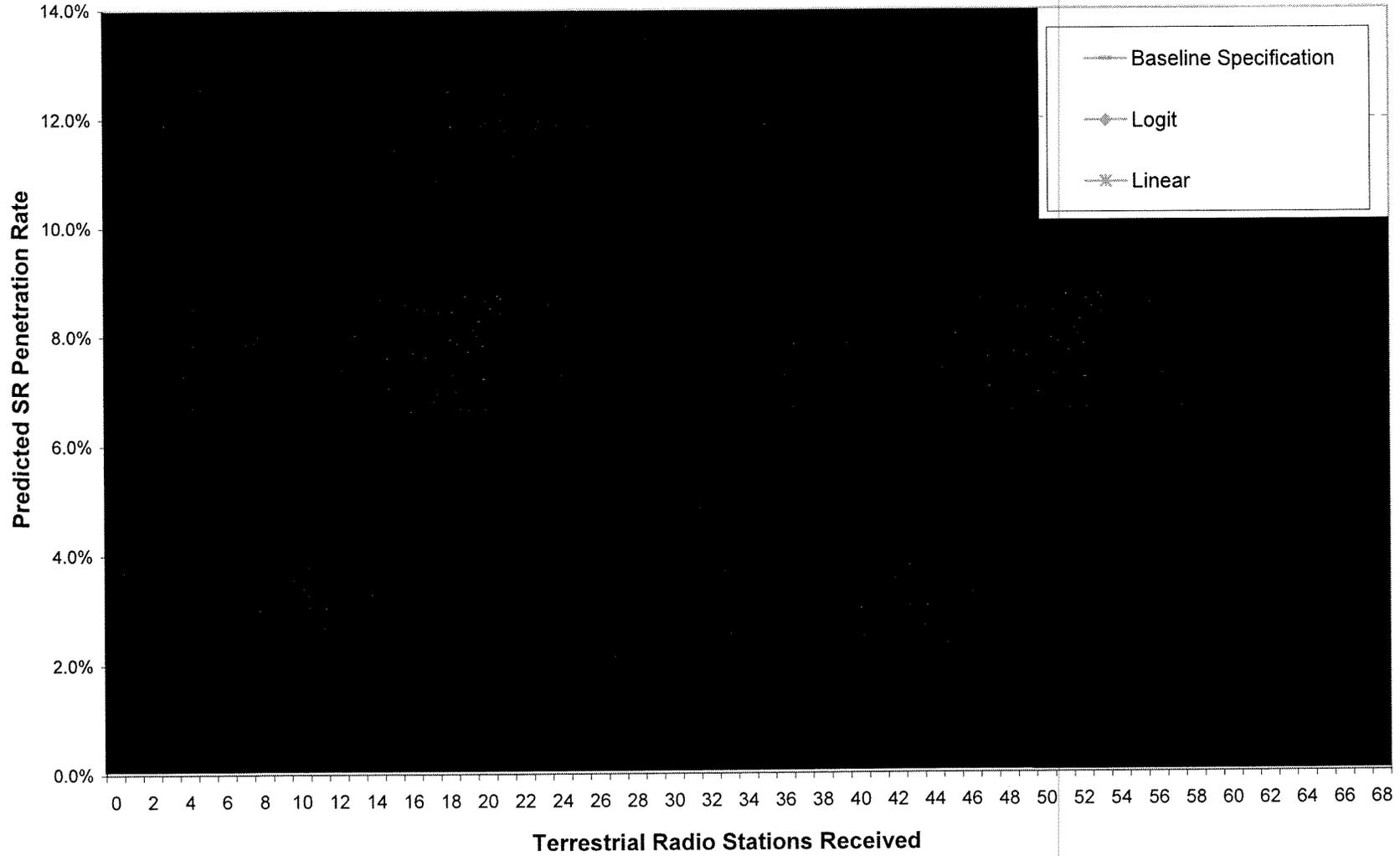
REDACTED
FOR PUBLIC INSPECTION

Figure A4
Relationship Between Predicted SR Penetration Rate and Number of TR Signals
Coverage Dummies Approach



REDACTED
FOR PUBLIC INSPECTION

Figure A5
Relationship Between Predicted SR Penetration Rate and Number of TR Signals
Logit & Linear Probability Models



REDACTED
FOR PUBLIC INSPECTION

Table A1: Summary Statistics

| Variable | Mean | Median | Standard Deviation |
|---------------------------------------------------------------------------------------------|-------|--------|--------------------|
| Satellite Radio Penetration Rate | | | |
| Number of TR Signals | 19.4 | 15.6 | 13.3 |
| Median Household Income | 39.7 | 36.3 | 16.2 |
| % Go to Work by Car | 39.5% | 40.6% | 9.1% |
| % Live in Urban Area | 35.9% | 0.0% | 42.9% |
| [% Go to Work by Car] * [% Commute 45 Minutes or More and do not Use Public Transportation] | 2.7% | 2.2% | 2.4% |
| % Female | 50.2% | 50.7% | 4.5% |
| % Male Between Ages 0 and 15 | 11.4% | 11.5% | 3.5% |
| % Male Between Ages 16 and 21 | 4.2% | 3.9% | 2.8% |
| % Male Between Ages 22 and 39 | 11.8% | 11.4% | 4.4% |
| % Male Between Ages 40 and 66 | 17.0% | 16.7% | 4.4% |
| % Male Age 67 or Older | 5.5% | 5.0% | 3.3% |
| % Female Between Ages 0 and 15 | 10.8% | 10.9% | 3.4% |
| % Female Between Ages 16 and 21 | 3.8% | 3.6% | 2.6% |
| % Female Between Ages 22 and 39 | 11.5% | 11.6% | 3.3% |
| % Female Between Ages 40 and 66 | 17.0% | 16.8% | 4.2% |
| % Have Graduate Degree | 4.3% | 2.9% | 4.7% |
| % Have Bachelor Degree | 8.3% | 6.7% | 6.2% |
| % HS Degree or Some College | 46.0% | 46.8% | 9.1% |

Source: Terrestrial radio coverage and population data from BIA Research, Inc. Data on XM and Sirius subscribers as of 4/25/2007. Census, ZIP code, ZCTA, and population data from U.S. Census 2000 State Geography Files. For technical documentation on mapping between Census Block, ZIP code, and ZCTA, see Summary File 1, 2000 Census of Population and Housing, Technical Documentation, Issued March 2005. Demographic data are from the U.S. Census 2000 American Fact Finder.

REDACTED
FOR PUBLIC INSPECTION

**Table A2: Relationship Between Predicted SR Penetration Rate and Number of TR Signals
Baseline**

| | Probit Model | |
|------------------------------------------------|--------------|--|
| TR Signals | | |
| TR Signals^2 | | |
| TR Signals^3 | | |
| TR Signals^4 | | |
| TR Signals^5 | | |
| Income | | |
| Income^2 | | |
| % Go to Work by Car | | |
| % Live in Urban Area | | |
| [% Go to Work by Car] * [% Live in Urban Area] | | |
| % Female | | |
| Constant | | |
| Observations | | |
| Log-likelihood | | |

Notes:

Coefficients are in bold, and t statistics are in brackets; * significant at 5%; ** significant at 1%. Standard errors clustered by 3-digit ZCTAs. Probit models estimated by maximum likelihood.

Source: Source data for Table A1.

REDACTED
FOR PUBLIC INSPECTION

**Table A3: Relationship Between Predicted SR Penetration Rate and Number of TR Signals
Additional Explanatory Variables Included**

| | Probit Model | | Probit Model: Additional Explanatory Variables | |
|---------------------------------------------------------------------------------------------|------------------------|--|------------------------------------------------|--|
| | Baseline Specification | | Total | |
| | Total | | Total | |
| TR Signals | | | | |
| TR Signals^2 | | | | |
| TR Signals^3 | | | | |
| TR Signals^4 | | | | |
| TR Signals^5 | | | | |
| Income | | | | |
| Income^2 | | | | |
| % Go to Work by Car | | | | |
| % Live in Urban Area | | | | |
| [% Go to Work by Car] * [% Live in Urban Area] | | | | |
| % Female | | | | |
| [% Go to Work by Car] * [% Commute 45 Minutes or More and do not Use Public Transportation] | | | | |
| % Male Between Ages 0 and 15 ⁽¹⁾ | | | | |
| % Male Between Ages 16 and 21 ⁽¹⁾ | | | | |
| % Male Between Ages 22 and 39 ⁽¹⁾ | | | | |
| % Male Between Ages 40 and 66 ⁽¹⁾ | | | | |
| % Male Age 67 or Older ⁽¹⁾ | | | | |
| % Female Between Ages 0 and 15 ⁽¹⁾ | | | | |
| % Female Between Ages 16 and 21 ⁽¹⁾ | | | | |
| % Female Between Ages 22 and 39 ⁽¹⁾ | | | | |
| % Female Between Ages 40 and 66 ⁽¹⁾ | | | | |
| % Have Graduate or Professional Degree ⁽²⁾ | | | | |
| % Have Bachelor Degree ⁽²⁾ | | | | |
| % HS Degree or Some College ⁽²⁾ | | | | |
| Constant | | | | |
| Observations | | | | |
| Log-likelihood | | | | |

Notes:

Coefficients are in bold, and t statistics are in brackets; * significant at 5%; ** significant at 1%. Standard errors clustered by 3-digit ZCTAs.

Probit models estimated by maximum likelihood.

(1) Omitted category is "% Female Age 67 or Older."

(2) Omitted category is "% Have Less than High School Degree."

Source: Source data for Table A1.

REDACTED

FOR PUBLIC INSPECTION

Table A4: Relationship Between Predicted SR Penetration Rate and Number of TR Signals
Coverage Dummies Approach

| | Probit Model |
|------------------------------|--------------|
| 0 TR Signals ⁽¹⁾ | |
| 1 TR Signals ⁽¹⁾ | |
| 2 TR Signals ⁽¹⁾ | |
| 3 TR Signals ⁽¹⁾ | |
| 4 TR Signals ⁽¹⁾ | |
| 5 TR Signals ⁽¹⁾ | |
| 6 TR Signals ⁽¹⁾ | |
| 7 TR Signals ⁽¹⁾ | |
| 8 TR Signals ⁽¹⁾ | |
| 9 TR Signals ⁽¹⁾ | |
| 10 TR Signals ⁽¹⁾ | |
| 11 TR Signals ⁽¹⁾ | |
| 12 TR Signals ⁽¹⁾ | |
| 13 TR Signals ⁽¹⁾ | |
| 14 TR Signals ⁽¹⁾ | |
| 15 TR Signals ⁽¹⁾ | |
| 16 TR Signals ⁽¹⁾ | |
| 17 TR Signals ⁽¹⁾ | |
| 18 TR Signals ⁽¹⁾ | |
| 19 TR Signals ⁽¹⁾ | |
| 20 TR Signals ⁽¹⁾ | |
| 21 TR Signals ⁽¹⁾ | |
| 22 TR Signals ⁽¹⁾ | |
| 23 TR Signals ⁽¹⁾ | |
| 24 TR Signals ⁽¹⁾ | |
| 25 TR Signals ⁽¹⁾ | |
| 26 TR Signals ⁽¹⁾ | |
| 27 TR Signals ⁽¹⁾ | |
| 28 TR Signals ⁽¹⁾ | |
| 29 TR Signals ⁽¹⁾ | |
| 30 TR Signals ⁽¹⁾ | |
| 31 TR Signals ⁽¹⁾ | |
| 32 TR Signals ⁽¹⁾ | |
| 33 TR Signals ⁽¹⁾ | |
| 34 TR Signals ⁽¹⁾ | |
| 35 TR Signals ⁽¹⁾ | |
| 36 TR Signals ⁽¹⁾ | |

Continues in
Following Page

REDACTED

FOR PUBLIC INSPECTION

Table A4: Relationship Between Predicted SR Penetration Rate and Number of TR Signals Coverage Dummies Approach

| | Probit Model | |
|------------------------------------------------|--------------|--|
| 37 TR Signals ⁽¹⁾ | | |
| 38 TR Signals ⁽¹⁾ | | |
| 39 TR Signals ⁽¹⁾ | | |
| 40 TR Signals ⁽¹⁾ | | |
| 41 TR Signals ⁽¹⁾ | | |
| 42 TR Signals ⁽¹⁾ | | |
| 43 TR Signals ⁽¹⁾ | | |
| 44 TR Signals ⁽¹⁾ | | |
| 45 TR Signals ⁽¹⁾ | | |
| 46 TR Signals ⁽¹⁾ | | |
| 47 TR Signals ⁽¹⁾ | | |
| 48 TR Signals ⁽¹⁾ | | |
| 49 TR Signals ⁽¹⁾ | | |
| 50 TR Signals ⁽¹⁾ | | |
| 51 TR Signals ⁽¹⁾ | | |
| 52 TR Signals ⁽¹⁾ | | |
| 53 TR Signals ⁽¹⁾ | | |
| 54 TR Signals ⁽¹⁾ | | |
| 55 TR Signals ⁽¹⁾ | | |
| 56 TR Signals ⁽¹⁾ | | |
| 57 TR Signals ⁽¹⁾ | | |
| 58 TR Signals ⁽¹⁾ | | |
| 59 TR Signals ⁽¹⁾ | | |
| 60 TR Signals ⁽¹⁾ | | |
| 61 TR Signals ⁽¹⁾ | | |
| 62 TR Signals ⁽¹⁾ | | |
| 63 TR Signals ⁽¹⁾ | | |
| 64 TR Signals ⁽¹⁾ | | |
| 65 TR Signals ⁽¹⁾ | | |
| Income | | |
| Income^2 | | |
| % Go to Work by Car | | |
| % Live in Urban Area | | |
| [% Go to Work by Car] * [% Live in Urban Area] | | |
| % Female | | |
| Constant | | |
| Observations | | |
| Log-likelihood | | |

Notes:
Coefficients are in bold, and t statistics are in brackets; * significant at 5%; ** significant at 1%. Standard errors clustered by 3-digit ZCTAs.
Probit models estimated by maximum likelihood.
(1) Omitted category is "More than 65 TR Signals."

Source: Source data for Table A1.

**Table A5: Relationship Between Predicted SR Penetration Rate and Number of TR Signals
Logit & Linear Probability Models**

| | Probit Model <i>Baseline Specification</i> | Logit Model | Linear Model |
|------------------------------------------------|------------------------------------------------------|--------------------|---------------------|
| TR Signals | | | |
| TR Signals^2 | | | |
| TR Signals^3 | | | |
| TR Signals^4 | | | |
| TR Signals^5 | | | |
| Income | | | |
| Income^2 | | | |
| % Go to Work by Car | | | |
| % Live in Urban Area | | | |
| [% Go to Work by Car] * [% Live in Urban Area] | | | |
| % Female | | | |
| Constant | | | |
| Observations | | | |
| Log-likelihood | | | |

Notes:

Coefficients are in bold, and t statistics are in brackets; * significant at 5%; ** significant at 1%. Standard errors clustered by 3-digit ZCTAs. Probit and logit models estimated by maximum likelihood. Linear probability models estimated by population weighted least squares.

Source: Source data for Table A1.

REDACTED
FOR PUBLIC INSPECTION

REDACTED

FOR PUBLIC INSPECTION



INTERNATIONAL

TIMOTHY H. SAVAGE

Principal

Ph.D. Economics,
The University of North Carolina,
Chapel Hill

B.A. Economics,
The University of Maryland,
College Park

Timothy H. Savage, Principal, specializes in financial and labor economics, econometrics, and empirical industrial organization. In the area of financial economics, Dr. Savage has conducted statistical analyses of discrimination claims in mortgage underwriting and pricing as well as claims of redlining in mortgage lending and insurance. In the area of labor economics, he has examined a variety of workplace practices, including pay, promotion, discipline, and termination, to assess pattern or practice claims of discrimination. He has also calculated damages in numerous wrongful termination suits and in complex commercial litigation matters.

In antitrust analysis, Dr. Savage has extensive experience in the statistical estimation of price and demand relationships to infer market definition. He has evaluated the unilateral and coordinated effects of vertical and horizontal mergers and whether multiproduct discounts are anticompetitive. He also conducted analyses of commonality, typicality, and predominance associated with class certification.

Dr. Savage's published research examines the long-term effects of youth unemployment using complex statistical methods to account for workers' prior labor force and schooling decisions. He has also published empirical analyses of consumers' willingness to pay for haze reduction and visibility improvement.

PROFESSIONAL EXPERIENCE

2007–Present *Principal*, CRA International, New York.

2005–2007 *Principal*, ERS Group

2002–2005 *Principal* (2005), *Associate Principal* (2002–2005), *Senior Associate* (1999–2001),
CRA International, Washington, D.C.

2001–2002 *Senior Economist*, Welch Consulting Ltd., Washington, D.C.

PROFESSIONAL AFFILIATIONS

- American Economic Association
- American Bar Association

HONORS AND AWARDS

- Phi Beta Kappa, 1990

PUBLICATIONS AND RESEARCH

"The Long-Term Effects of Youth Unemployment." With Thomas A. Mroz. *Journal of Human Resources*, Vol. 41, No. 2, pp. 259-293.

"Methods and Results from a New Survey of Values for Eastern Regional Haze Improvements." With Anne E. Smith, Michael A. Kemp, and Catherine L. Taylor. *Journal of the Air and Waste Management Association*, Vol. 55, No. 11.

"Finite Sample Overfitting and Biases in Nonparametric Kernel Regressions." With Thomas A. Mroz. Unpublished manuscript, March 2004.

"The Union Wage Gap in the Presence of Endogenous Union Membership." With Thomas A. Mroz. The University of North Carolina Working Paper Series, December 1997.

EXPERT WITNESS TESTIMONY AND REPORTS

Nonuser Valuation of Haze Reduction in Eastern National Parks. Prepared with Anne E. Smith, Ph.D., Michael A. Kemp, and Katherine L. Taylor, September 2005.

"The Availability of Minority and Woman-Owned Businesses for the San Francisco Municipal Railway." Prepared with Mark Berkman, Ph.D., June 2005.

Submission to the U.S. International Trade Commission in the matter of *Softwood Lumber from Canada, Investigation Nos. 701-TA 416 and 731-TA-928, Section 129 Consistency Determination*, on behalf of the Canadian Lumber Trade Alliance regarding analytical and statistical analyses of the domestic effects of the Softwood Lumber Agreement, October 2004. Prepared with Richard D. Boltuck.

Expert Statement in the matter of *Douglas Turner v. Applera Corporation*, on behalf of Applera Corporation regarding alleged termination based on age, September 2004.

REDACTED

FOR PUBLIC INSPECTION

TIMOTHY H. SAVAGE

Page 3

Deposition testimony in the matter of *Alica Jurisova v. D. Andrej Juris*, on behalf of the defendant regarding wage determination and job search efforts, June 2004.

"Disparities in Minority- and Woman-Owned Businesses and Self-Employment Earnings." Prepared for the City and County of San Francisco with Mark Berkman, Ph.D., and Robert Fairlie, Ph.D., March 2004.

Supplemental Expert Rebuttal Report in the matter of *Stephen Sneeringer v. National Electronics Warranty Corporation*, on behalf of the National Electronics Warranty Corporation regarding an alleged termination based on age, February 2004.

Expert Rebuttal Report in the matter of *Stephen Sneeringer v. National Electronics Warranty Corporation*, on behalf of the National Electronics Warranty Corporation regarding an alleged termination based on age, February 2004.

Expert Witness Rebuttal Report on Damages in the matter of *Tyson Foods, Inc. v. ConAgra Foods, Inc.*, on behalf of ConAgra Foods, Inc. regarding a Lanham Act counterclaim, August 2003. Prepared with Mark Berkman, Ph.D. and Phillip Taylor, Ph.D.

Expert Disclosure of Timothy H. Savage in the matter of *Gloria Oliver-Simon v. Anthony Principi, Secretary, U.S. Department of Veterans Affairs* on of the Gloria Oliver-Simon regarding alleged failures to promote based on age and race, June 2003.

Expert Witness Report on Damages in the matter of *Tyson Foods, Inc. v. ConAgra Foods, Inc.*, on behalf of ConAgra Foods, Inc. regarding a Lanham Act counterclaim, June 2003. Prepared with Mark Berkman, Ph.D. and Phillip Taylor, Ph.D.

"The Availability of Minority and Woman-Owned Businesses for the San Francisco Municipal Railway." Prepared with Mark Berkman, Ph.D., June 2003.

"Comments on the Environmental Protection Agency's Third External Review Draft of Air Quality Criteria for Particulate Matter (April 2002)." Prepared with Anne Smith, Ph.D. on behalf of the Utility Air Regulatory Group, July 2002.

REDACTED

FOR PUBLIC INSPECTION



INTERNATIONAL

MARTINO DE STEFANO
Senior Associate

*1201 F Street, N.W, Suite 700
Washington, D.C. 20004-1204
Phone: 202-662-3842
Email: mdestefano@crai.com*

Ph.D. Economics,
Boston University

M.A. Economics,
University of Naples

B.A. Economics,
Bocconi University

I specialize in industrial organization and applied econometrics. I have worked on matters in the telecommunication, chemical, automobile, music industries, and have experience with mergers, price-fixing, and foreclosure cases. While at Boston University, I lectured on intermediate and advanced microeconomics.

DOCTORAL STUDIES

Ph.D. Economics, Boston University, Boston, MA.
Dissertation: "Essays on the Impact of International Trade on Oligopoly".
Main advisor: Marc Rysman.

PRE-DOCTORAL STUDIES

- MA in Economics, University of Naples (MEF), Naples (Italy), 1997
- BS in Economics, Bocconi University, Milan (Italy), 1996

RESEARCH EXPERIENCE

- Research Assistant to Professor Linda Bui, Boston University, 1999, 2002-2003.
- Research Assistant to Professor Marc Rysman, Boston University. 2000-2003.
- Summer Internship at World Bank, 1998.

TEACHING EXPERIENCE

- Teaching Assistant, Microeconomics (Professor R. Rosenthal), PhD level, Boston University, 2000
- Teaching Assistant, Macroeconomics (Professor C. Chamley), Boston University, 2001

REDACTED

FOR PUBLIC INSPECTION

MARTINO DE STEFANO

Page 2

- Teaching Assistant, Mathematics for Economists (Professor M. Pagano), Salerno University (Italy), 1997
- Teaching Assistant, Monetary Economics (Professor T. Jappelli), Salerno University (Italy), 1997

FELLOWSHIPS AND AWARDS

- Graduate Fellowship, Boston University, 2000-2003
- Teaching Fellowship, Boston University, 1999-2000
- Presidential Fellowship, Boston University, 1998-1999

CONSULTING EXPERIENCE

2004–Present Senior Associate, CRA International, Washington, D.C.

RESEARCH

“Competition Policy as a Strategic Trade with Differentiated Products,” (With Marc Rysman)
Review of International Economics (in press).

“Exchange Rate Pass-Through in The Italian Car Market: 1990–1996”

“Market Size and Location of Oligopolistic Firms”

“Private Saving Rates in Italy: Differences Between North and South,” (in Italian).

PRESENTATIONS

International Industrial Organization Conference, Northeastern University, April 2003, 2004.

Appendix B

Technical Analysis of Sidak's Advertising Model

Serge X. Moresi

Lorenzo Coppi

CRA International

Steven C Salop

Professor of Economics and Law, Georgetown University Law Center

Senior Consultant, CRA International

1. INTRODUCTION

As explained in Section IV of this report, Sidak's advertising welfare analysis is based on three unreasonable assumptions. First, Sidak assumes that the merged firm might increase advertising drastically (*e.g.*, *quintupling* of the number of commercials). Second, Sidak assumes that a very large fraction (*e.g.*, half) of the value consumers place on satellite radio results from it being commercial-free. Third, Sidak assumes that the merged firm would increase advertising without also reducing the subscription price. Based on these three assumptions, Sidak's model derives the result that an increase in the number of commercials would lead to a reduction in the number of subscribers and a reduction in consumer welfare.

In Section IV of this report, we explained why Sidak's first two assumptions are unreasonable in light of the facts. In this Appendix, we show that Sidak's assumption of a constant subscription price is inconsistent with profit-maximizing behaviour. More precisely, we show that a profit-maximizing firm would reduce the subscription price following an increase in the number of commercials. As a result of the lower profit-maximizing price, we find that the quantity of subscriptions would rise, not fall. We also find that consumer welfare would rise, not fall, due to the lower price and increased quantity of subscriptions.

Sidak's assumption that the subscription price would remain constant is analytically incorrect. As we explained in our initial report, an increase in per subscriber advertising revenue would lead a profit-maximizing firm to reduce the subscription price in order to attract more

REDACTED

FOR PUBLIC INSPECTION

subscribers.¹ Sidak ignores this very important implication of his own model. In addition, in Sidak's model, an increase in the number of commercials would make demand for satellite radio more elastic, which would give the firm an additional profit incentive to reduce the subscription price. In Sidak's model a profit-maximizing firm would reduce the price sufficiently to increase the number of subscribers. These changes in turn would lead to an increase in consumer welfare.

This Appendix has three sections. First, it describes the model set out in Sidak's submissions.² Second, it demonstrates that an increase in the number of commercials would lead a profit-maximizing firm to reduce its subscription price and increase the number of subscribers. Third, it shows that the reduction in the profit-maximizing subscription price and increase in the number of subscribers are sufficiently large to lead to an increase in consumer welfare, despite the increase in the number of commercials.

2. SIDAK'S FORMAL MODEL

Sidak assumes that the demand for satellite radio has the following form:

$$P = (u - bQ)(1 - vt/T) \quad (1)$$

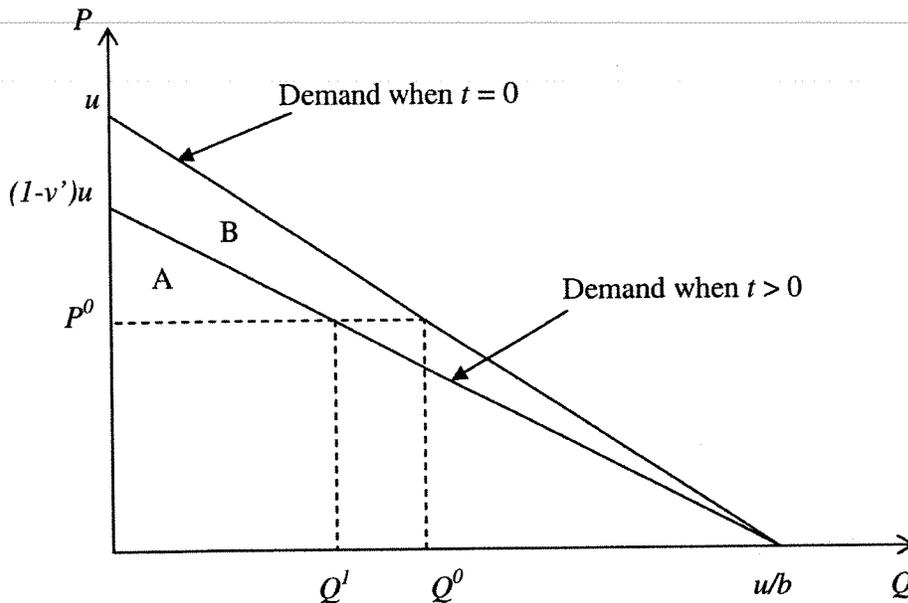
Intuitively, if there are no commercials (i.e., $t = 0$), then the relationship between the subscription price (P) and the number of subscribers (Q) reduces to $P = u - bQ$, where u denotes the "choke price" (i.e., the price at which demand would fall to zero) and u/b is the "saturation point" (i.e., the number of consumers who would subscribe if the service was free). If instead the number of commercials was the same as on terrestrial radio (i.e., $t = T$), then Equation (1) would imply $P = (u - bQ)(1 - v)$, and thus the subscription price (P) would have to fall by a fraction v for the same number (Q) of consumers to continue to subscribe. In other words, the parameter v can be interpreted as the share of the value of satellite radio that consumers attribute to the commercial-free nature of satellite radio.

¹ This is a standard result in two-sided markets where there are two revenue streams. The increase in ancillary advertising revenues has exactly the same effect as a reduction in variable costs. Of course, here the demand curve also shifts down. See CRA FCC Report at ¶150.

² Sidak refers to a formal model in at least three submissions: Sidak Supplemental at ¶¶43-46; Sidak 3rd Supplemental at ¶¶70-76, and Sidak-Singer 10-8-2007 Ex Parte Letter. Although Sidak does not fully describe his model, those references and the results reported in Figure 2 of Sidak 3rd Supplemental are consistent with the formal model described in this Appendix.

Sidak assumes that the saturation point of satellite radio does not depend on the number of commercials. Therefore, an increase in the number of commercials reduces demand by pivoting it around the horizontal intercept, as illustrated in Figure B1.

Figure B1: Sidak's model



Sidak assumes that satellite radio faces zero marginal costs and considers a benchmark case with no commercials (i.e., $t = 0$), a subscription price of \$12.99 (i.e., $P^0 = 12.99$) and 17 million subscribers (i.e., $Q^0 = 17$).³ He assumes that terrestrial radio listeners must “endure” 9.42 minutes of commercials per hour of listening (i.e., $T = 9.42$) and considers three different scenarios with respect to the amount of advertising that satellite radio listeners would have to endure post-merger (i.e., $t = 1$, $t = 3$, and $t = 5$).⁴ For each of these three scenarios, demand pivots around the horizontal intercept as illustrated in Figure B1.⁵ Thus, the horizontal intercept

³ See Sidak Supplemental at ¶44 and Sidak 3rd Supplemental at ¶71-73. Under those assumptions, profit maximization implies $P^0 = u/2$ and $Q^0 = u/2b$. This allows us to determine the values of the parameters u and b . That is, $u = 25.98$ and $b = 12.99/17 \cong 0.76$.

⁴ See Sidak Supplemental at ¶43 and Figure 2 in Sidak 3rd Supplemental.

⁵ A larger amount of advertising implies that the new demand curve is lower.

REDACTED

FOR PUBLIC INSPECTION

does not change but the vertical intercept is lower when the amount of advertising is higher. Specifically, the vertical intercept equals $(1 - v')u$, where $v' = vt/T$.⁶ As explained above, v is the fraction of the value of satellite radio that consumers attribute to the fact that satellite radio is commercial-free. Thus, if satellite radio were to air the same amount of commercials as terrestrial radio (i.e., if $t = T$), then the value of satellite radio would decrease by a fraction v . If instead satellite radio were to air one-half of the amount of commercials aired by terrestrial radio (i.e., $t = T/2$), then the value of satellite radio would decrease by a fraction $v/2$ (i.e., $v' = v/2$). Thus, v' is the percentage reduction in value caused by an increase in the amount of advertising; the magnitude of v' depends on the amount t of additional commercials and on the magnitude of the preference parameter v . Sidak considers three different scenarios for the magnitude of v (i.e., $v = 10\%$, $v = 30\%$, and $v = 50\%$).⁷

Sidak analyzes the effects of increasing advertising under the unrealistic assumption that the subscription price would remain constant at $P = P^0$. As shown in Figure B1, under this unrealistic assumption, the number of subscribers would decrease from Q^0 to Q^1 . This in turn would cause a reduction in consumer welfare equal to Area B in Figure B1.⁸

In the next section, we will show that Sidak's model implies that a profit-maximizing firm would reduce the subscription price following an increase in the amount of commercials. As a result, and in sharp contrast with Sidak's results, the number of subscribers would increase. In addition, consumer welfare would increase in the scenarios where the firm would find it profitable to increase the amount of commercials.⁹

3. THE INCENTIVE TO REDUCE THE SUBSCRIPTION PRICE AND INCREASE THE NUMBER OF SUBSCRIBERS

⁶ The actual form of v' is not reported explicitly in Sidak's declarations, but it is consistent with Sidak's results as reported in Sidak Supplemental at ¶44 and in Sidak 3rd Supplemental at ¶72 and Figure 2.

⁷ A larger value of v implies a larger reduction in demand following an increase in advertising.

⁸ Initially, consumer welfare corresponds to the sum of Area A and Area B. After the increase in the number of commercials (and holding the subscription price constant), consumer welfare corresponds to Area A. Thus, in Sidak's model, the reduction in consumer welfare due to an increase in advertising is equal to Area B. (Sidak estimates the reduction in consumer welfare using an approximation of Area B. His approximation leads to an overstatement of the actual area.)

⁹ Some of Sidak's scenarios assume a number of commercials that would lead to lower profits than having no commercials. Such unprofitable scenarios are irrelevant.

REDACTED

FOR PUBLIC INSPECTION

Sidak 3rd Supplemental analyzes the profitability of increasing the number of commercials by drawing isoprofit curves, as shown in Figure 2 of Sidak 3rd Supplemental. That figure shows that in Sidak's model the firm might increase profits by adding a certain number of commercials *at the initial subscription price*, but it does not show that a profit-maximizing firm would adopt such a constant price strategy. In fact, adding commercials would give a profit-maximizing firm the incentive to reduce its subscription price.

This can be shown formally as follows. In Sidak's model, the firm's profit function is given by:

$$\Pi = (P + at)Q \quad (2)$$

where at denotes the advertising revenue per subscriber, that is, a is the advertising revenue per unit of advertising and t is the amount of advertising. Using Equation (1) to substitute for P , the first-order condition of profit-maximization yields:¹⁰

$$P^* = P^0 - \frac{at}{2} - \frac{uvt}{2T} \quad (3)$$

$$Q^* = Q^0 + \frac{at}{2b(1 - vt/T)} \quad (4)$$

It is straightforward to show that when the number of commercials is larger, the profit-maximizing price P^* is lower. Formally, P^* is decreasing in t .¹¹ Similarly, it is straightforward to show that when the number of commercials is larger, the profit-maximizing number of subscribers Q^* is higher. Formally, Q^* is increasing in t . This proves that Sidak's

¹⁰ For the profit function given in Equation (2), the first-order condition is: $P + at + (\partial P / \partial Q)Q = 0$. (We assume an interior solution, i.e., the profit-maximizing subscription price is greater than zero. This assumption is satisfied in all the scenarios considered by Sidak.) From Equation (1), we have $P = (u - bQ)(1 - vt/T)$ and $\partial P / \partial Q = -b(1 - vt/T)$. Substituting into the first-order condition and solving for Q , we find Q^* as given in Equation (4). Evaluating Equation (1) at $Q = Q^*$, we find P^* as given in Equation (3). (We can use $P^0 = u/2$ and $Q^0 = u/2b$ to simplify Equations (3) and (4). See footnote 3.)

¹¹ The profit-maximizing price is decreasing in t for two reasons. First, the advertising revenue per subscriber, at , tends to increase the profit margin and thus is equivalent to a marginal cost reduction. Second, the assumption that demand pivots around the horizontal intercept implies that demand becomes more elastic (at any given price) as the number of commercials increases. These two effects correspond to the two negative terms in Equation (3).

model, when properly analyzed, predicts that an increase in the number of commercials would lead the firm to reduce price and increase the number of subscribers.

These results are shown graphically in Figure B2.

Figure B2: Sidak's model properly analyzed

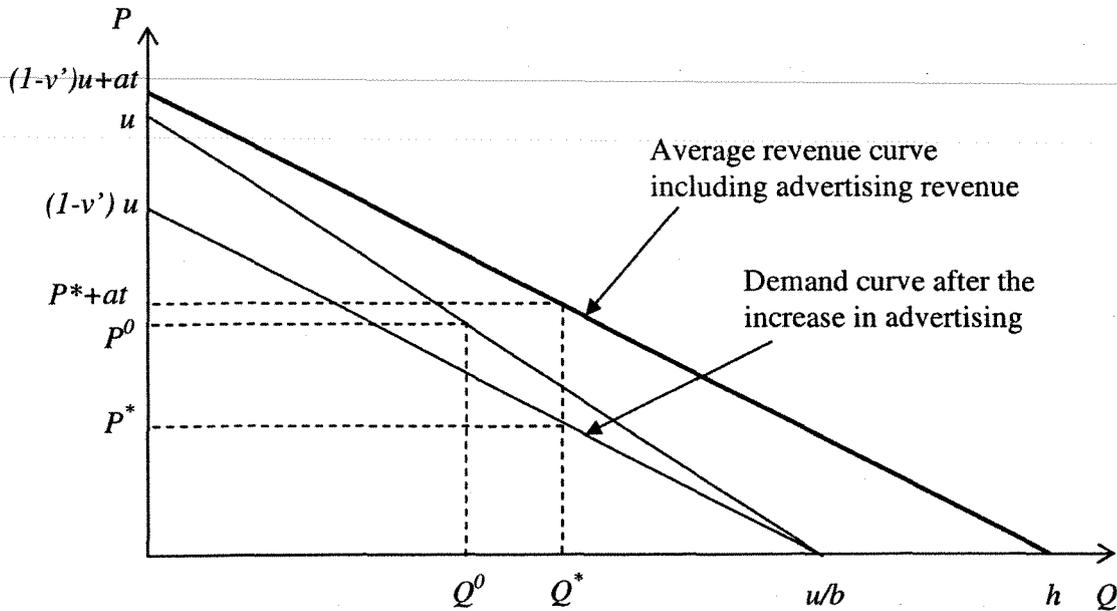


Figure B2 completes Figure B1 by depicting the average revenue curve that includes the advertising revenue per subscriber. This average revenue curve is parallel to the new demand curve after the increase in advertising (i.e., it is the new demand curve shifted upward parallel by the amount at). The horizontal intercept of the average revenue curve – denoted by h in Figure B2 – is larger than the horizontal intercept of the demand curves, u/b . This fact must be true because the average revenue curve is everywhere above the new demand curve (with commercials) since it is an upward parallel shift of the new demand curve.¹²

¹² In Figure B2, the vertical intercept of the average revenue curve (i.e., $(1 - v')u + at$) is assumed to be higher than the vertical intercept of the initial demand curve (i.e., u). This is just a convenient assumption that allows us to draw a clear picture. Our results do not depend on that assumption. Even if this vertical intercept is below u , the new average revenue curve is still a parallel upward shift above the new demand curve and thus the horizontal intercept h must be larger than u/b .

REDACTED

FOR PUBLIC INSPECTION

Given the assumption of zero marginal cost, the equilibrium number of subscribers, Q^* , is equal to $h/2$, where h is the horizontal intercept of the average revenue curve. (Analogously, the initial number of subscribers, Q^0 , is equal to $u/2b$.) The equilibrium price, P^* , is then determined by the new demand curve at Q^* .¹³

In summary, Sidak should have taken into account the fact that adding t minutes of commercials (beginning from the initial situation of no commercials and a monthly subscription price of \$12.99) would give a profit-maximizing firm the economic incentive to lower its subscription price.¹⁴ Had Sidak calculated the profit-maximizing price, he would have discovered that in his model the addition of t minutes of commercials results in a lower price and increased output.

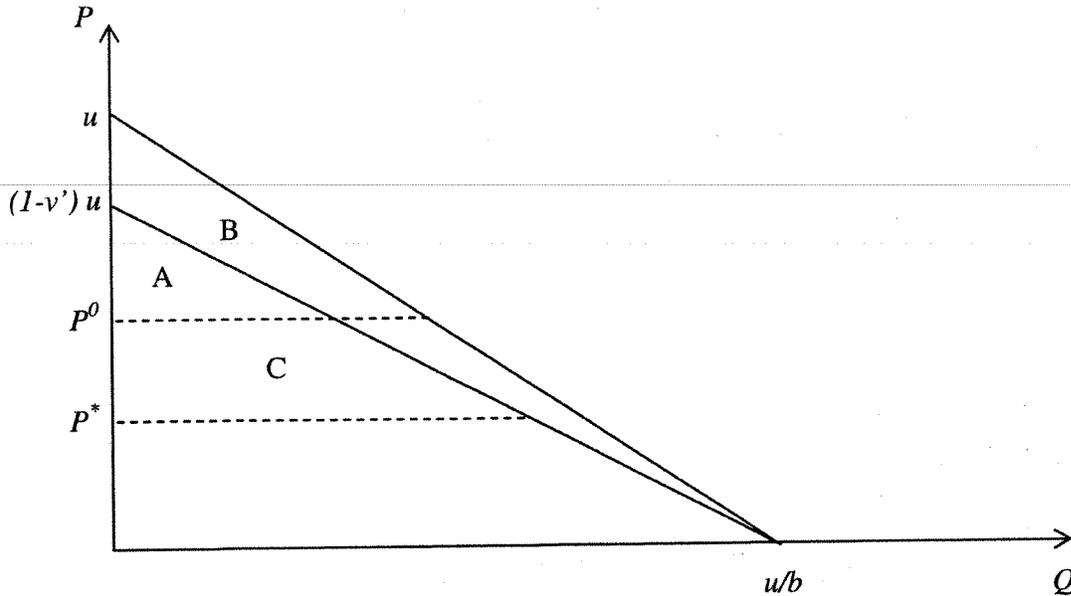
4. IMPACT ON CONSUMER WELFARE

This lower price and increased output combine to create a positive consumer welfare effect. The welfare effects generated by an increase in advertising and the profit-maximizing reduction in price (called for by the increase in advertising) are shown in Figure 3. (We have removed the average revenue curve to make Figure B3 less cluttered.)

¹³ The equilibrium average revenue per subscriber, $P^* + at$, is equal to one-half of the vertical intercept of the average revenue curve, i.e., $P^* + at = [(1 - v')u + at]/2$. Since $v' = vt/T$, this leads to the same expression for P^* as in Equation (3).

¹⁴ Note that the current subscription price is in fact \$12.95, but Sidak appears to use \$12.99 throughout his analysis. This difference does not affect the qualitative results.

Figure B3: Consumer Welfare Effects



Specifically, the initial amount of consumer surplus before the increase in advertising corresponds to the area below the initial demand curve and above P^0 . That area is the sum of Area A and Area B in Figure B3. After the increase in advertising and the reduction in price, consumer surplus corresponds to the area below the new demand curve and above P^* . That area is the sum of Area A and Area C in Figure 3. It follows that Area B is the loss in consumer surplus from the increase in advertising (if price remained the same and output fell accordingly), while Area C is the additional gain in consumer surplus from the reduction in price and increase in quantity. The net effect on consumer surplus (i.e., consumer welfare), therefore, is the difference between Area C and Area B.

When the firm is allowed to set the profit-maximizing price, Area C is larger than Area B in all the scenarios considered by Sidak where the assumed increase in advertising would be profitable. This means that the negative consumer surplus from adding commercials (i.e., Area B) is more than outweighed by the positive consumer surplus from reducing the profit-maximizing price and increasing the number of subscribers (Area C). Therefore, in Sidak's model, the effect of adding

REDACTED

FOR PUBLIC INSPECTION

t minutes of commercials has a positive net consumer welfare effect, once we account for the impact of adding commercials on profit-maximizing pricing incentives.

These results are shown in Tables B1-B3 below. The Tables report the effects of adding commercials on price, output and consumer welfare. The results are presented for the various scenarios considered by Sidak.

Table B1

Price Effect of Adding Five Minutes of Commercials per Hour

| | | Fraction Of Value Attributed To Commercial-Free (v) | | |
|--------------------------------------------------------------|--------|------------------------------------------------------------|----------|----------|
| | | 10% | 30% | 50% |
| Advertising Revenue Per Unit (a) | \$0.25 | - \$1.31 | NA | NA |
| | \$0.50 | - \$1.94 | - \$3.32 | NA |
| | \$1.00 | - \$3.19 | - \$4.57 | - \$5.95 |
| | \$1.50 | - \$4.44 | - \$5.82 | - \$7.20 |
| Sidak's Incorrect Results (i.e., assuming constant price) | | \$0 | \$0 | \$0 |

Sidak assumed that the merged firm would not reduce price despite the fact that doing so would increase its profits. In contrast, Table B1 reports the effect on the profit-maximizing price of adding five minutes of commercials per hour (i.e., $t = 5$). For example, suppose that consumers attribute 30% of the value of satellite radio to its commercial-free nature, and the advertising revenue per unit equals \$1. In this case, adding five minutes of commercials would lead a profit-maximizing firm to reduce the monthly subscription price by \$4.57.¹⁵ Table B1 reports the price reductions for every profitable scenario among those considered by Sidak. The results are not reported for those few scenarios where the assumed increase in advertising would not be a

¹⁵ The \$4.57 reduction in price would be smaller than the \$5 increase in advertising revenues. Thus, the firm's average revenue per subscriber would increase by \$0.43.

REDACTED

FOR PUBLIC INSPECTION

profitable strategy (relative to no increase in the number of commercials) and thus would not be carried out. Those unprofitable scenarios instead are labelled as “NA” (i.e., “Not Applicable”).

Sidak also considered different scenarios where the firm would add $t = 1$ or $t = 3$ minutes of commercials. The price effects in those scenarios are proportional to those reported in Table B1.¹⁶ See Tables B4-B6 at the end of this Appendix.

Table B2

Output Effect of Adding Five Minutes of Commercials per Hour

| | | Fraction Of Value Attributed To Commercial-Free (v) | | |
|--------------------------------------------------------------|--------|------------------------------------------------------------|-------|-------|
| | | 10% | 30% | 50% |
| Advertising Revenue Per Unit (a) | \$0.25 | +5% | NA | NA |
| | \$0.50 | +10% | +11% | NA |
| | \$1.00 | +20% | +23% | +26% |
| | \$1.50 | +30% | +34% | +39% |
| Sidak's Incorrect Results (i.e., assuming constant price) | | - 6% | - 19% | - 36% |

Table B2 reports the effect on the profit-maximizing number of subscribers of adding five minutes of commercials (as in Table B1). Consider the same example where consumers attribute 30% of the value to commercial-free and the advertising revenue per unit is \$1. Then, a profit-maximizing firm would reduce price by \$4.57 (see Table B1) and that in turn would lead to a 23% increase in the number of subscribers despite the increase in advertising. Table B2 shows the output increase for every profitable scenario among those considered by Sidak. In sharp contrast, because Sidak assumed a constant price, Sidak erroneously found that output would decrease, as shown in the last row of Table B2.

¹⁶ For example, suppose that $v = 30%$, $a = \$1$ and $t = 1$ (as opposed to $t = 5$). Then, the price would decrease by about \$0.91 (i.e., \$4.57 divided by 5).

REDACTED

FOR PUBLIC INSPECTION

In the other scenarios considered by Sidak – where the merged firm would add 1 or 3 (as opposed to 5) minutes of commercials – the output effects are smaller in magnitude but qualitatively similar to those reported in Table B2. See Tables B5a-B5b at the end of this Appendix.

Table B3

Consumer Welfare Effect of Adding Five Minutes of Commercials per Hour

| | | Fraction Of Value Attributed To Commercial-Free (v) | | |
|--------------------------------------------------------------|--------|------------------------------------------------------------|-------------|--------------|
| | | 10% | 30% | 50% |
| Advertising Revenue Per Unit (a) | \$0.25 | + \$60 mil | NA | NA |
| | \$0.50 | + \$198 mil | + \$59 mil | NA |
| | \$1.00 | + \$491 mil | + \$357 mil | + \$225 mil |
| | \$1.50 | + \$811 mil | + \$685 mil | + \$564 mil |
| Sidak's Incorrect Results (i.e., assuming constant price) | | - \$211 mil | - \$633 mil | - \$1055 mil |

Table B3 reports the net effect on consumer surplus – from the increase in advertising, the reduction in price, and the increase in output – of adding five minutes of commercials (as in Tables B1-B2). Consider again the example where consumers attribute 30% of the value to commercial-free and the advertising revenue per unit is \$1. Then, a profit-maximizing firm would reduce price by \$4.57 (see Table 1). The net effect on output of the price reduction and the increase in advertising would be a 23% increase in the number of subscribers (see Table B2). Table 3 shows that the increase in advertising, together with the profit-maximizing reduction in price and increase in output, would lead to a net consumer welfare gain of \$357 million per year. Table B3 shows the consumer welfare gains that would occur in every profitable scenario among those considered by Sidak. Again, because Sidak ignored the fact that an increase in advertising would give the firm a profit-maximizing incentive to reduce price, Sidak erroneously found that

REDACTED

FOR PUBLIC INSPECTION

consumers would be harmed (see the last row of Table B3) when, in fact, his own model predicts the opposite.¹⁷

Similar results apply to the other scenarios considered by Sidak. See Tables B1a-b, B2a-b, and B3a-b at the end of this Appendix.

¹⁷ As a matter of completeness, we note that Sidak's calculation of the welfare loss appears incorrect, even under his assumption of constant price and a reduced number of subscribers. His welfare loss calculation assumes that the number of subscribers is constant, not that it falls as a result of adding commercials. For example, in deriving the welfare loss of \$1.055 billion (when it is assumed that there are 5 minutes of commercials and commercial-free accounts for 50% of consumers' willingness to pay), Sidak assumes 17 million subscribers, the same number as before adding the commercials. See Sidak Supplemental at ¶43-44. In Sidak 3rd Supplemental, that same welfare loss of \$1.055 billion is reported in Figure 2 (when $t = 5$ and $v = 50\%$). See Sidak 3rd Supplemental at ¶73. However, Sidak also notes here that 36% of subscribers would terminate their subscriptions as a result of the commercials, and yet his welfare loss calculation is not adjusted to take account of those terminations. (The welfare loss would be somewhat smaller; those subscribers would terminate because their willingness-to-pay would fall below the subscription price; termination gives them zero surplus instead of negative surplus.) Of course, this relatively small error is irrelevant. Sidak's entire methodology is analytically incorrect because it ignores an important fact: Following an increase in advertising, a profit-maximizing firm would reduce price, which in turn would increase the number of subscribers and consumer welfare.

REDACTED

FOR PUBLIC INSPECTION

Table B1a

Price Effect of Adding One Minute of Commercials per Hour

| | | Fraction Of Value Attributed To Commercial-Free (v) | | |
|--------------------------------------------------------------|--------|------------------------------------------------------------|---------|---------|
| | | 10% | 30% | 50% |
| Advertising Revenue Per Unit (a) | \$0.25 | -\$0.26 | NA | NA |
| | \$0.50 | -\$0.39 | -\$0.66 | NA |
| | \$1.00 | -\$0.64 | -\$0.91 | -\$1.19 |
| | \$1.50 | -\$0.89 | -\$1.16 | -\$1.44 |
| Sidak's Incorrect Results (i.e., assuming constant price) | | \$0 | \$0 | \$0 |

Table B1b

Price Effect of Adding Three Minutes of Commercials per Hour

| | | Fraction Of Value Attributed To Commercial-Free (v) | | |
|--------------------------------------------------------------|--------|------------------------------------------------------------|---------|---------|
| | | 10% | 30% | 50% |
| Advertising Revenue Per Unit (a) | \$0.25 | -\$0.79 | NA | NA |
| | \$0.50 | -\$1.16 | -\$1.99 | NA |
| | \$1.00 | -\$1.91 | -\$2.74 | -\$3.57 |
| | \$1.50 | -\$2.66 | -\$3.49 | -\$4.32 |
| Sidak's Incorrect Results (i.e., assuming constant price) | | \$0 | \$0 | \$0 |

REDACTED

FOR PUBLIC INSPECTION

Table B2a

Output Effect of Adding One Minute of Commercials per Hour

| | | Fraction Of Value Attributed To Commercial-Free (v) | | |
|----------------------------------------------------------------------|---------------|------------------------------------------------------------|------|------|
| | | 10% | 30% | 50% |
| Advertising Revenue Per Unit (a) | \$0.25 | +1% | NA | NA |
| | \$0.50 | +2% | +2% | NA |
| | \$1.00 | +4% | +4% | +4% |
| | \$1.50 | +6% | +6% | +6% |
| Sidak's Incorrect Results (i.e., assuming constant price) | | - 1% | - 2% | - 3% |

Note. In Figure 2 of Sidak 3rd Supplemental, the results reported for $t = 1$ appear to have been derived assuming $t = 0.5$ (not $t = 1$). The last row of Table B2a reports those results.

Table B2b

Output Effect of Adding Three Minutes of Commercials per Hour

| | | Fraction Of Value Attributed To Commercial-Free (v) | | |
|----------------------------------------------------------------------|---------------|------------------------------------------------------------|-------|-------|
| | | 10% | 30% | 50% |
| Advertising Revenue Per Unit (a) | \$0.25 | +3% | NA | NA |
| | \$0.50 | +6% | +6% | NA |
| | \$1.00 | +12% | +13% | +14% |
| | \$1.50 | +18% | +19% | +21% |
| Sidak's Incorrect Results (i.e., assuming constant price) | | - 3% | - 11% | - 19% |

REDACTED

FOR PUBLIC INSPECTION

Table B3a

Consumer Welfare Effect of Adding One Minute of Commercials per Hour

| | | Fraction Of Value Attributed To Commercial-Free (v) | | |
|--------------------------------------------------------------|--------|------------------------------------------------------------|------------|-------------|
| | | 10% | 30% | 50% |
| Advertising Revenue Per Unit (a) | \$0.25 | +\$12 mil | NA | NA |
| | \$0.50 | +\$37 mil | +\$9 mil | NA |
| | \$1.00 | +\$90 mil | +\$62 mil | +\$34 mil |
| | \$1.50 | +\$143 mil | +\$115 mil | +\$87 mil |
| Sidak's Incorrect Results (i.e., assuming constant price) | | - \$21 mil | - \$63 mil | - \$105 mil |

Note. In Figure 2 of Sidak 3rd Supplemental, the results reported for $t = 1$ appear to have been derived assuming $t = 0.5$ (not $t = 1$). The last row of Table B3a reports those results.

Table B3b

Consumer Welfare Effect of Adding Three Minutes of Commercials per Hour

| | | Fraction Of Value Attributed To Commercial-Free (v) | | |
|--------------------------------------------------------------|--------|------------------------------------------------------------|-------------|------------|
| | | 10% | 30% | 50% |
| Advertising Revenue Per Unit (a) | \$0.25 | +\$35 mil | NA | NA |
| | \$0.50 | +\$115 mil | +\$31 mil | NA |
| | \$1.00 | +\$282 mil | +\$199 mil | +\$116 mil |
| | \$1.50 | +\$458 mil | +\$376 mil | +\$295 mil |
| Sidak's Incorrect Results (i.e., assuming constant price) | | - \$127 mil | - \$380 mil | - \$633 |

REDACTED

FOR PUBLIC INSPECTION

EXHIBIT

Recent Satellite Radio Subscriber Projections

| Source and Report Date | | 2006 (Actuals) ¹ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-------------------------------------------------------------|--------|--------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Goldman Sachs ² (Oct-2007) | XM | 7,629 | 9,100 | 10,500 | 12,000 | 13,500 | | | | | |
| | Sirius | 6,025 | 8,300 | 10,100 | 11,200 | 12,300 | | | | | |
| | Total | 13,654 | 17,400 | 20,600 | 23,200 | 25,800 | | | | | |
| Wedbush Morgan Securities ³ (Oct-2007) | XM | 7,629 | 9,076 | 10,669 | 12,274 | 13,670 | 14,835 | 15,810 | 16,594 | 17,407 | 18,039 |
| | Sirius | 6,025 | 8,231 | 10,105 | 11,681 | 12,965 | 14,218 | 15,396 | 16,399 | 17,260 | 18,024 |
| | Total | 13,654 | 17,307 | 20,774 | 23,955 | 26,635 | 29,053 | 31,206 | 32,993 | 34,667 | 36,063 |
| Stanford Group Company ⁴ (Sept-2007) | XM | 7,629 | 8,850 | 9,950 | 11,000 | 12,000 | | | | | |
| | Sirius | 6,025 | 8,300 | 10,000 | 11,400 | 12,500 | | | | | |
| | Total | 13,654 | 17,150 | 19,950 | 22,400 | 24,500 | | | | | |
| Deutsche Bank ⁵ (Jul-2007) | XM | 7,629 | 8,985 | 10,571 | 12,429 | 14,418 | | | | | |
| | Sirius | 6,025 | 8,100 | 9,894 | 12,115 | 14,100 | | | | | |
| | Total | 13,654 | 17,085 | 20,465 | 24,544 | 28,518 | | | | | |
| Credit Suisse ⁶ (Jul-2007) | XM | 7,629 | 9,021 | 10,424 | 11,672 | 12,986 | 14,226 | 15,509 | | | |
| | Sirius | 6,025 | 8,136 | 10,022 | 11,395 | 12,560 | 13,626 | 14,737 | | | |
| | Total | 13,654 | 17,157 | 20,446 | 23,067 | 25,546 | 27,852 | 30,246 | | | |
| RBC Capital Markets ⁷ (Feb-2007) | XM | 7,629 | 9,077 | 10,687 | 12,379 | 14,118 | 15,743 | 17,300 | 18,793 | 20,236 | 21,642 |
| | Sirius | 6,025 | 8,154 | 10,453 | 12,343 | 13,888 | 15,190 | 16,266 | 17,183 | 17,987 | 18,712 |
| | Total | 13,654 | 17,231 | 21,140 | 24,722 | 28,006 | 30,933 | 33,566 | 35,976 | 38,223 | 40,354 |
| Bank of America ⁸ (Feb-2007) | XM | 7,629 | 9,116 | 10,781 | 12,411 | 13,937 | | | | | |
| | Sirius | 6,025 | 8,007 | 9,801 | 11,493 | 12,814 | | | | | |
| | Total | 13,654 | 17,123 | 20,582 | 23,904 | 26,750 | | | | | |
| Lehman Brothers ⁹ (Feb-2007) | XM | 7,629 | 9,554 | 11,588 | 13,632 | 15,486 | 17,128 | 18,508 | 19,752 | | |
| | Sirius | 6,025 | 8,354 | 10,588 | 12,719 | 14,665 | 16,363 | 17,905 | 19,414 | | |
| | Total | 13,654 | 17,908 | 22,176 | 26,351 | 30,151 | 33,491 | 36,412 | 39,166 | | |
| Bear Stearns ¹⁰ (Jan-2007) | XM | 7,629 | 9,253 | 11,120 | 12,423 | 13,699 | 14,895 | 16,073 | 16,925 | | |
| | Sirius | 6,025 | 8,153 | 9,978 | 11,295 | 12,394 | 13,102 | 13,818 | 14,442 | | |
| | Total | 13,654 | 17,406 | 21,098 | 23,718 | 26,093 | 27,997 | 29,891 | 31,367 | | |
| Bernstein Research ¹¹ (Aug-2006) | XM | 7,629 | 10,535 | 13,568 | 16,773 | 19,454 | | | | | |
| | Sirius | 6,025 | 9,105 | 11,522 | 13,759 | 15,983 | | | | | |
| | Total | 13,654 | 19,640 | 25,090 | 30,532 | 35,437 | | | | | |
| Average | XM | 7,629 | 9,257 | 10,986 | 12,699 | 14,327 | 15,365 | 16,640 | 18,016 | 18,822 | 19,841 |
| | Sirius | 6,025 | 8,284 | 10,246 | 11,940 | 13,417 | 14,500 | 15,624 | 16,859 | 17,624 | 18,368 |
| | Total | 13,654 | 17,541 | 21,232 | 24,639 | 27,744 | 29,865 | 32,264 | 34,876 | 36,445 | 38,209 |

Notes:

Forecasts are in thousands.

Sources:

¹ XM and Sirius Form 10-K data (2006).

² Mark Wienkes, *Sirius 3Q2007 largely in line, OEM shift accelerates; maintain Sell* (October 30, 2007), Goldman Sachs at 8.

³ XM - Kidd, William, *XM Satellite Radio (XMSR) Given Recent Appreciation and Still Difficult Merger Prospects, Downgrading XM to SELL in Favor of Sirius* (October 5, 2007), Wedbush Morgan Securities at 9.

Sirius - Kidd, William, *Sirius Satellite Radio (SIRI) Q3 Preview: OEM Adds Should More Than Offset Continued Retail Softness* (October 5, 2007), Wedbush Morgan Securities at 9.

⁴ XM - Moran, Frederick W. and Clayton F. Moran, *XMSR: Merger Possibility Improving* (September 6, 2007), Stanford Group Company at 4.

Sirius - Moran, Frederick W. and Clayton F. Moran, *SIRI: Growth and profitability still in question as merger prospects improve* (September 6, 2007), Stanford Group Company at 3.

⁵ Dix, James G., *Audio Signals Satellite Radio 2Q07 Preview* (July 25, 2007), Deutsche Bank at 14, 22.

⁶ XM - Kraft, Bryan and Philip Mutooni, *Mixed 2Q Performance (XMSR)* (July 26, 2007), Credit Suisse at 3.

Sirius - Kraft, Bryan, John Klim and Philip Mutooni, *Sirius Satellite Radio (SIRI) Strong 2Q Results Overall: OEM Ramping, Retail Still Weak* (July 31, 2007), Credit Suisse at 3.

⁷ Bank, David and Ryan Vineyard, *XM Satellite Radio - Fundamentals Remain Challenged, But Potential Merger Synergies Offer Upside* (February 27, 2007), RBC Capital Markets at 7.

⁸ Jacoby, Jonathan A., *BoFA Broadcast Bits - Will Price Talk be a Problem?* (February 28, 2007), Bank of America at 3.

⁹ XM - Jayant, Vijay and James M. Ratcliffe, *XM Satellite Radio - Discipline in Weak Retail Environment* (February 27, 2007), Lehman Brothers at 4.

Sirius - Jayant, Vijay and James M. Ratcliffe, *Sirius Satellite Radio - Lowering PT, Changing 07 Outlook* (February 26, 2007), Lehman Brothers at 5.

¹⁰ Peck, Robert S., Kunal Madhukar, Lilian Y. Zhou and Victor B. Anthony, *MergeCo Synergies Could Reach \$6.7B* (January 23, 2007), Bear Stearns at 13, 14.

¹¹ Moffett, Craig and Judah Rifkin, *Satellite Radio: Are We There Yet? (...a Bottom, That Is)* (August 17, 2006), Bernstein Research at 20, 23.

EXHIBIT B

Thomas W. Hazlett,
THE ECONOMICS OF
THE SATELLITE RADIO MERGER, Part II

REDACTED

FOR PUBLIC INSPECTION

THE ECONOMICS OF THE SATELLITE RADIO MERGER, Part II

Thomas W. Hazlett
Professor of Law & Economics
George Mason University
Former Chief Economist,
Federal Communications Commission

Nov. 8, 2007

This paper was commissioned by XM and Sirius. The analysis and conclusions are solely those of the author. The author thanks George Bittlingmayer, Art Havenner, Shane Moser, Raquel Noriega, Michael Parente, and Arlington Economics for valuable assistance in the preparation of this manuscript.

TABLE OF CONTENTS

I. INTRODUCTION..... 3

II. THE COMPELLING CASE FOR MERGER..... 7

III. ERRORS IN SIDAK II, III, AND IV 8

A. Market Definition..... 11

B. Competitive Effects 14

C. Product Markets and Firm Values..... 16

D. “Critical Elasticity”..... 18

E. A Financial Event Study 20

 1. Interpreting Share Price Movements 21

 i. Satellite radio and terrestrial broadcasters 21

 ii. Satellite radio manufacturers 22

 2. Interpreting Sidak’s Results 24

 3. A Properly Constructed Event Study 26

F. A Pro-Consumer Theory of NAB Merger Opposition..... 28

IV. PROF. WILDMAN’S “LOCALISM” ARGUMENT 30

V. THE CONSUMERS’ UNION V. CONSUMER WELFARE..... 33

VI. CONCLUSION..... 35

I. INTRODUCTION

On June 14, 2007, I submitted a White Paper to the Federal Communications Commission entitled, “The Economics of the Satellite Radio Merger.”¹ The paper evaluated evidence related to the proposed merger between Sirius and XM, concluding that the transaction would expand output in audio entertainment services, benefiting consumers.

Since then, the terrestrial broadcasting industry has funded four additional reports (three by Prof. J. Gregory Sidak and one by Prof. Steve Wildman), which critique my White Paper.² This study addresses the key issues raised in those papers, as well as one produced by the Consumer’s Union, demonstrating that nothing in these papers effectively rebuts arguments in the White Paper nor casts doubt on the merger’s pro-consumer consequences. In brief, that policy conclusion is driven by the following considerations:

- SDARS competes with terrestrial broadcasting and a host of other audio media, according to consumer survey data, listening patterns, subscriber data, firm behavior, and financial returns, yielding very low market share and making post-merger price increases unprofitable;
- Financial analysts ascribe the dimming financial prospects for XM and Sirius in recent years to the emergence of new media such as MP3 players, Internet radio, and cellphone-based music services, attesting to the strength of inter-modal rivalry;
- Independent analysts forecast that the XM-Sirius merger will generate at least \$3 billion in net present value cost savings;
- Industry analysts likewise predict that the combination will enable satellite radio to substantially enhance the attractiveness of its offerings, increasing the rate of subscriber growth, implying that quality-adjusted prices will fall post-merger;
- The current (pre-merger) market structure does not produce the strongest possible satellite radio product, the best competitor for consumers, nor produce competitive returns for investors;
- The lack of profitability is evidence of an absence of market power;
- Market share tests used by regulators to gauge the degree of rivalry between broadcast television and cable TV, a methodology suggested by the National

¹ Thomas W. Hazlett, *The Economics of the Satellite Radio Merger*, paper submitted to the Federal Communications Commission by XM and Sirius (June 14, 2007) (“White Paper” and “Hazlett 2007”).

² *Supplemental Declaration of J. Gregory Sidak Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio, Inc. and XM Satellite Radio, Inc.* (July 9, 2007) (“Sidak II”); *Second Supplemental Declaration of J. Gregory Sidak Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio, Inc. and XM Satellite Radio, Inc.* (July 24, 2007) (“Sidak III”); *Third Supplemental Declaration of J. Gregory Sidak, Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio, Inc. and XM Satellite Radio, Inc.* (Oct. 1, 2007) (“Sidak IV”); and *Declaration of Steve S. Wildman Concerning the Consolidated Application for Authority to Transfer Control of XM Radio Inc. and Sirius Satellite Radio Inc.* (July 23, 2007) (“Wildman 2007”). These papers appeared after *Expert Declaration of J. Gregory Sidak Concerning the Competitive Consequences of the Proposed Merger of Sirius Satellite Radio, Inc. and XM Satellite Radio, Inc.* (Mar. 16, 2007) (“Sidak I”).

Association of Broadcasters' economic expert, place satellite radio as "effectively competitive";

- Creating a more efficient satellite radio competitor via merger will enhance competitive options for customers, explaining why incumbent terrestrial broadcasting stations fiercely oppose the transaction.

This latter point provides strong and obvious evidence the merger is pro-competitive, and a number of independent observers have noted it. The financial website, The Motley Fool, for instance, sees the broadcaster anti-merger antics as illuminating:

Defending its terrestrial life

The NAB [National Association of Broadcasters] is obviously threatened. As the mouthpiece for its terrestrial-radio constituency, it realizes that a lot of money -- potentially in the billions -- can be realized in deal synergies if XM and Sirius are allowed to combine. That's why it's comical to see the NAB take XM and Sirius to task as a potential monopoly, when the combination is actually threatening the livelihood of the free AM and FM radio stations the association watches over.

When the NAB attacks the combination as bad for consumers, how can it be taken seriously? If prices inch higher and diversity thins out -- as the NAB has contested in the past -- wouldn't that be a blessing to conventional stations, which are seeing their more avid listeners flock to XM and Sirius? How can it pretend to be neutral, when it actually fears the opposite of what it's publicly proclaiming?³

The broadcasters' merger attack⁴ spins the strategy 180-degrees, with Prof. Sidak offering that -- "[o]nce one scrutinizes this proposed merger with a modicum of skepticism informed by public choice theory"⁵ -- it becomes clear that XM and Sirius are engaged in a rent-seeking enterprise. The distinction between *creating* billions of dollars in social gains via merger as opposed to *grappling over transfers* is lost, as is the central ingredient in rent-seeking: *rents*. As detailed in my White Paper, XM and Sirius have collectively failed to generate the profits (either earned or anticipated, as per forward-looking market valuations) necessary to fulfill this simple requirement.

The public choice framework, however, aptly explains the actions of terrestrial broadcasters in opposing the merger to protect existing rents. As a strategic matter, firms often attempt to deny rivals possible economies so as to keep quality-adjusted prices high

³ Rick Aristotle Munarriz, *Get It On, XM and Sirius*, THE MOTLEY FOOL (Sept. 13, 2007); <http://www.fool.com/investing/high-growth/2007/09/13/get-it-on-xm-and-sirius.aspx> (emphasis original).

⁴ The funding organization for the Sidak and Wildman papers is the Consumer Coalition for Competition in Satellite Radio (C3SR), a recent creation of terrestrial broadcasters. See Drew Clark, *Broadcaster-Supported Group Recruits Virginia Gubernatorial Candidate to Lobby FCC Republicans*, Center for Public Integrity (April 18, 2007); <http://www.publicintegrity.org/telecom/telecomwatch.aspx?eid=2833>.

⁵ Sidak II, par. 5.

for consumers.⁶ Tactically, voluminous briefs and expert reports can overload regulators and confuse the consumer welfare analysis. Such a situation protects the status quo, delaying decisions and raising the chances that competitive rivals will be deterred.

Hence, the Federal Communications Commission has been flooded by paper generated by the National Association of Broadcasters. A large number of the economic arguments put forward are without any merit, relying on misrepresentation of my White Paper or existing antitrust policy. In the three criticisms of my White Paper undertaken (thus far) by Professor Sidak, numerous of my arguments are misquoted, for example, offering up a straw man to counter. An illuminating example is Prof. J. Gregory Sidak's assessment given here

... Professor Hazlett cites Wall Street's approval of the merger as support for the claim that the merger would be procompetitive. On eight separate occasions, he refers to the estimated cost savings of \$3 billion to \$7 billion. But the fact that the merging parties might enjoy a private benefit (in terms of reduced fixed costs) does not imply that SDARS customers would be better off. According to Professor Hazlett, "If these independent analytical assessments (related to expected cost savings) are accurate, and there is no evidence suggesting they are not, then this assessment is dispositive." I disagree. Although this assessment by Wall Street analysts might be dispositive of something else, it is not dispositive that the proposed merger would be in the public interest. Professor Hazlett elevates the opinion of Wall Street analysts, who judge transactions on a completely different standard—namely, the effect on shareholder wealth. As with other merger proponents, the opinions of antitrust authorities, who use the criterion of consumer welfare, appear not to count.⁷

This suggests that I offered an efficiency conclusion based only on valuation increases for XM and Sirius shareholders. If true, the approach would clearly fail to differentiate a pro-competitive merger from a pro-monopoly one. Any proposed industrial combination, as evidenced by the revealed preference of the stockholders who attempt to engage in it, satisfies this test. It is the task of competition policy to gauge how well such transactions extend benefits to consumers.

How then to explain the cited material from my White Paper? By use of scissors. Prof. Sidak omits from my analysis its essential component, and then pounces on 'my views' as flawed due to the omission. Here is the actual passage from the White Paper:

⁶ Thomas G. Krattenmaker and Steven C. Salop, *Antitrust Analysis of Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price*, 96 *YALE LAW JOURNAL* 209 (Dec. 1986). See also, William J. Baumol and Janusz A. Ordover, *Use of Antitrust to Subvert Competition*, 28 *JOURNAL OF LAW & ECONOMICS* 1 (May 1985); R. Preston McAfee and Nicholas V. Vakkur, *Strategic Abuse of the Antitrust Laws*, 3 *JOURNAL OF STRATEGIC MANAGEMENT EDUCATION* 1 (2004).

⁷ Sidak II, par. 38 (footnotes omitted).

Finally, it is instructive that the investment community consensus views the XM-Sirius merger as leading to between \$3 billion and \$7 billion in synergies, and *does not* anticipate gains from price increases post-merger. Instead, analysts see the merger as an attempt by satellite radio suppliers to drive costs down and to offer a more competitive product to customers. The perceived strategy is to hold down prices while expanding product quality. Stifel Nicolaus analysts project the merger will *increase* subscriber growth -- “the combo will be able to offer more programming by combining channels leading to 1MM more subs over time” – precisely the quality-adjusted price competition that benefits consumers.

If these independent analytical assessments are accurate, and there is no evidence suggesting they are not, then this assessment is dispositive. Transactions likely to expand output are pro-competitive. A merger that reduces effective prices to subscribers and delivers billions of dollars’ worth of cost saving efficiencies is in the public interest under either a “consumer welfare” or a “total welfare” standard.⁸

My “dispositive” conclusion was based on the assessment that enormous cost savings would be gained *and* that quality-adjusted prices would decline. This produces the conclusion that the merger is pro-competitive under standard antitrust analysis. I did not base my argument solely on the wealth effects on the merging parties, and the contention that I did was wholly premised on a surgical procedure performed by Prof. Sidak.⁹

This paper is an attempt to correct as many of such errors and omissions as is efficient.¹⁰ First, I focus on the substantive issue of consumer welfare, analyzing the XM-Sirius merger in light of the issues raised. Next, I attempt to square the record with respect to the criticisms of the White Paper launched by Prof. Sidak. I show that Sidak II, III, and IV fail to correct Sidak I’s miscalculation of “critical elasticity” and reaches obviously flawed conclusions. I go on to explain that Prof. Sidak mis-states antitrust law and economics as regards fixed cost efficiencies, the importance of information gleaned from suppliers and financial markets, and the probative value of competitor opposition to a horizontal merger.

In addition, the financial event study offered in Sidak III is shown to be fatally flawed, incorrect even in its choice of event date (when the satellite radio merger became

⁸ White Paper, pp. 22-23.

⁹ Argument by artifice is a motif. Elsewhere, for instance, Prof. Sidak asserts that I “implicitly” suggest that regulators should embrace a “total welfare” model. He then charges that “Professor Salop’s Previous Endorsement of the ‘True’ Consumer Welfare Standard Contradicts Professor Hazlett’s Previous Declaration in This Proceeding” (Sidak IV, par. 87). In fact, the White Paper does not discuss the choice of an antitrust standard. Moreover, the paper was submitted to the Federal Communications Commission, where the standard, by statute, is “public interest, convenience or necessity.”

¹⁰ A complete response to all errors would consume vast resources and is not attempted here. Sidak II, e.g., is critical of the fact that I submitted a White Paper, rather than a Declaration, to the FCC. Responding, it seems to me, passes beyond the range of positive marginal social value.

known to traders and altered share prices), revealing nothing of value for merger analysis. Other important evidence, including expert analyst forecasts that the merger will increase satellite radio sales, is presented in this paper to fill the void. With respect to the ambitious explanation offered by Professors Sidak and Wildman, that broadcasters oppose the merger not because they fear a loss of listeners but because they fear a loss in ad sales when the post-merger firms increases ad inventories, the ‘two sided’ theory they present actually forgets one side of the market, and is rejected even by the protagonists – terrestrial broadcasters – whose behavior it seeks to explain. Finally, this paper shows that the “localism” arguments Prof. Wildman puts forth against the merger vividly demonstrate precisely the anti-competitive motive and effect of the NAB’s position.

II. THE COMPELLING CASE FOR MERGER

The fundamental question to answer in evaluating a proposed merger is: will the transaction, on net, lower prices and expand output? If it does, the outcome is pro-consumer and socially efficient.

The evidence is compelling that the satellite radio merger proposed by XM and Sirius will, indeed, be output expanding and, hence, pro-competitive. Inter-modal competition in audio entertainment is weakened by the inability of satellite radio to seize economies of scale and scope. By combining, merger-specific efficiencies will enable the post-merger firm to generate a better mix of programming to appeal to more customers, increasing subscriber growth and the probability that it will be able to successfully appeal to customers in the market for audio entertainment services. Given the choices available to consumers, there is no opportunity for satellite radio to restrict output in order to enjoy supra-competitive returns. Indeed, market valuations of the firms – with or without the merger – reveal that expected returns are far short of monopoly levels. The economic case has been convincingly put forward by the merging parties,¹¹ by the expert declaration filed by Prof. Steven Salop et al.,¹² and in my previous White Paper.

Merger appraisals provided by independent analysts strongly support the efficiency conclusion. Investment community research pegs the net present value at \$3 billion to \$7 billion,¹³ and importantly calculate such gains assuming that retail prices do not rise. The lower costs improve satellite radio’s ability to compete with broadcast radio and its other rivals, enjoying lower capital costs, operating costs, and customer acquisition costs. In addition, customers will be given more valuable program choices, as

¹¹ *Consolidated Application for Authority to Transfer Control of XM Radio Inc. and Sirius Satellite Radio Holdings Inc.*, (submitted to the FCC March 20, 2007) [“Merger Application”], and *Joint Opposition to Petition to Deny and Reply Comments of Sirius Satellite Radio Inc. and XM Satellite Radio Holdings Inc.*, (submitted to the FCC July 24, 2007).

¹² See *Joint Opposition to Petitions to Deny and Reply Comments of Sirius Satellite Radio Inc. and XM Satellite Radio Holdings Inc., Exhibit A, Steven C. Salop, Steven R. Brenner, Lorenzo Coppi, Serge X. Moresi, and CRA International, “Economic Analysis of the Competitive Effects of the Sirius XM Merger,”* (submitted to the FCC July 24, 2007) [“Salop et al, 2007”].

¹³ White Paper, p. 7.

the most popular satellite channels become available to a larger universe of subscribers post-merger. As Stifel Nicolaus forecasts, the merger will increase the rate of subscriber growth – signaling the pro-competitive outcome of specific interest to regulators.¹⁴

Even prior to the merger announcement, expert commentary attributed the financial constraints facing satellite radio to market competitiveness: “Among the challenges XM and rival Sirius face is the popularity of MP3 players such as iPods and the emergence of high-definition radio broadcasts.”¹⁵ Such inter-modal rivalry is seen to be intensifying:

...the highest hurdle satellite radio has is one that it may not be able to jump. It is the "iPod phenomenon". The devices that consumers use to listen to music and other programming are radically different than they were when satellite radio started to become widely available five years ago. Now content is available over the airwaves to next generation handhelds, Zune's, iPhones, and all manner of new multimedia device. As municipal WiFi is built out and WiMax networks like the one Sprint (S) is building come online, the ability to get programming on devices other than satellite radio will increase exponentially.¹⁶

In short, satellite radio competes with inter-modal rivals, and the post-merger firm will produce efficiency gains that make its costs lower and its products more appealing to consumers, lowering quality-adjusted prices and expanding subscriber growth. No argument presented by merger opponents seriously challenges that conclusion.

III. ERRORS IN SIDAK II, III, AND IV

The criticisms launched in Sidak II, III, and IV consist very largely of shadow boxing. For instance, Sidak II takes issue with the White Paper’s purported position as to which party bears the burden of proof in a merger approval. My paper simply does not contain the position critiqued.¹⁷ In Sidak IV, the claim is made that I argue against a

¹⁴ Kit Spring and John Wren, *Satellite Radio Merger Attempt Likely, Based on History & Risk/Reward*, STIFEL NICOLAUS (Nov. 27, 2006), (“Spring 2006”), pp. 1 and 4.

¹⁵ Scott Moritz, *Technology: Sour Note for XM*, TheStreet.com (Jan. 22, 2007); <http://www.thestreet.com/newsanalysis/techgames/10333867.html>.

¹⁶ Douglas A. McIntyre, *15 Companies Management Can't Fix: Sirius/XM*, 24/7 WALL ST. (Feb. 22, 2007); http://www.247wallst.com/2007/02/15/companies_ma.html.

¹⁷ According to Sidak III (pars. 4 and 10):

Professor Hazlett mischaracterizes which party bears the burden of proof in this merger proceeding, claiming that the burden falls on both merger opponents and regulatory agencies... Professor Hazlett also says that ‘the burden of proof should not be on the marketplace,’ implying that opponents of the merger bear the burden of proof (footnotes omitted).

This was not what was “implied.” The cited passage argues that the essence of merger analysis is to discern whether a proposed industrial combination will further consumers’ interests. The actual passage is as follows:

consumer welfare standard in antitrust analysis.¹⁸ In fact, I make no such argument, and offer the conclusion that both consumer and producer surplus are likely to increase via the merger, which (as the White Paper notes) makes it irrelevant whether one analyzes the merger under a Consumer Welfare or Social Welfare standard.

Substantial errors beyond misrepresentation are made. Sidak II assails my use of financial and firm data, arguing that only “*consumer perceptions*”¹⁹ are relevant in market definition. The claim is bogus; courts and the U.S. antitrust agencies explicitly engage in an “integrated analysis” that considers many different informational inputs, including those garnered from business behavior, firm performance, and interviews with business executives.

Prof. Sidak also argues that it is entirely irrelevant to consider the self-interested positions of satellite radio’s rivals, terrestrial broadcasters, who strongly oppose the merger.²⁰ Such a position clearly stands contrary to common sense and to the opinion of numerous economic and judicial experts in the field, as I describe below in Section III.B. Moreover, he simultaneously argues that the merger is explained by the rent-seeking motives of XM and Sirius, offering the assertion as evidence against the pro-consumer impact of the merger.

Sidak III also presents an event study, examining stock market returns to discern likely effects of the merger.²¹ The study fails to identify “pure plays” necessary for analysis, to properly interpret its statistical results, or even to correctly determine the trading day when news of the satellite radio merger became known to capital markets. The financial market data, correctly analyzed below, present absolutely zero support for Prof. Sidak’s portrayal of the satellite radio merger as output-reducing.

What may be most revealing is what Sidak II, III and IV do not do: remedy the numerous analytical errors in Sidak I. In describing its key metric, the “critical elasticity” derived via a SSNIP test,²² Sidak I’s numerical calculation was erroneous. Sidak III

Courts and regulatory authorities grapple with the [relevant merger market] issue by examining various price and output measures, along with consumer surveys and other evidence. What is a more fundamental point in any competitive analysis, however, is that the burden of proof should not be on the marketplace. That is to say, where increasing consumer welfare is the objective of public policy, the question is not whether the market – as defined one way or the other – is sufficiently competitive. The determinative policy cut is *whether the proposed merger will likely increase or decrease the value of services available to consumers* (White Paper, p. 12; emphasis in original).

Nowhere in my paper, including here, did I opine on which party bears the legal “burden of proof” in merger proceedings.

¹⁸ Sidak IV, par. 87.

¹⁹ Sidak II, par. 22 (emphasis in original).

²⁰ “The argument that NAB’s opposition to the merger is proof that the merger is procompetitive is incorrect as a matter of logic, erroneous as a matter of economic analysis, and irrelevant as a matter of antitrust law.” Sidak II, par. 50.

²¹ Sidak III, pars. 36 to 47.

²² The SSNIP test deduces whether a small but significant non-transitory price increase would be profitable for the post-merger firm.

answers my earlier explanations to this effect bluntly, “there is no mistake,”²³ insisting that, had one read a footnote as it could have been written and not as it appeared in Prof. Sidak’s paper, the calculation would have been correct. In responding to the criticism in the White Paper that he had mistakenly calculated a critical elasticity = -1.52 rather than (using his assumptions) the actual value of -1.43, Prof. Sidak is again dismissive, asserting that the difference is “not economically significant.”²⁴ In identifying his miscalculation as empirically irrelevant, he powerfully testifies to the very imprecision which renders his analysis weak.

In applying his “critical elasticity” to conduct a SSNIP test, Prof. Sidak is no more successful. The analysis uses gross margins to measure market power. The embedded assumption is that price equals marginal cost in competitive equilibrium. In an industry where it is efficient to use a significant degree of fixed, upfront investment, then, the gross margin metric over-estimates market power. A standard example is found in a market where high gross margins (say in restaurant service) co-exist with low (competitive) profits. In such circumstances, the mechanistic application of a SSNIP test, inferring substitution among products entirely as a function of the gross margins of current suppliers, is inappropriate.²⁵

Prof. Sidak asserts that terrestrial radio and satellite radio are not close substitutes and do not compete, a view explicitly rejected by his client. The NAB has long held that radio stations lose listeners to satellite radio, reducing revenues.²⁶ Further, the NAB openly promotes the new and very large investments being made by its members in HD Radio, deeming the high-quality audio service “critically important for terrestrial stations in view of the launch of two satellite distributed digital audio radio services in 2001.”²⁷

Perhaps a more telling error occurs when Prof. Sidak, in applying the SSNIP test uses – as his only “direct evidence” of what the post-merger satellite radio elasticity of demand would be – the price rise initiated by XM in 2005. Asserting that the price increase did not result in a decline in sales,²⁸ Sidak then offered this as evidence that the post-merger elasticity was low – presumably less than the “critical elasticity” he had (mis)calculated. But if the market data Sidak presented were correct, his economic conclusion is wrong: the observation that an XM price hike did not lower sales would lead to the conclusion that XM and Sirius occupy *separate markets*. A merger would therefore have no anti-competitive effect.

²³ Sidak III, par. 22.

²⁴ Ibid.

²⁵ Jonathan Baker, *Market Definition: An Analytical Overview*, 1 ANTITRUST LAW JOURNAL (2007).

²⁶ See White Paper, Appendix I, for a litany of statements filed by the NAB objecting to competition from satellite radio.

²⁷ Donald R. Lockett, *The Road to Digital Radio in the United States* (Washington, D.C.: National Association of Broadcasters; 2004), p. xvii. The book was published as an “NAB Executive Technology Briefing.”

²⁸ This is dubious factually, as Sidak failed to properly adjust sales figures for underlying time trends and quality changes. See Salop et al., 2007.

Prof. Sidak defends his SSNIP test by distancing it from Sidak I: “Although it does constitute ‘direct evidence’ of elasticity, XM’s 30 percent price increase was not offered as a point estimate for the actual elasticity of demand facing a hypothetical monopoly provider of SDARS. It was intended to demonstrate the general insensitivity of demand for SDARS with respect to changes in price.”²⁹ Whatever was intended, what it did do was reveal that a mechanistic approach to “critical elasticity” reaches unrealistic conclusions.

Both Sidak III and the paper by Prof. Steve Wildman attempt an explanation of the NAB’s opposition to the satellite merger that ostensibly aligns broadcasters’ interests with those of consumers. The theory is that terrestrial broadcasters oppose the merger because they fear that it will result in a greater number of commercials. The argument collapses under the weight of the evidence, including that offered by the NAB’s own stated positions. This analysis is provided below at Section III.F.

A. MARKET DEFINITION

One Sidak theme is that I “appear to reject the current antitrust paradigm for analyzing mergers,” offering “novel theories” seeking to “radically redesigning the framework...”³⁰ The bluster is groundless. My analysis, properly reported, informs the standard merger analysis used at U.S. regulatory agencies.

Conversely, Prof. Sidak offers numerous interpretations that are incorrectly attributed to current antitrust policy. In defining markets, Prof. Sidak insists that only evidence gleaned directly from consumers is properly considered. Incorporating views or actions of suppliers “ignore[s] the standard economic methodology in merger cases.”³¹ As the paper continues:

Any law student taking antitrust knows that the *Merger Guidelines* dictate that market definition be done on the basis of *consumer* perceptions, not from the perspective of producers....³²

This mis-states U.S. antitrust enforcement practice where the performance and self-interested viewpoints of firms in the marketplace are thought to yield probative evidence. As Judge Paul L. Friedman wrote in his August 2007 opinion in *Federal Trade Commission v. Whole Foods*:

[A]nother factor that leads to the conclusion that the relevant product market in this case must be larger than premium and organic supermarkets and, indeed, that it is at least as broad as supermarkets: how the players in

²⁹ Sidak III, par. 25.

³⁰ Ibid., par. 3.

³¹ Sidak II, par. 22.

³² Ibid. (emphasis original).

the marketplace view each other and how their conduct reflects those views.³³

In fact, it would “radically redesign the framework for antitrust analysis”³⁴ to exclude evidence gleaned from firms in the marketplace. In defining what products substitute for each other and what firms compete with particular rivals, the information collectively held by firms is large; the supply side is likely to be a rich source of reliable product information. The Merger Guidelines incorporate just this appreciation. Here is what Section 1.11 actually says regarding relevant evidence:

In considering the likely reaction of buyers to a price increase, the Agency will take into account all relevant evidence, including, but not limited to, the following: (1) evidence that buyers have shifted or have considered shifting purchases between products in response to relative changes in price or other competitive variables; (2) *evidence that sellers base business decisions on the prospect of buyer substitution between products in response to relative changes in price or other competitive variables*; (3) the influence of downstream competition faced by buyers in their output markets; and (4) the timing and costs of switching products.³⁵

Another approach to market definition bears notice. In *Sidak I*, the assessment of “effective competition” in cable television was offered as an apt analogy for satellite radio. Cable TV, a multi-channel video subscription service, faces rivalry from over-the-air broadcast TV; the parallel to the position of satellite radio vis-à-vis terrestrial broadcast radio appears clear. *Sidak I* tells us that the 1992 Cable Act “recognized that the broadcast medium could not effectively compete with the emerging and increasingly popular multichannel subscription-based services...”³⁶ It goes on to note that the Act states that “without the presence of another multichannel video programming distributor, a cable system faces no local competition.”³⁷ *Sidak I* offers this as a primary exhibit in its market definition, which includes only satellite radio.

The analogy, as shown in the White Paper, actually leads to precisely the opposite conclusion. The 1992 Cable Act included three ways to identify “effective competition” for cable television systems, depending on the geographic market. One deemed a market “effectively competitive” where the local cable system served fewer than thirty percent of households; in such areas, broadcast TV was seen to be a sufficient substitute. Given that

³³ *FTC v. Whole Foods and Wild Oats*, Civil Action No. 07-1021 (PLF), United States District Court, District of Columbia Opinion (filed Aug. 16, 2007), pp. 63-4.

³⁴ “Even if Professor Hazlett is correct about radically redesigning the framework for antitrust analysis of the horizontal mergers, it is not appropriate for the FCC to announce some alternative merger guidelines without a proper rulemaking simply because doing so would suit the current merger proponents.” *Sidak III*, par. 15.

³⁵ U.S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, (Revised 1997), §1.11 (emphasis added). http://www.usdoj.gov/atr/public/guidelines/horiz_book/11.html.

³⁶ *Sidak I*, par. 38.

³⁷ *Ibid*.

satellite radio subscribership is far below thirty percent of the radio market,³⁸ the 1992 Cable Act framework places broadcast radio and satellite radio in the same market. The “effective competition” designation gains further endorsement from the FCC policy preceding the 1992 Cable Act, which viewed over-the-air television stations as direct competitors to cable TV systems.³⁹

In response, Prof. Sidak attacks my discussion of the issue as irrelevant:

Once again, Professor Hazlett is conflating regulatory standards with antitrust standards... The fact that a satellite provider could be classified as ‘non-dominant’ under an outmoded and likely arbitrary standard for rate regulation in a different industry does not inform the relevant question here.⁴⁰

Having introduced the regulatory standard as guidance for market definition in Sidak I, Sidak III now assails a proper interpretation of the evidence as a confusion. In fact, Sidak I was correct about the relevance. The manner in which “effective competition” between cable TV and broadcast TV has been defined by regulators informs both the Federal Communications Commission and the Department of Justice in its review of the current satellite radio merger.

In yet another take on the market definition question, Sidak II opines that, “SDARS subscribers consider terrestrial radio to be a complement, not a substitute, for SDARS.”⁴¹ This conclusion is attributed to survey evidence that

SDARS subscribers listen to 33 hours of radio per week, compared to 19 hours per week for (non-SDARS) radio subscribers. The study breaks down the 33 hours for SDARS subscribers into 14 hours of terrestrial radio, 11 hours of SDARS, and 8 hours of Internet radio. Thus, radio listeners who subscribe to SDARS do not appear to reduce their consumption of terrestrial radio by a significant amount (14 hours of terrestrial radio for an SDARS subscriber versus 19 hours of terrestrial radio for a non-SDARS subscriber).⁴²

This analysis reveals a fundamental economic error. The issue of product competition is not whether SDARS subscribers listen to more or less terrestrial radio than non-subscribers, but whether they substitute between the services at the margin. The data presented indicate that subscribers are relatively intense radio listeners, ‘consuming’ 74% more hours per week than non-subscribers. Nonetheless, subscribers listen to 26% fewer

³⁸ While Sidak I attempted to use “channels” to calculate radio market shares, the White Paper established that the logic was wholly unconvincing. This conclusion is buttressed by Sidak I’s suggestion that the 1992 Cable Act offers guidance on market definition. Cable TV’s share of the market was defined not in terms of channels, but as a percent of households subscribing to cable TV service.

³⁹ See discussion in the White Paper, pp. 25-27.

⁴⁰ Sidak III, par. 26 (footnotes omitted).

⁴¹ Sidak II, par. 19.

⁴² Ibid.

hours of terrestrial broadcasting. It is substitution away from (or into) terrestrial broadcasting and into satellite radio programming (and Internet radio) in response to changes in quality-adjusted SDARS prices that sheds light on whether products compete. Further, as Salop et al 2007 notes, the idea that listening to broadcast radio would rise when the price of satellite radio falls – the test for complementarity – simply makes no sense.

Nor does Prof. Sidak fare any better with his assertion that satellite and terrestrial radio (or iPods and other media) are complements because subscribers own multiple radios to receive the separate services.⁴³ A family may have both a Ford and a Toyota in their garage, but this does not mean that the rival automobiles are complements rather than substitutes.

Finally, Prof. Sidak repeatedly defines satellite and broadcast radio as occupying separate product markets by noting that the services differentiate their products. He argues that SDARS operators offer adult programming disallowed on broadcast radio, and cites survey data that “suggest that satellite subscribers value SDARS for qualities that are unavailable on terrestrial radio.”⁴⁴ But product differentiation *is* competition. Radio station listeners would cite “qualities that are unavailable” on the stations they don’t listen to if asked to explain their choice of audio entertainment and even cite many of the stations they refuse to listen to as featuring offensive programming. Subscribers to XM, similarly, could cite the programming they prefer to that available on Sirius, and vice versa. According to Prof. Sidak’s approach, differentiated radio stations then occupy distinct product markets. XM and Sirius are then, likewise, classified as serving separate markets. Once again, the market definition framework offered by Prof. Sidak defines markets too narrowly.

B. COMPETITIVE EFFECTS

One of the most important set of facts contributing to the satellite radio merger analysis is derived from the fierce opposition of terrestrial broadcasters. Yet, Sidak II alleges that this is wholly uninformative. Prof. Sidak condemns the evidence, and the implication that it suggests the combination will increase competitive forces, as “incorrect as a matter of logic, erroneous as a matter of economic analysis, and irrelevant as a matter of antitrust law.”⁴⁵

Yet, the logic of assessing the self-interested policy positions of rival firms is so powerful that it is widely incorporated into merger analyses by economists, lawyers, and judges. A 2004 treatise states the case thusly:

The Effect of Efficiency Gains on Outsiders’ Profits [U]nlike the case where there are no efficiency gains, outsiders will lose from the merger,

⁴³ Sidak specifically notes that, because many households own both an MP3 player and a satellite radio subscription, the products do not compete with each other. Sidak II, par. 27.

⁴⁴ Ibid, par. 26.

⁴⁵ Ibid, par. 50.

and thus oppose it, when the merger allows insiders [merging parties] to cut their costs; intuitively, this is because the merger changes the competitive position of firms in the industry to the detriment of outsiders...⁴⁶

The result that welfare increases and outsiders' profits decrease when efficiency gains are large should also have another important implication on the reliance anti-trust authorities place on the information they receive from interested parties. Clearly, claims from rival firms that the merger will be anti-competitive should be received with great skepticism from the authorities: The fact that rivals complain about the merger probably signals that there might be significant efficiency gains. If anything, then, their complaint might be taken as a first indication that the merger will improve welfare!⁴⁷

This is widely understood. In an important treatment, economists William J. Baumol and Janusz Ordover explained that competitor opposition to mergers is highly informative for public policy makers. Speaking of horizontal combinations (including mergers and joint ventures) that are opposed, on antitrust grounds, by competitors, they wrote:

[I]f the joint venture really is likely to introduce economies or improve product quality, it is sure to make life harder for the domestic rivals of the participants who will then have to run correspondingly faster in order to stand still. Paradoxically, then and only then, when the venture is really beneficial, can those rivals be relied on to denounce the undertaking as "anticompetitive."⁴⁸

The logic is often utilized by antitrust policy makers. Economist Greg Werden of the U.S. Department of Justice Antitrust Division goes further, arguing that firms competing with merging parties should be barred from filing complaints seeking to block competitors' mergers.⁴⁹ Because standing to bring a suit is premised on damages incurred by the party filing such a claim, horizontal rivals are excluded from complaining:

⁴⁶ Massimo Motta, *Competition Policy: Theory and Practice* (2004), p. 239 (emphasis in original).

⁴⁷ *Ibid.*, p. 240. A footnote at the end of the passage reads: "Of course, this is not necessarily always the case. Suppose that there is a vertical merger that is likely to lead to foreclosure of rival firms. In this case, the latter will complain, but the merger might also reduce consumer surplus and welfare. In Chapter 6, however, I will argue that foreclosure is a relatively rare event and that a number of conditions must be fulfilled in order for a vertical merger to be detrimental." It is clear that the satellite radio merger is easily excluded; it is horizontal, not vertical, and it does not foreclose rivals from inputs.

⁴⁸ Baumol & Ordover (1985). The specific joint venture Baumol & Ordover are commenting on was that formed by General Motors and Toyota, opposed by Chrysler and Ford.

⁴⁹ Gregory J. Werden, *Challenges to Horizontal Mergers By Competitors Under Section 7 of the Clayton Act*, U.S. Dept. of Justice Antitrust Division, Economic Policy Office Discussion Paper No. 85-16 (Dec. 6, 1985).

[T]he predominant effect of any anticompetitive horizontal merger would be to raise prices as under the traditional theories. Since competitors benefit from collusive or dominant firm behavior, which raises prices, it is difficult to conceive how they ever could have standing to challenge a horizontal merger.⁵⁰

The self-interested positions of economic agents, and their revealed positions vis-à-vis a proposed merger, supply useful information that regulators and judges rely on in assessing antitrust remedies. Perhaps the clearest statement of the basic case has been put forward by Judge Richard Posner:

Hospital Corporation’s most telling point is that the impetus for the Commission’s complaint came from a competitor... The hospital that complained to the Commission must have thought that the acquisition would lead to lower rather than higher prices – which would benefit consumers, and hence, under contemporary principles of antitrust law, would support the view that the acquisitions were lawful.⁵¹

While Prof. Sidak argues that competitor opposition to a merger has no relevance “as a matter of logic,” “economic analysis” or “antitrust law,” economists, antitrust enforcement officials, and federal judges disagree.

C. PRODUCT MARKETS AND FIRM VALUES

Prof. Sidak objects to financial market data presented in my White Paper showing that satellite radio providers are not expected to ever generate positive returns. The information on profitability, and (in observed Enterprise Values) expected future profits, bears directly on the issue of market power and, hence, market definition. One important feature of monopoly, of course, is supra-normal returns. The finding that firms are unable to achieve abnormally high profits counters an assertion that monopoly power is being exercised.

The critique begins with Tobin’s q which is the ratio between the market value of a firm and the replacement cost of tangible capital. Where the present value of expected future profits substantially exceeds the replacement cost of tangible capital ($q > 1$), market power may be in evidence.⁵² This directly implicates the issue of market definition, revealing that rival products are not sufficiently close substitutes as to eliminate anticipated profits.

The same general logic holds in markets where substantial sunk investments take forms other than tangible capital. In satellite radio, tangible capital investments (in such

⁵⁰ Ibid., p. 42.

⁵¹ *Hospital Corporation of America v. Federal Trade Commission*, 807 F.2d 1381, pp. 1391-92.

⁵² This leaves open the question as to how the profitable market position was obtained. Returns to entrepreneurial activity or competitive superiority do not necessarily imply monopolistic output restriction but could also imply dynamic efficiency gains.

things as satellites) have been made, but relatively large expenditures for marketing and customer acquisition have also been necessary. The very substantial negative gap between the present value of outlays and the present value of anticipated future cash flows indicates that neither XM nor Sirius have generated rents, achieved market power, or (individually or collectively) established a *market*. Investors expect that other products offer sufficient substitutes that above-competitive returns are not anticipated.

Prof. Sidak questions this point thusly:

According to Professor Hazlett, a product market should not be defined in the traditional sense by whether a hypothetical monopoly provider of a service could profitably raise prices above competitive rates. Instead, a product market can exist only if the market value of all suppliers of the service exceeds the present value of the funds invested.⁵³

Prof. Sidak's confusion is exhibited in his false dichotomy. A market "defined in the traditional sense" *is* evidenced when a supplier "could profitably raise prices above competitive rates" – and that implies the existence of supra-competitive profits. To argue that my approach to market definition is not based on "whether a hypothetical monopoly provider of a service could profitably raise prices about competitive rates," is plain wrong. That is *exactly* my approach.

XM and Sirius have invested about \$7 billion more than the approximately \$9 billion enterprise value now established by stock and bond traders for the firms.⁵⁴ Even with the positive abnormal share price returns associated with the Feb. 2007 merger announcement, or plausibly higher returns upon merger consummation, financial markets do not indicate that the satellite radio investments are expected to make supra-competitive returns.

Hence, Prof. Sidak's test for defining "a product market... in the traditional sense" fails to establish that satellite radio is a market, because "a hypothetical monopoly provider of a service could profitably raise prices above competitive rates." The "duopoly" he asserts to be in place today, no less than the "merger to monopoly" he forecasts post-merger, is unable attain the economic profits the traditional test calls for. Competition from rival media mitigates market power. As the situation is described on Wall Street:

Sure, XM (XMSR) and Sirius (SIRI) would wring out plenty of cost savings as one company. But the two have yet to earn a penny of profit. Their combined losses for 2006 are expected to hit \$1.7 billion. And competition is everywhere. Car salesmen are pushing new iPod jacks. More than 57 million Americans now listen to some form of Web radio each week, says radio-audience tracker Bridge Ratings, compared with 14 million subscribers for XM and Sirius combined. Broadcasters are

⁵³ Sidak III, par. 16.

⁵⁴ White Paper, pp. 14 and 32-33.

beginning to offer high definition, or HD, radio. While consumers need to buy a special receiver to get HD, which squeezes more programming into the same frequency, the service is free.⁵⁵

Hence, asset valuations are not simply of use in a “failing company” argument, but in assessing how firms grapple with rivals in product markets. Companies that enjoy duopolies and “merge to monopoly” should exhibit healthy returns that are seen by investors to, post-merger, get healthier. Where companies experience competitive returns or less, the evidence about substitute products is given material credence.

The market's concern about the two companies is not simply that they lose money. Satellite radio had little competition in 2000, when the Sirius stock was above \$80. But new wireless products like the Microsoft Zune will be able to work on WiFi signals, and as these get distributed around cities, the need for a satellite feed may become less acute. Apple has also set up its iPod so that it can play through a car stereo. And, traditional radio broadcasters are introducing digital radio with better fidelity.

The world is no longer just XM and Sirius battling for share.⁵⁶

D. “CRITICAL ELASTICITY”

My White Paper spent just a footnote to explain that Prof. Sidak had miscalculated the “critical elasticity” in its centerpiece analysis. Since the general economic methodology in Sidak I was faulty in excluding dynamic demand factors fundamentally impacting the “critical loss” estimates,⁵⁷ relying wholly on price-variable cost margins to infer market power,⁵⁸ and misinterpreting evidence of actual demand elasticities, the incremental importance of a corrected estimate may have been small. It may yet be. However, further clarification is offered here given that Prof. Sidak has responded to my correction by implying it was wrong:

Professor Hazlett claims that, under my margin assumptions, the critical elasticity of demand is actually -1.43, and not the -1.52 that I calculated. He argues that my error is due to a mathematical mistake in my derivation. As it turns out, there is no mistake. The log of 1.05^e is in fact

⁵⁵ *XM & Sirius: What A Merger Won't Fix*, BUSINESS WEEK (March 5, 2007).

⁵⁶ *Weekend Edition: M&A Nation: Sirius and XM*, WALL ST. 24/7 (Sept. 16, 2006); http://247wallst.blogspot.com/2006_09_01_247wallst_archive.html

⁵⁷ Salop et al. 2007, pp. 43-48.

⁵⁸ “[P]rice-cost margins commonly provide limited information about the magnitude of the likely buyer response to an increase in price... For this reason, critical loss analysis is no substitute for a critical analysis of all the evidence that bears on the likely magnitude of buyer substitution and should be avoided. Enforcement agencies and litigants can readily be misled when employing critical loss analysis as a simulation tool for market definition if they rely primarily on price-cost margins to infer the demand elasticity... “ Jonathan B. Baker, *Market Definition: An Analytical Overview*, 74 ANTITRUST LAW JOURNAL 129 (2007), pp. 156-57.

$\varepsilon \times \log(1.05)$. Because the industry elasticity of demand for satellite radio (“elasticity”), ε , did not appear in superscript form in the footnote, Professor Hazlett inferred that I took the logarithm of the *product* of 1.05 and the elasticity. Of course, the difference between -1.52 and -1.43 is not economically significant.⁵⁹

It is difficult to discern from this defense that Prof. Sidak did, indeed, miscalculate. Given his assumptions, the critical elasticity equals -1.43, not (as Sidak I claimed) -1.52. His asserted fix supplies the wrong answer for the question he poses.

Nonetheless, this response constitutes a most revealing answer. First, Prof. Sidak claims, “there is no mistake.” This takes the position that, if one reads his paper not as it was written but as Prof. Sidak now claims it should have been written, the calculation is correct. The mistake is mine, or presumably any reader’s, who assumes that Prof. Sidak meant what he wrote. Instead, he asserts that imaginary superscripts (which ‘appeared’ in two of his equations) assure that “there is no mistake.”

Second, and perhaps equally telling, is Prof. Sidak’s suggestion that one not worry much about the mathematical errors he commits in that “the difference between -1.52 and -1.43 is not economically significant.” This trivializes the very exercise he features as his central analytical assessment. Of course, Prof. Sidak cannot establish that the post-merger elasticity falls below $|-1.52|$, let alone $|-1.43|$, which is what drives the conclusion that the difference between the two is “not economically significant.”

Indeed, the only “direct evidence” proffered in Sidak I cites the April 2005 price increase by XM radio.⁶⁰ Prof. Sidak noted that the 30% increase in the monthly subscription rate was yet accompanied by “subscriber growth [continuing] at... a rapid pace,” which “underscores the low elasticity of demand faced by SDARS providers.”⁶¹ The observation left much to be empirically desired (including an adjustment for underlying growth trend and an examination of quality changes, including channel additions, accompanying the change in price⁶²). Yet, the economic implication of Prof. Sidak’s own interpretation was not that post-merger (or “satellite radio”) demand was inelastic, but that *XM’s demand was inelastic*. Thus, Prof. Sidak placed XM and Sirius in distinct product markets. The result of Prof. Sidak’s critical elasticity analysis is clear: the merger of XM and Sirius is not of horizontal rivals, and their merger does not create market power.

To this, Sidak III responds that his proffered evidence on satellite radio demand was, and was not, factually relevant. “Although it does constitute ‘direct evidence’ of elasticity, XM’s 30 percent price increase was not offered as a point estimate for the actual elasticity facing of demand facing a hypothetical monopoly provider of SDARS. It was intended to demonstrate the general insensitivity of demand with respect to price

⁵⁹ Sidak III, par. 22 (emphasis original).

⁶⁰ Sidak I, par. 22.

⁶¹ Ibid.

⁶² See Salop et al. 2007.

changes.”⁶³ It is difficult to decipher which way this sentence runs. If the asserted inelasticity is relevant evidence, then it shows how Sidak’s model too-narrowly defines markets. If it is not, then Sidak’s analysis has no “direct evidence” to support its conclusions.

E. A FINANCIAL EVENT STUDY

Prof. Sidak examines financial market reactions to the announcement of the XM-Sirius merger. He does so as a component of his analysis of the economic effects of the proposed combination.

The general approach is proper. It is highly relevant to the evaluation of the merger’s likely impact on *consumers* that one examines the data produced by *capital markets*. The event study is a standard tool designed to deduce information from the self-interested actions of investors who reliably aim to maximize returns.⁶⁴ Indeed, the financial event study is potentially informative in the same way objective observers learn about likely merger effects from the positions taken by interested parties. In particular, when the trade association representing terrestrial broadcasters commits to an anti-merger position in the XM-Sirius combination, it signals regulators that owners of horizontal rivals believe that they will suffer wealth losses from additional competitive rivalry. Such wealth losses (or gains) are what financial event studies seek to discover.⁶⁵

Properly analyzed, these data provide strong evidence supporting the conclusion that the merger is pro-consumer. The dispositive information is not provided by share price reactions in capital markets, however, as is shown just below. Terrestrial broadcasters (commercial and non-commercial) strongly oppose the merger and fund a campaign against it to influence regulators.

Alternatively, well-informed complementary suppliers – automobile manufacturers, which install XM or Sirius radios as a factory option (or, in the case of Hyundai, as standard equipment), and electronics retailers – largely favor the merger.⁶⁶

⁶³ Sidak III, par. 25.

⁶⁴ I have previously published research using this methodology to draw inferences about antitrust policy. George Bittlingmayer and Thomas W. Hazlett, *DOS Kapital: Do Antitrust Enforcement Actions Against Microsoft Create Value in the Computer Industry?* 55 JOURNAL OF FINANCIAL ECONOMICS 329 (March 2000).

⁶⁵ Prof. Sidak clearly contradicts his assertion about the irrelevance of rivals’ opposition to a merger, and then engages in an exercise to discover economic evidence of precisely that. Prof. Sidak also attempts to explain the satellite radio merger as a rent-seeking combination, again using the self-interested actions of suppliers in the market to infer likely consumer welfare outcomes.

⁶⁶ For instance, Hyundai Motor’s asks the FCC “to approve the proposed merger,” arguing that “the merger will... [expand] programming choices and pricing options for all Hyundai customers. Rather than being forced to choose between content that currently is exclusive to one satellite radio provider, our customers will gain access to packages offering the ‘best of both’ services for significantly less than the current combined price, as well as packages of fewer channels at much lower prices.” Hyundai further argues that “the merged company will likely improve upon current in-vehicle services that support the driving experience, such as traffic and weather, and promote the introduction of exciting new services. It will also provide a more robust and stable platform for satellite radio generally, and maximize its prospects

Independent financial analysts view the merger as an output-expanding event that will increase satellite radio receiver sales. These important sources of evidence are simply ignored in the Sidak papers, in favor of an improperly constructed financial event study that produces no useful merger evidence.

1. Interpreting Share Price Movements

In examining one event on one day and the prices of a small number of volatile shares in companies spanning a variety of product markets, Sidak III obtains no result that can be distinguished from financial market “noise.” This is easily shown. We begin by noting that Sidak III evaluates price reactions to the satellite merger announcement for three types of companies: (1) SDARS providers (XM and Sirius), (2) owners of terrestrial broadcast stations (such as Clear Channel and Salem), and (3) satellite radio manufacturers (Audiovox, Delphi, Directed, and Visteon).

i. Satellite radio and terrestrial broadcasters

There is no question as to the effect of the merger on these firms. First, consider the merging parties (XM and Sirius). They are engaged in a transaction to increase shareholder wealth; they would not agree to merge unless there were mutual gains. The only empirical question concerns how the gains are distributed between the two firms.

The important thing one can learn from share price movements in these equities, however, is when news of the merger was initially reflected in financial market transactions. This Prof. Sidak fails to do. He pegs the merger announcement event date as the first trading day (Feb. 20, 2007) following formal announcement by the firms (Feb. 19, a Monday holiday on which the exchanges were closed). Yet, the merger had long been urged by Wall Street analysts and information often seeps out prior to announcements.⁶⁷ In fact, on Friday, Feb. 16 (the last trading day prior to Feb. 19, 2007), XM shares rose 7.7% and Sirius shares rose 3.6%, substantial increases widely attributed to a pending merger deal. For example, an Associated Press story time-stamped 12:50 pm, Feb. 16, 2007 noted the sharp increase in XM shares and credited the surge to “a potential announcement of a merger with Sirius.”⁶⁸ The relevance of this is that the correct event date (t_0) is not where Sidak III puts it (Feb. 20) but the trading day prior (Feb. 16). Making this simple adjustment eliminates even the extraordinarily weak results Prof. Sidak obtains for satellite equipment vendors – gained only by lowering

for success in the increasingly competitive market for audio entertainment services.” *Comments filed by Hyundai Motor Corporation* (submitted to the FCC July 10, 2007), pp. 1-2.

⁶⁷ *Analysts Upgrade XM, Sirius On Merger Rumors*, FINANCIAL WIRE (Jan. 17, 2007); *Sirius, XM Satellite merger still possible despite FCC chairman comments, analysts say*, ASSOCIATED PRESS NEWSWIRE (Jan. 18, 2007); *Another Year of Satellite Mergers Expected*, 29 SATELLITE WEEK (Jan. 29, 2007).

⁶⁸ *Patterson drags down Nasdaq 100, XM Satellite up on takeover speculation*, ASSOCIATED PRESS NEWSWIRE (Feb. 16, 2007). This news was also reported on AP’s FINANCIAL WIRE, *Midday Leaders & Laggards: Nasdaq 100* (Feb. 16, 2007), time-stamped 12:50 p.m. EST. David B. Wilkerson, *Bear Stearns talks up XM Satellite-Sirius merger; shares gain*, Dow Jones MARKETWATCH (Feb. 16, 2007), time-stamped 1:45 pm EST.

standard statistical confidence levels below standard levels and by arbitrarily focusing on one of 16 event window results -- as discussed below.

Second, consider Prof. Sidak’s finding that companies owning radio broadcast stations demonstrate no statistically significant negative returns around his (flawed) event date.⁶⁹ His conclusion is that such “findings...are not consistent with the procompetitive [merger] hypothesis advanced by Professor Hazlett, which predicts a significant decline in the market valuation of broadcast radio providers.”⁷⁰

This assertion is false. The pro-competitive view of the XM-Sirius merger predicts that broadcast station owners will suffer a wealth loss, but it makes no prediction as to whether that loss will result in “a significant decline in... market valuation.” It is entirely possible that the decline will be small relative to the overall value of radio stations, and will be swamped by the daily variance in share prices. Indeed, this is expected given that satellite radio broadcasters account for only about 4% of U.S. radio listening time; even if the merger were to significantly increase satellite radio subscriber growth rates, it would make only a very small percentage difference in audience sizes for terrestrial broadcasters.

What is more stunning in the Sidak III claim that evidence is “not consistent” with a pro-competitive interpretation of the satellite radio merger, is that the corollary is identically true (or, in this case, false): the proffered evidence broadcaster returns is equally “inconsistent” with Prof. Sidak’s theory of the merger. In putting forth the view that broadcasters oppose the XM-Sirius combination because they fear enhanced competition in the advertising market, he also predicts negative returns for broadcast station owners. By his event study interpretation, Sidak’s own theory is rejected. That he fails to see the parallel nature of the tests he performs provides information of its own.

ii. Satellite radio manufacturers

At a high level, economic intuition supports the view that vendor share price returns are positively correlated with consumer welfare. That is because suppliers of key inputs, satellite radios, will generally prosper when satellite radio service providers expand output and financially decline when they restrict it. Hence, examining reactions of firms or investors to the SDARS combination can potentially provide key information on the likely effect of the merger on consumers. The same is true for auto makers and electronics retailers. That is why antitrust authorities routinely interview customers and complementary suppliers, taking their views into account when conducting merger analyses.⁷¹

⁶⁹ “[T]he abnormal returns for all but one broadcast radio provider in my survey (Salem) were neither statistically nor economically significant” Sidak III, par. 46. One broadcaster, Salem, does exhibit statistically significant negative returns, but Prof. Sidak argues that the valuation decline was attributed to extraneous factors. No similar inquiry is conducted when examining satellite radio vendor returns.

⁷⁰ Sidak III, par. 46.

⁷¹ But interpretation of such data must be handled with care. It is well known that some vendors or customers will not have interests that are precisely aligned with the general consuming public. A merger announcement that lowered share returns in these suppliers might, for example, be caused by expectations

Of fundamental importance is the availability of “pure plays,” firms that specialize in just the activity under investigation. While satellite radio makers generally have an interest in an expansion of satellite subscribers, the companies make a wide variety of products. On any given trading day, the fortunes of the firm – as measured by share price movements – will be impacted by changing expectations regarding a large number of its products and operations, not just satellite radio sales.

The lack of a “pure play” in satellite radio is why it would be ludicrous to examine General Motors’ or Nissan’s equity returns around the SDARS merger announcement to discern economic effects of the merger. But, to a considerable (if lesser) extent, the four firms selected by Prof. Sidak to proxy the satellite radio maker “industry” all produce an array of electronics, deriving only a fraction of sales from satellite radios. Since the firms do not publicly break out sales of product lines, this information is inferred by examining financial web sites and the companies’ filings with the Securities and Exchange Commission.

Audiovox manufactures at least 21 products (or families of products), not counting services.⁷² This is hardly a “pure play” in satellite radio receiver production. Sidak III attempts to patch this gap by noting that Audiovox lists satellite radio products “first, or close to first, in its list of products and industries” in its 2007 Annual Report.⁷³ This does not come close to patching this hole.

Similarly, Delphi is also far from a pure play. Although a major supplier of satellite radios, Delphi is also a major supplier of a large number of other auto parts and

that the merger would tap more efficient, competitive supply sources. Ken Heyer, *Predicting the Competitive Effects of Mergers By Listening to Customers*, 74 ANTITRUST LAW JOURNAL (2007)

⁷² “Audiovox Corporation and its subsidiaries engage in the design and marketing of electronic products worldwide. It offers a range of mobile electronics products, including mobile multi-media video products, such as overhead, headrest, and portable mobile video systems; autosound products, comprising CD radios, speakers, amplifiers, and CD changers; satellite radios, including plug and play models and direct connect models; automotive security and remote start systems; car to car portable navigation systems; rear observation and collision avoidance systems; automotive power accessories; home electronic accessories, such as cabling and performance enhancing electronics; and accessories, such as remotes, iPod products, wireless headphones, and other connectivity products. The company also provides consumer electronic products, including LCD and flat panel televisions, home and portable stereos, HDTV antennas, WiFi antennas, and HDMI accessories, two-way radios, personal video recorders and MP3 products, home speaker systems, portable DVD players, and flat panel TV mounting systems. In addition, Audiovox offers various value added management services, including product design and development, engineering and testing, sales training, in-store display design, installation training and technical support, product repair services and warranty, installation network, and warehousing. The company serves power retailers, mass merchants, regional chain stores, specialty and Internet retailers, independent 12 volt retailers, distributors, new car dealers, vehicle equipment manufacturers, and the United States military.”⁷² Yahoo!Finance; <http://finance.yahoo.com/q/pr?s=VOXX> (visited Aug. 26, 2007).

⁷³ Sidak III, par. 43.

services to the automobile industry.⁷⁴ Its 2006 annual report uses the word “satellite” just twice.

Visteon Corp. manufactures automotive information displays, engine controllers, climate control modules, interior components, and lighting, in addition to an “audio systems” segment that include “digital and satellite radio broadcast tuners.”⁷⁵ The company’s 2006 annual report contains only one mention of satellite radio (in the description of the company’s products). The electronics segment, which contains audio systems, contributed just 25% of company revenues in 2006.⁷⁶

Directed Electronics supplies Sirius radios and calls itself the “largest supplier of aftermarket satellite radio receivers, based upon sales.”⁷⁷ The company’s annual report also has an extensive discussion of its satellite radio business. However, the company also designs and markets a variety of other products. The firm was founded in 1982 as a maker of automobile security devices. As of May 2007 the company’s website described the firm as “the largest designer and marketer of consumer branded vehicle security and convenience systems in the United States... and a major supplier of home audio, mobile audio and video, and satellite radio products.”

It should be noted that Sidak III does reference one bit of evidence offering a “pure play” assessment of satellite radio set sales as per the SDARS merger: “Some analysts predicted that suppliers would not be negatively affected.”⁷⁸ This lacks the ostensible precision of event window returns, but it is here better evidence. The analysts cited all have access to the share price returns data Prof. Sidak examines, and, indeed, are expert at interpreting them. Their conclusion is that the negative effects Sidak III purports to show are not, in fact, in evidence.

2. Interpreting Sidak’s Results

The key results of the event study attempted in Sidak III appear here in Table 1.

⁷⁴ Delphi’s 2006 Annual Report describes seven reporting segments: Electronics and Safety, Thermal Systems, Powertrain Systems, Electrical/Electronic, Steering, Automotive Holdings (non-core product lines), and Corporate and Other (Product and Service Solutions, various aftermarket segments)

⁷⁵ Visteon, *2006 Annual Report Form 10-K*, p. 4. <http://www.secinfo.com/dsvR3.u157.htm>

⁷⁶ *Ibid.*, p. 28.

⁷⁷ Directed Electronics, Inc., *2006 Annual Report Form 10-K*, p.3; <http://www.secinfo.com/dsVs6.uy6.htm>.

⁷⁸ Sidak III, par. 38.

TABLE 1. SIDAK’S EVENT STUDY RESULTS

| | | <i>Audiovox Corp.</i> | <i>Delphi Corp.</i> | <i>Directed Electronics, Inc.</i> | <i>Visteon Corp.</i> |
|---------------|---------|-----------------------|---------------------|-----------------------------------|----------------------|
| Alpha | | 0.000 | 0.013 | 0.000 | 0.002 |
| Beta | | 1.959 | 0.323 | 0.953 | 2.354 |
| 1-day Window | CAR | 0.551% | -4.954% | -4.572% | 0.452% |
| | z-stat | 0.256 | -0.639 | -1.898 | 0.125 |
| | p-value | 0.798 | 0.523 | 0.058 | 0.900 |
| 3-day Window | CAR | 0.340% | -7.619% | -2.180% | 8.411% |
| | z-stat | 0.092 | -0.548 | -0.558 | 1.380 |
| | p-value | 0.927 | 0.584 | 0.577 | 0.168 |
| 5-day Window | CAR | 3.490% | -9.252% | -1.624% | 5.824% |
| | z-stat | 0.786 | -0.492 | -0.357 | 0.691 |
| | p-value | 0.432 | 0.622 | 0.721 | 0.490 |
| 11-day Window | CAR | 4.108% | -24.114% | -6.930% | -0.199% |
| | z-stat | 0.572 | -0.893 | -0.975 | -0.060 |
| | p-value | 0.567 | 0.372 | 0.330 | 0.952 |

Source: Sidak III, Table 1, p. 26.

Sixteen returns were calculated, one for each “event window” presented (four companies with returns across four different periods surrounding the event date, t_0). These returns are CARs, or “cumulative average returns,” over 1- 3-, 5- and 11-day windows surrounding the (erroneous) event date of Feb. 20, and adjust for overall market returns during the same windows. (So returns for the firms are “abnormal.”) None of the sixteen returns are statistically significant at standard levels (5 percent or 1 percent level). One statistically significant abnormal return is created by lowering the standard: the negative one-day return associated with Directed Electronics is then significant at the 10% level.⁷⁹ Using this approach, one would expect that, of 16 calculated statistics, one or two would be randomly “significant.” Using appropriate statistical methods, the estimated abnormal returns cannot be distinguished from typical share price volatility.

There is also a scaling issue. Sidak III presents each company’s stock price performance as an equal test, but the firms are not of equal size. Changes in the share price of the largest firm economically dominate changes of the smallest. When abnormal returns are weighted by market capitalization, the Sidak III abnormal returns are positive for two of the windows and negative for two of the windows, again mirroring random chance.

⁷⁹ “The one-day abnormal return for Directed Electronics was statistically significant at the 10 percent level.” Sidak III, par. 42.

Sidak III further argues that while the Delphi abnormal return on his event date is insignificant it “certainly was economically significant” because shareholders lost nearly 5% of their stock value.⁸⁰ This is wrong. Delphi’s large negative return is statistically insignificant (indeed, it is not close to statistical significance) precisely because there is so much day-to-day volatility in its share price. A one-day loss (or gain) of five percent is not at unusual for this stock, and “economic significance” cannot be inferred from the data.

Delphi was and is a financially troubled corporation. Its stock declined by 3.51% (unadjusted) on Feb. 20, 2007, but during the seven preceding months experienced one-day price changes of greater magnitude on 61 of 146 trading days, or 42% of the time. This volatility reflects the company’s financial difficulty. The company’s share price fell from \$3.92 on Dec. 27, 2006, to \$0.48 on Aug. 16, 2007, a decline of 88%. It is far-fetched in the extreme to imply that a statistically insignificant decline in its stock price – pulled from this free-fall – offers evidence about the satellite radio merger announcement. Moreover, on the day when news of the merger first became known to traders, Feb. 16, Directed Electronics’ share price *increased* relative to the market. In short, the Sidak III event study reveals no evidence whatever that the satellite radio merger is anti-consumer.

3. A Properly Constructed Event Study

The event study attempted in Sidak III is properly constructed here, setting the event date equal to Feb. 16.⁸¹ The results appear in Table 2, with equally-weighted average (abnormal) returns in the second-to-last column and enterprise-value-weighted average returns in the last. The firms and window lengths for the CAR (cumulative average returns) used in Sidak III are used here, with data from Yahoo!Finance.⁸²

As seen, there are no statistically significant positive or negative abnormal returns exhibited, either for individual firms or for weighted averages of the combined returns at standard (5% or 1%) confidence levels. In fact, the one-day returns are largely positive, with only Audiovox declining a small and insignificant amount on Feb. 16. The simple and the EV-weighted⁸³ averages are also positive.

The three-day event window centered on Feb. 16 (covering Feb. 15, 16, and 20) likewise evinces no statistically significant coefficient estimates. Two are positive and two negative. The simple average return is negative and the EV-weighted mean is positive. The 5-day and 11-day simple and weighted average returns are negative, but far from statistical significance. The pattern is one of random chance as relates to price

⁸⁰ Ibid.

⁸¹ In addition, I use the 30-day Treasury Bill rate to proxy risk-free returns. Sidak III incorrectly uses the 30-year bond rate, which contains a risk premium for inflation variance. Results are not noticeably impacted by this change.

⁸² The estimated model is: $R_{it} = R_{ft} + \alpha_i + \beta_i(R_{mt} - R_{ft}) + \epsilon_{it}$, where $R_{it} = P_{it}/P_{it-1}$ is the daily return on company i ’s stock on day t , R_{ft} is the risk-free rate as measured by the yield on the 3-month T-bill (expressed as a daily rate), and R_{mt} is the daily return on the S&P 500 index.

⁸³ EV = Enterprise Value = market value of equity + market value of debt.

movements, thus yielding no indication as to the merger's likely effect on profits of satellite radio makers.

As seen, there are no statistically significant positive or negative abnormal returns exhibited, either for individual firms or for weighted averages of the combined returns at standard (5% or 1%) confidence levels. In fact, the one-day returns are largely positive, with only Audiovox declining a small and insignificant amount on Feb. 16. The simple and the EV-weighted averages are, not surprisingly, also positive.

If one took the view that share price movements on both Feb. 16 and the following trading day, Feb. 20 capture merger announcement reactions, the three-day event window (covering Feb. 15, 16, and 20) would yield relevant evidence. However, none of the three-day event window results centered on Feb. 16 are significant statistically. Two are positive and two negative. The simple average return is negative and the EV-weighted is positive. The 5-day and 11-day simple and weighted average returns are negative, but far from statistical significance. The pattern is one of random chance as relates to price movements, thus yielding no indication that the merger would be good or bad for the future profitability of satellite radio makers. This might well be a product of the fact that the four publicly listed firms examined (1) are far from pure plays and (2) exhibit very volatile daily share price returns.

Hence, share price changes around the merger announcement yield no useful evidence on the likely effect of the merger. The superior market evidence relates to the analyst reports forecasting the merger will not reduce profits for satellite radio makers (cited by Sidak III) and that the merger will likely increase the sales of satellite radio receivers;⁸⁴ the positions taken in the regulatory proceedings by auto makers which generally favor (without opposition) the merger; and the strong opposition to the merger voiced by terrestrial radio broadcasters who compete with satellite for listeners. No evidence supplied by financial market share price reactions casts doubt on this evidence, all of which points strongly to the efficiency of the satellite radio merger.

⁸⁴ "The merger could be a boon for manufacturers of satellite radios. Analysts say an equipment-maker like Directed Electronics could be in a unique position to profit from such a deal because of its exclusive branding agreement with Sirius, which could be adapted to fit the needs of a single, larger company. It is unlikely that a current manufacturer would be dropped, analysts said, because the merger would likely result in greater demand for satellite radio devices." Brendan McGarry, *Congressman Has Personal Stake in XM-Sirius Merger*, TELECOM WATCH, Center for Public Integrity (May 14, 2007); <http://www.publicintegrity.org/telecom/telecomwatch.aspx?eid=2906&entry=feed>.

TABLE 2. EVENT STUDY RESULTS: CORRECTED EVENT DATE

| | | <i>Audiovox</i> | <i>Delphi</i> | <i>Directed</i> | <i>Visteon</i> | <i>Avg</i> | <i>EV</i> |
|--------|--------|-----------------|---------------|-----------------|----------------|------------|-----------|
| Alpha | | 0.000 | 0.013 | 0.000 | 0.002 | 0.004 | 0.004 |
| Beta | | 1.976 | 0.315 | 0.985 | 2.373 | 1.412 | 1.556 |
| 1-day | CAR | -0.554% | 0.513% | 0.751% | 6.738% | 1.862% | 2.875% |
| | z-stat | -0.258 | 0.066 | 0.317 | 1.871 | 0.787 | 1.074 |
| | pvalue | 0.796 | 0.947 | 0.751 | 0.061 | 0.431 | 0.283 |
| 3-day | CAR | 1.145% | -3.528% | -5.089% | 5.780% | -0.423% | 0.938% |
| | z-stat | 0.347 | -0.257 | -1.278 | 0.951 | -0.103 | 0.200 |
| | pvalue | 0.729 | 0.797 | 0.201 | 0.341 | 0.918 | 0.841 |
| 5-day | CAR | -2.919% | -9.581% | -2.930% | 4.151% | -2.820% | -2.288% |
| | z-stat | -0.675 | -0.521 | -0.587 | 0.501 | -0.521 | -0.374 |
| | pvalue | 0.500 | 0.603 | 0.557 | 0.617 | 0.602 | 0.709 |
| 11-day | CAR | 2.269% | -19.585% | -5.954% | -2.166% | -6.359% | -7.209% |
| | z-stat | 0.343 | -0.734 | -0.801 | -0.158 | -0.769 | -0.773 |
| | pvalue | 0.731 | 0.463 | 0.423 | 0.874 | 0.442 | 0.440 |

Notes: Abnormal returns during event windows are obtained setting risk-free return equal to 30 day Treasury Note and defining event date (t_0) as Feb. 16. CAR = cumulative annual return; EV = window returns weighted by Enterprise Value of firms.

F. A PRO-CONSUMER THEORY OF NAB MERGER OPPOSITION

Sidak II suggests that one should “scrutinize[s] this proposed merger with a modicum of skepticism informed by public choice theory...”⁸⁵ This is advice very well taken. The rent-seeking in evidence explains why terrestrial broadcasters so ardently oppose this merger of their competitive rivals.

Professors Sidak and Wildman attempt an *ex post* patch for this clear signal of merger efficiency. They allege that merger proponents fail to understand the nature of “two-sided markets” and that radio station opposition to the merger is driven by fears of an increase in satellite radio advertising minutes – an asserted outcome of the merger that would harm both listeners (subjected to less programming and more commercials) and terrestrial radio stations. Broadcasters who – according to the NAB’s experts – do not compete for satellite radio listeners, do – according to these same experts – compete to sell the ad spots that reach these listeners.

This theory collapses under its own weight. First, were consumers really in different product markets, advertising competition would concern radio broadcasters no more than newspapers, TV stations, web sites, or other ad sellers. But the radio merger is of keen interest only to broadcast stations. This is because listeners freely substitute between the two media. The two sides of the radio broadcasting market (competition for

⁸⁵ Sidak II, par. 5.

listeners, competition for advertisements) square this circle. In fact, it is the NAB's experts who fail to incorporate both sides of the market into their analysis.

This one-sided analysis of two-sided markets prompts a second fundamental flaw in the Sidak-Wildman analysis. Whatever the validity of the forecast that satellite radio ad inventories will increase post-merger, the broadcasters' economic interest cannot be stated without balancing the offsetting gains (increased audience size) against the asserted losses (more competition against larger satellite radio ad spot inventories). *Arguendo*, take the forecast of enhanced advertising competition post-merger as a given. A merger that results in more commercials sprinkled through satellite radio programming will slow subscriber growth, *ceteris paribus*, increasing broadcast radio audiences as listeners substitute back into AM/FM (as well as other audio media). This increases ad revenues for stations.

Hence, a balancing test – weighing the asserted loss to traditional stations from more (satellite) commercials against the implied gain in audience share of listeners – is necessary to deduce the net effect. Instead, Professors Sidak and Wildman posit a theoretical case for gains on one side and simply assume away the trade-offs. This omission is telling; the theory is not taken seriously by its own proponents.

Third, competition in ad markets is valuable in its own right, a factor likewise omitted from the argument. Advertisers gain via increased rivalry for their business; consumers (end users) benefit indirectly from the additional goods and services thus supplied, as well as directly from the informational content featured in such messages. Given that satellite radio has no ability to raise subscription rates above competitive levels, as per evidence of consumer substitution, very low market shares, and the financial valuations of satellite radio operators, the asserted output gains in the ad market would appear to constitute net competitive benefits for the economy. At a minimum, they increase output in a given market, and calls by horizontal rivals to suppress the enabling merger are seen – by the admission of the parties' own experts – as anti-competitive.

Fourth, claims by NAB experts directly contradict what the NAB itself has previously stated as its reason for opposing the satellite radio merger:

...the [satellite radio] monopoly will attempt to accelerate the acquisition of new subscribers by offering them a lower-cost point of entry – likely a basic advertiser-supported tier offered for less than the current \$12.99 [sic] per month. On its face, such a plan may not sound bad, but of course no introductory price would be locked in and a monopoly provider could easily raise this price at a later time to increase profits at the expense of consumers.⁸⁶

⁸⁶ Testimony of David Rehr, President and CEO of the National Association of Broadcasters, *Statement Before the U.S. House of Representatives Committee on the Judiciary, Antitrust Task Force* (Feb. 28, 2007), p. 17.

Hence, the NAB's official prognostication is that satellite radio will expand its audience by lowering prices. Its ancillary forecast, that long-run prices will rise but that subscribers will be retained due to "lock in" is clearly wrong; satellite subscribers are free to switch their listening to AM/FM radio and other audio entertainment services. Indeed, about 20% of current SDARS customers substitute out of the service each year.⁸⁷

Not only do commercial broadcasters explicitly signal their fear that the merger will expand satellite radio subscriber growth, but National Public Radio has formally filed Comments with the FCC opposing the merger.⁸⁸ Given that Professors Sidak and Wildman base their theory on radio broadcasters' fear of increased competition in the advertising market, it is key that non-commercial broadcasters march in lock-step with the NAB. Not only do public broadcasters not participate in the ad market, these stations would doubly benefit from a satellite radio "merger to monopoly" that (a) raised subscription prices, and (b) increased the number of ads per hour on competitive satellite radio fare. This would unambiguously limit satellite radio audiences, driving terrestrial public radio station audiences higher.

On the other hand, if the merger is based on efficiency and serves to expand SDARS audiences, the NPR position is understandable as a response to a non-advertising competitor's expected lower price. It is output expansion that broadcasters anticipate and which drives them to oppose the merger.

IV. PROF. WILDMAN'S "LOCALISM" ARGUMENT

Prof. Steven Wildman's paper argues that the FCC should block the XM-Sirius merger because it will threaten "localism."⁸⁹ The contention is that, if the merger produces a firm that lowers the profits of terrestrial broadcasters, these licensees will have fewer financial resources to subsidize certain forms of unprofitable programming, including content specifically developed for local markets.

This reasoning concedes that the merger would be pro-competitive, as it reduces the profits generated by rivals. It then justifies a policy to prevent that efficient outcome by arguing that this harms broadcasters financially. It thus identifies protection of competitors as the policy goal, at the sacrifice of competition.⁹⁰

⁸⁷ Salop et al, 2007, par. 30.

⁸⁸ See *Comments of National Public Radio, Inc., In the Matter of XM Satellite Radio Holding Inc., Transferor and Sirius Satellite Radio Inc., Transferee*, MB Dkt. No. 07-57 (submitted to the FCC Aug. 10, 2007).

⁸⁹ Wildman, p. 20.

⁹⁰ Protecting competitors while undermining the competitive process is anti-consumer. See Robert Bork, *The Antitrust Paradox* (1978). Through improved economic understanding, however, antitrust has moved away from this counter-productive policy. See William E. Kovacic, *The Intellectual DNA of Modern U.S. Competition Law for Dominant Firm Conduct: The Chicago/Harvard Double Helix*, 2007 COLUMBIA BUSINESS LAW REVIEW 1; <http://www.ftc.gov/speeches/kovacic/2007dna.pdf>.

The National Association of Broadcasters has long insisted that satellite radio attracts their listeners and thereby reduces their profitability, requesting rules and regulations to limit such “siphoning.”⁹¹ This parallels the broadcasters’ arguments in the 1960s and 1970s that cable television service would divert TV audiences and eliminate the “public service” benefits of over-the-air broadcasting. The argument was crafted to claim not that the major VHF TV stations would suffer, but that fledgling UHF stations (and particularly educational stations) would perish. The effort paid off with rules that delayed the introduction of cable television into most U.S. markets until at least the late 1970s, when cable was finally deregulated. The country was then wired for cable, and this succeeded in hugely increasing the quantity of “public service” content available, including 24-hour news, information, documentary, and public affairs channels, precisely the opposite of the arguments made to protect the rents of broadcast licensees.⁹²

Similarly, TV broadcasters told the FCC in the 1980s that direct broadcast satellite (DBS) should be thwarted because it, too, posed a competitive threat to “localism.” Broadcasters sued the agency when their arguments fell flat. Howard Shelanski writes:

The broadcasters challenged the FCC’s deregulatory decision in court, claiming that space-based stations with national footprints violated the 1934 Act’s requirement of local licensing, robbed free local television service of advertising revenue, and undercut programming directed at local interests. The United States Court of Appeals for the D.C. Circuit rejected these arguments... The court agreed that DBS promised many advances and expressly commended the Commission for “assuring that regulation... not impede new technologies that offer substantial public benefits.” The court rejected the petitioners’ localism arguments as “luddite” ...⁹³

Prof. Shelanski also noted the even more ambitious broadcaster argument, that the entrant be excluded because “DBS is particularly vulnerable to attack or take-over by foreign nations, insurgents, or others, as well as interruption during heavy rainfall and the spring and fall equinoxes.”⁹⁴ Such schemes to block rivals are inevitably wrapped in “public interest” arguments. It should not require extensive effort to decipher the real messages delivered, as former FCC Chairman Mark Fowler recently explained:

⁹¹ See Appendix 1 in Hazlett 2007 for a lengthy list of anti-competitive pleadings by the NAB, requesting that satellite radio be regulated in ways that limit its competitiveness.

⁹² Owen, Beebe and Manning, *Television Economics* (D.C. Heath; 974), *The Internet Challenge to Television*, Harvard University Press (1999), *The Future of Television: Understanding Digital Economics*, in Noll and Price, eds., *A Communications Cornucopia: Market Foundation Essays on Information Policy*, (Brookings Institution; 1998), Bruce Owen and Steve Wildman, *Video Economics* (Harvard University Press; 1992).

⁹³ Howard A. Shelanski, *The Bending Line Between Conventional “Broadcast” and Wireless “Carriage,”* 97 COLUMBIA LAW REVIEW 1048 (May 1997), p. 1056 (footnotes omitted).

⁹⁴ *Ibid.*, p. 1064.

As chairman of the Federal Communications Commission in 1981, I was visited by a lobbyist for the broadcast industry. Over-the-air broadcasters vehemently opposed the FCC's authorization of Direct Broadcast Satellite television services, and the lobbyist quickly launched into his preamble: "We are all for competition, Mr. Chairman, but... "

Meaning, "forget what I said up to the word 'but,' and now listen carefully..."

In observing the broadcasters' intense negative reaction to the proposed merger of the two satellite radio companies, XM and SIRIUS, it struck me that little has changed in 26 years. Each year, the skies over Washington darken as the Lear jets bring industry lobbyists to the latest battlefield against competition and its offshoot -- mergers that enhance competition.⁹⁵

Prof. Wildman cites papers which find that the news media are important in bringing information to the American public; there is no debate on this essential point. A more subtle question, however, is how government regulation of the media can improve the free flow of ideas, thus improving both consumer welfare and our democratic values. Allowing incumbent broadcasters to thwart rivals by petitioning regulators – the “localism” argument he attempts here – sacrifices the public’s interests for the financial benefit of incumbents.

For instance, Prof. Wildman cites a recent academic study showing that the introduction of Fox News Channel on cable TV systems had a statistically significant effect on voting patterns in elections.⁹⁶ But, as noted above, broadcasters fought the very deregulation that facilitated the creation of cable news channels, using “localism” as the rationale for suppressing new competition. For years this delayed the advent of television content (via Fox News, CNN, MSNBC, Bloomberg, and C-SPAN, among others) that informs voters and now carries the great majority of our presidential debates.⁹⁷

Another paper cited by Prof. Wildman documents that increased distribution of the *New York Times* in local markets reduces participation in local elections.⁹⁸ Rather than support the view that the FCC block competition to local radio broadcasters, this finding speaks to the First Amendment importance of allowing consumers to choose their media freely, even when it permits citizens to patronize national services.

By permitting satellite radio to pose a more protean, post-merger challenge to terrestrial radio, regulators allow a more intense inter-modal rivalry. One predictable

⁹⁵ Mark Fowler, *Competitive Electronics*, NEW YORK SUN (Sept. 5, 2007); <http://www.nysun.com/article/61892> (Footnotes omitted).

⁹⁶ DellaVigna, Stefano and Kaplan, Ethan Daniel, *The Fox News Effect: Media Bias and Voting* (April 2006). NBER Working Paper No. W12169. SSRN: <http://ssrn.com/abstract=897023>

⁹⁷ Thomas W. Hazlett, *Digitizing "Must-Carry" under Turner Broadcasting v. FCC* (1997) 8 THE SUPREME COURT ECONOMIC REVIEW 141 (2000).

⁹⁸ Lisa George and Joel Waldfogel, *The New York Times and the Market for Local Newspapers*, 96 THE AMERICAN ECONOMIC REVIEW 435 (March 2006).

outcome of that is an intensification of competitive forces pushing radio stations to actually offer more local fare. Prof. Christopher Yoo notes that “the underlying economics suggest that nationally oriented content will likely find it beneficial to migrate toward DARS. This would free terrestrial radio to focus on local content still further.”⁹⁹ Blocking satellite radio efficiencies, including the merger, then reduces “localism.”

V. THE CONSUMERS’ UNION V. CONSUMER WELFARE

The Consumers’ Union (“CU”) paper¹⁰⁰ follows the lead of the NAB, arguing for a narrow market definition that would block the satellite merger. Remarkably, it contests the view that consumer welfare occupies center stage in merger analysis. To wit, it critiques the White Paper for noting that “arguments as to the ‘relevant market’ are secondary,” because the “primary consideration is whether [the merger] will benefit consumers and the economy.”¹⁰¹

The CU paper attacks this indisputably pro-consumer position as an effort to “decouple competition from consumer welfare.”¹⁰² A better informed analysis, however, may have prevented the CU brief from abandoning consumers, tossing down with the “anti-competitive abuse of antitrust”¹⁰³ that results when horizontal mergers are scuttled at the urging of competitors.

The CU offers a clear illustration of the policy problem. What “decouples” merger review from consumer protection are analyses that focus on the calculation of concentration ratios while failing to recognize competitive realities determining costs and benefits for consumers. Indeed, U.S. antitrust authorities explicitly reject a narrow focus on market definition in the merger review process, stressing an “integrated analysis” that considers factors much beyond concentration ratios:

The Guidelines’ five-part organizational structure has become deeply embedded in mainstream merger analysis. These parts are: (1) market definition and concentration; (2) potential adverse competitive effects; (3) entry analysis; (4) efficiencies; and (5) failing and exiting assets.

Each of the Guidelines’ sections identifies a distinct analytical element that the Agencies apply in an integrated approach to merger review. The ordering of these elements in the Guidelines, however, is not itself analytically significant, because the Agencies do not apply the Guidelines

⁹⁹ Christopher S. Yoo, *The Role of Politics and Policy in Regulation*, 53 EMORY LAW JOURNAL 255 (2004), p. 273.

¹⁰⁰ The Consumers Union is joined on the brief by Common Cause, Consumer Federation of America and Free Press. Petition to Deny filed by Common Cause, Consumer Federation of America, Consumers Union and Free Press (submitted to the FCC July 7, 2007) (“CU 2007”).

¹⁰¹ White Paper, p. 13.

¹⁰² CU 2007, p. 48.

¹⁰³ Baumol & Ordover (1985).

as a linear, step-by-step progression that invariably starts with market definition and ends with efficiencies or failing assets.¹⁰⁴

To leave no doubt, the approach explicitly recommended by the government is exactly as stated in the White Paper: “the Agencies examine whether the merger of two particular rivals matters, that is, whether the merger is likely to affect adversely the competitive process, resulting in higher prices, lower quality, or reduced innovation.”¹⁰⁵

Numerous other errors follow in the CU paper. It claims, for instance, that a post-merger reduction in marketing costs proves that XM and Sirius compete and will, as a single firm, reduce competitive efforts. This wrongly equates high costs with efficient performance. Enjoying economies of scale and scope, eliminating important free-rider problems, and permitting more effective competition against terrestrial radio and other rivals¹⁰⁶ reduces costs (including for marketing) and expands output. Another misunderstanding is evinced when the CU notes that “Wall Street analysts predict a dramatic reduction in the total number of channels made available by satellite radio.”¹⁰⁷ This is an arithmetic misinterpretation. What analysts predict is that *individual customers* will have access to an *expanded choice of the most popular* programs, with some overlapping genres dropped to eliminate duplication.¹⁰⁸ CU then takes issue with my position, as they put it, that “[i]f the two satellite providers each has a country channel, [Hazlett] declares it a waste...”¹⁰⁹ Actually, it is *consumers* who believe this duplication a waste, as it deprives them of the higher-valued services made available via merger.

The CU paper also confuses its own argument by asserting that I have argued that satellite radio is a “natural monopoly.”¹¹⁰ My White Paper could scarcely have been more emphatic, pointing to abundant evidence that satellite radio operators compete vigorously with broadcast radio and other audio entertainment media. CU should understand this, as they write in opposition to my characterization of the relevant market. CU also evinces a stark misunderstanding of financial market data, advancing the position that “Hazlett insists that [satellite radio providers’] failure to achieve immediate profitability is an indicator of a lack of market power, when it is part of the normal cycle in an industry such as this.”¹¹¹ My analysis of market power, of course, did not consider “immediate profitability” but evaluated operating losses over the decade-long life of satellite radio *and* current Enterprise Values (EVs) for XM and Sirius. These EVs reveal investors’ expectations as to the flow of profits into the indefinite future. These data reveal that the investments in satellite radio are highly unlikely to realize a supra-competitive return on assets, an outcome not explained away by “the normal cycle.”

¹⁰⁴ U.S. Department of Justice and Federal Trade Commission, *Commentary on the Horizontal Merger Guidelines* (March 2006), p. 2.

¹⁰⁵ *Ibid.*

¹⁰⁶ See the discussion in Salop et al. 2007, p. 52.

¹⁰⁷ CU 2007, p. 51.

¹⁰⁸ White Paper, p. 38.

¹⁰⁹ CU 2007, p. 51.

¹¹⁰ *Ibid.*, p. 52.

¹¹¹ *Ibid.*

Finally, the CU is aware that allying with terrestrial broadcasters in opposition to the satellite radio merger presents a conflict. The CU paper attempts, then, a “counter explanation” to the reasoning that broadcaster opposition signals the likely pro-consumer impact of the XM-Sirius combination: “The NAB would like to eliminate every shred of competition, no matter how minor and indirect.”¹¹² Yes -- and that is precisely why the NAB’s opposition speaks so persuasively for merger efficiency. Adding up all the pluses and minuses, incumbent broadcasters calculate that the merger is highly deleterious to their future profits. And, “to eliminate every shred of competition,” their trade association vigorously opposes it.

VI. CONCLUSION

Prof. Sidak bemoans the merger proposal put forward by XM and Sirius, which, he says, “flouts at least three decades of refinements in antitrust jurisprudence that have sought to diminish political influence by elevating the principled analysis of consumer welfare through accepted economic methods.”¹¹³

One can surely empathize. The experts retained by the National Association of Broadcasting must conduct their “principled analysis of consumer welfare” in the din of the NAB lobby, noisy with merger hecklers and festooned with a banner announcing: “XM + SIRIUS = MONOPOLY.”¹¹⁴ Not much patience for analytics, perhaps, where “for fifteen years AM/FM stations have done everything they could to cripple satellite radio, lobbying the F.C.C. to stop its roll-out in the nineteen-nineties and persistently trying to limit the types of programming XM and Sirius can carry.”¹¹⁵

Now the terrestrial competitors to satellite radio seek to squelch an efficiency-creating combination that will strengthen a rival and further consumer interests. Independent analysts have long called for such a merger to enhance satellite radio’s ability to compete more vigorously with radio stations. Emerging media have made such a transaction more imperative for the parties, and less risky for customers, than in previous years.

Broadcaster opposition to the merger signals a fear of competitive superiority. Efforts by Professors Sidak and Wildman to translate the message into a subtle strategy wrapped in the language of two-sided markets collapses under its own weight – omitting, in fact, a two-sided analysis of the two-sided market the theory purports to capture. Similarly, Prof. Sidak’s ill-crafted financial event study brings forth zero evidence as to the efficiency of the merger, failing to even properly identify the financial event date. This follows Prof. Sidak’s miscalculation, and mis-application, of the “critical elasticity”

¹¹² Ibid., p. 53. Here the CU paper quotes one of its co-authors, Marc Cooper, of the Consumer Federation of America.

¹¹³ Sidak II, par. 6.

¹¹⁴ See <http://www.xmsiriusmonopoly.org/>.

¹¹⁵ James Surowiecki, *Satellite Sisters*, THE NEW YORKER (Mar 19, 2007); http://www.newyorker.com/talk/financial/2007/03/19/070319ta_talk_surowiecki.

used in SSNIP tests, an inadvertent assertion of evidence that XM and Sirius occupy separate product markets, and an argument that the 1992 Cable Act provides a framework to show that satellite and traditional radio are not competitors (that framework would actually classify satellite radio service as “effectively competitive” with terrestrial stations).

Analysts predict that satellite radio sales will increase post-merger,¹¹⁶ that prices will not rise,¹¹⁷ that quality and choice will improve for consumers, and that subsequently the rate of subscriber growth will rise.¹¹⁸ The largest customers of satellite radio are auto makers – several of which publicly support the merger; none are opposed.¹¹⁹ One of the largest retailers of satellite radios, Circuit City, likewise supports the transaction.¹²⁰ As one analyst notes, “[a]nything that will help to sell more autos and consumer electronics would be good for these companies.”¹²¹ Their expert opinion is that the merger is output-expanding and, therefore, pro-consumer. Nothing put forward in Sidak I, II, III, IV, the Wildman paper, or the CU brief, offers plausible evidence to dispute that assessment.

¹¹⁶ Spring 2006, p. 1.

¹¹⁷ Craig Moffett, Sanford Bernstein as quoted in *They cannot be Sirius: Regulators may oppose the merger of America's two satellite-radio firms*, THE ECONOMIST (Feb. 22, 2007) 73; http://www.economist.com/displaystory.cfm?story_id=8744746.

¹¹⁸ Spring 2006, p. 4.

¹¹⁹ *Comment Letter filed by Toyota Motor North America, Inc.*, (submitted to the FCC July 9, 2007), *Reply to July 25, 2007 Letter of National Association of Broadcaster (NAB) filed by Toyota Motor Sales, U.S.A., Inc.*, (submitted to the FCC August 3, 2007), and *Comments filed by Hyundai Motor Corporation*, (submitted to the FCC July 10, 2007).

¹²⁰ *Comment filed by Circuit City Stores, Inc.* (submitted to the FCC June 28, 2007).

¹²¹ George Reed-Dellinger, *XM-Sirius and the DOJ*, WASHINGTON ANALYSIS (July 25, 2007).