Before the UNITED STATES COPYRIGHT ROYALTY JUDGES Washington, D.C.

In the Matter of:

Digital Performance Right in Sound Recordings and Ephemeral Recordings Docket No. 2009-1 CRB Webcasting III

TESTIMONY OF

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I. My Experience and Qualifications

My name is George S. Ford. I am the President of Applied Economic Studies, a private consulting firm specializing in economic and econometric analysis, located in Birmingham, Alabama. I am also the Chief Economist of the Phoenix Center for Advanced Legal & Economic Policy Studies, a Washington, D.C. based 501(c)(3) research organization that specializes in the legal and economic analysis of public policy issues involving the communications and technology industries. In addition, I am an Adjunct Professor at Samford University, a private university located in Birmingham, Alabama, where I teach economics in the graduate program of the business school. I serve as a member of the Alabama Broadband Taskforce upon appointment by Alabama Governor Bob Riley.

I received a Ph.D. in Economics from Auburn University in 1994. Since then, I have worked as a professional economist in both government and industry. In 1994, I became an economist in the Competition Division of the Federal Communications Commission, an organization located in the General Counsel's Office that provided competition analysis support to the many bureaus of that organization. My primary interests were multichannel video services and broadcasting policies, though my work ranged from international policy to radio interference standards to statistical analysis. After my government tenure, I became an economist at MCI Communications, where my work focused on telecommunications policy. In April 2000, I became the Chief Economist of Z-Tel Communications in Tampa, Florida, a small competitive telephone company where I performed both regulatory and business analysis. I have been in my present employment since the Summer of 2004.

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My areas of specialty in economics include Industrial Economics, Regulation, and Public Policy, with an emphasis on the communications industries, including broadcast radio and television. I have written many papers on telecommunications and media policy, and much of this work has been published in economic and law journals including the *Journal of Law & Economics, Empirical Economics*, the *Journal of Business*, the *Journal of Regulatory Economics*, the *Antitrust Bulletin, Energy Economics*, the *Yale Journal on Regulation*, the *Federal Communications Law Journal*, and many others. I have testified before numerous public service commissions, state legislative bodies, and committees of the U.S. Congress on communications policy and rate setting. In June of this year, I filed testimony before the Copyright Royalty Judges in the Matter of Distribution of the 2004 and 2005 Cable Royalty Funds, Docket No. 2007-3 CRB CD 2004-2005. A copy of my curriculum vitae is attached as Appendix A.

II. Summary of My Testimony

The purpose of this proceeding is to establish the rates and terms for certain digital public performances of sound recordings under Section 114 of the Copyright Act and for the making of ephemeral copies in furtherance of such performances under Section 112(e) of the Copyright Act. I was engaged by SoundExchange, Inc. to provide an economic framework useful for establishing a rate for ephemeral copies under the statutory license provided in Section 112(e) of the Copyright Act and to canvas available sources for information relevant to that task.

In the course of my work, I have been given free reign by SoundExchange to examine any sources that I believed might be relevant in setting a rate for ephemeral copies. I have reviewed the relevant statutory provisions and the various decisions of the CRB and its predecessor, the CARP, as well as the Register of Copyrights, interpreting

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those provisions. I have familiarized myself with the terms of marketplace agreements for non-statutory forms of music streaming licensing. I have familiarized myself with the technological issues arising from ephemeral copies. I have conferred with SoundExchange's other expert, Dr. Michael D. Pelcovits, Ph.D. I have also carried out a free-ranging search of online materials in an effort to determine whether there is any information that would help establish the proper royalty rate for ephemeral copies in the webcasting context.

As I will explain below in further detail, I have concluded that sound principles of economic theory as well as observed marketplace benchmarks firmly establish that ephemeral copies have economic value. I have also concluded on the basis of marketplace benchmarks that the economic value of ephemeral copies is properly measured as a fixed percentage of the overall value of the rights acquired by webcasters under Sections 112 and 114. However, there exists very little in the way of traditional marketplace benchmarks to facilitate the proper computation of that percentage. This is because the hypothetical "marketplace" envisioned by Sections 112 and 114 is made up of actors with very different economic interests from the marketplace that exists outside of the statutory framework. In the unregulated marketplace, where copyright owners and services that publicly perform sound recordings freely negotiate to determine rates, the "willing buyers" and "willing sellers" are less concerned about the allocation of those royalty rates between payments for ephemeral copies and payments for public performances. However, when copyright owners and the service providers must abide by rates determined under Sections 112 and 114, the explicit allocation of payments between those two components becomes much more relevant, because the ephemeral copy payments under Section 112(e) are made

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directly to copyright owners (or record companies in this case), while the performance payments under Section 114 are shared equally between copyright owners and artists. This particular division of payments is solely an artifact of the statute and does not bind or constrain market transactions.

While this division of royalties among upstream providers makes little difference to the "willing buyer" in this hypothetical marketplace — that is, the webcasters — it makes a significant difference to the "willing seller" or "sellers", i.e., the record companies that own the rights to the sound recordings and the artists who get a share of the royalties. Record companies and artists care about what portion of royalty payments are allocated to ephemerals because the higher the portion allocated to ephemerals, the lower the portion paid directly to artists per the terms of the Section 114 license. Record companies and artists therefore have every incentive to negotiate over the proper percentage of royalty payments that are allocated to ephemeral copies. This negotiation is precisely what one would expect to happen in a hypothetical free market in which both artists and record companies are forced by statute to share 50-50 in performance royalty payments.

Such a negotiation is the basis of the rate proposal advanced by SoundExchange. SoundExchange, a collective made up of both record companies and artists, has proposed a rate that represents the result of negotiations between the artists and the record companies that make up its board. As long as the ephemeral rate is defined as a percentage subset of the total royalty payment, the willing buyer — the webcaster — is indifferent to the ephemeral copy rate. As such, marketplace negotiations between the "willing buyer" — the webcaster — and the "willing seller" — the copyright owner — while potentially informative, may or may not establish a specific ephemeral copy rate. From a ratemaking

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standpoint, it does not matter. The SoundExchange proposal is what the willing seller in such a marketplace would propose. Because the willing buyer is indifferent, the rate proposed by SoundExchange is legitimately viewed as the proper marketplace rate for ephemeral copies. The proposal resolves the problem of a non-market allocation of royalties, and is the best evidence available of the market rate of, and rate mechanism for, ephemeral copies under Section 112.

III. Background on Section 112

For the convenience of the reader, I will begin by setting forth some basic observations about Section 112's unique design as well as the decisions that have interpreted and applied Section 112 to date.¹

A. Legislative History of Section 112

As originally enacted, Section 112 of the Copyright Act of 1976 did not provide a statutory license for ephemeral copies. Rather, Section 112 merely provided that anyone

¹ I am not interpreting or opining on the statutes and legal decisions that follow. Rather, because the unique marketplace that I have been asked to analyze here is wholly a creature of the applicable statutes, regulations and legal decisions, they, of course, are critical background for my economic analysis. It is very common — indeed, as here, often essential — in my work that I would begin my study and analysis of an economic issue in a regulated industry by first analyzing the relevant regulatory framework. Thus, in the course of this statement I will refer to and discuss the following published opinions: (1) Report of the Copyright Arbitration Royalty Panel in the Matter of Rate Setting for Digital Performance Right in Sound Recordings and Ephemeral Recordings, Docket No. 2000-9, CARP DTRA 1 & 2 (Feb. 20, 2002) (hereinafter "Webcaster I CARP Opinion"); (2) Determination of Reasonable Rates and Terms for the Digital Performance of Sound Recordings and Ephemeral Recordings, 67 Fed. Reg. 45240 (Jul. 8, 2002) (hereinafter "Webcaster I Final Rule"); (3) Digital Performance Right in Sound Recordings and Ephemeral Recordings, 72 Fed. Reg. 24084 (May 1, 2007) (hereinafter "Webcaster II"); (4) Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services, 73 Fed. Reg. 4080 (Jan. 24, 2008) (hereinafter "SDARS Opinion"); (5) Review of Copyright Royalty Judges Determination, 73 Fed. Reg. 9143 (Feb. 19, 2008) (hereinafter "Register Opinion"); and (6) Determination of Rates and Terms for Business Establishment Services, 73 Fed. Reg. 16199 (Mar. 27, 2008) (hereinafter "Business Services Opinion").

authorized to publicly perform or display a work by transmitting it to the public as part of a transmission program, pursuant to a license or transfer of the copyright, is entitled to make a single copy of it in order to facilitate those transmissions.² That copy was to be used solely for transmission purposes and was to be destroyed (unless kept for archival purposes) within six months of transmission. *Id*.

In 1995, Congress enacted the Digital Performance Right in Sound Recordings Act ("DPRA"), which amended Section 106(6) of the Copyright Act to provide copyright owners of sound recordings with the exclusive right to perform the work publicly by means of a digital audio transmission.³ Congress also amended Section 114 of the Copyright Act to create a new compulsory license for certain subscription digital audio services that transmit sound recordings on a non-interactive basis.⁴ The DPRA also provided that royalties payable under the newly amended Section 114 were to be split 50-50 between copyright owners and performers.⁵ Significantly, these allocations are statutory and need not comport with any market outcome.

In 1998, Congress enacted the Digital Millennium Copyright Act ("DMCA"). Among other things, the DMCA amended the Section 114 compulsory license to cover digital transmissions made on a non-subscription, non-interactive basis.⁶ Congress also created a new compulsory license in Section 112(e).⁷ Under Section 112(e), as amended by the DMCA, webcasters and broadcasters who publicly perform sound recordings

² 17 U.S.C. § 112(a) (1977).

³ See 17 U.S.C. § 106(6); Webcaster I CARP Opinion at 6.

⁴ See 17 U.S.C. § 114(f)(2) (1997); Webcaster I CARP Opinion at 7.

⁵ See 17 U.S.C. \$ 114(g)(2) (1997) (allocating 45% to featured artists, 2.5% to non-featured vocalists, and 2.5% to non-featured musicians).

⁶ See 17 U.S.C. § 114(f)(2); Webcaster I CARP Opinion at 8.

⁷ Webcaster I CARP Opinion at 9; see also 17 U.S.C. § 112(e).

pursuant to Section 114 may use the compulsory license process to obtain "no more than 1 phonorecord of the sound recording (unless the terms and conditions of the statutory license allow for more)."⁸ Royalties payable under Section 114 are to be split equally between copyright owners and performers, but Congress did not mandate a similar split in Section 112(e) for ephemeral copies. Thus, royalty payments under Section 112(e) are paid directly to copyright owners, who in turn pay performers according to their existing contractual arrangements presumably obtained in an unregulated market setting.

B. Relevant Decisions Applying and/or Interpreting Section 112

Since the addition of the Section 112(e) ephemeral license in the DMCA, the Copyright Royalty Judges ("CRJs") and their predecessor, the Copyright Arbitration Royalty Panel ("CARP"), have taken varying approaches in adopting rates under that Section.

In the first proceeding to set rates and terms for eligible nonsubscription services under Section 114(f) and Section 112(e) (hereinafter *Webcaster I*), the CARP found that an agreement between the RIAA and the Yahoo! service provided an appropriate benchmark.⁹ Under that agreement, Yahoo! paid a flat fee for the right to make ephemeral copies under Section 112 that constituted 8.8 % of Yahoo!'s total performance royalty payments.¹⁰ The Webcaster I CARP thus set the rate at 9%, using the 8.8% Yahoo! rate as a baseline and adjusting up slightly to account for the 10% of royalty payments rate found in other marketplace agreements.¹¹

⁸ 17 U.S.C. § 112(e)(1).

⁹ Webcaster I CARP Opinion at 104.

¹⁰ Webcaster I CARP Opinion at 100-101.

¹¹ Webcaster I CARP Opinion at 104. The Librarian of Congress, acting upon the recommendation of the Register of Copyrights, later rejected the CARP's upward

In the Webcaster II and SDARS proceedings, by contrast, the CRJs declined to set a separate rate for ephemeral copies. In both of those proceedings, SoundExchange proposed that 8.8% of the overall royalty fees for online and satellite-based streaming should be attributed to the making of ephemeral copies.¹² The CRJs agreed that the ephemeral royalty fee should be included within the overall performance royalty fee, but declined to "ascribe any particular percentage of the section 114 royalty as representative of the value of the section 112 license."¹³

However, the Register of Copyrights has since determined that, if the ephemeral rate is to be included as a percentage of the performance rate, that percentage must be specified.¹⁴ The Register noted that there was an important "practical reason" for doing this, as royalties paid under Section 114 are paid to the performers and copyright owners, while royalties paid under Section 112 are paid only to copyright owners.¹⁵

adjustment, and set the rate at the original 8.8% derived from the Yahoo! agreement. Webcaster I Final Rule at 45262. In 2003, SoundExchange and the webcasting services later agreed to "push forward" these rates for subsequent years. However, in their agreement the 8.8% ephemerals rate was not included as an extra charge. Rather, the agreement provided that 8.8% of the total performance fee paid for section 112 and section 114 activities was "deemed' to comprise the charge for ephemeral recordings." Webcaster II at 24101.

¹² See Webcaster II at 24101; SDARS Opinion at 4098.

¹³ Webcaster II at 24102; see also SDARS Opinion at 4098 (same).

¹⁴ See Register Opinion at 9143; 9146.

¹⁵ Register Opinion at 9146.

IV. My Conclusions

Section 112(e), which governs the compulsory license for ephemeral copies, provides in relevant part that:

The Copyright Royalty Judges shall establish rates that most clearly represent the fees that would have been negotiated in the marketplace between a willing buyer and a willing seller....¹⁶

Despite minor differences in the language between Section 112(e)(4) (governing ephemeral licenses) and Section 114(f)(2) (governing statutory licenses for nonsubscription services and new subscription services), the economic criteria for setting rates and terms under those licenses are, in the words of the CARP, "essentially identical."¹⁷ In measuring the value of the Section 112(e) statutory license, just as in measuring the value of the Section 114(f)(2) license, a key consideration in setting a proper rate is the identification of proper marketplace benchmarks. As the CARP has observed: "[T]he quest to derive rates which would have been observed in the hypothetical willing buyer/willing seller marketplace is best based on a review of actual marketplace agreements, if they involve comparable rights and comparable circumstances."¹⁸

As I will explain below, in reviewing the most closely analogous marketplace agreements, I come to three conclusions about the proper royalty rate for ephemeral copies under Section 112(e). First, marketplace benchmarks as well as basic economic theory demonstrate that ephemeral copies have economic value to services that publicly perform sound recordings because these services cannot as a practical matter properly function without those copies. Second, marketplace benchmarks show that the royalty rate for

¹⁶ 17 U.S.C. § 112(e)(4)

¹⁷ Webcaster I CARP Opinion at 25; see also Webcaster II at 24100-01.

¹⁸ Webcaster I CARP Opinion at 43; *see also* Webcaster II at 24092 ("we adopt a benchmark approach to determining . . . rates").

ephemeral copies, if directly established, is almost always expressed as a percentage of the overall royalty rate for combined activities under Sections 112 and 114. Third, because the only actors in the hypothetical three-party market established by the statute — webcasters, record companies, and artists — that have any economic interest in the measure of that allocation are the artists and the copyright owners, the agreement reached between them as to that allocation is the best measure of how a willing buyer and a willing seller would allocate royalty payments between performance royalties and ephemeral copies, and would value the ephemeral license in the course of a marketplace negotiation for public performances.

A. The Ephemeral License Has Economic Value.

As an initial proposition, it is beyond serious question that ephemeral copies of sound recordings have economic value. This is because, as Congress recognized in enacting Section 112(e), webcasters simply could not exist without the ability to make ephemeral copies. In fact, because webcasters must have both the ephemeral copy right as well as the performance right in order to operate their services, as a matter of economic theory one could say that the Section 114 right has zero economic value without the Section 112 right, and the Section 112 right has zero economic value without the Section 114 right. One cannot remove the Section 112(e) right from the full complement of rights required by webcasters any more than one can remove oxygen molecules from water and still have water.

This theoretical proposition is confirmed by a number of marketplace benchmarks. First, in the marketplace deals between record companies and webcasters for non-statutory forms of licenses, it is typical for ephemeral copy rights to be expressly included among the grant of rights provided to the webcaster. Most of these agreements do not set a

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distinct rate for those ephemeral copies, incorporating them instead into the overall rate that the webcaster pays for the combined ephemeral copy rights and performance rights. Nonetheless, economic theory teaches that rational companies do not give away something for nothing. Because these ephemeral copy rights are essential for webcasters to operate their services, it follows that the value of ephemeral copy rights has been included in the overall rate that webcasters pay under these agreements.

Second, I am aware of several agreements over the years between record companies and services that publicly perform sound recordings that do establish specific rate mechanisms for ephemeral copies. For example, I have reviewed a current agreement between a major record label and a webcaster that covers ad-supported internet radio service, subscription radio service, and on-demand streaming and recites the parties' agreement that 10% of the royalty payments made under the agreement shall be designated as payment for ephemeral copies. Other agreements have contained similar language. For example, in Webcaster II and SDARS the CRJs were presented with evidence of agreements negotiated by Sony BMG and by Warner Music Group which provided that 10% of the overall fees for streaming are attributable to the making of ephemeral copies.¹⁹

¹⁹ See Webcaster II at 24101. The actual rates established in such marketplace agreements, while potentially informative, are not necessarily the best proxy for the ephemeral rate in the instant proceeding. These agreements are made without statutory constraints on how ephemeral and performance royalties are allocated between copyright owners and artists. Had these agreements been bound by such statutory conditions, then the outcomes may very well have been different. But these agreements are relevant in two important ways: First, they demonstrate that willing buyers and willing sellers do trade in ephemeral rights, which would be economically irrational if they had no value. Second, as discussed more fully in the next section below, they demonstrate that the payments for ephemeral rights, even absent regulatory constraint, employ a percent-of-total mechanism where ephemeral royalties are expressed as a percentage of payments metered on performances.

Third, I am also aware that, more recently, SoundExchange negotiated a number of voluntary agreements (with broadcasters, certain commercial webcasters and certain noncommercial educational webcasters) for the very same Section 112 and 114 rights at issue in this proceeding. In these agreements, the willing participants in the market agreed to structure the ephemeral reproduction rate as an allocation of the correlative performance royalty.²⁰

B. It Is Appropriate to Express the Value of Ephemeral Copies as a Fixed Percentage of the Performance Royalty.

Setting the ephemeral rate as a share of the total performance royalty fee does no injustice to economic theory. In fact, marketplace benchmarks consistently confirm that a percent rate is the appropriate measure. The marketplace has spoken with near unanimity in structuring the Section 112(e) ephemeral reproduction license as a percentage of the Section 114 performance royalty where such performance royalty is established. As discussed above, I have seen numerous voluntary agreements between willing buyers and willing sellers in which the rate for the ephemeral reproduction license was expressed as a percent of the performance royalty. Similarly, as mentioned above, SoundExchange negotiated a number of voluntary agreements (with broadcasters, certain commercial webcasters and certain noncommercial educational webcasters) for the very same Section 112 and 114 rights at issue in this proceeding. There, again, the willing participants in the

²⁰ Notification of Agreements Under the Webcaster Settlement Act of 2008, Agreed Rates and Terms for Broadcasters, 74 Fed Reg. 9293, 9299 (2009); Notification of Agreements Under the Webcaster Settlement Act of 2009, Agreed Rates and Terms for Webcasts by Commercial Webcasters, 74 Fed Reg. 40614 (2009); Notification of Agreements Under the Webcaster Settlement Act of 2009, Agreed Rates and Terms for Noncommercial Educational Webcasters, 74 Fed Reg. 40614, 40616 (2009).

market agreed to structure the ephemeral reproduction rate as an allocation of the correlative performance royalty.²¹

Thus, it appears that, where a rate for ephemeral copies is set in the marketplace, it is set as a percentage of overall royalties. As a structural matter, the available evidence suggests that setting the ephemeral rate as a percent of an overall payment is consistent with marketplace negotiation.

C. The Best Market Benchmark is the Agreement Between Artists and Record Companies.

Having established that the Section 112(e) ephemeral reproduction right clearly has value and is best expressed as a percentage of the Section 114 performance royalty where such royalty is set, the final step in the analysis is to determine how to set an actual percentage as required by the Register. As noted above, most agreements that set a rate for ephemeral copies specify that rate as a percentage of total royalty payments. Given the nature of the rights at issue, that is not a surprising outcome. Where performance royalties for streaming activities are negotiated in a free market setting, that is, outside of the Section 114 context, the copyright owner (in this case the record companies) and the service provider should have less at stake with respect to the allocation of payments between ephemeral copies and performances.

By contrast, in the Section 114 context, Congress radically altered this market dynamic when it comes to statutory licenses. There is a very significant difference between payments under the Section 112(e) compulsory license and the Section 114 compulsory license: payments under Section 114 are by law split between copyright

²¹ Although these agreements do not set the specific allocation, but leave that open to future determination, the point here is that the willing buyers and willing sellers agreed to structure the ephemeral rate as an allocation of the performance rate.

owners and artists, while payments under Section 112(e) go directly to copyright owners. The implication of this phenomenon is immediate. The sharing of income between record companies and artists for performances is set by law. Thus, if it is to have any relevance for the Judges, the willing buyer / willing seller market analysis suggested by Section 112(e) for ephemeral rates must reflect this statutory alteration to the market dynamics whereby the artists and the record companies jointly have a real interest in negotiating the Section 112(e) rate while the webcasters (as the willing buyers) do not.

By the very nature of the statute, the agreements reached under the constraints relevant in this proceeding will not be the same as in the unregulated market. Evidence suggests that the terms between the "willing buyer" in this hypothetical market — the webcaster — and the "willing seller" — the record companies — will either embody the ephemeral copy rate in the performance rate or express the ephemeral rate as a percent of the total overall performance royalty. If so, the buyer is indifferent to the allocation of payments between ephemeral copies and performance royalties. But the "willing seller" — the record companies — will not be so indifferent under the statutory division of royalties that cannot be assumed away. Under plausible conditions, only the record companies and artists are parties to the establishment of the ephemeral rate, and these parties have arrived at a royalty rate for ephemeral copies that reflects a more market based allocation of payments between ephemerals and performance royalties.

Because the willing buyer is disinterested with respect to that allocation, the agreement between the record companies and the artists thereby becomes the best indication of the proper allocation of royalties.

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My understanding is that the recording artists and the record companies have reached an agreement that five percent (5%) of the payments for activities under Section 112(e) and 114 should be allocated to Section 112(e) activities. In light of the principles I have articulated above, that appears to be a reasonable proposal, and credibly represents the result that would in fact obtain in a hypothetical marketplace negotiation between a willing buyer and the interested willing sellers under the relevant constraints. I declare under penalty of perjury that the foregoing testimony is true and correct.

Date: <u>9/29/09</u> George S. Ford

Appendix A

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2000 - 2004	Z-TEL COMMUNICATIONS Tampa, FL <u>Chief Economist, Strategic Policy and Planning</u>
1996 - 2000	MCI WORLDCOM CORPORATION Washington, D.C. Senior Economist, Office of Policy and Strategic Planning
1994 - 1996	FEDERAL COMMUNICATIONS COMMISSION Washington, D.C. Economist, Office of the General Counsel & Cable Bureau, Competition Division

PUBLISHED RESEARCH:

"The Broadband Adoption Index: Improving Measurements and Comparisons of Broadband Deployment and Adoption," with T. R. Beard, L. J. Spiwak, and M. L. Stern. (Forthcoming in the *Federal Communications Bar Journal*).

"HAC Standard Errors and the Event Study Methodology: A Cautionary Note," with J. Jackson. (Forthcoming in *Applied Economics Letters*).

"Sample Size and the Accuracy of the Generalized Lambda Distribution," with S. Skinner. (Forthcoming in *Communications in Statistics - Simulation and Computation*).

"Network Neutrality and Foreclosing Market Exchange," with T. R. Beard, T. M. Koutsky, and L. J. Spiwak. (Forthcoming in *International Journal of Management and Network Economics*).

"Developing a National Wireless Regulatory Framework: A Law and Economics Approach," with T. R. Beard, T. M. Koutsky, and L. J. Spiwak. *Commlaw Conspectus*, Vol. 16, 2008.

"Constituency Size and the Growth of Public Expenditures: The Case of the United Kingdom," with M. Thornton and M. Ulrich. *Journal of Public Choice and Finance*, Vol. 24, 2006 (published in 2008).

"The Competitive Effects of Quantity Discounts," with T. R. Beard and D. L. Kaserman. *Antitrust Bulletin*, Vol. 52, 2007.

"Network Neutrality and Industry Structure," with T. R. Beard, Thomas M. Koutsky and Lawrence J. Spiwak. *Hastings Communications and Entertainment (Comm/Ent) Law Journal*, Vol. 29, 2007.

"A La Carte and 'Family Tiers' as a Response to a Market Defect in the Multichannel Video Programming Market," with T. R. Beard and Thomas M. Koutsky. *CommLaw Conspectus*, Vol. 15, 2006.

"The Impact of Video Service Regulation on the Construction of Broadband Networks to Low-Income Households," with Thomas M. Koutsky and Lawrence J. Spiwak. *I/S: A Journal of Law and Policy for the Information Society*, Vol. 3, 2007.

"Competition After Unbundling: Entry, Industry Structure and Convergence," with Thomas M. Koutsky and Lawrence J. Spiwak. *The Federal Communications Law Journal*, Vol. 59, 2007.

"Does Municipal Supply of Communications Crowd-Out Private Communications Investment? An Empirical Study." *Energy Economics*, Vol. 29, 2007. "Broadband and Economic Development: A Municipal Case Study from Florida," with T. M. Koutsky. *Review of Urban and Regional Development Studies*, Vol. 17, 2006.

"The Economics of Build-out Rules in Cable Television," with T. M. Koutsky and L. W. Spiwak. *Hastings Communications and Entertainment (Comm/Ent) Law Journal*, Vol. 28, 2006.

"Issues in Empirical Merger Analysis," with T. Randolph Beard Introductory article by the Guest Editors in a Special Issue of the *International Journal of the Economics of Business*, Vol. 13, 2006.

"Empirical Simulation of Mergers: The Cingular and AT&T Wireless Merger," with T. Randolph Beard and Richard P. Saba. *International Journal of the Economics of Business*, Vol. 13, 2006.

"Event Studies for Merger Analysis: An Evaluation of the Effects of Non-Normality on Hypothesis Testing," with Audrey D. Kline. In *Antitrust Policy Issues*, Nova Publishers, 2006.

"Are Unbundled and Self-supplied Telecommunications Switching Substitutes? An Empirical Study," with T. Randolph Beard. *International Journal of the Economics of Business*, Vol. 12, 2005.

"Misleading Inferences from Panel Unit-Root Tests: A Comment," with John Jackson and Audrey Kline. *Review of International Economics*, Vol. 14, 2006.

"Splitting the Baby: An Empirical Test of Rules of Thumb in Regulatory Price Setting," with T. Randolph Beard. *Kyklos*, Vol. 58, 2005.

"Mandated Access and the Make-or-Buy Decision: The Case of Local Telecommunications Competition," with with T. Randolph Beard and Thomas W. Koutsky. *Quarterly Review of Economics and Finance*, Vol. 45, 2005. Presented at *The Drivers and Significance of Local Telecommunications Competition*, United States Department of Justice, July 23, 2002 as "Facilities-based Entry in Local Telecommunications: An Empirical Investigation").

"On the Relationship between Telecommunications Investment and Economic Growth: Three Empirical Studies," with R. Beil and J. Jackson. In *Economic Growth Issues*, Nova Publishers, 2005.

"On the Relationship between Telecommunications Investment and Economic Growth in the United States," with R. Beil and J. Jackson. *International Economic Journal*, Vol. 19, 2005.

"Access Charge Reductions and Long Distance Rates: A Bootstrap Analysis," with T. Randolph Beard, R. Carter Hill, and Richard P. Saba. *Empirical Economics*, Vol. 30, 2005.

"Fragmented Duopoly: A Conceptual and Empirical Investigation," with T. Randolph Beard, R. Carter Hill, and R. Saba. *Journal of Business*, Vol. 78, 2005.

"Competition and Investment in Telecommunications," with John D. Jackson. *Atlantic Economic Journal*, Vol. 32, 2004.

"Pursuing Competition in Local Telephony: The Law and Economics of Unbundling and Impairment," with T. R. Beard and R. B. Ekelund Jr., *Journal of Law, Technology and Policy*, Vol. 2003, Fall 2003.

The Financial Implications of the UNE-Platform: A Review of the Evidence," with T. Randolph Beard and Christopher C. Klein *CommLaw Conspectus: Journal of Communications Law and Policy*, Vol. 12, 2004. Also published in the handbook for the 21st *Annual Institute on Telecommunications Policy & Regulation*, Practicing Law Institute, New York, 2003.

"Innovation, Investment, and Unbundling: An Empirical Update," with Robert B. Ekelund Jr., *Yale Journal on Regulation*, Vol. 20, 2003.

"Discrimination and Minority Ownership in Radio Broadcasting," with Audrey B. Davidson and Barry Hayworth, *International Journal of the Economics of Business*, Vol. 10, 2003.

"Preliminary Evidence on the Demand for Unbundled Elements in Telephony," with Robert B. Ekelund, Jr., *Atlantic Economic Journal*, Vol. 30, 2002.

"Demand Elasticities for International Message Telephone Service," with John D. Jackson, *Applied Economics*, Vol. 36, 2004.

"Competition and Market Structure in Local Exchange and Long Distance Telecommunications Markets," with T. Randolph Beard. *International Handbook on Telecommunications Economics*, Vol. I, Ch. 6, Gary Madden ed., Edward Elgar: 2002.

"Why Adco? Why Now? An Economic Exploration into the Future of Industry Structure in Local Telecommunications Markets," with T. Randolph Beard and Lawrence Spiwak. *Federal Communications Law Journal*, Vol. 54, 2002.

"Price, Quality, and Consumer Welfare in the Cable Television Industry," with T. Randolph Beard, Robert B. Ekelund, Jr., and Richard P. Saba. *Journal of Regulatory Economics*, Vol. 20, 2001

"The Fallacy of Regulatory Symmetry: An Economic Analysis of the "Level Playing Field" in Cable TV Franchising Statutes," with Thomas W. Hazlett. *Business & Politics*, Vol. 3, 2001.

" The Measurement of Merger Delay in Regulated and Restructuring Industries," with Robert B. Ekelund Jr. and Mark Thornton. *Applied Economics Letters*, Vol. 8, 2001.

"Changing Industry Structure: The Economics of Entry and Price Competition" with Jerry B. Duvall. *Telecommunications and Space Journal*, Vol. 7, 2000.

"Market Power in Radio Markets: An Empirical Analysis of Local and National Concentration," with Robert B. Ekelund, Jr. and Thomas Koutsky. *Journal of Law and Economics*, Vol. XLIII, 2000.

"TV Advertising, Local Markets and Merger Guidelines: An Empirical Study," with Robert B. Ekelund, Jr. and John D. Jackson. *International Journal of the Economics of Business*, Vol. 7, 2000.

"Preserving Free Television? Some Empirical Evidence on the Efficacy of Must Carry," with John D. Jackson. *Journal of Media Economics*, Vol. 13, 2000.

"Is Radio Advertising a Distinct Local Market: An Empirical Analysis," with R. B. Ekelund, Jr. and John D. Jackson. *Review of Industrial Organization*, Vol. 14, 1999.

"On the Interpretation of Policy Effects from the Estimates of Simultaneous Systems of Equations," with John D. Jackson. *Applied Economics*, Vol. 30, 1998.

"Information Costs and Nirvana Revisited: Edwin Chadwick on Nineteenth Century Urban Funeral Markets," with Robert B. Ekelund, Jr. *Journal of Regulatory Economics*, Vol. 12, 1997. Reprinted in the *The Foundations Of Regulatory Economics*, Ed. R. B. Ekelund, Jr., Edward Elgar Publishing.

"Horizontal Concentration and Vertical Integration in the Cable Television Industry" with John D. Jackson. *Review of Industrial Organization*, Vol. 12, 1997.

CURRENT RESEARCH PROJECTS FOR PUBLICATION (Partial List):

"An Economic Analysis of Late Fees," with T. R. Beard.

"An Investigation into the Influence of Retail Gas Prices on Oil Company Profits."

"An Analysis of RESET for Conditional Mean Models," with J. Jackson.

"Selecting Members for Panel Unit Root Tests," with J. Jackson.

"The Pricing of Pole Attachments," with T. Koutsky and L. Spiwak.

"Consumers and Wireless Carterfone: An Economic Perspective," with T. Koutsky and L. Spiwak.

EXAMPLES OF LITIGATION, REGULATORY DOCUMENTS and TESTIMONY:

Developing a "National Broadband Strategy" - Understanding the OECD Rankings and the Drivers of Broadband Adoption. Presentation at the U.S. Congress Rayburn House Office Building (July 28, 2008).

Testimony Before the Federal Communications Commission's Open Meeting on Network Neutrality and Broadband Network Management, Stanford University (April 17, 2008).

Testimony Before the House Committee on Commerce and Energy -Subcommittee on Telecommunications and the Internet Hearing on "Digital Future of the United States: Part IV: Broadband Lessons from Abroad" (April 24, 2007).

Testimony Before the House Committee on Commerce and Energy -Subcommittee on Telecommunications: A Discussion Draft Addressing Broadband Mapping and Data Collection (May 17, 2007).

Capitol Hill Inter-Active Workshop: Sound Internet Policy for the 21st Century: Understanding the Economic Fundamentals (Feb. 2007).

Broadband Connectivity Competition Policy, Federal Trade Commission (Feb. 2007).

3rd Annual State of the Net Conference 2007, Advisory Committee to the Congressional Internet Caucus (Jan. 2007).

Carter Estate v. CSXT, Louisville, Kentucky (2006).

Ken Hecht v. Comcast of Indiana, Inc., et al, Indianapolis, Indiana (2005/6).

"Crummy Duopoly" or Vigorous Inter-Modal Competition? The Impact of Cable Franchise Requirements on New Fiber Builds. Phoenix Center Congressional Briefing (July 21, 2005).

Florida Bill HB 1325 and SB 1322 (Municipal Broadband). Testimony before numerous Committees of the Florida House of Representatives (Spring 2005).

Z-Tel Communications, Inc. v. SBC Communications, Inc., Texarkana, Texas (2003).

"A Response to Olbeter and Robinson's 'Breaking the Backbone'," released by MCI Worldcom (August 1999).

"An Economic Analysis of the FCC's Notice of Inquiry on Flat Rate Charges in the Long Distance Industry," filed in CC Docket No. 99-249 (September 1999).

"Further Thoughts on Payphone Compensation," filed in CC Docket No. 96-128 (November 1998).

"Effective Enforcement of Non-Discriminatory Performance by Incumbent Local Exchange Carriers," with John D. Jackson (filed with New York Public Service Commission, October 1999).

"A Review of the Texas Performance Plan," with John D. Jackson filed with the Federal Communications Commission (2000).

Investigation into Pricing of Unbundled Network Elements, Testimony filed before the State of Florida Public Service Commission, Docket No. 990649-TP (2000).

Investigation into Pricing of Unbundled Network Elements, Testimony filed before the State of Florida Public Service Commission, Docket No. 990649-TP (2000).

Investigation into Pricing of Unbundled Network Elements, Testimony filed before the State of New York Public Service Commission, Docket No. 98-C-1357 (2000).

In the Matter of US West Communications, Inc.'s Compliance with Sec 271 *of the Telecommunications Act of 1996,* Statement before the Arizona Corporation Commission, Docket No. T-00000B-97-0238 (2000).

Performance Measurements for Telecommunications Interconnection, Unbundling and Resale, Testimony before the Georgia Public Service Commission, Docket No. 7892-U (2000).

Investigation and Generic Proceeding on Ameritech Indiana's rates for Interconnection, Service, Unbundled Elements, and Transport and Termination, Declaration and Reply before the Indiana Public Service Commission, Cause No. 40611 (2000 2000).

Inquiry by the Department of Telecommunications and Energy Pursuant to Section 271 of the Telecommunications Act of 1996, Comments filed before the Massachusetts Department of Telecommunications and Energy, Docket No. DTE 99-271 (2000). *Commission Review of Various Submissions of Ameritech Indiana to Show Compliance with Section 271(C) of the Telecommunications Act of 1996,* Multiple filings before the Indiana Utility Regulatory Commission (2000).

In the Matter of US West Communications, Inc.'s, Compliance with §271 *of the Telecommunications Act of 1996,* Comments and studies filed before the Arizona Corporation Commission (2000).

In the Matter of Investigation into US West Communications, Inc.'s Compliance with Certain Wholesale Pricing Requirements for Unbundled Network Elements and Resale Discounts, Docket No.T-00000A-00-0194 (2001).

In the Matter of the Commission Investigation and Generic Proceeding on Ameritech Indiana's Rates for Interconnection, Service, Unbundled Elements, and Transport and Termination Under the Telecommunications Act of 1996 and Related Indiana Statutes, Cause No. 40611-S1 (2001).

In the Matter of the Petition of Indiana Bell Telephone Company, Incorporated *d/b/a* Ameritech Indiana Pursuant to I.C. 8-1-2-61 For a Three Phase Process For Commission Review of Various Submissions of Ameritech Indiana to Show Compliance with Section 271(c) of The Telecommunications Act of 1996, Cause No. 41657 (2001).

Application by Bell Atlantic New York for Authorization Under Section 271 of the Communications Act To Provide In-Region, InterLATA Service in the State of New York, Federal Communications Commission, CC Docket No. 99-295 (1999).

Application by SBC Communications Inc., Southwestern Bell Telephone Company, And Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance Pursuant to Section 271 of the Telecommunications Act of 1996 To Provide In-Region, InterLATA Services In Texas, Federal Communications Commission, CC Docket No. 00-65 (2000)

Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Kansas and Oklahoma, Federal Communications Commission, CC Docket No. 00-217 (2000/2001).

Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance Pursuant to Section 271 of the Telecommunications Act of 1996 To Provide In-Region, InterLATA Services in Arkansas and Missouri, Federal Communications Commission, CC Docket No. 01-194 (2001). Joint Application by BellSouth Corporation, BellSouth Telecommunications, Inc., And BellSouth Long Distance, Inc for Provision of In-Region, InterLATA Services In Georgia and Louisiana, Federal Communications Commission, CC Docket No. 02-35 (2002).

Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Federal Communications Commission, CC Docket No. 01-338 (2003).

BOOK REVIEWS, EDITORIALS, REPORTS, and POLICY PAPERS:

"Be Careful What You Ask For: A Comment on the OECD's Mobile Price Metrics," PHOENIX CENTER PERSPECTIVES No. 09-03 (September 16, 2009).

"The Broadband Adoption Index: Improving Measurements and Comparisons of Broadband Deployment and Adoption," PHOENIX CENTER POLICY PAPER No. 36 (July 2009).

" The Need for Better Analysis of High Capacity Services," PHOENIX CENTER POLICY PAPER No. 35 (June 2009).

"Econometric Analysis of Broadband Subscriptions: A Note on Specification," PHOENIX CENTER PERSPECTIVES No. 09-02 (May 12, 2009).

"Normalizing Broadband Connections," PHOENIX CENTER PERSPECTIVES No. 09-01 (May 12, 2009).

"The Pricing of Pole Attachments: Implications and Recommendations," PHOENIX CENTER POLICY PAPER No. 34 (December 2008).

"Do High Call Termination Rates Deter Broadband Deployment?," PHOENIX CENTER POLICY BULLETIN No. 22 (October 2008).

"Broadband Expectations and the Convergence of Ranks," PHOENIX CENTER PERSPECTIVES No. 08-03 (October 1, 2008).

"Consumers and Wireless Carterfone: An Economic Perspective," PHOENIX CENTER POLICY BULLETIN No. 21 (September 2008).

"Valuing the AWS-3 Spectrum: A Response to Comments," PHOENIX CENTER POLICY PERSPECTIVE No. 08-02 (July 2008).

"Calculating the Value of Unencumbered AWS-III Spectrum," PHOENIX CENTER POLICY PERSPECTIVE No. 08-01 (June 2008).

"Using Auction Results to Forecast the Impact of Wireless Carterfone Regulation on Wireless Networks," PHOENIX CENTER POLICY BULLETIN No. 20 (May 2008). "The Broadband Efficiency Index: What Really Drives Broadband Adoption Across the OECD?," PHOENIX CENTER POLICY PAPER No. 33 (May 2008).

"The Welfare Impacts of Broadband Network Management: Can Broadband Service Providers Be Trusted?," PHOENIX CENTER POLICY PAPER No. 32 (March 2008).

"A Valley of Death in the Innovation Sequence: An Economic Investigation," Phoenix Center Study for the United States Department of Commerce (2007).

"The Demographic and Economic Drivers of Broadband Adoption in the United States," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY PAPER No. 31 (November 2007).

"An Economic Approach to Evaluating a National Wireless Regulatory Framework," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY BULLETIN No. 19 (October 2007).

"Quantifying the Cost of Substandard Patents: Some Preliminary Evidence," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY PAPER No. 30 (September 2007).

"The Broadband Performance Index: A Policy-Relevant Method of Comparing Broadband Adoption Among Countries," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY PAPER No. 29 (July 2007).

"Wireless Net Neutrality: From Carterfone to Cable Boxes," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY BULLETIN No. 17 (April 2007).

"University of Florida Study Shows Only Winners from Network Neutrality Regulation to be Content Providers, Consumers Lose." PHOENIX CENTER POLICY PERSPECTIVE No. 07-01 (March 2007).

"Network Neutrality and Foreclosing Market Exchange: A Transaction Cost Analysis," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY PAPER No. 28 (March 2007).

"Tort Liability for Software Developers: A Law & Economics Perspective," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY PAPER No. 27 (January 2007).

"An Investigation into the Influence of Retail Gas Prices on Oil Company Profits," PHOENIX CENTER POLICY PAPER No. 26 (August 2006).

"The Burden of Network Neutrality Mandates on Rural Broadband Deployment," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY PAPER No. 25 (July 2006).

"The Efficiency Risk of Network Neutrality Rules," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY BULLETIN No. 16 (May 2006).

"Network Neutrality and Industry Structure," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY PAPER No. 24 (April 2006).

"Unnecessary Regulations and the Value of Spectrum: An Economic Evaluation of Lease Term Limits for the Educational Broadband Service," with Thomas M. Koutsky, PHOENIX CENTER POLICY BULLETIN No. 15 (February 2006).

"A La Carte and 'Family Tiers' as a Response to a Market Defect in the Multichannel Video Programming Market," with Thomas M. Koutsky, PHOENIX CENTER POLICY BULLETIN No. 14 (February 2006).

"In Delay There Is No Plenty: The Consumer Welfare Cost of Franchise Reform Delay," with Thomas M. Koutsky, PHOENIX CENTER POLICY BULLETIN No. 13 (January 2006).

"Franchise Fee Revenues After Video Competition: The 'Competition Dividend' for Local Governments," with Thomas M. Koutsky, PHOENIX CENTER POLICY BULLETIN No. 12 (November 2005).

"Higher Prices Expected from the Cingular/AT&T Wireless Merger," PHOENIX CENTER POLICY BULLETIN No. 11 (26 May 2004).

"The Impact of Video Service Regulation on the Construction of Broadband Networks to Low-Income Households," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY PAPER No. 23 (September 2005).

"The Consumer Welfare Cost of Cable "Build-out" Rules," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY PAPER No. 22 (July 2005).

"Competition After Unbundling: Entry, Industry Structure and Convergence," with Thomas M. Koutsky and Lawrence J. Spiwak, PHOENIX CENTER POLICY PAPER No. 21 (July 2005).

"Quantity-Discount Contracts as a Barrier to Entry," with T. Randolph Beard and Lawrence J. Spiwak/ PHOENIX CENTER POLICY PAPER NO. 20 (November 2004). "The Positive Effects of Unbundling on Broadband Deployment," with Lawrence W. Spiwak. PHOENIX CENTER POLICY PAPER NO. 19 (September 2004).

"Set It and Forget It? The Consequences of Market Power and Deregulation in Telecommunications Markets Services," with L. J. Spiwak. PHOENIX CENTER POLICY PAPER No. 18 (June 2003).

"What Determines Wholesale Prices for Network Elements in Telephony? An Econometric Evaluation," with T. Randolph Beard, PHOENIX CENTER POLICY PAPER NO. 16 (September 2002).

"Make or Buy? Unbundled Elements as Substitutes for Competitive Facilities in the Local Exchange Network," with Thomas R. Beard. PHOENIX CENTER POLICY PAPER NO. 14 (September 2002).

"Why Adco? Why Now? An Economic Exploration into the Future of Industry Structure in Local Telecommunications Markets," PHOENIX CENTER POLICY PAPER No. 12 (November, 2001).

"An Economic Analysis of the FCC's Notice of Inquiry on Flat Rate Charges in the Long Distance Industry," PHOENIX CENTER POLICY PAPER No. 11 (May, 2001).

"Changing Industry Structure: The Economics of Entry and Price Competition" with Jerry B. Duvall, PHOENIX CENTER POLICY PAPER No. 10 (April 2001) and *Telecommunications and Space Law*, 2001.

"Flow Through and Competition in the International Message Telephone Service Market," PHOENIX CENTER POLICY PAPER No. 7 (September, 2000).

"Higher Prices Expected from the Cingular/AT&T Wireless Merger," PHOENIX CENTER POLICY BULLETIN NO. 11 (26 May 2004): with Lawrence W. Spiwak.

"Fixed-Mobile "Intermodal" Competition in Telecommunications: Fact or Fiction? "PHOENIX CENTER POLICY BULLETIN NO. 10 (30 March 2004): with Lawrence W. Spiwak.

"Federalism in Telecommunications Regulation: Effectiveness and Accuracy of State Commission Implementation of TELRIC in Local Telecoms Markets," PHOENIX CENTER POLICY BULLETIN NO. 9 (9 March 2004): with Lawrence W. Spiwak.

"The \$10 Billion Benefit of Unbundling: Consumer Surplus Gains from Competitive Pricing Innovations," PHOENIX CENTER POLICY BULLETIN NO. 8 (27 January 2004): with Lawrence W. Spiwak and Thomas Koutsky. "The Positive Effects of Competition on Employment in the Telecommunications Industry," PHOENIX CENTER POLICY BULLETIN NO. 7 (15 October 2003): with Lawrence W. Spiwak.

"UNE-P Drives Bell Investment - A Synthesis Model," PHOENIX CENTER POLICY BULLETIN NO. 6 (17 September 2003): with Lawrence W. Spiwak.

"Competition and Bell Company Investment in Telecommunications Plant: The Effects of UNE-P," PHOENIX CENTER POLICY BULLETIN NO. 5 (Originally released 9 July 2003 and updated 17 September 2003): with Lawrence W. Spiwak.

"The Truth About Telecommunications Investment after the Telecommunications Act of 1996," PHOENIX CENTER POLICY BULLETIN NO. 4 (24 June 2003) : with Lawrence W. Spiwak.

"Telecommunications Stocks and the FCC's Triennial Review," PHOENIX CENTER POLICY BULLETIN NO. 2 (11 March 2003).

"In Through the Back Door: Embedded Cost and the FLC." June 2002. (<u>www.aestudies.com</u>).

"How Many Days in a Year? Creative Cost Modeling and the Cost to Competition." June 2002. (<u>www.aestudies.com</u>).

"A Fox in the Hen House: An Evaluation of Bell Company Proposals to Eliminate Their Monopoly Positions in Local Telecommunications." June 2002. (www.aestudies.com).

"Opportunities for Local Exchange Competition Are Greatly Exaggerated." *Electric Light & Power*, April 1998.

Welfare Economics and Externalities in an Open Ended Universe: A Modern Austrian Perspective, by Roy E. Cordato. Southern Economic Journal (April, 1994).

Toward Competition in Local Telephony, by William J. Baumol and Gregory Sidak. *Southern Economic Journal* (April, 1996).

"Competition Will Decrease Cable Rates: On Curbing Cable Costs," with Audrey B. Davidson. *Business First*, September 6, 1993.

"TKR Cable Not Living Up To Promises To Cut Rates," with Audrey B. Davidson. *The Louisville Cardinal*, September 2, 1993.

"The Cable Television Industry: An Annotated Bibliography" Published and Funded by the *Auburn Utilities Research Center*, Summer 1994.