Approved: March 27, 2002
Date

MINUTES OF THE SENATE COMMITTEE ON COMMERCE.
The meeting was called to order by Chairperson Senator Karin Brownlee at 8:30 a.m. on March 05, 2002 in Room 123-S of the Capitol.

All members were present except:	Senator Barone (Excused)
Committee staff present:	April Holman, Legislative Research Debra Hollon, Legislative Research Sherman Parks, Revisor of Statues Lea Gerard, Committee Secretary
Conferees appearing before the committee:	LeAnn Schmidt, Legislative Post Audit
Others attending:	See attached list

Committee members were provided testimony regarding **SB 606** heard on February 26, 2002 from Dennis L. Weisman, Professor of Economics, Kansas State University (Attachment 1).

In accordance with KSA 75-3715a, the fiscal note for **SB 615** was submitted to committee members.

Senator Steineger moved, seconded by Senator Jenkins that the minutes of February 12, 13, 14, 15, 18, 19, 20, and 22, 2002 be approved. Motion carried.

LeAnn Schmitt, Auditor, Legislative Post Audit gave an overview of the State Economic Development agencies audit. The first part of the audit was how well the three major economic development agencies were fulfilling the roles, how well they were coordinating their efforts, what benefits the state has received as a result of the agencies programs and whether or not the agencies were adequately accounting for the monies they had. Kansas Inc. had not become the strong coordinator and evaluator of economic development programs. The problem was statutory authority to direct the other agencies, a small staff budget that limited the amount of evaluation work it could do and the potential for conflict between it's role as evaluator and coordinator.

The Post Audit recommended that the legislature consider reexamining the structure of the state's economic development system. Several factors should be considered on how coordination, oversight and evaluation can best be provided and the impact they would have on each agencies ability to fulfil its mission.

The second part of the audit was what benefits the State of Kansas had received through economic development programs and how accountable each agency is for the money they invest. Measuring the results of economic development programs is difficult and there is still not a proven way to show a direct cause and affect relationship between the money and end results. In more than a decade $9.3M of KTEC's investments have generated more than $1M in cash returns and helped finance companies that employed about 600 people in Kansas. At the time of the audit, the investments were valued around $5.6 M which was less than originally invested because investments in early stage technology companies tend to loose value before they actually become profitable and some companies have gone out of business. The Department of Commerce & Housing's records show the state received economic benefits of about $1.2B which included capitol improvements in businesses. The department reported there were over 10,000 jobs created as a result of its programs for fiscal year 2000. The department spends about $61M through its five economic development divisions in fiscal year 2000.

SB 615 would potentially simplify the economic development system in the state by consolidating Kansas Inc. functions with the Department of Commerce & Housing. The bill did not address some of the statutory changes Post Audit recommended that would effect the Department of Commerce & Housing and KTEC. **SB 615** also did not address who would independently evaluate the performance of the Department of Commerce & Housing and KTEC and the statutes that govern all three economic agencies were unclear and confusing.

Meeting adjourned at 9:10 a.m.
The next meeting is scheduled for March 6, 2002 at 8:30 a.m.

SENATE COMMERCE COMMITTEE
GUEST LIST
DATE: March 05, 2002

NAME	REPRESENTING
RaeAnne Davis	KDOCH
Deby [illegible]	[illegible]s Inc
Melissa Wangemann	Sec of State
Janet McPherson	Ks Farm Bureau
Mike Huttles	Ks. Gov't Consulting
Bud Burke	Olathe Chamber of Commerce
John Frederick	The Boeing Company

RE: SENATE BILL 606

STATEMENT OF
PROFESSOR DENNIS L. WEISMAN

1. Introduction

My name is Dennis L. Weisman. I am a Professor of Economics and a member of the graduate faculty at Kansas State University. My business address is Department of Economics, Waters Hall, Kansas State University, Manhattan, Kansas 66506-4001.

2. Qualifications

I have authored or co-authored more than 60 professional articles, books, and manuscripts, including a book entitled THE TELECOMMUNICATIONS ACT OF 1996: THE "COSTS" OF MANAGED COMPETITION that was recently published by Kluwer Academic Publishers. I am also the co-author of a book entitled DESIGNING INCENTIVE REGULATION FOR THE TELECOMMUNICATIONS INDUSTRY, published by the MIT Press. I currently serve on the editorial boards of the *Journal of Regulatory Economics* and *Information Economics and Policy*. My principal research interests are in the area of strategic firm behavior and government regulation, with an emphasis on telecommunications regulation, competition and incentive issues. I have testified in numerous regulatory proceedings to the economic and social impacts of regulatory policies and have served as an advisor to telecommunications firms, electric power companies and regulatory commissions on economic pricing principles, the design of incentive regulation plans, and public policy. I hold a Ph.D. in economics from the University of Florida with a specialization in industrial organization and regulation.

Senate Commerce Committee
March 5, 2002
Attachment 1-1

3. Purpose of Statement

The primary purpose of my statement is to address various economic issues associated with SB 606 in light of recent federal and state initiatives to foster the development of competition in telecommunications markets in Kansas. I develop four key themes in this statement. First, efficient, economic regulation should serve as a surrogate for competition when and only when market forces cannot be relied upon to exert the requisite discipline on the behavior of the incumbent provider. Second, regulation is not benign in that it diverts valuable resources from serving consumers in the marketplace to managing the regulatory process. Sound public policy must balance these costs against any benefits that regulation may offer in the current telecommunications marketplace. Third, telecommunications is recognized as a key infrastructure industry—an important driver of economic growth. Both the 1996 Telecommunications Act and HB 2728 recognize the importance of fostering incentives for investment in telecommunications infrastructure. Fourth, the benefits of SB 606 are potentially significant and the risks appear to be minimal.

4. The Benefits of Competition

The benefits of competition derive from the economic incentives that it provides producers to satisfy the wants of consumers. These include the incentives to allocate scarce resources to their highest valued use; to minimize costs; and to encourage firms to supply those products and services that consumers demand. The role of competition in fostering these incentives is summarized succinctly by Professor James Bonbright:

> Under unregulated competition, the price system is supposed to function in two ways with respect to the relationship between the price of the product and the cost of production. In the first place, the rate of output of any commodity will so adjust itself to the demand that the market price will tend to come into accord with production costs. But in the second place,

> competition will impel rival producers to strive to reduce their own production costs in order to maximize profits and even in order to survive in the struggle for markets. This latter, dynamic effect of competition has been regarded by modern economists as far more important and far more beneficent than any tendency of "atomistic" forms of competition to bring costs and prices into close alignment at any given point of time.[1]

These incentives derive from the profit motive—the pursuit of individual self-interest ultimately benefits society by providing the goods and services that consumers want at the lowest possible cost. This, of course, is the proverbial "invisible hand" of Adam Smith:

> As every individual, therefore, endeavors as much as he can both to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value; every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. … he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. … By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.[2]

5. Regulation is a Surrogate For Competition

A fundamental principle governing the scope of economic regulation is that it should be limited to essential services that are not yet subject to the discipline of competitive market forces.[3] It is generally accepted that the purpose of economic regulation is to emulate a competitive market outcome if such were feasible.[4, 5] It follows that where

---

[1] James C. Bonbright, *Principles of Public Utility Rates*. Columbia University Press, 1961, p. 53.

[2] Adam Smith, *The Wealth of Nations*. The Modern Library, 1937 (originally published in 1776), p. 423.

[3] It is generally recognized that atomistic or perfect competition is not the appropriate benchmark for emulation by the regulatory authority because such competition does not reflect the operating characteristics of a business enterprise with large-scale capital investments. See Joseph A. Schumpeter, *Capitalism, Socialism and Democracy*. Harper and Row, 1942, p. 106.

[4] See Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions*. Vol. I. John Wiley and Sons, 1970, p. 17; and Bonbright, Supra note 1, p. 107.

[5] The relevant benchmark is not that of perfect competition, but rather one in which the price that prevails in the market is sufficiently close to the price that would prevail if the market were competitive that any attempt to regulate a lower price would entail expected social costs that exceed the corresponding social benefit. This definition is in the spirit of that proffered by Judges Posner and Easterbrook: 'Competition' may be read as a short hand expression, a term of art, designating any state of affairs in which consumer welfare cannot be increased by moving to an alternative state of affairs through judicial decree. Richard A.

competition (actual or prospective) is sufficient to exert the requisite level of discipline,[6] the continued presence of regulation is unnecessary and potentially harmful.

6. Regulation Is Not Benign

It cannot be emphasized strongly enough that regulation is not benign as it facilitates strategic or rent-seeking behavior: socially unproductive expenditures on securing regulatory outcomes that are privately beneficial but socially detrimental.[7] For example, the incumbent firm's rivals can intervene in the regulatory process in an attempt to peg prices at artificially high levels or delay new product introductions.[8, 9] There is a long history of regulation providing an open forum for rivals that would prefer to battle in the

---

Posner and Frank H. Easterbrook. *Anti-Trust: Cases, Notes and Other Materials*. West Publishing (2nd Edition), 1981, p. 166.

[6] Schumpeter observes that "competition ... acts not only in being but also when it is merely an ever-present threat. It disciplines before it attacks." Schumpeter, Supra note 3, p. 85.

[7] These social costs can take numerous forms that include: (1) a diversion of resources from the marketplace to the hearing room; (2) compliance costs; (3) strategic use of the regulatory process by select interest groups; and (4) competitors developing a dependence on the regulatory process for their very survival. See, for example, Fred S. McChesney. *Money for Nothing: Politicians, Rent Extraction, and Political Extortion.* Harvard University Press, 1997.

[8] See William J. Baumol. "Minimum and Maximum Pricing Principles For Residual Regulation." *Eastern Economic Journal*, Vol. 5, 1979, pp. 235-248. Professor Baumol observes that it is "curious but not inexplicable that the vast preponderance of regulatory and antitrust pricing cases, and almost all of the pertinent discussion, have been devoted to limitation of price reductions rather than price increases" (p. 236). For a discussion of these issues in the telecommunications industry, see Alfred E. Kahn. "The Uneasy Marriage of Regulation and Competition." *Telematics*, Volume 1, Number 5, September 1984, pp. 1-17; and Dennis L. Weisman. "The Law and Economics of Price Floors In Regulated Industries." *The Antitrust Bulletin*, Spring 2002 (Forthcoming). For a discussion of similar strategic behavior in the transportation industry, see William J. Baumol and Alfred G. Walton. "Full Costing, Competition and Regulatory Practice." *The Yale Law Journal*, Volume 82, Number 4, March 1973, pp. 639-655.

[9] Indeed, some of the highest social costs of regulation are likely those not directly observable—welfare losses from innovative new services and production processes that are not developed but would have been otherwise. For example, the welfare losses associated with regulatory delays in offering voice messaging in the United States were estimated to be in excess of $5.1 billion. See Jerry Hausman and Timothy Tardiff. "Valuation and Regulation of New Services In Telecommunications." Paper presented at the OECD Workshop On The Economics of the Information Society. Toronto, Canada, June 1995. The loss to the U.S. economy associated with the 10-15 year delay in approving cellular telephony is estimated at $86 billion, or 2 percent of the GNP in 1983. See Jeffrey H. Rholfs, Charles L. Jackson, and Tracey E. Kelly. "Estimate of the Loss to the United States Caused By the FCC's Delay in Licensing Cellular Telecommunications." NERA, November 8, 1991.

hearing room rather than in the marketplace.[10] Furthermore, the Heisenberg Uncertainty Principle in Physics tells us that it is not possible to separate the observer from the results of the experiment that are being observed.[11] In other words, the presence of regulation cannot help but influence the market's competitive transition. In fact, recognition of the social costs associated with economic regulation prompted one prominent law and economics scholar to conclude that "the costs of regulation probably exceed the costs of private monopoly."[12]

7. The 1996 Telecommunications Act

A primary objective of The 1996 Telecommunications Act (hereafter, the Act) is to place increasingly greater reliance on market forces rather than regulation for the requisite level of discipline on the pricing of local telecommunications services.[13] In implementing the provisions of the Act, inclusive of unbundling, resale and interconnection, regulators attempted to foster competition in markets that would otherwise be subject to high barriers to entry due to large sunk costs of production.

As a general proposition, it is not necessary to regulate the price of retail telecommunications services when the price of the underlying wholesale services are

[10] See John R. Haring. "Implications of Asymmetric Regulation For Competition Policy Analysis." Federal Communications Commission, Office of Plans and Policy, Working Paper 14, 1984; and Dennis L. Weisman, "Asymmetrical Regulation." *Telecommunications Policy*, Vol. 18(7), October 1994, pp. 499-505.

[11] This is one interpretation of the Heisenberg Uncertainty Principle (sometimes known as the indeterminacy principle). See Stephen W. Hawking. *A Brief History of Time*. Bantam Books, 1988, Chapter 4.

[12] Richard A. Posner, "The Social Costs of Monopoly and Regulation," *Journal of Political Economy*, 83, August 1975, pp. 818-819.

[13] For a discussion of the economic issues associated with these policies, see Alfred E. Kahn, Timothy J. Tardiff and Dennis L. Weisman. "The 1996 Telecommunications Act At Three Years: An Economic Evaluation of Its Implementation By The FCC." *Information Economics and Policy*, Vol. 11, Number 4, December 1999, pp. 319-365; and Dale E. Lehman and Dennis L. Weisman. *The Telecommunications Act of 1996: The "Costs" of Managed Competition*. The American Enterprise Institute and Kluwer Academic Publishers, 2000.

regulated. The regulator can control the retail (market) price of basic telephone service through its control of the price of the underlying essential input(s) (e.g., the local loop). In fact, the former Chief Economist of the Federal Communications Commission (FCC) recognized that the overlay of retail regulation on top of wholesale regulation was not only unnecessary, but potentially harmful. The following passage is instructive:

> Smoothly functioning wholesale regulation (sharing the incumbent's network, including the so-called platform ...) permits and indeed almost demands retail deregulation. If multiple providers can compete for a customer's business and promptly supply it at a reasonable overall cost, even if they do so by leasing the incumbent's facilities, then it would seem that prompt deregulation of all charges to the provider's end-user will be appropriate. If a carrier tries to charge *too much overall* to the end-user then another will undercut, and by hypothesis this can happen quickly. If a carrier tries to charge a reasonable amount overall but *in an inefficient manner*, then another carrier can offer a more profitable alternative pricing package that is also better for the end-user. There should be no need for regulators to resolve the difficult issue of "how" end-users want to pay the cost of service -- how much in flat charges, how much in usage charges, how much for special features, etc.
>
> Indeed, if regulators continue to regulate the incumbent's retail prices, and don't happen to replicate the solution that the incumbent and the customer jointly find most beneficial, it puts the incumbent at an artificial competitive disadvantage. Thus, *while there are obvious risks in premature deregulation of incumbents, there are also risks in waiting too long.*[14]

Professor Alfred Kahn, a former chairman of the New York Public Service Commission, has advanced a similar point of view:

> What has yet to be generally remarked is that in telecommunications the obligations imposed on the ILECs by the Telecommunications Act and complementary state policies have come as close as conceivable to making the provision of telephone services *at retail* perfectly contestable *and therefore regulation of* the *retail rates simply unnecessary*. What these provisions do, at the extreme, is to reduce the sunk costs associated with entry into retailing *close to zero….*
>
> The implications of this new situation are, nevertheless, dramatic. What it means, specifically, is that the typical requirements in governing statutes or regulations for reclassifying the entire range of *retail* local telephone services as competitive *will*, as a matter of economics, *be satisfied by these rules*. In these circumstances, deregulation of the retail operations of the ILECs becomes not just possible but mandatory. Effective competition demands that

[14] Joseph Farrell, Chief Economist, Federal Communications Commission. "Prospects for Deregulation in Telecommunications," Federal Communications Commission, Washington D.C. May 9, 1997, Section 4.

> they have the identical freedom to compete at that level as is now enjoyed by their competitors...[15]

Two additional observations are noteworthy. First, the provisions of the Act have been implemented in Kansas and competitive entry has occurred. Second, Southwestern Bell has secured the authority to provide interLATA long distance telephone service in Kansas under the provisions of Section 271 of the Act. The fact that Southwestern Bell has met the provisions of the "Competitive Checklist" in Section 271 indicates that the Commission has determined that local telecommunications markets are effectively open to competition.[16] Hence, any attempt on the part of Southwestern Bell to price at supra-competitive levels will likely elicit a response from rivals that will serve to drive prices back to competitive levels.[17] This type of prospective competition can be expected to discipline Southwestern Bell's pricing behavior independent of the presence of an actual competitor. In this light, the provisions of SB 606 are conservative as they initially require the presence of an actual competitor before retail price regulation is relaxed.

8. Investment in Telecommunications Infrastructure

The 1996 Telecommunications Act and HB 2728 both recognize the importance of providing strong incentives for investment in telecommunications infrastructure. The preamble of the Act states that its purpose is:

[15] Alfred E. Kahn, *Letting Go: Deregulating the Process of Deregulation*. Michigan State University Institute of Public Utilities, 1998, pp. 56-58.

[16] *In the Matter of Application of SBC Communications, Inc., Pursuant to Section 271 of the Telecommunications Act of 1996 To Provide In-Region InterLATA Services in Kansas and Oklahoma.* Report of the State Corporation Commission of the State of Kansas On Southwestern Bell Telephone Company's Compliance with Section 271. CC Docket 00-217, November 20, 2000. It is significant that the Commission emphasized in its report the continuing role of the staff in monitoring Southwestern Bell's performance in provisioning wholesale services to competitors. Furthermore, Southwestern Bell faces the "death penalty" in the form of expulsion from the InterLATA market under §271(d)(6)(a) of the Act should it be found in violation of the Competitive Checklist provisions.

[17] Southwestern Bell is also disciplined by its participation in complementary, competitive markets, including long-distance, wireless and Internet access. A reputation for high prices in the provision of local

> To promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.[18]

The ripple effects of these investments in telecommunications infrastructure transcend the telecommunications industry to influence the performance and growth of the economy in the aggregate.[19] Moreover, the relationship between regulation and investment has been examined in a number of recent studies. One such study concludes that "in general, more liberal regulatory environments lead to greater incentives to deploy modern equipment, and that LECs (local exchange carriers) respond to those incentives."[20] The Act underscores the importance of fostering such incentives:

> "The Commission and each State commission with regulatory jurisdiction over telecommunications shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans ... by utilizing in a manner consistent with the public interest, convenience and necessity, price cap regulation, *regulatory forebearance*, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment."[21] (emphasis added)

Moreover, New Section 1 of HB 2728 states, in part, that it is the public policy of the state of Kansas to:

> promote consumer access to a full range of telecommunications services, including advanced telecommunications services that are comparable in urban and rural areas throughout the state; and advance the development of a statewide telecommunications infrastructure that is capable of supporting applications, such as public safety, telemedicine, services for persons with special needs, distance learning, public library services, access to internet providers and others...

---

telephone service can spill over to adversely affect sales in these complementary markets, wherein customers have ample choice of service providers and customer switching costs are minimal.

18 Telecommunications Act of 1996, Pub. L. No. 104-104, 1996 U.S.C.C.A.N. (110 Stat.) 56, 56 (to be codified in scattered sections of 47 U.S.C.).

19 A recent study by Professor Dale Jorgenson of Harvard University reports that information technology (IT) is playing an increasingly more prominent role in the growth of the U.S. economy. He estimates that IT is responsible for adding 0.5 percentage points to the growth of total factor productivity in the U.S over the 1995-1999 period. This compares with 0.25 percentage points over the 1990-1995 period. See Dale W. Jorgenson, "Information Technology and the U.S. Economy. *American Economic Review*, Vol. 91, No. 1, March 2001, pp. 1-32.

20 Shane Greenstein, Susan McMaster and Pablo Spiller. "The Effect of Incentive Regulation on Infrastructure Modernization: Local Exchange Companies' Deployment of Digital Technology." *Journal of Economics and Management Strategy*, Vol. 4, No. 2, 1995, p. 189.

21 Supra note 18, Section 706(a).

While forecasting the benefits of technological innovation is notoriously difficult, a number of prominent economists and technologists see virtually unlimited potential for broadband telecommunications.[22] With applications in healthcare, education, entertainment and general commerce, it may not be an overstatement to suggest that broadband can play as prominent a role in the Information Age as the interstate highway system played in the Transportation Age. Moreover, the benefits to the rural regions are likely to be particularly significant as broadband mitigates the disadvantages of distance. Hence, from a public policy perspective, the outstanding question is not whether society can afford to invest in a broadband infrastructure, but rather, whether it can afford not to?

9. The Cost-Benefit Test

Sound public policy balances costs and benefits in a manner that serves the public interest. At its core, SB 606 relaxes retail regulation of incumbent providers in local telecommunications markets when an actual competitor is present and the incumbent provider commits to a stipulated level of investment in broadband infrastructure. One could quibble with the estimates of the size of the economic benefits of widespread broadband deployment, but not the existence of those benefits. From a public policy perspective, the issue turns on the prospective risks of relaxing regulatory oversight in local telecommunications markets.

The risks associated with relaxation of regulatory oversight as proposed in SB 606 appear to be minimal. First, as discussed above, the Act has been implemented in Kansas and

---

[22] See, for example, Robert W. Crandall and Charles L. Jackson. "The $500 Billion Opportunity: The Potential Economic Benefit of Widespread Diffusion of Broadband Internet Access." Criterion Economics, February, 2001; Alfred E. Kahn. "Unleash the Broadband Economy." *Policy Matters*, AEI-Brookings Joint Center for Regulatory Studies, 01-35, December 2001; and Karen Kornbluh, "The Broadband Economy." *Policy Matters*, AEI-Brookings Joint Center for Regulatory Studies, 01-34, December 2001.

competitive entry has occurred. Second, Southwestern Bell has complied with the "Competitive Checklist" provisions and secured authority to provision interLATA long distance—one of only nine states to have done so. Hence, the Commission's own assessment is that telecommunications markets in Kansas are effectively open to competition. Third, numerous safeguards are in place to ensure that Southwestern Bell provisions wholesale facilities to competitors on a non-discriminatory basis. Finally, even if all of the aforementioned safeguards were somehow to fail and Southwestern Bell realizes some degree of market power in local telephone service markets, there is no credible basis upon which to believe this market power would be exercised. The state of Kansas represents an invaluable opportunity for Southwestern Bell to showcase the merits of similar legislation that may be proposed in other states in which it operates. In other words, these demonstration effects—"look at how well this legislation has performed in Kansas"—can be expected to discipline Southwestern Bell's behavior in the unlikely event that the marketplace fails to do so.

10. Conclusion

The benefits of SB 606 are potentially significant and the risks appear to be minimal. This legislation offers a rare opportunity for business and government to work together in a mutually-beneficial partnership that offers the real prospect of significant benefits to consumers and the Kansas economy. SB 606 furthers important public policy goals and is consistent with the stated objectives of both federal and state telecommunications reform legislation. It is certainly deserving of serious consideration by this legislature.

DENNIS L. WEISMAN

Department of Economics, Kansas State University
Waters Hall, Manhattan, Kansas 66506-4001
(785) 532-4588 (Office), (785) 539-7225 (Fax)
(785) 539-7071 (Home)
weisman@ksu.edu (e-mail)

EDUCATION:

1993	Ph.D.,	Economics, University of Florida.
1981	M.A.,	Economics, University of Colorado.
1979	B.A.,	Mathematics and Economics, University of Colorado.

PROFESSIONAL EXPERIENCE:

1993 - Present Kansas State University:

Professor of Economics (2000 - Present)
Associate Professor of Economics (1996 - 2000)
Assistant Professor of Economics (1993 - 1996).

1989 - 1993 SBC Communications Inc.:

Director – Strategic Marketing
Director – Special Project With Florida Public Service Commission.

1982 - 1989 Southwestern Bell Telephone Company – Demand Analysis

District Manager
Staff Manager
Staff Specialist
Assistant Staff Manager.

OTHER POSITIONS HELD:

2000 - Present Dean's Advisory Committee On Tenure and Promotion in Arts and Sciences.

1998 - Present Associated Faculty Member, Center For Research In Regulated Industries, Rutgers University.

OTHER POSITIONS HELD (CONTINUED):

1990 - 1992 Research Fellow, Public Utility Research Center, University of Florida

PUBLICATIONS:

"Strategic Sharing In Regulatory Regimes." *Economics Letters,* 2002 Forthcoming.

"The Law and Economics of Price Floors In Regulated Industries." *The Antitrust Bulletin,* 2002 Forthcoming.

"Is There *'Hope'* For Price Cap Regulation?" *Information Economics and Policy*, 2002 Forthcoming.

"Incentives For Discrimination When Upstream Monopolists Participate In Downstream Markets." *Journal of Regulatory Economics*, Vol. 20, No. 2, September 2001, pp. 125-139 (with J. Kang).

"Access Pricing and Exclusionary Behavior." *Economics Letters*, Vol. 72, No. 1, 2001, pp. 121-126.

"Simulating The Effects of Railroad Mergers." *Southern Economic Journal*, Vol. 67, Number 4, 2001, pp. 938-953 (with M. Babcock, J. Park and K. Lemke).

"The Costs and Benefits of Long-Distance Entry: Regulation and Non-Price Discrimination." *Review of Industrial Organization*, Vol. 18, 2001, pp. 275-282 (with M. Williams).

"The (In)Efficiency of the 'Efficient-Firm' Cost Standard." *The Antitrust Bulletin*, Vol. XLV, Number 1, Spring, 2000, pp. 195-211.

"The Political Economy of Price Cap Regulation." *Review of Industrial Organization*, Vol. 16, June 2000, pp. 343-356 (with D. Lehman).

"Do Consumers Benefit From Tighter Price Cap Regulation?" *Economics Letters*, Volume 67, 2000, pp. 113-119 (with J. Kang and M. Zhang).

"The 1996 Telecommunications Act At Three Years: An Economic Evaluation of Its Implementation By The FCC." *Information Economics and Policy*, Vol. 11, Number 4, December 1999, pp. 319-365 (with A. Kahn and T. Tardiff).

1-12

PUBLICATIONS (CONTINUED):

"Will Competitors Be Allowed To Compete? The Regulation of Long-Term Contracts in the Telecommunications Industry." *info*, Vol. 1, No. 5, October 1999, pp. 441-447 (with A. Kleit).

"Footprints In Cyberspace: Toward A Theory of Mergers In Network Industries." *info*, Vol. 1, No. 4, August 1999, pp. 305-308.

"Raising Rivals' Costs: Entry of an Upstream Monopolist into Downstream Markets." *Information Economics and Policy*, Volume 10, Number 4, December 1998, pp. 551-570 (with D. Sibley).

"The Incentive To Discriminate By A Vertically-Integrated Regulated Firm: A Reply." *Journal of Regulatory Economics*, Vol. 14, No 1, July 1998, pp. 87-91.

"The Economics of Access Pricing, Imputation, and Essential Facilities With Application To Telecommunications." *Communication Law and Policy*, Vol. 3, No. 1, January 1998, pp.1-33 (with A. Larson).

"The Competitive Incentives of Vertically Integrated Local Exchange Carriers: An Economic and Policy Analysis." *Journal of Policy Analysis and Management*, Volume 17, No. 1, Winter 1998, pp. 74-93 (with D. Sibley).

"Opportunities vs. Incentives To Discriminate In The U.S. Telecommunications Industry." *Telecommunications Policy*, Vol. 21, No. 4, May 1997, pp. 309-316 (with M. Zhang).

"Revenue Sharing In Incentive Regulation Plans." *Information Economics and Policy*, 8, 1996, pp. 229-248 (with D. Sappington).

"A Note On Price Cap Regulation and Competition." *Review of Industrial Organization*, Vol. 11, No. 4, August 1996, pp. 459-479 (with L. Taylor).

"Telephone Pools and Economic Incentives." *Journal of Regulatory Economics*, Vol. 10, September 1996, pp. 123-146 (with D. Lehman).

"Potential Pitfalls in Empirical Investigations of the Effects of Incentive Regulation Plans in The Telecommunications Industry." *Information Economics and Policy*, 8, 1996, pp. 125-140 (with D. Sappington).

1-13

PUBLICATIONS (CONTINUED):

"The Effects of Incentive Regulation In The Telecommunications Industry: A Survey." *Journal of Regulatory Economics*, Vol. 9(3), May 1996, pp. 269-306 (with D. Kridel and D. Sappington).

"Regulation and the Vertically Integrated Firm: The Case of RBOC Entry Into InterLATA Long Distance." *Journal of Regulatory Economics*, Vol. 8(3), November 1995, pp. 249-266.

"Why Less May Be More Under Price-Cap Regulation." *Journal of Regulatory Economics*, Vol. 6(4), December 1994, pp. 339-362.

"Asymmetrical Regulation." *Telecommunications Policy*, Vol. 18(7), October 1994, pp. 499-505.

"Designing Carrier of Last Resort Obligations." *Information Economics and Policy*, Vol. 6(2), June 1994, pp. 97-119.

"Designing Superior Incentive Regulation: Modifying Plans to Preclude Recontracting and Promote Performance." *Public Utilities Fortnightly*, Vol. 132(5), March 1, 1994, pp. 27-32 (with D. Sappington).

"Designing Superior Incentive Regulation: Accounting for All of the Incentives All of the Time." *Public Utilities Fortnightly*, Vol. 132(4), February 15, 1994, pp. 12-15 (with D. Sappington).

"Why Employer Discretion May Lead To More Effective Affirmative Action Policies." *Journal of Policy Analysis and Management*, Vol. 13(1), Winter 1994, pp. 157-162.

"Superior Regulatory Regimes in Theory and Practice." *Journal of Regulatory Economics*, Vol. 5(4), December 1993, pp. 355-366.

"Option Value, Telecommunications Demand and Policy." *Information Economics and Policy*, Vol. 5(2), June 1993, pp. 125-144 (with D. Lehman and D. Kridel).

"The Industry That Cried 'Wolf': Telcos and Bypass: Past, Present, and Future." *Public Utilities Fortnightly*, Vol. 131(13), July 1, 1993, pp. 21-24; and "Reply," Vol. 131(17), September 15, 1993, pp. 5-6 (with D. Lehman).

PUBLICATIONS (CONTINUED):

"Dominance, Non-Dominance and the Public Interest in Telecommunications Regulation." *Telecommunications Policy*, Vol. 17(2), March 1993, pp. 98-106 (with J. Haring).

"Imputation Rules in Regulated Industries: The Case of Telecommunications." *Telecommunications Policy*, Vol. 17(1), January 1993, pp. 49-60 (with L. Gapenski).

"A Guide to Cross-Subsidization and Price Predation: Ten Myths." *Telecommunications Policy*, Vol. 16(6), August 1992, pp. 447-459 (with S. Berg).

"A Note On First-Best Marginal Cost Measures In Public Enterprise." *Energy Economics*, Vol. 13(4), October 1991, pp. 250-253.

"How Cost Allocation Systems Can Lead Managers Astray." *Journal of Cost Management*, Vol. 5(1), Spring 1991, pp. 4-10.

"Option Value And Telecommunications Pricing." *Telecommunications Journal*, Vol. 57(12), December 1990, pp. 840-845.

"Forecasting Competitive Entry: The Case of Bypass Adoption In Telecommunications." *International Journal of Forecasting*, Vol. 6(1), Fall 1990, pp. 65-74 (with D. Kridel).

"The Emerging Market For Faultless Telecommunications." *Telecommunications Policy*, Vol. 14(4), August 1990, pp. 333-342.

"The Proliferation of Private Networks And Its Implications For Regulatory Reform." *Federal Communications Law Journal*, Vol. 41(3), July 1989, pp. 331-367.

"Optimal Re-contracting, Market Risk And The Regulated Firm In Competitive Transition." *Research in Law and Economics*, Vol. 12, 1989, pp. 153-172.

"Competitive Markets And Carriers of Last Resort." *Public Utilities Fortnightly*, Vol. 124(1), July 6, 1989, pp. 17-24.

"Default Capacity Tariffs: Smoothing The Transitional Regulatory Asymmetries In The Telecommunications Market." *Yale Journal on Regulation*, Vol. 5(1), Winter 1988, pp. 149-178.

"Transition To Telecommunications Competition Amid Residual Regulatory Obligations." *Public Utilities Fortnightly*, Vol. 120(3), August 6, 1987, pp. 14-18.

PUBLICATIONS (CONTINUED):

"In Search of Industry Unity On Carrier Access Pricing: A Vision of The Future." *Telematics*, Vol. 4(6), June 1987, pp. 1-7.

"Competition In U.S. Telecommunications." *Telecommunications Policy*, Vol. 11(1), March 1987, pp. 82-86 (with D. Kridel).

"Throttling Competition: A Reply." *Telecommunications Policy*, Vol. 10(3), September 1986, pp. 271-272 (with B. Egan).

"The Telecommunications Industry In Transition: Bypass, Regulation and the Public Interest." *Telecommunications Policy*, Vol. 10(2), June 1986, pp. 164-176 (with B. Egan).

"Tobin on Keynes: A Suggested Interpretation." *Journal of Post-Keynesian Economics*, Vol. 6(3), Spring 1984, pp. 411-420.

BOOKS AND MONOGRAPHS:

"Vertical Integration In Telecommunications" In The International Handbook of Telecommunications Economics, ed. by Gary Madden and Scott J. Savage, Brookfield, US: Edward Elgar Publishing, 2002 (Forthcoming).

"Regulatory Moral Hazard: Price Caps and Endogenous Entry Under the 1996 Telecommunications Act," In Expanding Competition in Regulated Industries, ed. by Michael A. Crew, Boston, MA: Kluwer Academic Publishers, 2000, pp. 1-21.

The Telecommunications Act of 1996: The "Costs" of Managed Competition. Washington D.C.: American Enterprise Institute and New York: Kluwer Academic Publishers, 2000 (with D. Lehman).

"A Yardstick Approach To Optimal Access Pricing," In Telecommunications Transformation: Technology, Strategy, and Policy, ed. by E. Bohlin and S. L. Levin, Amsterdam: IOS Press, 1998, pp. 175-188 (with D. Lehman).

"Seven Myths About Incentive Regulation," In Pricing and Regulatory Innovations Under Increasing Competition and Other Essays, ed. by Michael A. Crew, Boston: Kluwer Academic Publishers, 1996, pp. 1-19 (with D. Sappington).

Designing Incentive Regulation For The Telecommunications Industry. Washington D.C.: American Enterprise Institute and Cambridge MA: MIT Press, 1996 (with D. Sappington).

BOOKS AND MONOGRAPHS (CONTINUED):

"Access Charges For Private Networks Interconnecting With Public Systems," In Private Networks Public Objectives, ed. by Eli Noam and Áine NíShúilleabháin, Amsterdam: Elsevier Science Publishers, 1996, pp. 209-227, (with D. Lehman).

"Pricing Trends In Telecommunications Since Divestiture," In After the Breakup: Assessing the New Post AT&T Divestiture Era, ed. by Barry G. Cole. New York: Columbia University Press, 1991, pp. 218-224.

"A General Theory of Point-to-Point Long Distance Demand," In Telecommunications Demand Modeling: An Integrated View, ed. by Alain De Fontenay, Mary. H. Shugard and David S. Sibley. New York: North-Holland, 1990, pp. 299-318 (with D. Lehman and A. Larson).

"Protecting The Right To Be Served By Regulated Utilities Subject To Competition: A Critical Assessment," In *Retrofit Opportunities For Energy Management and Cogeneration*, Proceedings of the 11th World Energy Engineering Congress, 1989, pp. 555-564.

"The Impact of Telecommunications Regulation On The Economics of Private Network Deployment," Proceedings of the National Communications Forum, Vol. 42(1), 1988, pp. 558-571.

BOOK REVIEWS:

Review of Blackmon's Incentive Regulation and the Regulation of Incentives, *Review of Industrial Organization*, Vol. 11, No. 4, August 1996, pp. 563-566.

WORK IN PROGRESS:

"The Efficient Component Pricing Rule: Friend or Foe?" Submitted to the *International Journal of Industrial Organization*.

"Incentives For Non-Price Discrimination In The U.S. Long-Distance Market." Submitted to *Information Economics and Policy* (with I. Kondaurova).

"A Theory of Mergers In Network Industries." Submitted to *The American Economic Review*.

"Price Regulation and Quality." Submitted to *Economics Letters*.

WORK IN PROGRESS (CONTINUED):

"Signaling Worker Quality Under An Affirmative Action Constraint."

EXPERT WITNESS TESTIMONY:

Evidence Filed With The Canadian Radio-Television and Telecommunications Commission In Response To Telecom Public Notice CRTC 2001-37 On Behalf of TELUS Communications, Inc. Subject Matter: Price Cap Regulation and Accommodative Competitive Entry Policies, May, 31, 2001.

Testimony Before The Colorado Public Utilities Commission In Docket Number 00A-201T On Behalf of Qwest Communications. Subject Matter: Removal of Imputation Requirements In IntraLATA Toll Markets, October 2000.

Testimony Before The Kansas Corporation Commission in Docket Number 98-SWBT-431-DRS On Behalf of Southwestern Bell Telephone Company. Subject Matter: Depreciation and Price Cap Regulation, February 1999.

Testimony Before The Texas Public Utilities Commission In Docket Numbers 16189, 16196, 16226, 16285, 16290, 16455, 17579, 17587, and 17781 On Behalf of Southwestern Bell Telephone Company. Subject Matter: Local Competition and Pricing of Unbundled Network Elements, September 1997.

Affidavit Filed With The Kansas Corporation Commission In Docket No. 197-SWBT-440-IAT On Behalf of Southwestern Bell Telephone Company. Subject Matter: The Anti-Competitive Implications Of Selective Pass-Through of The Kansas Universal Service Fund Assessment. June 12, 1997.

Affidavit Filed With The Federal Communications Commission On Behalf of SBC Communications Inc. For Provision Of In-Region, InterLATA Services In Oklahoma (With David S. Sibley). Subject Matter: Incentives For Anti-Competitive Behavior, CC Docket No. 97-121, May 27, 1997.

Testimony Before The Arkansas Public Service Commission In Docket Number 96-395-U On Behalf of Southwestern Bell Telephone Company. Subject Matter: Local Competition and Pricing of Unbundled Network Elements, January 1997.

Testimony Before The Kansas Corporation Commission In Docket Number 97-AT&T-290-ARB On Behalf of Southwestern Bell Telephone Company. Subject Matter: Local Competition and Pricing of Unbundled Network Elements, January 1997.

EXPERT WITNESS TESTIMONY (CONTINUED):

Testimony Before The Kansas Corporation Commission in Docket Number 190-492-U On Behalf of Southwestern Bell Telephone Company. Subject Matter: Price Cap Regulation and Economically Efficient Imputation Policies, August 1996.

Testimony Before The Canadian Radio-Television and Telecommunications Commission In Response To Telecom Public Notice CRTC 96-8 On Behalf of TELUS Communications, Inc. Subject Matter: Price Cap Regulation and Related Issues, October 1996.

Affidavit filed with the Kansas Corporation Commission In Docket No. 96-SWBT-356-TAR On Behalf of Southwestern Bell Telephone Company. Subject Matter: The Economic and Competitive Implications of Mandatory Disclosure of Proprietary Cost and Demand Information. April 12, 1996.

Testimony before the Missouri Public Service Commission in Case Number TO-86-53 On Behalf of Southwestern Bell Telephone Company. Subject matter: Shared Tenant Services and Residual Regulatory Obligations in the Telecommunications Industry, July 1987.

Testimony before the Kansas Corporation Commission in Docket No. 127,140-U On Behalf of Southwestern Bell Telephone Company. Subject matter: Bypass and Competition in the Telecommunications Industry, September 1986.

Testimony before the Missouri Public Service Commission in Case Number TR-86-84 On Behalf of Southwestern Bell Telephone Company. Subject matter: Bypass and Competition in the Telecommunications Industry, February 1986.

Testimony before the Texas Public Utilities Commission in Docket Number 6200 On Behalf of Southwestern Bell Telephone Company. Subject matter: Bypass and Competition in the Telecommunications Industry, November 1985.

Testimony before the Arkansas Public Service Commission in Docket Number 83-042-U On Behalf of Southwestern Bell Telephone Company. Subject matter: Bypass and Competition in the Telecommunications Industry, September 1985.

INVITED PRESENTATIONS:

"Regulatory Moral Hazard: Price Caps and Endogenous Entry Under the 1996 Telecommunications Act." Competitive Entry In Regulated Industries. Center For Research In Regulated Industries, Rutgers University, Newark, New Jersey, May 2000.

INVITED PRESENTATIONS (CONTINUED):

"The Telecommunications Act of 1996: The 'Costs' of Managed Competition." American Enterprise Institute, Washington D.C., September 1999 (with D. Lehman).

"Vertical Integration and Exclusionary Behavior in Network Industries." The Rutgers University 12th Annual Western Conference of the Advanced Workshop In Regulation and Competition, San Diego, California, July 1999.

"The Political Economy of Price Cap Regulation." The Rutgers University 11th Annual Western Conference of the Advanced Workshop In Regulation and Competition, Monterey, California, July 1998.

"Regulation and Common Costs: Estimation versus Allocation – A Discussion." Pricing and Costing A Competitive Local Telecommunications Network. American Enterprise Institute, Washington D.C., November 1997.

"Does Tighter Price Cap Regulation Increase Consumer Welfare?" The Rutgers University 10th Annual Western Conference of the Advanced Workshop In Regulation and Public Utility Economics, San Diego, California, July 1997.

"Competition, Incentive Regulation, and Strategic Behavior Under The 1996 Telecommunications Act." Utility Regulation And Strategy: The Basics Revisited. Conference sponsored by the Public Utility Research Center at the University of Florida, Gainesville, Florida, February 1997.

"Competitive Incentives of Vertically Integrated Local Exchange Carriers." Twenty-Third Annual Telecommunications Policy Research Conference. Solomons, Maryland, October 1995; and The Rutgers University 9th Annual Western Conference of the Advanced Workshop In Regulation and Public Utility Economics, San Diego, California, July 1996.

"Seven Myths About Incentive Regulation." Pricing and Regulatory Innovations Under Increasing Competition. Conference sponsored by the Center for Research in Regulated Industries, Rutgers University, Newark, New Jersey, October 1995.

"Strategic Behavior of the Vertically Integrated Firm: The Case of RBOC Entry Into InterLATA Long Distance." The Rutgers University 8th Annual Western Conference of the Advanced Workshop In Regulation and Public Utility Economics, San Diego, California, July 1995.

1-20

INVITED PRESENTATIONS (CONTINUED):

"The Promise and Pitfalls of Incentive Regulation." Market and Technological Convergence: Implications For Regulation. Conference sponsored by the Public Utility Research Center at the University of Florida, Gainesville, Florida, April 1995.

"Potential Pitfalls in Empirical Investigations of the Effects of Incentive Regulation Plans in The Telecommunications Industry." Telecommunications Infrastructure and the Information Economy: Interaction Between Public Policy and Corporate Strategy. Conference sponsored by the School of Business at the University of Michigan, Ann Arbor, Michigan, March 1995.

"Designing Incentive Regulation For The Telecommunications Industry." American Enterprise Institute, Washington D.C., March 1995 (with D. Sappington).

British Broadcasting Corporation (BBC) Radio Interview with Dan Corry of the Institute For Public Policy Research, London, England. Documentary. "Analysis: The Regulatory State?" October 23, 1994.

"Designing Carrier of Last Resort Obligations." The Rutgers University 7th Annual Western Conference of the Advanced Workshop in Regulation and Public Utility Economics, San Diego, California, July 1994.

"Incentive Regulation: Lessons From Telecommunications." Innovative Incentive Rate Regulation for a Competitive Electric Utility Industry. Conference co-sponsored by the Center for Regulatory Studies and the Institute of Government and Public Affairs. Chicago, Illinois, April 1994.

"Why Less May Be More Under Price Cap Regulation." Twenty-First Annual Telecommunications Policy Research Conference. Solomons, Maryland, October 1993; and The Rutgers University 12th Annual Eastern Conference of the Advanced Workshop in Regulation and Public Utility Economics, Brewster, Cape Cod, Massachusetts, May 1993.

"Managed Competition In Telecommunications." Regulation and Planning In A Market Economy. Conference sponsored by the Public Utility Research Center, University of Florida. Gainesville, Florida, April 1993.

"Cross-Subsidization and Price Predation in Public Enterprise;" and "Incentive Regulation: Theory and Practice." Southeastern Regional Business and Economics Utilities Conference, Atlanta, Georgia, September 1991.

INVITED PRESENTATIONS (CONTINUED):

"Post-Divestiture Pricing Trends In The Telecommunications Industry." Divestiture: Five Years Later. Conference sponsored by the Center for Telecommunications and Information Studies at Columbia University, Washington, D.C., March 1989.

"The Impact of Telecommunications Regulation On The Economic Incentives of Private Network Deployment." National Communications Forum, Chicago, Illinois, October 1988.

"Protecting The Right To Be Served By Regulated Utilities Subject To Competition: A Critical Assessment." 11th World Engineering Congress, Atlanta, Georgia, October 1988.

"Default Capacity Tariffs: Smoothing The Transitional Regulatory Asymmetries In The Telecommunications Marketplace." Fifteenth Annual Telecommunications Policy Research Conference, Airlie, Virginia, November 1987.

"Traffic Sensitive Costs, Bypass and Pricing For Carrier of Last Resort." Bell Communications Research Conference on Traffic Sensitive Cost Recovery. Seattle, Washington, July 1986.

"Forecasting Bypass Adoption In Telecommunications." National Forecasting Conference, Denver, Colorado, June 1985.

"A General Theory of Point-to-Point Long Distance Demand." Bell Communications Research Business Research Conference, Durango, Colorado, October 1984.

HONORS, AWARDS, AND GRANTS:

2001	Edgar S. Bagley Research Award
1999 – 2000	American Enterprise Institute Grant (Co-Principal Investigator)
1996	William L. Stamey Teaching Award
1995	Edgar S. Bagley Research Award
1993	Awarded First Place In Graduate Student Paper Competition, Twenty-First Annual Telecommunications Policy Research Conference
1990 – 1993	Florida Public Service Commission Grant to the Public Utility Research Center at the University of Florida (Co-Principal Investigator)

HONORS, AWARDS, AND GRANTS (CONTINUED):

1984 – 1992	Designated Very High Potential Manager, Southwestern Bell Corporation
1991	Awarded First Place In Paper Competition sponsored by Public Utilities Reports, Inc., Southeastern Business and Economics Utilities Conference (with S. Berg)
1991	University of Florida Research Fellowship
1989	Management Stock Award, Southwestern Bell Corporation
1979	B.A. Conferred with High Honors
1971	Eagle Scout Award

EDITORIAL BOARDS:

1996 - Present	Information Economics and Policy
1997 - Present	Journal of Regulatory Economics

REFEREE/REVIEWER FOR:

American Economic Review
Cambridge University Press
Economics Letters
Edward Elgar Publishing
Empirical Economics
Information Economics and Policy
International Journal of Industrial Organization
Journal of Economics
Journal of Economics and Business
Journal of Industrial Economics
Journal of Productivity Analysis
Journal of Regulatory Economics
Kluwer Academic Publishers
MIT Press
Oxford Economic Papers
Review of Industrial Organization
Southern Economic Journal
Telecommunications Policy
Telecommunications Systems
The Energy Journal
The Journal of Law, Economics, & Organization
The Review of Economics and Statistics

1-23