

Telecom Regulatory Review: Kentucky 2014



by

Robert E. Yadon, Ph.D.; Barry D. Umansky, J.D.; and Paul A. Coomes, Ph.D.

**The Digital Policy Institute
Ball State University
Muncie, Indiana 47306**

March 2014

NOTICE

The opinions, comments and recommendations expressed in this paper are those of the individual authors and the Digital Policy Institute (DPI) alone and do not necessarily represent the views of Ball State University. The Digital Policy Institute may be contacted at policy@bsu.edu.

Telecom Regulatory Review: Kentucky 2014

TABLE OF CONTENTS

Executive Summary.....	i
1.0 Introduction	1
2.0 Challenges of a Changing Landscape	4
3.0 POLR Review	9
4.0 Economic Context for Modernizing Telecommunications Regulations in Kentucky	16
5.0 Summary and Conclusions	31

Telecom Regulatory Review: Kentucky 2014

Executive Summary

History shows us that the issue of telecommunication regulatory change at the state and federal levels can be cumbersome at best. Shifts in federal regulatory policy, new broadband technologies and evolving competitive pressures often create imbalances in the telecommunications landscape at the state level that require periodic review and action.

Drawing from the experiences in surrounding states can be instructive. For example, in 2006, absent meaningful legislation at the federal level, Indiana acted on Digital Policy Institute (“DPI”) recommendations to remove outdated legacy regulations and correct imbalances caused by increased competition in the telecommunication industry since 1996.¹

Indiana led the way by passing the most comprehensive telecom bill (HEA 1279)² in over two decades, and with strong bi-partisan support. Indiana completed the deregulation review in February 2012, by passing HEA 1112, which eliminated federal-and-state redundant obligations on carriers and defined the competitive landscape wherein carriers could be relieved of “provider-of-last-resort” (POLR) obligations. Clearly none of this happened in a vacuum; but these changes were supported by factors like the historical shift in competition within the telecommunications industry, and technological advances that rendered the past way of regulating the industry obsolete.

Since 2006, 26 states have significantly limited or eliminated public service commission oversight, with legislation in an additional nine states, including Kentucky, pending.³

Looking back, eighteen years ago Congress passed the Telecommunications Act of 1996, and established the preconditions for efficient competition in the telecommunications marketplace. What Congress didn’t do, as economist Alfred E. Kahn suggests in his 1998 book, is prescribe a regulatory off-ramp as the deregulated marketplace rapidly changed the competitive landscape.⁴ Since 1996, the Federal Communications Commission (FCC) has been under mandate to conduct a biennial review of existing regulatory provisions to identify those legacy telecommunication regulations that are ripe for review and, where merited, removal.⁵ Unfortunately, meaningful outcomes from that federal process are often delayed or derailed when the review takes a back

¹ Telecommunications Act of 1996, P.L. No. 104-104, 110 Stat. 56 (1996).

² HEA 1279, P.L. 27-2006

³ Sherry Lichtenberg, Ph.D., “Telecommunications Deregulation: Updating the Scorecard for 2013. NRRI. September 10, 2013.

⁴ Kahn, Alfred E. *Letting Go: Deregulating the Process of Deregulation, or: Temptation of the Kleptocrats and the Political Economy of Regulatory Disingenuousness*, (Institute of Public Utilities and Network Industries, Michigan State University, 1998).

⁵ Section 11 of the Communications Act, 47 U.S.C. § 161.

seat to partisan politics and debate over ancillary issues like net neutrality. Individual states, like Kentucky, have often been left to chart their own course in the digital age.

The major findings and recommendations of this paper are as follows:

- For Kentucky, the benefits of a “light regulatory” approach should be increased capital investment, new competition, and continued rollout of new fiber optic and digital technology in all areas of the state.
- Data continue to support deregulation. State legislation pending across the country is continuing the process of moving toward a deregulated, market-driven telecommunications ecosystem. The consensus is that the traditional rationale for telecom utility regulation – *i.e.*, fixed landline telephone service as a natural monopoly – is now gone.
- The traditional TDM-based “wireline” telephone business in Kentucky continues to decline with consumer adoption of new, competing technologies. Today, there is no basis to claim that incumbent landline providers are, *per se*, “dominant” entities requiring the same, close government scrutiny of past decades.
- Conjecture and misinformation to the contrary, negative comments and predictions by opponents to new legislation in Kentucky, and surrounding states, remain unwarranted and unsubstantiated. According to a recent NRRI report, early experiences from surrounding states that deregulated between 2006, and 2012, show that, with few exceptions, the dire impacts on pricing and service availability forecasted by opponents of the legislation have simply not appeared.⁶
- Upon review, Kentucky should modernize its provider of last resort (POLR)⁷ requirements by passing Senate Bill 99 to eliminate unnecessary duplication with federal law, eliminate regulations which unfairly benefit some competing telecommunications providers at the expense of others. For Kentuckians residing in rural areas these state changes will enable consumers selecting advanced internet-based services from an incumbent provider also to obtain voice service via those internet-based means. However, consumers in rural areas not choosing such advanced services from an incumbent carrier would retain the ability to receive conventional landline voice service.
- Kentucky legislators now have an opportunity to remove outdated and uneven telecommunications regulations and create incentives for technology infrastructure investments. In turn, this will encourage venture capital funding expansion in the state, especially in the “information” sectors, and create a climate of entrepreneurship so that graduates from Kentucky universities can establish technology businesses regardless of where they reside in the state.

⁶ Sherry Lichtenberg, “Telecommunications Deregulation: Updating the Scorecard for 2013,” National Regulatory Research Institute, April 2013, p. 34.

⁷ The term “Provider of Last Resort” (POLR) refers to obligations referenced under Section 278 of the Kentucky Revised Statutes, and is similar to the term “Carrier of Last Resort” (COLR) used in the literature, but is considered more inclusive.

Telecom Regulatory Review: Kentucky 2014

The Digital Policy Institute
Ball State University
Muncie, Indiana 47306

Robert Yadon, Ph.D. and Barry Umansky, J.D.⁸

1.0 Introduction

1.1 Overview

The Kentucky General Assembly will be facing a number of critical issues in 2014, which will impact the Kentucky business environment and consumers for generations to come. It is no longer just a good idea for government to provide an environment conducive to a flexible and innovative business climate; it has become a necessity at all levels of governance to ensure that policy decisions set in place reflect a dedication to a dynamic business culture suited to compete in the ever-changing and increasingly fast-paced knowledge-based, global economy. This is especially true in the telecommunications sector, where out-of-date provider of last resort (POLR) regulations, drafted when carriers were monopolies, are still on the books.

The importance of the periodic review and modernization of state laws that govern the growth and investment in Kentucky's information economy is clear. In the modern technology economy, Kentucky must ensure that it is developing and retaining policies that create welcoming environments to attract high-tech investment. This, in turn, will attract not just high-tech businesses but also better support existing brick-and-mortar businesses and service industries that need modern technology to operate efficiently.

Recognizing the stagnation in the Federal telecom regulation arena as well as the success of neighbors like Indiana and Ohio in doing so, Kentucky State Senator Paul Hornback (R-Shelbyville) introduced Senate Bill 99 on January 23, 2014.

1.2 Post Divestiture

The decision to deregulate telecommunications in the United States began first at the federal level and evolved over a number of years based on a number of factors. First, there was the general recognition that the regulatory and economic landscape of the telecommunications industry had changed drastically since the divestiture of AT&T in 1984. The dramatic shift in the competitive

⁸ The authors are senior research fellows in the Digital Policy Institute ("DPI") located at Ball State University. Dr. Yadon is a communication policy analyst, and Professor Umansky is a communication attorney. Information about DPI is available at www.bsu.edu/digitalpolicy.

landscape was evident by the fact that in 1996, some 90 percent of the telecommunications market was voice, while wireless and data each were only five percent. Nine years later, those numbers shifted to where voice was only 40 percent of the total telecom market, while wireless and data increased to 30 percent each.⁹

The opportunity for regulatory relief finally came with the passage of the Telecommunications Act of 1996¹⁰ which required the FCC to examine tariff rules and forebear enforcement if it found that: (1) the rules were not necessary to ensure that carrier rates remain just and reasonable; (2) regulation was not necessary for consumer protection; and (3) the public interest would be served by eliminating the tariffing provisions.¹¹

In its 1996, Detariffing Order, the FCC finally concluded that it was no longer necessary to require long-distance carriers to file tariffs because it would decrease incentives for innovation, make it harder to offer discounts and customized service arrangements, and increase the potential for coordination in price setting.¹² On April 28, 2000, the U.S. Court of Appeals (D.C. Circuit) upheld the Commission's orders requiring detariffing of interstate, domestic, interexchange services; and the FCC's detariffing rules went into effect.¹³

While the FCC provided an open window of opportunity for states like Indiana and Kentucky to address the removal of tariffs at the state level, it took 10 years and a supportive political environment to mount a comprehensive deregulation agenda that would gain wide bipartisan support in the Hoosier State. Now is the time for the Bluegrass State to act as well to make sure it does not remain an outlier in the advanced telecommunications world.

1.3 Post Telecom Act of 1996

According to Indiana Senator Brandt Hershman, co-sponsor of HEA 1279, Indiana's comprehensive deregulation had its origins in legislation in Iowa (telephone rate deregulation) and Texas (statewide video franchising) and followed legislative actions taken in Ohio and Michigan.¹⁴

Texas is credited with being the first out of the gate in the race toward new telecom legislation and statewide franchising. On September 7, 2005, Texas Governor Rick Perry signed into law Senate Bill No. 5, an "Act Relating to Furthering Competition in the Communications Industry," which many believed, accurately, would significantly change telecommunications regulations in Texas. This Act also served as an early model for legislators in other states, like Indiana, who

⁹ See www.fcc.gov.

¹⁰ Telecommunications Act of 1996, Pub. L. No 104-104, 110 Stat. 56. The 1996 Act amended the Communications Act of 1934, 47 U.S.C. 151 et seq.

¹¹ Indiana is under a similar mandate for the IURC to examine and eliminate telecom rules that are no longer necessary. This statutory language is located at IC 8-1-2.6-4.1(a)(2)

¹² Policy and Rules Concerning the Interstate, Interexchange Marketplace Implementation of Section 254(g) of the Communications Act of 1934, as amended, 11 FCC Rcd 20730, 20779 (1996).

¹³ *MCI WorldCom, Inc. et al. v. FCC*, 2000 WL 390520, No. 96-1459 (D.C. Cir. 2000).

¹⁴ See <http://www.csg.org/knowledgecenter/docs/slmw0606telecomm.pdf>

were seeking to reshape their telecommunications markets to meet the economic challenges of the 21st century.¹⁵

In response, the Digital Policy Institute (DPI) at Ball State University issued a report entitled, *The Economic Impact of Telecom Reform in Indiana: 2006*.¹⁶ This report substantiated earlier research, including independent studies by federal agencies, major universities and think tanks, all of which came to a similar conclusion: only direct, head-to-head competition would lead to increased capital investment, increased broadband services, new jobs, and potential lower costs for Indiana consumers.

On March 14, 2006, Indiana became the second state to enact statewide franchising when Governor Mitch Daniels signed into law the state's most comprehensive telecom bill (HEA 1279) in more than two decades. With strong bipartisan support, Indiana's new telecommunication legislation, including statewide video franchising, became the new legislative template that over 20 other states later would follow. A major reason for this notoriety is that Indiana didn't simply copy measures by other states; it improved upon them.

Unlike Texas, Indiana lawmakers were the first to ensure that cable television incumbents were allowed fairly to take advantage of the state's new franchise terms upon competitive entry. Also, Indiana was one of the few states to encourage long-term, outside capital investment by reducing risk and uncertainty from unwarranted sunset provisions. But Indiana's new legislation went much further than simply statewide franchising.

Following the example set under the federal Detariffing Order, Indiana lawmakers also concluded that it was no longer necessary to demand intra-state carriers to file tariffs. The reasons ran parallel to federal thinking, because it would decrease incentives for innovation, make it harder to offer discounts and customized service arrangements, and increase the potential for coordination in price setting. Thus, Indiana's approval of HEA 1279 ended state authority to regulate landline telephone service rates for business and most residential customers.

While the impact of Indiana's new telecom legislation continues to be evaluated over time, the early effects were documented in a second report by DPI entitled, *An Interim Report on the Economic Impact of Telecommunications Reform in Indiana*,¹⁷ released on February 15, 2008. In the nearly two years since passage of HEA 1279, the report uncovered a number of positive post-HEA 1279 events that, collectively, helped to gauge the impact of deregulation for Indiana citizens and the Indiana economy.

These early findings included the accelerated deployments of digital subscriber line (DSL) services in more than 100 new rural Indiana communities, collective capital expenditures of more than \$516 million in new infrastructure, new competition for video in multiple markets in

¹⁵ "Act Relating to Furthering Competition in the Communications Industry," S.B. 5, 79th Legislature, 2d Session, Texas 2005. See also Donald L. Alexander, Ph.D., *Telecommunications Deregulation in Texas: An Analysis of the 2005 Competition Act*, Tax Foundation (December 2005)

¹⁶ See www.bsu.edu/digitalpolicy.

¹⁷ *Ibid.*

Indiana, more than 2,200 new jobs created for Hoosiers, and, finally, a positive impact on price in the marketplace.

After five years, Indiana's new legislation is still considered the most comprehensive state deregulation package enacted in the country. The Texas Public Policy Foundation recently observed in their *Legislators Guide to the Issues 2011/2012*:

“Indiana has gone far beyond Texas in deregulating its telecommunications market, eliminating all rate regulation and tariffs. This has resulted in tremendous growth in telecommunications investment and services.”¹⁸

2.0 Challenges of a Changing Landscape

Although neighboring Indiana had made substantial headway in updating telecommunications statutes, the legacy issues surrounding the maintenance and administration of POLR regulations in states such as Kentucky is perplexing in this era of deregulation and competitive availability of traditional and advanced telecommunications services. Identified as a regulatory area ripe for review in earlier Digital Policy Institute research papers, the question of whether traditional copper wire “landline” telephone services must be available to all customers in non-rural areas where competition truly exists, is worthy of review, particularly in situations where those same customers may be obtaining other advanced, Internet protocol (IP)-based services from the carrier in question.

Firms in the telecommunications industry and their regulators at the federal and state levels continue to confront significant challenges in many areas, including how service best will be provided to consumers in urban, rural and now unserved geographic areas. Technological changes, including the development of broadband and IP-based services, have cast new light on old assumptions on how consumers can and should best be served. Moreover, several decades of judicial, legislative and regulatory actions have provided a new framework for service and for evaluation and fulfillment of public needs for telecommunications service.

As noted, one regulatory area once left untouched in Indiana's earlier legislative was that addressing the POLR obligations of legacy telecommunications carriers. Although the continuation, modification or elimination of this concept throughout the country is influenced by federal and state legislation, rules and policies affecting “universal service” (USF) and “inter-carrier compensation” (ICC) – and the impact of federal programs designed to promote telecommunications service nationwide – deciding the fate of POLR lies exclusively with each state legislature. Indeed, the FCC's most recent pronouncement on USF and ICC states specifically that POLR matters are still to be addressed at the state level and not preempted by federal law.¹⁹ For Kentucky, therefore, legislative review and updating legacy regulations rests squarely with the state legislature.

¹⁸ Bill Peacock, *Telecom Deregulation*, Texas Public Policy Foundation: Legislators Guide to the Issues 2011/2012. Available at <http://www.texaspolicy.com/pdf/2011-TelecomDeregulation-CEF.pdf>

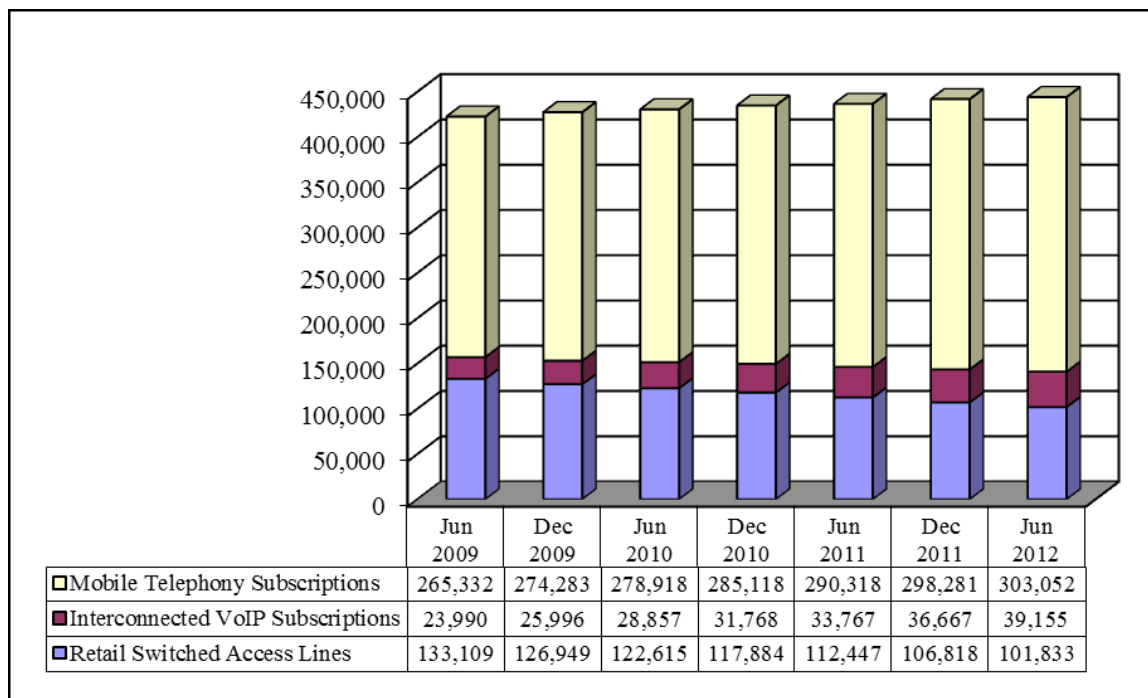
¹⁹ *Report and Order and Further Notice of Proposed Rule Making* (“R&O/FNPRM”) in WC Docket No. 10-90, et al., FCC 11-161, released November 18, 2011.

State POLR requirements had their genesis decades ago, when competition for voice telephony was at or near zero. POLR requirements traditionally were assigned to wired “public switched telephone network” (PSTN) providers, a class which included former “Bell System” companies and, in some cases, independent local exchange firms. Moreover, these requirements were based on the notion that a company receiving a government franchise to provide service should take on a set of obligations in return for that government benefit.

Today, the competitive environment is vastly different. Rather than having voice service provided by a monopoly or near-monopoly local company, the landscape of voice service – in Indiana, Kentucky and elsewhere – is marked by robust competition of firms using not just traditional, wired voice technology but a range services based on internet protocol and wireless technologies.

Spurred on by the terms of the Telecommunications Act of 1996, and other federal and state statutory changes, competition for voice and non-voice telecommunications services has been marked by federally-encouraged and state-encouraged entry of myriad new firms and the expanded service offerings of existing firms. Indeed, a policy designed only to ensure voice

Figure 1
Retail Local Telephone Service Connections, 2009 - 2012
(In Thousands)²⁰



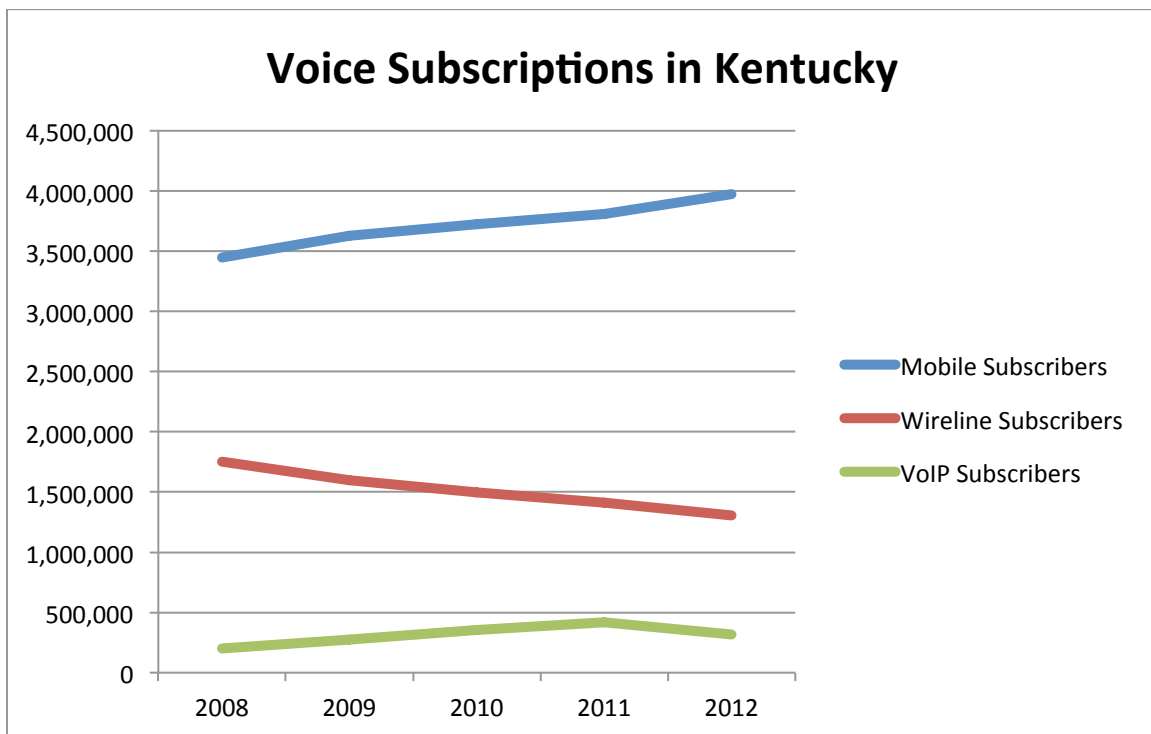
²⁰ Local Telephone Competition: Status as of June 30, 2012. FCC. Available at: http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0621/DOC-321568A1.pdf

service in an era of limited providers is of questionable relevance to the situation we have today: active and often fierce competition among a multiplicity of providers and with a growing array of communications technologies.

Kentucky’s telecommunications competition is typical of that found in many other parts of the country. Indeed, based on Kentucky telecommunications legislation adopted in recent years, the levels of competition have been increasing at a fast pace. A clear picture of this growing competition is found in the FCC’s recent 2013 report titled “Local Telephone Competition: Status as of December 30, 2012.”²¹ Here we find an up-to-date and compelling showing as to the vast array of switched access, VOIP and mobile services offered by a growing number of firms throughout the Bluegrass State.

For example, competition for voice service in Kentucky mirrors the nation, and serves as a backdrop to current legislative initiatives. As Figure 1 above illustrates, national retail switched access line connections (wireline) continue to decrease over time, while consumers migrate to interconnected voice over IP (VoIP) and mobile telephone services. This increasing level of intramodal competition with incumbent wireline local exchange carriers is systemic across the nation and indicative of a growing consumer preference for mobility and the technological migration to IP technology currently underway in the telecommunications industry.

Figure 2
Growth in Kentucky Voice Subscriptions 2008-2012²²



²¹Local Telephone Competition: Status as of June 30, 2012. Federal Communications Commission. Available at: http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0621/DOC-321568A1.pdf

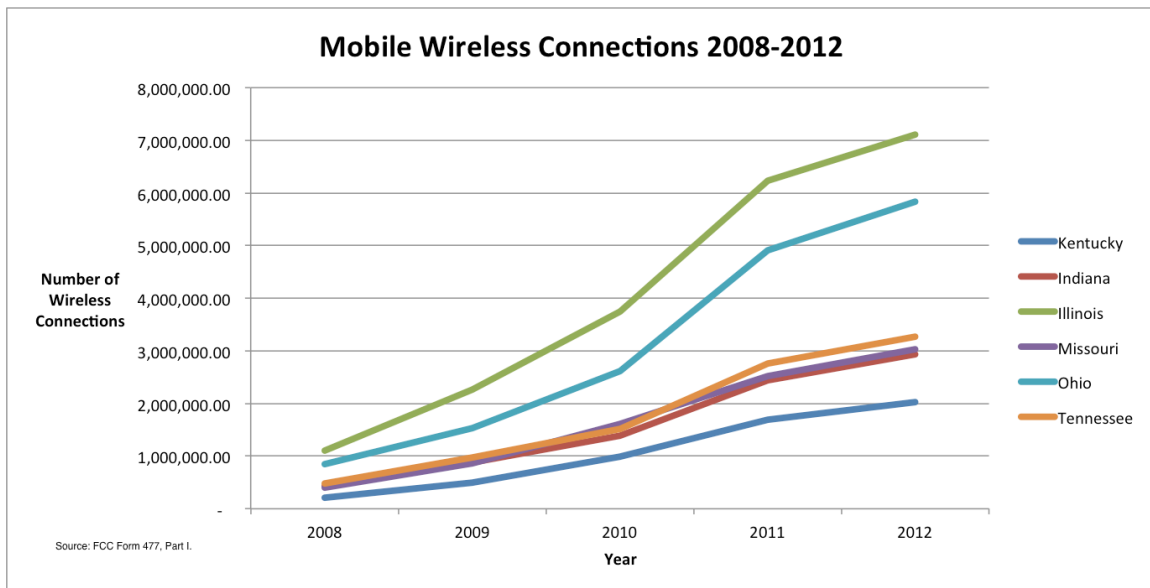
²² Ibid.

While total telephone line connections are increasing over time, it is obviously at the expense of retail switched access lines (wireline) service. This increase is directly related to increased competition within the telephone industry since the 1996 Telecommunications Act and the substitutability of mobile and VoIP services for traditional wireline, sometimes referred to as “plain-old-telephone” (POTS) service.

Voice subscriptions in Kentucky mirror the national trend as indicated in Figure 2 above. Here we see a similar, steady downward slope on switched access (wireline) penetration between 2008, and 2012. Mobile penetration continues its upward climb, with VoIP service also in an upward climb with the exception of a slight correction in 2011.

In Figure 3 below, we see a comparison among mobile wireless data connections the past four years for Kentucky and surrounding states. The upward trend is obvious; and while the slope might be greater in the more populous states, all of which have already deregulated telecommunication services to some extent, the popularity of wireless communication among regional subscribers is universal and growing.

Figure 3
Growth in Kentucky Mobile Wireless Data Connections 2008-2012²³
(Over 200 kbps)



The figure also shows the annual rate of growth for some states is beginning to slow, however, as markets become increasingly saturated. Nationally, this fact is supported by year-end U.S.

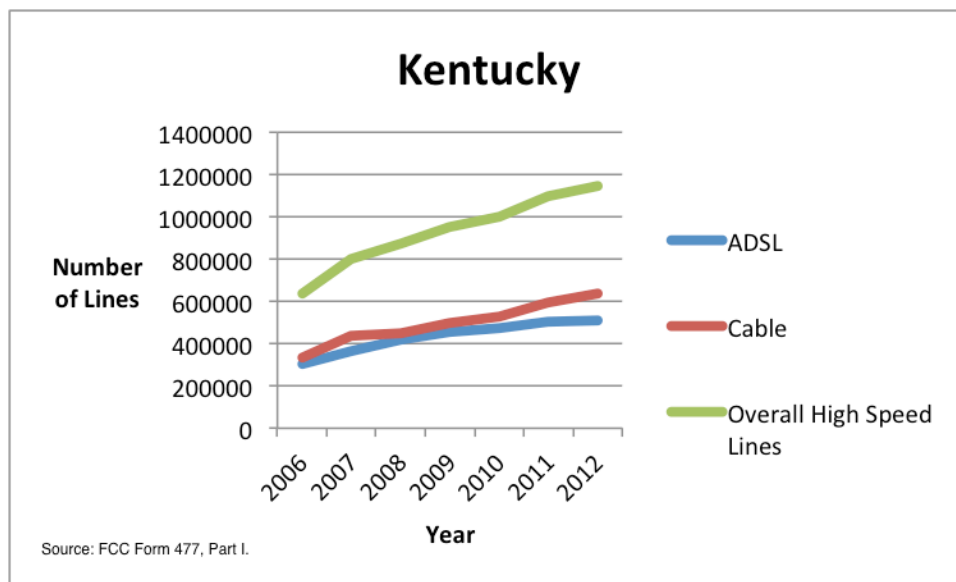
²³ Ibid.

figures from the CTIA, The Wireless Association, which shows that 2012, was the first year where wireless penetration in the United States exceeded 100% (102.2%) of the population.²⁴

Also within the year-end report is the growth in substitutability of wireless over switched access wireline-only households. The report shows that, as a percentage of U.S. households, wireless-only households grew from 15.8% in 2007, to 38.2% in December of 2012.²⁵

As for direct competition for Internet service providers (ISP's) in Kentucky, Figure 4 below shows the comparison between cable modem and ADSL service connection growth between 2006, and 2012, as reported by the Federal Communications Commission.

Figure 4
Growth in Kentucky ISP Line Connections 2006-2012



Obviously the number of lines represents households, not individuals. Current census data for Kentucky finds that 4,112,000 individuals, three years of age and older, reside in the state as of 2012. Of this number, 3,060,000 live in homes with internet access (74.4%). This penetration percentage is lower than Illinois (82.7%), Indiana (77.7%), and Ohio (75.6%), but is slightly above both Tennessee (74.3%) and West Virginia (70.6%).²⁶

²⁴ CTIA Wireless Quick Facts. Available at: <http://www.ctia.org/your-wireless-life/how-wireless-works/wireless-quick-facts>.

²⁵ Ibid.

²⁶ <http://www.census.gov/hhes/computer/publications/2012.html>

3.0 POLR Review

The provision of “Provider of Last Resort” (POLR) requirements for regulated firms is predicated on the existence of a natural monopoly for a single product, with low substitutability across competing technologies. POLR regulation was designed to prevent provider exit, and insure some minimal service would continue in all geographic regions to preserve local service and network externalities without regard to the changing regulatory landscape. POLR regulation is a common feature of the early stages of devolution from a regulated monopolist to a workably competitive market.

Economic considerations surrounding new legislation in Kentucky’s telecommunications markets hinge upon two issues. The first is the effect of deregulation within markets for telecommunications services in Kentucky. Second is the level of substitutability among competing technologies, the degree of competition within these markets and the role incumbent-mandated POLR regulation generates asymmetry in the regulatory environment, reducing social welfare. We address these in turn.

Deregulations of telecommunications markets throughout the past decade and a half have generated significant gains to telecommunications penetration. For example, Indiana’s House Enrolled Act 1279 crafted, among other things, statewide franchising for telecommunications services. Two subsequent 2010, analyses of this act attribute significant gains to telecommunications take rates as a result.²⁷

History shows us the process of de-monopolization and price liberalization of retail telephone services has been underway in the United States since divestiture in 1982. Price controls on long distance service are gone today, and liberalization of local service prices began two decades ago. Today, over 25 states have reduced or eliminated public service commission oversight. While opponents have claimed that the removal of price controls would lead to higher rates, a recent economic analysis finds that liberalization of state telecommunications laws has led to lower prices.

According to economists Jeffrey Eisenach and Kevin Caves, there is no evidence that telephone rates have become less affordable as a result of liberalization. Their findings suggest:

“Given the broad consensus that liberalization contributes to innovation and overall economic welfare, and the strong evidence that the removal of price controls on other telephone services has benefited consumers, we conclude that liberalizing price controls on basic telephone service will benefit consumers and contribute to economic growth.”²⁸

These data and analysis supports the view of Kahn (2007), who argued that the transition from natural monopoly to workably competitive markets in telecommunications is mature, and that

²⁷ DPI, 2010; Bohannon and Hicks, 2010.

²⁸ Jeffrey A. Eisenach and Kevin W. Caves, “What Happens When Local Phone Service Is Deregulated?”, Regulation, Fall 2012, p. 41.

continued comprehensive regulation of these services is not needed and will lead to reduced competition, loss of consumer welfare and lower levels of investment.²⁹

The migration from natural monopoly to workable competition has occurred due to the high level of substitutability between differing technologies for a wide range of services. For example simple wireline telephony is no longer the dominant technology for voice telecommunications services in Indiana, Kentucky and other states. Wireless, broadband enable voice, and other technologies have superseded, but not replaced traditional TDM-based “wireline” services. The abundance of providers and the technology options available to consumers suggests a nearly complete migration of services to workable competition. For these regions, POLR regulation remains a legacy regulation which asymmetrically requires incumbent wireline services. It is not needed in these locations.

For example, for the first eleven states where new legislation emphasis was on limiting PSC oversight, basic service requirements were restricted to non-competitive areas only, and carriers were allowed to use any service (wireline, wireless or VoIP) to meet these requirements. Oversight for “quality of service” (QoS) and customer complaints was limited or eliminated as consumers continue to vote with feet in a competitive marketplace.³⁰

More recently, a study by Hance Haney and George Gilder³¹ comes to a very similar conclusion, and in the context of the legislation currently pending in Kentucky. Their study observes for Kentucky: Outmoded regulatory mandates prevent telecommunications providers from offering competitive services and generating revenues for broadband expansion. These mandates serve chiefly as obstacles to investment that reduce asset values of all telecom suppliers. Moreover, the continuation of old regulatory regimes which impose significant costs on telephone service providers, but not their competitors, should be eliminated.

Wherever consumers can choose between alternative providers of voice service, the following changes are recommended:

- Terminate state obligations for the carrier to serve customers with traditional, copper wireline voice service in geographic areas where voice competition exists for these customers, or where customers have chosen to subscribe to advanced, internet-based services offered by the carrier – recognizing which
- Clarify that rates for broadband services will be market-based and not subject to state regulatory jurisdiction so all providers of such service have an equal chance to compete.

But, in lightly-populated, rural geographic areas where direct competition may not exist for residential phone service, but continues to develop, notions of adequate consumer protection may well support the continued obligation of the incumbent carrier to provide voice service at the customer’s location.

²⁹ Ibid.

³⁰ Sherry Lichtenberg, Ph.D., “Telecommunications Deregulation: Updating the Scorecard for 2013. NRRI. September 10, 2013.

³¹ Kentucky Telecom Law Needs Update, Discovery Institute, January, 2013.

By updating the regulatory landscape, legislators will expand consumer choice, decrease prices, and ignite the broadband expansion necessary to economic growth and technological progress.³²

The economic argument for altering the regulatory landscape with respect to POLR is a familiar one to DPI. In Indiana, the state already recognized that new technologies exist that can supplant traditional wireline telephone service of the incumbent local exchange.³³ Yet the former regulatory environment unintentionally supported incumbent wireline technology for POLR obligations without regard to the efficiency or cost effectiveness of alternative technologies. This could only result in low-cost service by accident. A regulated environment which: (1) constrains deployment of preferred telecommunications options due to outdated determination of the optimal technology; or (2) has no mechanism which allows the lowest cost technology to assume POLR obligations in a competitive environment, has several consequences which are incompatible with public welfare and consumer choice.

The current regulatory environment delimits investment in the least cost technology (unless that happens to always and everywhere be wireline telephony). The current POLR regulation can result in high prices, higher deployment costs, reduced access and therefore reduced consumer and producer surplus in every location where a lower cost technology than wireline telephony exists. While there may be places where incumbent wireline services offer the lowest marginal cost of a limited suite of telecommunications services, the changes proposed here permit continued POLR and USF support for those carriers. Elsewhere, in a competitive environment, it is cost, not legacy, that should determine the POLR firm in a region. Any alternative would result in less access to a suite of telecommunications services, higher cost for services and reduced welfare for firms and consumers engaged in the production and consumption of telecommunications services

Clearly, the premises upon which Kentucky's POLR requirements were framed are no longer compelling for protecting Kentucky consumers served by several competitors and offered a range of services (including the multiple ways of providing voice communication) in their homes and while they are on the move. Incumbent carriers are now facing an onslaught of competition. In fact, continuing to impose residential voice-only POLR requirements on incumbent carriers only serves to place them at an artificial competitive disadvantage and to distract them from providing more broad-based telecommunications services that include but go well beyond voice-only offerings.

Current efforts of the Kentucky legislature to modify POLR requirements are being undertaken with full awareness that we are in an era of changed circumstances. That is, the basis for existing state regulation is shaky at best. Moreover, the Kentucky legislature also must take into consideration how the goals of state POLR requirements will be met through the interplay of other regulatory requirements. As set forth below, Kentucky should work to eliminate what now many considered to be not only duplicative requirements but also archaic mandates that actually may work against the interests of consumers desiring not only voice service, but the range of other services now offered by a variety of telecommunications carriers.

³² Id. at 9.

³³ IC 8-1-32.4-11

As well articulated in the 751-page FCC R&O/FNPRM,³⁴ there now is a new set of federal regulatory provisions – some effective now and some others becoming effective shortly – aimed at ensuring that all consumers, including those in rural and “high cost” areas, have access not only to voice communications but to the entire panoply of telecommunications services made possible in the digital, Internet-protocol age.

Key to this regulatory transformation is the several federal programs aimed at promoting telecommunications service nationwide. These programs are intended to ensure support not for mere voice communications but for a wide range of voice and data services. Coupled with, and building upon, the concept of USF and ICC funding of carriers providing service in high-cost areas, these federal programs are designed to carry out federal policies of universal access to contemporary communications services.

Under federal law, in order for a telecommunications carrier to qualify for USF funding, it must be designated – usually by the state; but in some cases by the federal government – as an “eligible telecommunications carrier (ETC).”³⁵ The authority of a state to identify and designate ETCs comes from provisions of federal law.³⁶ But, nothing in federal law now *requires* states to maintain traditional POLR requirements on specific, incumbent carriers. Indeed, the conditions attached to carriers seeking and obtaining ETC status well serve as a surrogate for familiar POLR obligations.

This conclusion that review of legacy POLR legislation is well overdue is not one limited to the views of the DPI; nor is it confined to the circumstances in the state of Kentucky. Many observers have pointed out that increases in competition among telecommunications providers and telecommunications technologies compel a reassessment of traditional POLR requirements. And many states already have made these needed changes.

Peter Bluhm,³⁷ in his February 2008, presentation to the NARUC Telecommunications Committee, argued that POLR duties should be reassessed.³⁸ His report, among others, notes the competitive unfairness of continuing to impose POLR requirements for serving outlying areas when an incumbent carrier’s revenue potential (and, thereby, its financial capacity to provide population center and outlying services) is now dropping due to the entry of competitors vying for and securing significant if not dominant shares of revenues from population centers. That is, competing carriers are allowed to “cherry pick” customers in densely populated areas only, with no regard for, nor desire to, serve customers in outlying areas.

Similar conclusions, as to the reduced revenues of incumbent carriers in population centers, were reached in the comments filed in May 2009, by the Independent Telephone and

³⁴ *Id.*

³⁵ 47 U.S.C. § 254(e)

³⁶ 47 U.S.C. § 214 (e)

³⁷ Mr. Bluhm is a lawyer and policy advisor on telecommunications issues. Most recently, Mr. Bluhm was Principal for Telecommunications at the National Regulatory Research Institute.

³⁸ *Carriers of Last Resort – An Evolving Concept*, Peter Bluhm, National Regulatory Research Institute, February 28, 2008.

Telecommunications Alliance (ITTA).³⁹ There too we find compelling documentation as to the need to reassess statutory and regulatory requirements imposed on a small set of a vastly growing number of telecommunications competitors.

Again, Peter Bluhm and two of his colleagues -- Natelle Dietrich, and John Ridgway – argued that “last resort” duties traditionally attached to telephone companies as conditions of their government franchise should only be imposed on carriers receiving federal support funding, and not as a state-imposed condition of a franchise to operate.⁴⁰ Thus, a wide range of commentators have argued that the time is now for reassessment of these state “last resort” obligations.

We can look to the states of Indiana, Wisconsin and Michigan as contemporary examples of how state legislatures have chosen to modify or eliminate POLR requirements in light of both the state of competition in the industry and the existence of federal programs that will ensure the provision of basic voice services to all citizens.

3.1 Indiana

On February 2, 2012, Indiana’s House Enrolled Act 1112 (HEA 1112) was signed into law by former Governor Mitch Daniels. The focus was on the kind of POLR requirements now before the Kentucky legislature. Specifically, the Indiana legislation provides as follows:

Sec. 17. (a) Subject to subsection (b), upon notice to the commission by an incumbent local exchange carrier that is the provider of last resort in one (1) or more parts of the incumbent local exchange carrier's service area, the incumbent local exchange carrier is relieved of its obligation as the provider of last resort in any part of the incumbent local exchange carrier's service area in which there are at least two (2) ETC eligible communications service providers, one (1) of which may be the incumbent local exchange carrier, offering a voice service through any technology or medium, including any of the following:

- (1) Wire communication (as defined in 47 U.S.C. 153).
- (2) Internet Protocol enabled services.
- (3) Commercial mobile service (as defined in 47 U.S.C. 332).

(b) After June 30, 2014, upon notice to the commission by an incumbent local exchange carrier that is the provider of last resort in one (1) or more parts of the incumbent local exchange carrier's service area, the incumbent local exchange carrier is relieved of its provider of last resort obligation with respect to any part of its service area identified in the incumbent local exchange carrier's notice to the commission under this subsection.

³⁹ Comments of ITTA in CC Docket No. 96-45 and WC Docket No. 05-337, filed May 8, 2009.

⁴⁰ *Carriers of Last Resort, Eligible Telecommunications Carriers and State Administrative Roles, A White Paper To The State Members Of The Federal-State Joint Board On Universal Service*, Peter Bluhm, Natelle Dietrich, and John Ridgway, February 7, 2011

(c) Relief from a provider of last resort obligation under this chapter does not affect an incumbent local exchange carrier's obligations under federal law.

(d) As used in this section, "ETC eligible communications service provider" means a communications service provider that provides, using any available technology or medium, the voice telephony services described in 47 CFR 54.101, regardless of whether the communications service provider has been designated as an eligible telecommunications carrier.

These Indiana laws – effective now – are providing a regulatory environment that removes archaic, redundant state regulations that have been shown to threaten the availability of voice communications availability to residents of the state. The current Kentucky proposed legislation (SB 99) would replicate much of the Indiana's new laws; however, the current language of that Kentucky bill would not eliminate POLR requirements fully in exchanges with fewer than 15,000 housing units.

3.2 Wisconsin

On May 26, 2011, Wisconsin Bill SB 13 was signed into law. Section 117 of the bill provides for a new Section 196.503 of the Wisconsin Statutes and Annotations to establish an interim mechanism for waiver of state POLR requirements and a total elimination of those requirements as of April 30, 2013.

Specifically, the Wisconsin statute takes a revised approach to the provision of “basic voice services.” The new law did require an ILEC – until April 30, 2013 – to make basic voice (defined as “two-way voice communication service within a local calling area”) to all residential customers within the ILEC's local exchange area. However, the law now provides that the ILEC may provide such basic voice service through an affiliate and through the use of “any available technology or mode.”

More importantly, the law provides that an ILEC may apply to the state Public Service Commission (PSC) for a waiver of these requirements. The PSC must grant a waiver if the waiver is “in the public interest” or if “effective competition” is found to exist in the local exchange area. If the PSC fails to decide on the waiver within 120 days of its filing, the waiver is deemed granted. After June 1, 2012, if a waiver request is based on an earlier finding of effective competition, the waiver is deemed granted unless the PSC issues a decision within 20 days of the waiver request's filing. The law also “grandfathers” all previous PSC rulings relieving particular ILECs' POLR obligations. As noted above, all Wisconsin POLR obligations have reached their “sunset” as of April 30, 2013.

3.3 Michigan

Also instructive are the steps taken in Michigan’s recent changes to its telecommunications laws. Signed into law on June 14, 2011, Michigan Public Act No. 58 (House Bill No. 4314) states that:

“...any telecommunications provider that provides either basic local exchange or toll service, or both, shall not discontinue either service to an exchange unless 1 or more alternative providers for toll service, or 2 or more alternative providers for basic local exchange service, are furnishing a comparable voice service to the customers in the exchange. A comparable voice service includes any 2-way voice service offered through any form of technology that is capable of placing and receiving calls from a provider of basic local exchange service, including voice over internet protocol services and wireless services.”⁴¹

The Michigan Act goes on to provide a requirement for public notice of any request by a telecommunications provider to discontinue service and a deadline by which the Michigan Public Service Commission must act on the request. The act also requires a 60-day notice to customers of action by the Michigan PSC. Importantly – and underscoring how federal law exists to serve the interests of consumers – the Michigan Act states that “...discontinuance of basic local exchange service under this section by an incumbent local exchange carrier does not affect the requirements of that incumbent local exchange carrier under federal law.”⁴²

3.4 Next Steps for Kentucky

So, the path for similar regulatory relief in Kentucky is now clear. Although the Kentucky legislature certainly may adopt SB 99 or other statutory language of its own choosing, the key elements of other states’ actions should serve as useful guides. No longer is there a need for a state to require provision of voice service where that service and other telecommunications services are provided by other companies in the same service area.

Although Kentucky still will be in the business of designating ETCs under the provisions of federal law, it is federal law that will serve as the mechanism for ensuring consumers’ access to basic voice, among other services. ETCs’ federal service obligations (keyed to ETCs’ receipt of Universal Service or Connect American Fund support) will not be affected by these incumbent carriers electing to opt-out of any Kentucky POLR requirements on conditions (similar to those specified in the Indiana, Wisconsin and Michigan revised telecommunications laws) when there is competition for voice and other services at the local level. But, the need for obtaining an opt-out “waiver” from Kentucky POLR requirements should not be the ultimate goals of Kentucky telecommunications legislation in this area. Rather, DPI recommends that Kentucky follow the lead of other states in adopting a near-term “sunset” of all Kentucky-based POLR obligations, including the provision that would still require PLOR obligations in exchanges with fewer than 15,000 housing units.

⁴¹ Section 313 (1), Michigan Public Act No. 58.

⁴² Section 313 (4), Michigan Public Act No. 58.

4.0 Economic Context for Modernizing Telecommunications Regulations in Kentucky

by

Paul A. Coomes, Ph.D.⁴³

Another push is underway to modernize Kentucky’s regulations for the telecommunications industry. Improving access, speed, and lowering cost for broadband in the Commonwealth would presumably increase output, jobs, and the standard of living for Kentuckians. The Internet, like interstate highways decades ago, has become the most important piece of infrastructure in the emerging economy. It affects virtually everything - education, health care, information, agriculture, retail, entertainment, public services, research, logistics, and business location. Without good access, most households and businesses are simply less competitive than with broadband – they are slower, have less information, and more costly. This has impacts on disposable incomes, educational attainment, health status, and economic development in general – though as we will see the impacts are not as straightforward as one might expect.

Proponents of deregulation in the telecommunications industry argue it will unleash millions of dollars of private investment in broadband infrastructure statewide, leading to greater access, higher speeds, and lower costs than we have under the current regulatory climate. In this report, I focus on two issues. First, I provide an economic context, which should lead to some urgency for accelerating growth and prosperity in Kentucky. Second, I review the scholarly literature on the deregulation of telecommunications, investment, and regional economic impacts. Among my most important findings are:

- ❖ Kentucky remains a relatively poor state, even after a half century of massive public investments in transportation infrastructure and education. Kentucky ranked 46th among states for of earned income per capita in 2012, the same ranking it had in 1958.
- ❖ Kentucky households continue to rely heavily on government transfer payments, while private jobs and wages are concentrated in just a few places in the state.
- ❖ Because of its central location, Kentucky is competing well for business involving package handling, assembly, and call centers – operations requiring little formal education. But Kentucky is missing out on the strong growth nationally of jobs in professional occupations – those requiring a lot of formal education, and where the average pay nationally is \$80,000.
- ❖ Kentucky remains stuck near the bottom of state rankings of educational attainment, despite decades of major investments in public K-12 and colleges.
- ❖ There is a pervasive movement nationally to deregulate the telecommunications industry. Kentucky stands out as a laggard – all bordering states except West Virginia have passed strong deregulation laws in the past three years. Kentucky still requires legacy telephone

⁴³Dr. Coomes is a consulting economist and Emeritus Professor of Economics at the University of Louisville.

companies to provide a network capable of serving every resident and business, even as their landline customers migrate to mobile phones, voice over internet protocol, and other emerging technologies. Regulations require them to spend money on capacity that customers are fleeing, thus distorting investments away from technologies customers want.

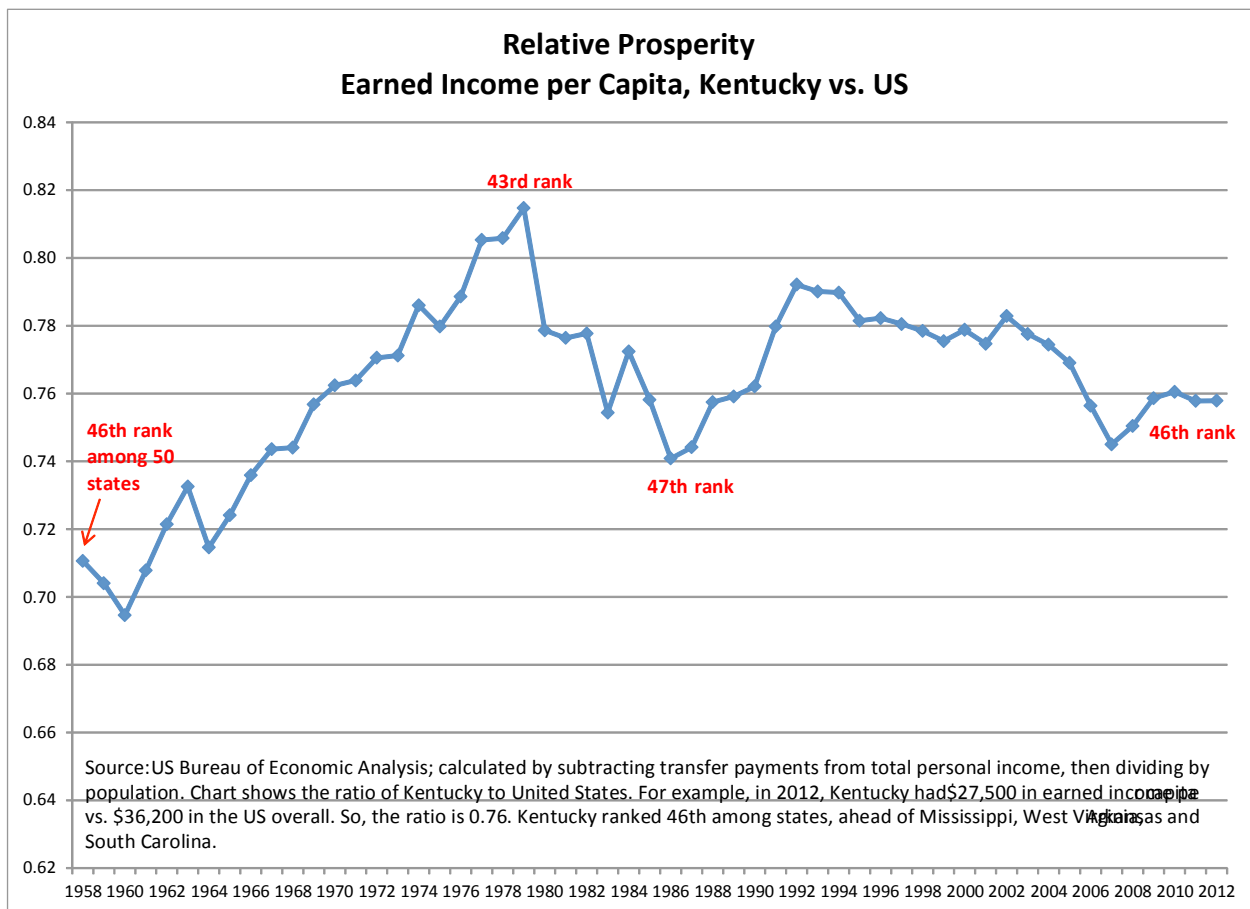
- ❖ Kentucky maintained a regulatory structure that allowed rural local exchange carriers to charge extremely high per-minute rates for intrastate long distance calls. The rates were three to four times higher than interstate calls. All surrounding states changed this old structure, which resulted in comparatively higher prices for Kentucky residents and businesses. Last year the FCC finally required all LECs to file tariffs to bring terminating intrastate rates to parity with interstate rates.
- ❖ Industry studies suggest that telecom deregulation leads to more investment in network infrastructure by telecom companies, resulting in higher data speeds, as well as more competition among companies, resulting in lower prices to customers. However, the scholarly literature is not conclusive on cause and effect. It is possible that deregulation is occurring in states that are adopting broadband more aggressively because of their demographics and industrial structures, thus setting the political climate more in favor of deregulation. The rate of telecom investment in states as a function of regulations is not a settled issue.
- ❖ Broadband infrastructure is obviously a prerequisite for broadband access, with pricing and local demand factors impacting actual broadband use. The scholarly literature is still emerging on the net impact of broadband access on regional economic growth. There does seem to be a consensus that broadband access raises the output in industries that are information-intensive. As output grows the local economy grows, attracting more population. However, there is as yet no clear evidence that the growth in output leads to a higher employment rate for residents, to higher wages for workers, or to increased household income.

4.1 The Need to Accelerate Economic Growth in Kentucky

By one important measure, Kentucky has made no net progress against other states in over a half century. I constructed a measure of earned income per capita by subtracting government transfer payments from personal income in each state. Then I ranked the states. These data are available from the US Bureau of Economic Analysis since 1958. The results are summarized in the next chart. While Kentucky has closed the gap with the United States as a whole by a few percentage points, it remains stuck in 46th place among states⁴⁴.

⁴⁴ Including transfer payments in the personal income measure moves Kentucky up two places, to 44th. This is the same ranking Kentucky had in 1958.

Figure 5



In 2012, Kentucky ranked higher than Mississippi, West Virginia, Arkansas and South Carolina. In 1958, Kentucky ranked higher than Mississippi, Arkansas, South Carolina and Alabama. So, despite the massive road building in rural areas, billions in new expenditures for public K-12 education, and the boom in college campuses over the last several decades the state is performing in a relative sense right where it was fifty-five years ago.

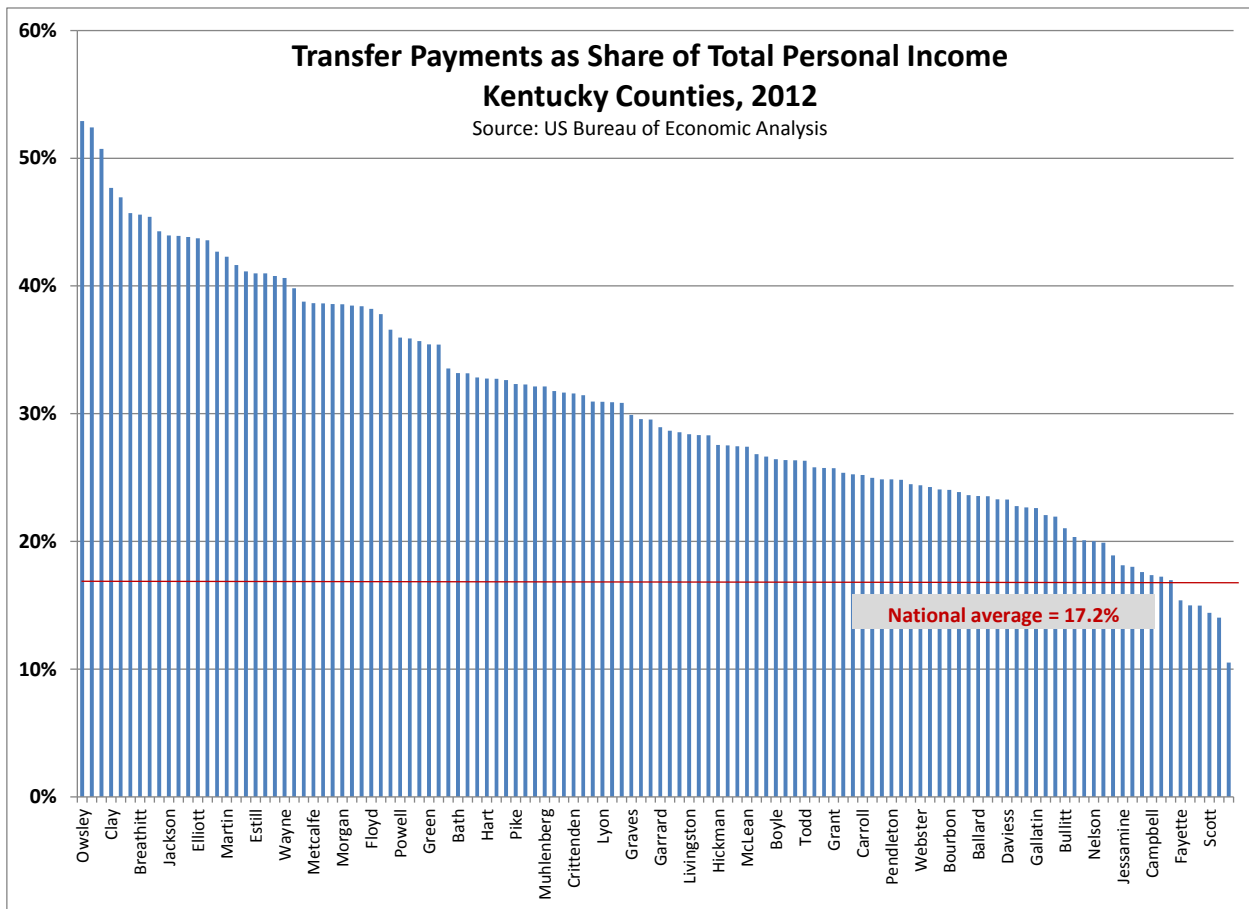
It is sobering to acknowledge that two of the laggard states are undergoing an economic transformation. South Carolina has a booming tourism and second home industry, thanks to its warm winter weather and ocean front attractions (Myrtle Beach, Charleston, Kiawah, Beaufort, Hilton Head) that Kentucky can never duplicate. And Arkansas is home to the largest corporation in the world, Walmart, with the dollars and talent to lift this once isolated state out of poverty.

Because of Kentucky's central location it does have an economic advantage over many states in manufacturing and logistics operations. However, with some notable exceptions, Kentucky has competed well for the lower-skilled, lower-paid, layers of those industries, but not the top layers.

For example, we land the package handling operations for UPS, FedEx, and Amazon, while the headquarters-related operations are located elsewhere. Similarly, in manufacturing, we compete well for assembly operations, while the design, management, finance, and marketing operations are located elsewhere. These results are market-driven, and reflect the relatively low human capital of the labor force in Kentucky.

Kentucky’s relatively poor private sector performance is reflected in the widespread dependence on transfer payments around the state⁴⁵. One can see the in the chart below that in three counties (Owsley, Wolfe, McCreary) transfer payments account for over half of personal income. In forty

Figure 6



counties, the dependence on transfer payments is over one-third, while the national average is only 17 percent⁴⁶. The shares shown reflect not only a large number of older, sicker, poorer

⁴⁵ The largest sources of transfer payments to Kentucky residents in 2012 were Social Security (\$12.1 billion), Medicare (\$8.6 billion), Medicaid (\$5.7 billion), Food Stamps (\$1.3 billion), and Supplemental Security Income (\$1.2 billion). Together, these account for 81 percent of all transfers.

households (the numerator), but also the lack of employed persons earning wages or owning a business (the denominator).

Economic development policies need to focus on the denominator, to foster economic productivity and growth around the state. Economists often disagree, for either empirical or ideological reasons, on the consequences of safety net programs, on the value of industrial incentives, and many other policy issues. But all economists agree on the importance of infrastructure and human capital to economic growth and prosperity. State governments play a key role in these factors, both in the amount provided and its distribution across space. I will explore this in more detail later in the report.

4.2 Uneven spatial distribution of private sector activity

The spatial distribution of poverty and dependency is clear from the above chart showing transfer payments by county. However, in a sense, the problem is even worse since much of the income earned in these counties is from government, not private, employment. First, consider the concentration of private industry earnings by workers and business owners. In 2012, four counties accounted for one-half of all private earnings in Kentucky (Jefferson, Fayette, Boone, and Kenton). The top ten counties account for 62 percent of the state total.

Next, consider the counties most reliant on public sector payrolls. I include the top twenty counties, and rank them (last column) by government's share of all labor and proprietors' income in 2012. Note that five counties in the list have a special explanation. Two of the counties most reliant are home to huge military operations – Christian County (Fort Campbell) and Hardin County (Fort Knox). Franklin County is of course home to the state capitol, with (along with other government entities) supports a \$936 million public

Top Ten Counties in Terms of Private Industry Labor and Proprietors' Earnings, 2012			
	Private Earnings	Share of State	Share of All Earnings in County
Jefferson	\$26,504,665,000	30.5%	88.4%
Fayette	\$8,830,205,000	10.2%	76.1%
Boone	\$4,198,053,000	4.8%	91.0%
Kenton	\$3,567,957,000	4.1%	82.8%
Warren	\$2,545,253,000	2.9%	82.7%
McCracken	\$1,933,122,000	2.2%	87.8%
Daviess	\$1,848,025,000	2.1%	77.8%
Hardin	\$1,687,621,000	1.9%	47.2%
Boyd	\$1,479,851,000	1.7%	88.0%
Scott	\$1,403,191,000	1.6%	92.6%
rest of state	\$32,971,287,000	37.9%	73.4%
Kentucky, total	\$86,969,230,000	100.0%	79.2%

Source: US Bureau of Economic Analysis

⁴⁶ At 23 percent overall, Kentucky ranks 4th highest among states in terms of transfer payments as a share of total personal income.

payroll, 53 percent of the county total from all industries. Rowan County is home to Morehead State University, and together with other local government entities the public sector amounts to 36 percent of all pay in the county. Calloway County is home to Murray State University, and together with other local government entities the public sector amounts to 34 percent of all pay in the county.

Almost all the other fifteen counties shown are in eastern Kentucky, and these match up closely to the list of counties most dependent on transfer payments as a source of personal income to residents there. In these counties there is little private sector employment, and the largest employers are the local public schools and government agencies.

These spatial patterns are decades old, and will be hard to change. Private sector jobs and businesses are heavily concentrated in a few urban areas, while much of the state is reliant on public sector subsidies and jobs. The mountain areas have special infrastructure challenges because the terrain is rugged and the population so diffused. It is difficult to get economies of scale and achieve low average costs. This was true for roads and is also true for wired telecommunications. Satellite technology offers a way to leapfrog the wiring of households and businesses, and now offer not only television and telephone service, but also high speed internet.

Top Twenty Counties in Terms of Government's Share of Total Labor and Proprietors' Earnings, 2012			
	Earnings from Government	Share of State	Share of All Earnings in County
Christian	\$3,489,293,000	15.3%	73.8%
Elliott	\$25,756,000	0.1%	68.2%
McCreary	\$82,947,000	0.4%	57.4%
Franklin	\$936,163,000	4.1%	52.8%
Hardin	\$1,884,742,000	8.2%	52.8%
Menifee	\$20,209,000	0.1%	48.9%
Robertson	\$6,477,000	0.0%	48.4%
Owsley	\$13,595,000	0.1%	48.3%
Edmonson	\$38,435,000	0.2%	48.1%
Lyon	\$48,048,000	0.2%	46.1%
Clay	\$93,492,000	0.4%	44.6%
Wolfe	\$20,245,000	0.1%	40.4%
Spencer	\$31,593,000	0.1%	37.1%
Martin	\$66,100,000	0.3%	36.8%
Breathitt	\$56,219,000	0.2%	36.2%
Green	\$37,718,000	0.2%	35.9%
Rowan	\$163,922,000	0.7%	35.9%
Jackson	\$34,485,000	0.2%	34.2%
Calloway	\$264,448,000	1.2%	33.7%
Bath	\$26,833,000	0.1%	33.5%
rest of state	\$15,538,042,000	67.9%	16.0%
Kentucky	\$22,878,762,000	100.0%	20.8%

Source: US Bureau of Economic Analysis

4.3 Manufacturing

Like the US as a whole, manufacturing output in Kentucky continues to grow while employment continues to decline. Wage rates are a function of productivity, and Kentucky ranks well in that regard for production workers. But it ranks very low for non-production workers because so much of the engineering, management, design, finance and marketing functions are handled at

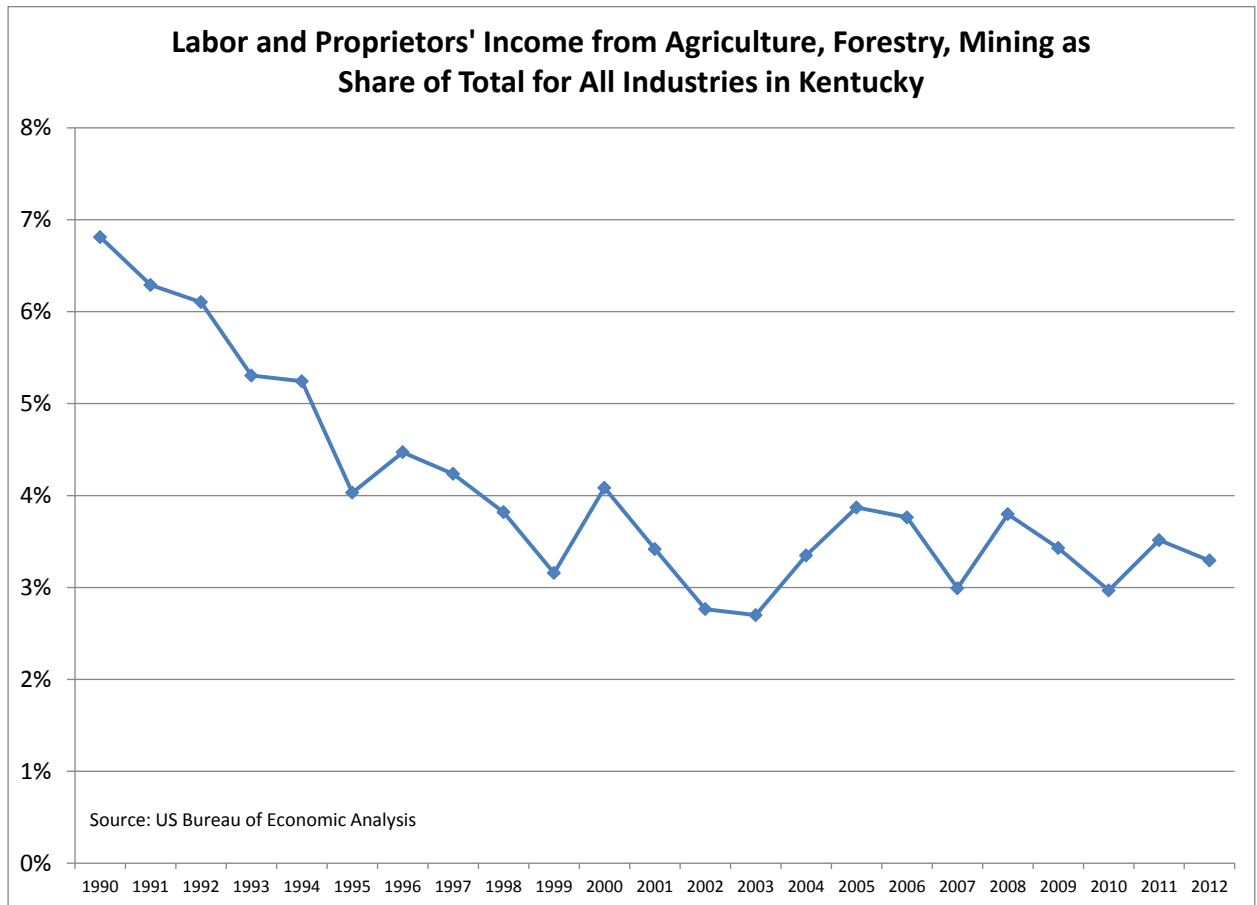
company headquarters and offices out of state. We see that manufacturing payrolls are somewhat less spatially concentrated than that for all private industry. In the next table, I rank counties by their share of state manufacturing payrolls. One can see that the top counties are much the same as for all private industry, but that one needs to cumulate eight counties to account for half the state total (rather than only four counties for all private industry). Also, some fairly rural counties make the list, including Scott (cars), Marshall (uranium enrichment), Hancock (aluminum), Carroll (steel). Note that none of these counties, except for military-dominated Christian, are in the list of counties heavily reliant on government payrolls. So, this suggests that manufacturing remains a viable path to economic growth in Kentucky outside the larger cities.

One may ask where is farming and mining in this analysis. These industries historically provided substantial incomes to workers and residents in rural areas. But while the value of production is significant, technology has allowed farmers and miners to produce exponentially more using a fraction of the prior workforce. Focusing on the income to employees and owners, one sees that the extraction and cultivation industries now only account for about 3.3 percent of total wages, salaries, and proprietors' income in Kentucky Labor and proprietors' earnings from agriculture, forestry, and mining were \$3.6 billion in 2012. This includes all of coal mining, oil and gas extraction, corn, soybeans, wheat, tobacco, cattle, pigs, equine, chickens, etc. Moreover, the share of total earnings in the state has fallen in half over the past two decades. Coal mining, which at its peak employed over 50,000 Kentuckians, now employs only around 18,000. Farm employment has fallen every year for decades, probably for a century. See next chart for the recent history.

	Earnings from Manufacturing	Share of State	Share of All Earnings in County
Jefferson	\$3,733,577,000	23.7%	12.5%
Fayette	\$1,054,758,000	6.7%	9.1%
Boone	\$845,573,000	5.4%	18.3%
Scott	\$763,438,000	4.9%	50.4%
Warren	\$537,650,000	3.4%	17.5%
Kenton	\$403,693,000	2.6%	9.4%
Hardin	\$384,653,000	2.4%	10.8%
Daviess	\$351,435,000	2.2%	14.8%
Madison	\$295,722,000	1.9%	17.9%
Christian	\$286,441,000	1.8%	6.1%
Boyd	\$282,389,000	1.8%	16.8%
Henderson	\$273,081,000	1.7%	26.8%
Marshall	\$256,992,000	1.6%	37.1%
Hancock	\$249,695,000	1.6%	69.7%
McCracken	\$247,419,000	1.6%	11.2%
Shelby	\$224,923,000	1.4%	30.0%
Montgomery	\$224,283,000	1.4%	39.7%
Nelson	\$222,855,000	1.4%	29.7%
Campbell	\$212,621,000	1.4%	13.1%
Carroll	\$197,004,000	1.3%	50.1%
rest of state	\$4,687,369,000	29.8%	14.9%
Kentucky	\$15,735,571,000	100.0%	14.3%

Source: US Bureau of Economic Analysis

Figure 7



So, what industries have been providing the major source of the earnings growth in Kentucky? I have summarized earnings growth by industry over the last two decades in the next table, with the industries listed in order of their North American Industrial Classification System. There are hundreds of sub-industries for which some data are available, but for the sake of brevity I look here only at the major industry divisions.

Note that labor and proprietors' earnings in Kentucky rose from \$42 billion to \$110 billion, unadjusted for inflation, between 1990 and 2012. Which industries contributed the most to the \$68 billion growth? The health care category had by far the most growth, about \$9.9 billion, followed by Local government (including K-12 public schools) which grew by about \$6.4 billion. Manufacturing of durable goods, including motor vehicles, contributed \$4.9 billion.

Other major contributors were Professional services, Finance and insurance, State government (including public universities), Transportation and warehousing, and Retail Trade.

Viewed through the prism of economic development, many of these growth industries are actually absorbing regional income or tax dollars rather than creating income. Hospitals and

Major Industries in Kentucky, and Growth Since 1990					
Industry	Labor and Proprietor's Earnings, 2012	Share of All Industries, 2012	Growth, 1990 to 2012	Percent Growth, 1990 to 2012	
Farming	\$1,062,093,000	1.0%	-\$61,865,000	-5.5%	
Forestry, fishing	\$330,150,000	0.3%	\$149,530,000	82.8%	
Mining	\$2,223,880,000	2.0%	\$646,050,000	40.9%	
Utilities	\$701,697,000	0.6%	\$250,669,000	55.6%	
Construction	\$5,567,793,000	5.1%	\$3,317,560,000	147.4%	
Manufacturing of durable goods	\$10,059,052,000	9.2%	\$4,912,424,000	95.4%	
Manufacturing of nondurable goods	\$5,676,519,000	5.2%	\$2,134,016,000	60.2%	
Wholesale trade	\$5,266,687,000	4.8%	\$3,327,022,000	171.5%	
Retail trade	\$7,039,759,000	6.4%	\$3,733,320,000	112.9%	
Transportation and warehousing	\$5,827,033,000	5.3%	\$3,573,950,000	158.6%	
Information	\$1,812,260,000	1.6%	\$1,030,800,000	131.9%	
Finance and insurance	\$5,544,794,000	5.0%	\$3,917,819,000	240.8%	
Real estate and rental and leasing	\$1,386,694,000	1.3%	\$1,211,547,000	691.7%	
Professional, scientific, and technical services	\$5,797,442,000	5.3%	\$3,873,152,000	201.3%	
Management of companies and enterprises	\$2,226,310,000	2.0%	\$1,828,338,000	459.4%	
Administrative and waste management	\$3,916,548,000	3.6%	\$3,193,025,000	441.3%	
Educational services	\$1,078,340,000	1.0%	\$829,128,000	332.7%	
Health care and social assistance	\$13,599,716,000	12.4%	\$9,879,720,000	265.6%	
Arts, entertainment and recreation	\$626,858,000	0.6%	\$395,132,000	170.5%	
Accommodation and food services	\$3,389,965,000	3.1%	\$2,355,791,000	227.8%	
Other services	\$3,835,640,000	3.5%	\$2,269,184,000	144.9%	
Federal government, civilian	\$3,378,573,000	3.1%	\$1,673,587,000	98.2%	
Military	\$4,404,567,000	4.0%	\$3,077,625,000	231.9%	
State government, incl. public universities	\$5,636,093,000	5.1%	\$3,657,798,000	184.9%	
Local government, incl. K-12	\$9,459,529,000	8.6%	\$6,357,814,000	205.0%	
Total, all industries	\$109,847,992,000	100.0%	\$67,533,136,000	159.6%	

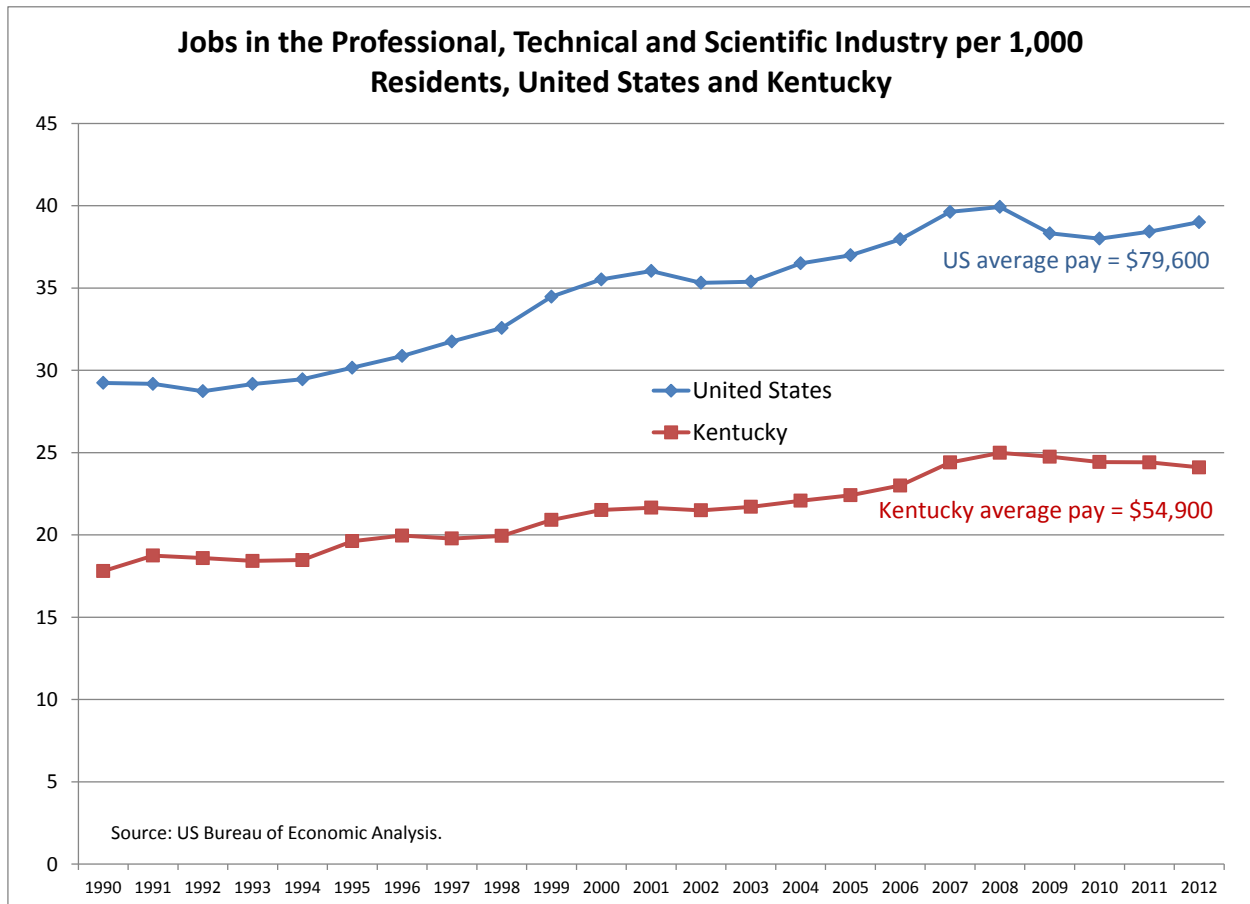
Source: US Bureau of Economic Analysis

doctors are here to serve local patients, and are often reimbursed by government through Medicare and Medicaid. Local schools, local government agencies, and state agencies are primarily financed by taxes paid by residents and workers. Most banking operations, food services and retail derive their revenues from the disposable incomes of local residents. By contrast, industries like manufacturing, logistics, military, farming, and mining tend to sell their

output to nonresident customers, and bring new dollars into the regional economy, causing it to expand.

Also, a significant piece of the Professional, scientific and technical services industry serves nonresident customers. This industry includes lawyers, accountants, architects, engineers, scientists, consultants, public relations and marketing firms. This is one of the fastest growing industries nationally in terms of jobs, contributing 4.9 million net new jobs since 1990, a growth

Figure 8



rate of 67 percent. Moreover, the average pay is about \$80,000 per year. However, Kentucky lags the US in this important category, as shown in the next chart. Kentucky has a much lower concentration of these jobs than the US average, has had a slower growth rate for the industry over the last two decades, and the jobs in Kentucky pay much less than those nationally. This reflects Kentucky’s historic concentration in assembly and back office operations, its low educational levels, its low rate of urbanization. Given that manufacturing assembly will continue

to shrink in terms of employment, Kentucky's growth and prosperity will increasingly depend on adding high paying office jobs at least at the rate that it loses high paying factory jobs.

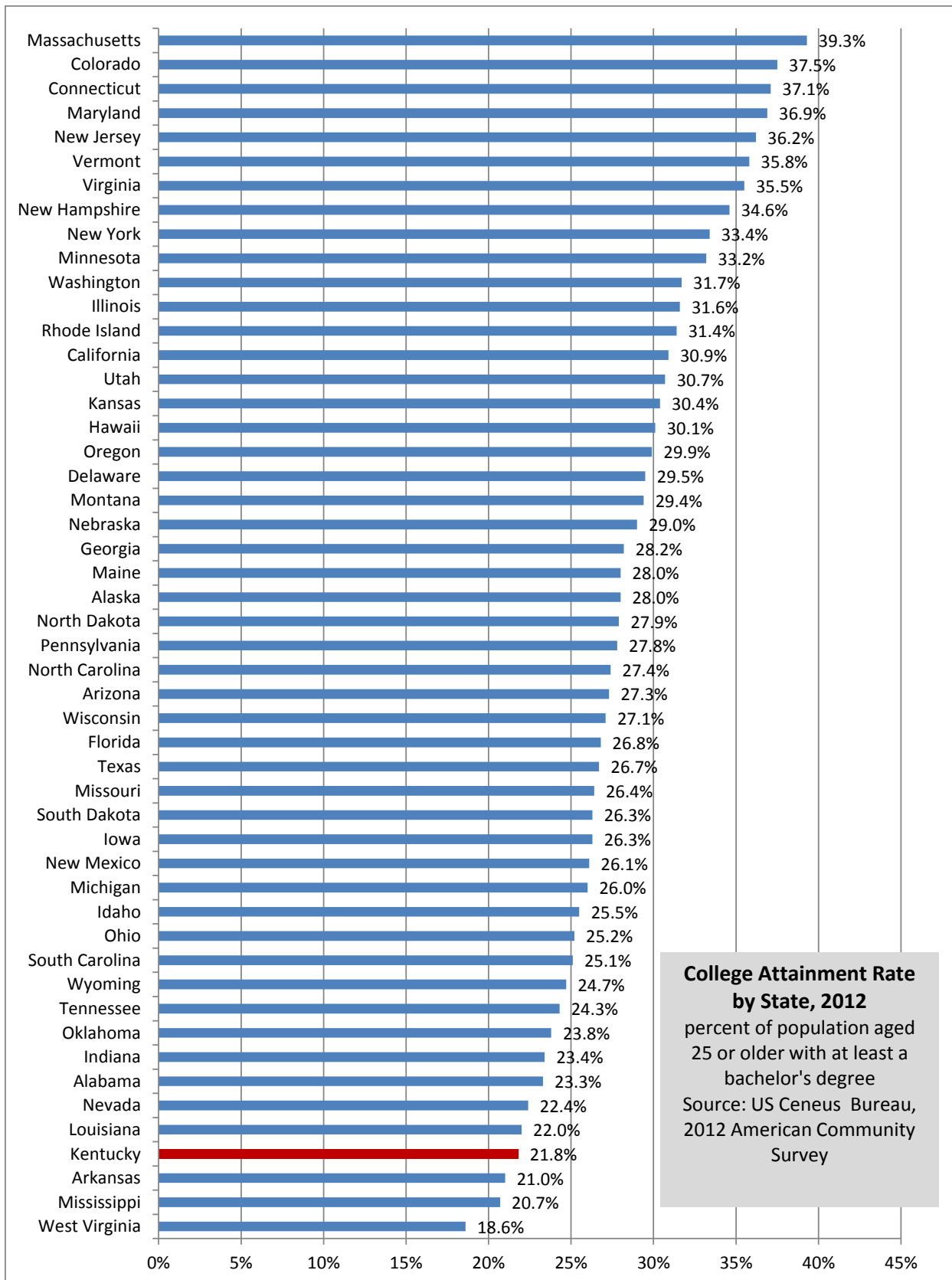
4.4 Human capital

Human capital is developed in homes, schools, and the workplace. State government has its largest impact in the schools, from kindergarten to high school, community colleges and public universities. These are subsidized by tax dollars, in terms of the construction of the physical campuses and their operational budgets, but also in terms of mobile vouchers to residents. A Kentucky resident can get in-state tuition at any of the state's eight universities or its dozens of community college locations. Moreover, of course, an educated and skilled worker can move to places of greater economic opportunity, whether within the state or anywhere in the world.

While Kentuckians continue to raise their human capital other states are posting faster gains. Looking at the most standard measure, educational attainment, we see that Kentucky remains stuck near the bottom in terms of adults with a college degree. Kentucky ranks 46th among states in terms of high school attainment for adults, and 47th in terms of college attainment. In terms of adults with a bachelor's degree or higher (21.8 percent), Kentucky leads only West Virginia, Mississippi and Arkansas. See chart on next page.

It has often been pointed out that it is easier to improve human capital in a state by importing talent than by creating talent. For example, note that Colorado ranks second highest in terms of college attainment, but this is not primarily due to its wonderful schools and universities. Rather, it is because so many young educated people have moved there to take advantage of the state's great natural beauty and climate. The concentration of such human capital attracts companies and investments, creating the high paying jobs, which in turn attracts more young educated people.

Having more broadband access, faster speeds, and lower costs will not in and of itself raise the human capital of Kentucky residents, but it should help. First, those living in more remote locations will be able to take advantage of online college courses. This will raise the state's average attainment, since the lowest educational rates in Kentucky are in the mountains. It should also make businesses in Kentucky more competitive internationally, and thus providing more jobs and income for Kentuckians. Finally, it should make Kentucky more attractive for people and businesses looking to move from other states, resulting in more jobs and income for Kentuckians, as well as a higher overall educational attainment. It is well documented that people that move between states are more educated than those who do not move.



4.5 Infrastructure, Telecommunications, and State Deregulation

While human capital is highly mobile, infrastructure is relatively fixed. Once a school or road is constructed, there is a tendency for any local economic activity to use the infrastructure, and for governments to maintain it (rather than demolish and move it). This is also true for private infrastructure, as is all too clear by the rusting hulks of old factories scattered around industrial cities. The labor force moved to where the jobs were, while the plant and equipment aged in place. Wired telecommunications connections represent a large and immobile investment, one that may be recouped through monthly charges to customers. The more densely distributed are the customers, the lower the average cost of providing service, and thus retail prices are lower. In rugged terrain, where the population is sparse, the business proposition is much tougher since the capital costs are higher and there are fewer customers per mile to spread the fixed costs over. Charging high retail prices to recover the cost of infrastructure means fewer households and businesses will subscribe, thus lowering access to broadband and other services in relatively remote areas.

These economic factors related to population sparsity and rugged terrain are what led to the original regulatory practices at the state level, resulting in required investments by wired telecommunications companies to provide universal access to customers. The higher costs of investment and operations in sparsely populated areas were passed on through higher prices to customers in more densely populated areas. With virtually all households now wired, with the advent of the internet, with simultaneous provision of telephone, television, and internet services, and with the proliferation of non-wired alternatives, there has been a nationwide movement towards deregulation and competition among many providers for customers everywhere. One argument for accelerating the deregulation movement is that it will bring faster investment in telecommunications infrastructure, with its associated benefits to customers in terms of access, speed, and price.

What specifically should be deregulated in Kentucky? A good summary is provided in a recent report, as noted above, by Hance Haney and George Gilder⁴⁷. The heart of the argument is that legacy telephone companies, while seeing a steady decline in their landline business, are subject to expensive regulatory requirements that their new competitors can avoid. They: (a) must provide a network capable of serving any customer on demand; (b) are subject to price regulation by the state Public Service Commission, resulting in cost-shifting among customers; and (c) must publish their tariffs, thus giving their non-regulated competitors strategic business information. The current deregulation movement in Kentucky seeks to remove these restrictions on incumbent local carriers, particularly in markets where customers have a choice of providers, that is, where competition exists.

⁴⁷ “Kentucky Telecom Law Needs Update”, The Discovery Institute, January 2013, *supra* note 32.

There was compelling evidence that Kentucky had unusually high access rates for intrastate long distance calls, rates that are regulated by the Kentucky Public Service Commission. A recent University of Kentucky study showed that the twenty rural local exchange carriers in the state charge three to four times more per minute for an intrastate call than for an interstate call (which is regulated at the federal level).⁴⁸ All of Kentucky's border states changed their access charges, and many required rates to mirror the much lower interstate rates. Mounting pressure by the states forced the FCC to review access line parity. Last year, on July 1, 2013, LECs had to file tariffs to bring terminating intrastate rates to parity with interstate rates, despite a pending court challenge to the FCC's Report and Order (FCC Docket 10-90).

The National Regulatory Research Institute surveys state laws and regulations, and has been tracking the deregulation movement. Its latest report shows Kentucky to be completely surrounded, with the exception of West Virginia, by states that have lifted most state oversight of the primary incumbent carrier.⁴⁹ Within the last three years, deregulation legislation has passed in nearby Ohio, Indiana, Illinois, Missouri, Arkansas, Mississippi, Tennessee, Alabama, Georgia, North Carolina, and Virginia (as well as many other states).

The latest report also concludes that the telecommunications deregulation movement is pervasive and irreversible, and that there appears to be no negative customer impacts from the movement. Moreover, many of the state laws passed had direct references, in the statutory wording, to the increased broadband investment and economic growth that they expected from the deregulation. Some, like Georgia and North Carolina, even had the word 'investment' in the title of the deregulation laws that passed. So, presumably state legislators believe the deregulation would result in more investment in telecommunications infrastructure, which translates to higher speeds for customers.

4.6 Deregulation and Investment in Telecommunications Infrastructure – Literature

There is an emerging scholarly literature on telecommunications deregulation at the state and country level; but there is not a consensus on most policy issues. In reading the literature there is a common lament about the lack of good refereed studies upon which to base conclusions and policies, as well as a lack of fine-grained time series data on investment (which tends to be proprietary).

⁴⁸ "Intrastate Switched Telephone Access Charges in Kentucky", by Christopher Jepsen, Frank Scott, and Jesse Zenthoefer, Center for Business and Economic Research, Department of Economics, University of Kentucky, November 28, 2011, 24 pages.

⁴⁹ "Telecommunications Deregulation: Updating the Scorecard for 2013", by Sherry Lichtenberg, National Regulatory Research Institute, April 2013, 13–05, 77 pages, www.nrri.org/documents/317330/0e3a5988-6f57-492d-8ce5-70926cfe68f4

The scholarly literature is nuanced in its conclusions. A recent review by Cambina and Jiang (2009)⁵⁰ finds that economic theory only provides ambiguous results, as the outcome of tensions between incumbency, competition, regulation and investments cannot be determined a priori through analysis. In their discussion of ‘access deregulation’, they focus on theoretical studies of requiring “incumbent telephone companies to unbundle the last-mile of copper loop to the entrant carriers, the so-called local loop unbundling”. But the studies reviewed find unbundling to lead to more investment or less investment by telecom firms, whether incumbent or competitor, depending on other factors such as access charges and the regulatory environment for the non-broadband components of the telecoms’ businesses.

So, what does all this mean to a non-specialist? First, let’s offer some definitions. “ILECs” refer to “incumbent local exchange carriers,” or telephone companies, which installed much of the wired capacity and were heavily regulated at the state level to provide universal access. “CLECs” are the “competitive local exchange carriers,” the companies that have emerged over the past two decades to provide a wide range of telecommunications services. “TELRIC” refers to “total-element long-run incremental cost,” the regulated wholesale rates that federal deregulation requires incumbents to charge for the unbundled elements of their networks. So, looking back at the conclusions of Cambini and Jiang, requiring incumbents to share their wires with service competitors leads to less investment in facilities. However, Cambini and Jiang point out that there is insufficient time series data yet available to draw very strong conclusions.

On the other hand, a very recent working paper based on detailed data in the United Kingdom has found strong evidence that deregulation leads to more telecommunications investment in broadband⁵¹. The authors of that study looked at all 5,598 exchange areas in the UK, using the fact that there were large geographic differences in deregulation, and concluded:

“Our estimates imply that local deregulation of the U.K. WBA (*wholesale broadband access*) market has a positive effect on infrastructure-based investment by both the incumbent and its competitors. Upon being deregulated, every exchange gains at least 0.22 additional LLU (*local loop unbundling*) operators. Moreover, after deregulation, the probability that the incumbent rolls out FTTC infrastructure increases by at least 16.1 percentage points.”

This is one of the most powerful conclusions made by academic researchers, but the paper has yet to be refereed and published.

⁵⁰ “Broadband investment and regulation: A literature review” by Carlo Cambini and Yanyan Jiang *Telecommunications Policy*, 33(2009), pp. 559–574.

⁵¹ “Investment in Broadband Infrastructure Under Local Deregulation: Evidence from the U.K. Broadband Market”, by Nadine Fabritz and Oliver Falck, CESIFO Working Paper No. 4277, June 2013, 25 pages.

Finally, there is at least one study of broadband’s impact in Kentucky (Shideler et al.)⁵². They use proprietary point of service data from broadband providers, aggregate it up to the county level, and then investigate whether increased broadband availability is linked to greater economic growth, where growth is measured by private sector employment. They find a positive relationship between broadband deployment and increased employment in mining, construction, information, and administrative services industries, but a negative relationship in the accommodations and food services industry. They also find the employment impacts most pronounced in counties that “are neither sparse nor saturated in” broadband deployment. The primary limitation of the study, like so many others, is that it does not address the underlying cause and effect question.

5.0 Summary and Conclusions

In summary, we concur with the noted economists of our times. Gerald Faulhaber, Professor Emeritus of Business Economics and Public Policy at the Wharton School of the University of Pennsylvania, said in his 1987 book *Telecommunications in Turmoil*:

“The last two decades have demonstrated that regulation of the telecommunication industry has been a failure, and we continue to look to the regulators to solve the problems of the industry. The lesson should be crystal clear: regulation will not solve these problems; regulation is the problem.”⁵³

Robert W. Crandall, economist of the Brookings Institution, also advised policymakers to deregulate completely in his 2005, book, *Competition and Chaos*. The economic lesson from the history of regulation is that regulation and competition are a bad emulsion. Once the conditions for competition exist, it is best for regulators to abandon the field altogether. This is particularly true in a sector that is undergoing rapid technological change and therefore requires new entry and new capital.⁵⁴

Later, in a 2007, speech before the Federal Trade Commission, economist Alfred Kahn confirmed that the transition [in the telecom industry] is complete and that comprehensive regulation of landline phone services is both unnecessary and will likely harm consumers by inhibiting competition and diminishing investment.⁵⁵

Today, in 2014, we find that data continue to support deregulation where appropriate, and the traditional rationale for telecom utility regulation – *i.e.*, fixed TDM landline telephone service as a natural monopoly – is now gone. Indeed, current FCC data show traditional landline telephone business in Kentucky continues to decline with consumer adoption of competing technology.

⁵² “The Economic Impact of Broadband Deployment in Kentucky”, by David Shideler, Narine Badasyan, and Laura Taylor, Federal Reserve Bank of St. Louis *Regional Economic Development*, 2007, 3(2), pp. 88-118.

⁵³ Gerald R. Faulhaber, *Telecommunications in Turmoil* (Pensacola, FL: Ballinger, 1987), p. 174.

⁵⁴ See, Crandall, Robert W. *Competition and Chaos* (Brookings Inst. 2005) at 166.

⁵⁵ Remarks of Alfred E. Kahn before the Federal Trade Commission (Feb. 13, 2007). Available at <http://www.ftc.gov/opp/workshops/broadband/presentations/kahn.pdf>.

There is simply no basis to claim that incumbent landline providers are, per se, “dominant” entities requiring the same, close government scrutiny of past decades.

Based on industry trends and the changing competitive landscape of the telephone industry in Kentucky, the Kentucky Revised Statutes should be modernized to reflect a transformation to a flexible service obligation. Where Provider of Last Resort obligations are concerned, we recommend: (1) the elimination of unnecessary duplication with federal law; (2) elimination of regulations that unfairly benefit some providers at the expense of others; and (3) retention of POLR requirements only in less-populated geographic areas where robust voice competition likely does not exist or is still developing.

Neighboring Indiana provides an instructive example. Under Indiana’s Title 8, a provider of last resort was required to offer local exchange service throughout a defined geographic area.⁵⁶ Yet this same, redundant, service obligation also exists at the federal level and is tied to a carrier’s status as an Eligible Telecommunications Carrier (ETC). A carrier must be designated an ETC to receive Universal Service Fund (USF) dollars. Thus, once the state designates a provider as an Eligible Telecommunications Carrier, former separate but redundant state service obligations are assumed and covered by federal law with a negligible impact on consumers.

Despite conjecture, misinformation and misrepresentation by opponents to the current legislation, the provisions of Senate Bill 99 (SB 99) responsibly would reduce incumbent regulations that are tied to a legacy TDM landline telephone environment that is no longer dominant in Kentucky, or any surrounding state.⁵⁷ And for those less populated geographic areas of Kentucky where robust voice competition may not exist or is still developing, SB 99 already specifies that the Public Service Commission would retain its existing jurisdiction to enforce an incumbent carrier’s obligation to provide basic voice service at the customer’s location.

Finally, while the removal of unnecessary regulations should certainly be the primary focus of Kentucky’s current bill, it should also be focusing on the issue of *regulatory symmetry*. Noted communications attorney Larry Spiwak, President and co-founder of the Phoenix Center for Advanced Legal & Economic Public Policy Studies, recently asked: “Does it make sense to maintain asymmetric regulation for one select segment of the industry (the ILECs) under current market conditions?” As states begin the complex conversation about developing a regulatory paradigm to align with the National Broadband Plan and facilitate the eventual national transition to Internet protocol (IP), common sense would dictate that under today’s market conditions that perhaps a good place to begin is to remove antiquated regulatory asymmetries so that everybody – ILEC, CLEC, cable, wireless, etc. – start off on the same policy footing.⁵⁸ As Senate Bill 99 demonstrates, this can be done in a way that promotes competition, establishes a level playing field, without harm to consumers.

⁵⁶ IC 8-1-32.4-9

⁵⁷ According to the National Regulatory Research Institute (NRRI), every surrounding state to Kentucky, with the exception of West Virginia, has already deregulated. Sherry Lichtenberg, Ph.D., “Telecommunications Deregulation: Updating the Scorecard for 2013. National Regulatory Research Institute, April 2013.

⁵⁸ “Takeaways from Our Rooftop Policy Roundtable on the IP Transition ...”, Phoenix Center blog (@lawandeconomics), July 24, 2013.

In the end, one sure way to help invigorate Kentucky's information economy is by joining with surrounding states in removing the regulatory underbrush that delays outside, as well as inside, capital investment. For virtually every sector of the Bluegrass economy, the benefits of promoting a robust information infrastructure are many. The bottom line is that the evidence from neighboring states is compelling and it supports the task ahead for the Kentucky legislature with the passage of Senate Bill 99 and modernization of Kentucky's telecommunication statutes.

About the Authors

Robert E. Yadon, Ph.D.

Dr. Yadon is director and senior fellow with the Digital Policy Institute (DPI), director of the applied research institute, and a professor of information and communication sciences at Ball State University in Muncie, IN. He is a communications policy analyst with an extensive professional career in the communications industry and in higher education. Dr. Robert Yadon joined the Center for Information and Communication Sciences faculty in June 1987. He came to Ball State University (BSU) from Washington, D.C., where he was Vice President of Television Operations for the National Association of Broadcasters (NAB). . Since 2004 he has co-authored six major policy studies on deregulation, consulted with both state and federal agencies on telecommunications issues, and published a number of journal articles and op-ed pieces on public policy in the telecommunication arena. He holds a Ph.D. in mass media from Michigan State University, and a M.S. in mass communications from Oklahoma State University.

Barry D. Umansky, J.D.

Barry D. Umansky is a senior fellow and the senior policy counsel with the Digital Policy Institute (DPI) and a telecommunications professor at Ball State University in Muncie, IN. He is a communications lawyer with an extensive career in government, industry and private law practice.

After working at broadcast stations during college and law school, he served for seven years as an attorney, specializing in communications policy proceedings, at the Federal Communications Commission (FCC) in Washington. He then became deputy general counsel of the National Association of Broadcasters (NAB) in Washington. During his 20 years at NAB, he had responsibilities for broadcast deregulation, new technology, spectrum allocation, environmental, station licensing and other regulatory matters. He edited and co-authored many NAB publications, including several editions of the NAB Legal Guide. During his time with NAB, Umansky also served on the boards of the former Washington-based Electromagnetic Energy Association and National Antenna Consortium.

For over four years he has represented the DPI on the FCC's Consumer Advisory Committee, including as chair of that federal advisory committee's former "Media Working Group" and now as co-chair of its "IP Transition Working Group." He is a long-time board member of the Broadcast Education Association in Washington and will become president of that national organization in April 2014.

Mr. Umansky is a frequent speaker at communications industry meetings and often is quoted on communications policy matters in industry and general press and also on radio and television programs. He is a graduate of Carleton College and the Washington University School of Law and is a member of the District of Columbia and Missouri bar associations.

Paul A. Coomes, Ph.D.

Paul A. Coomes is Emeritus Professor of Economics at the College of Business, University of Louisville. He is a graduate of Brescia College (BA), Indiana University (MS), and the University of Texas (Ph.D.). Professor Coomes came to the University of Louisville from Texas in 1985. He has taught courses in urban economics, forecasting, microeconomics and macroeconomics. He conducts research for both academic and commercial outlets. Most of his research concerns regional and urban economics, economic development, and measurement problems. His scholarly research has appeared in many journals, including the *Journal of Labor Economics*, *Entrepreneurship Theory and Practice*, *Real Estate Economics*, *Journal of Urban Economics*, *Journal of Regional Science*, *Environment and Planning A*, *Urban Studies*, *Economic Development Quarterly*, and the *Journal of Economic and Social Measurement*.