The Small Business Impact of TELECOMMUNICATIONS Policy Restrictions in RURAL STATES

BY LORI DICKES AND DAVE LAMIE

Introduction

In today's technology driven marketplace, it is assumed that advanced Information and Communications Technology[1] (ICT) infrastructure is a prerequisite to developing a tech-savvy workforce, developing local competitive advantage, and ensuring economic development success (European Union, 2002, Department of Trade and Industry (DTI), 2001). High-speed Internet access, in particular, has received much recent attention since most promising computing applications require this access (Eberts, et al, 2005).

[1]For the purposes of this research we define ICT as all forms of technology used to create, store, exchange, and use information. It can include any communication device or application, including telephones, cellular phones, computer and network hardware and software, and regular and advanced bandwidth infrastructure. Additionally, we assume that advanced ICT incorporates Broadband technology and can thus be viewed synonymously throughout this research.

While firms and regions may require this technology, it is not ubiquitous. In the United States there continues to be a digital divide across geographies, regions, racial groups, age groups, and income classifications. Moreover, in many communities, existing broadband service providers are thought to be the only viable broadband suppliers, even though deploying advanced networks to sparsely-populated rural regions does not often meet their profitability objectives.

Given the importance of advanced ICT investments to economic and social development, many communities and regions must find other ways to enhance their access to Broadband infrastructure. Traditional service providers have responded to these efforts with their own legislation, mainly at the state policy level, to restrict municipal involvement in the industry. There is increasing concern that these restrictions place underserved communities and regions at risk of falling further behind, making these communities less attractive places to start or expand a business.

This article begins by briefly reviewing relevant literature on the economic benefits of Broadband, followed by an overview of U.S. broadband penetration and adoption trends, and a review of the legal barriers that states have enacted in an effort to restrict local ICT investments. Results show the impact of ICT policy restrictions on state-level small business

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growth and innovative activity in rural states, and comparisons made to more densely-populated states. Finally, conclusions for future research and possible policy implications are explored.

Regional and Rural Broadband Benefits

Katz et al. (2010) estimate that rural wireless Broadband could result in the creation or retention of 117,000 jobs in the nineteen states with the lowest Broadband access and adoption rates. Table one illustrates these states along with the percent of the population considered underserved or unserved, as well as household and population broadband penetration. These authors also estimate the economic impacts of rural wireless Broadband in three relatively underserved states: Kentucky, Ohio, and West Virginia. Assuming Broadband availability of 100 percent, between 2011 and 2014, these authors estimate 10,235 jobs will be saved or created in Kentucky; 5,744 in Ohio; and 4,793 in West Virginia. In Kentucky the majority of jobs saved or created would be in rural areas adjacent to metropolitan communities, while in Ohio and West Virginia the majority of jobs would be concentrated in isolated, rural communities. These differences are speculated to be due to differences in regional Broadband supply gaps. Enhancing Broadband availability is also estimated to increase the growth of county median income by 2.1 percent in Kentucky, 0.8 percent in Ohio, and 3.43 percent in West Virginia. Overall, with 100 percent Broadband deployment from 2011-2014 these states are estimated to create or save 116, 863 jobs and to increase the median per capita income by $1,201.

One small regional study (Strategic Networks Group, 2001) found significant positive impacts from the local deployment of a Broadband network in South Dundas, Ontario. Additionally, Kelley (2004) compared the economic effects of a municipal Broadband deployment in Cedar Falls, Iowa, with nearby Waterloo, Iowa. Ford and Koutsky's (2005) study compared Lake County, Florida, with similar counties where advanced telecommunications

Table One: States Lagging in Broadband Accessibility.

State	Percent of Unserved or Underserved	Number of Broadband Lines	Households	Household Penetration[1] (percent)	Population	Population Penetration[2] (percent)
West Virginia	26	442,000	748,517	59	1,819,777	24
Arkansas	25.2	516,000	1,124,947	46	2,889,450	18
Mississippi	23	447,000	1,095,026	41	2,951,996	15
Alaska	20.7	162,000	236,597	68	698,473	23
S. Dakota	18.7	179,000	316,638	57	812,383	22
Montana	17.3	212,000	375,287	56	974,989	22
N. Dakota	16.5	155,000	279,014	56	646,844	24
Kentucky	15.7	876,000	1,694,197	52	4,314,113	20
N. Mexico	15.1	389,000	742,104	52	2,009,671	19
Missouri	13.6	1,269,000	2,339,684	54	5,987,580	21
Wyoming	13.5	122,000	213,571	57	544,270	22
Oklahoma	13.1	731,000	1,430,019	51	3,687,050	20
Louisiana	12.8	888,000	1,688,027	53	4,492,076	20
N. Carolina	12.3	2,172,000	3,646,095	60	9,380,884	23
Alabama	12	901,000	1,848,051	49	4,708,708	19
Kansas	11.6	659,000	1,104,976	60	2,818,747	23
Virginia	11.2	1,904,000	2,971,489	64	7,882,590	24
Tennessee	10.1	1,248,000	2,447,066	51	6,296,254	20
Maine	10	330,000	544,855	61	1,318,301	25
Total	14.1	13,602,000	24,846,160	55	64,234,156	21

[2]Household penetration is the percentage of households in a state with access to broadband lines.
[3]Population penetration is the percentage of a state's population with access to broadband lines.

Source: US Census Bureau; National Broadband Plan; FCC; analysis by Katz, R.L., Avila, J, and Meille, G. (2010). Economic Impact of Wireless Broadband in Rural America. Telecom Advisory Services, LLC.

networks were not deployed. Overall, these studies indicated that community investments in advanced ICT infrastructure have a positive influence on regional economic growth and development.

Current Broadband Trends

Over the past decade, Broadband deployment, adoption and use have continued to increase across all communities and socio-economic characteristics. The FCC National Broadband Plan estimates there are currently 7,035,613 United States housing units identified as unserved or underserved. The FCC defines a region as un-served or under-served if housing units do not have access to service of 4 Mbps download speed. The largest portions of these households are in rural areas most likely because of lower population densities and/or economically distressed populations.

As communities and regions have become increasingly concerned about their lack of adequate access to broadband service, many have sought to make these investments on their own. Municipalities with locally-owned municipal electric utilities have been more likely than others to serve as early adopters of ICT projects. These municipalities can often justify investments in network infrastructure (e.g. fiber optic routes, routers, and switches) simply to reduce the cost of providing cost-saving internal-to-the-utility administrative services (e.g. automated meter reading, internal communications, and system controls).

While interest in public investments in broadband infrastructure has grown, there has been corresponding growth in state-level policies imposing barriers on the municipal provision of broadband infrastructure and service. Among other things, traditional private sector providers have lobbied for the promulgation of policies that create supposed "level playing fields" between private and public providers. Notwithstanding attempts at the federal level

Table Two: Population and Policy Overview of States with Population Densities less than the National Average (87.1 inhabitants per square mile).

	Rural population (2000)	Rural Land Area (Square Miles)	Population Density (2010)	State Broadband Policy Barriers (2010)
Alaska	215,675	48,971	1.2	No
Arizona	607,097	570,114	56.3	No
Arkansas	1,269,221	51,169	56	Yes
Colorado	668,076	102,467	48.5	Yes
Idaho	436,991	82,345	19	No
Iowa	1,138,892	55,060	54.5	No
Kansas	767,749	80,961	34.9	No
Maine	762,045	30,508	43.1	No
Minnesota	1,429,420	78,108	66.6	Yes
Mississippi	1,457,307	45,983	63.2	No
Montana	414,317	145,296	6.8	No
Nebraska	517,538	76,423	23.8	Yes
Nevada	169,611	109,262	24.6	Yes
New Mexico	455,545	120,612	17	No
North Dakota	283,242	68,849	9.7	No
Oklahoma	1,196,091	67,526	54.7	No
Oregon	727,255	94,976	39.9	No
South Dakota	363,417	75,728	10.7	No
Utah	262,825	81,478	33.6	Yes
Vermont	376,379	9,102	67.9	No
West Virginia	975,564	23,523	77.1	No
Wyoming	172,438	96,936	5.8	No

Source: U.S. Census Bureau and Baller Herbst Law Firm at www.baller.com.

to negate state level barriers to these investments, a host of state-level policies exist across the country.[4]

Figure One illustrates that in 2010 eighteen states had some type of policy restriction concerning municipal involvement in advanced ICT infrastructure projects. This map documents the range of restrictions; from explicit bans to procedural and accounting mandates; many of which are substantive barriers to entry. Moreover, this policy environment is not static. In 2005, 14 state legislatures across the U.S. sought to impose new barriers, but only one state, Nebraska, saw the passage of new policy restrictions. The 2010 legislative cycle saw newly proposed restrictions in North Carolina and 2011 saw amendments to existing legislation in South Carolina. Neither legislation passed but states continue to propose this type of legislation each year. While the proposed reason for state legislation varies, the real question is what are the impacts of these restrictive legislative environments? Does this type of legislation ultimately place additional constraints on community economic growth and development?

Model Results

This analysis helps us understand the impact of ICT policy restrictions on state small business and entrepreneurial activity. Using publicly available data for all fifty states from 1999-2006 (excluding 2005[5]), six dependent variables are examined: 1) the number of new companies; 2) the change in the number of new companies; 3) new business job growth; 4) technology industry employment; 5) the proceeds of initial public offerings, per 1000 firms within a state; and 6) the number of patents.

Statistical tests were used to test for the impact of state level ICT restrictions on state job growth. To test for the importance of rurality, separate tests were run on states with population densities less than the national average of 87.1 inhabitants per square mile and on those with higher average densities. Table Two presents an overview of the population and policy environment in the 22 states with densities below the national average.

In states with lower densities there is a negative correlation between state level ICT restrictions and new business job growth and technology jobs in a state. While further research is necessary to confirm this relation-

[4]Baller-Herbst Law group at www.baller.com keeps an up-to-date list of restrictive state policies and links to the specific legislation within the state.

[5]The dependent variable data came from the Center for Enterprise Development's, Development Report Card for the States. There was no Development Report Card in 2005 and thus, too many variables would have been missing in an analysis of 2005.

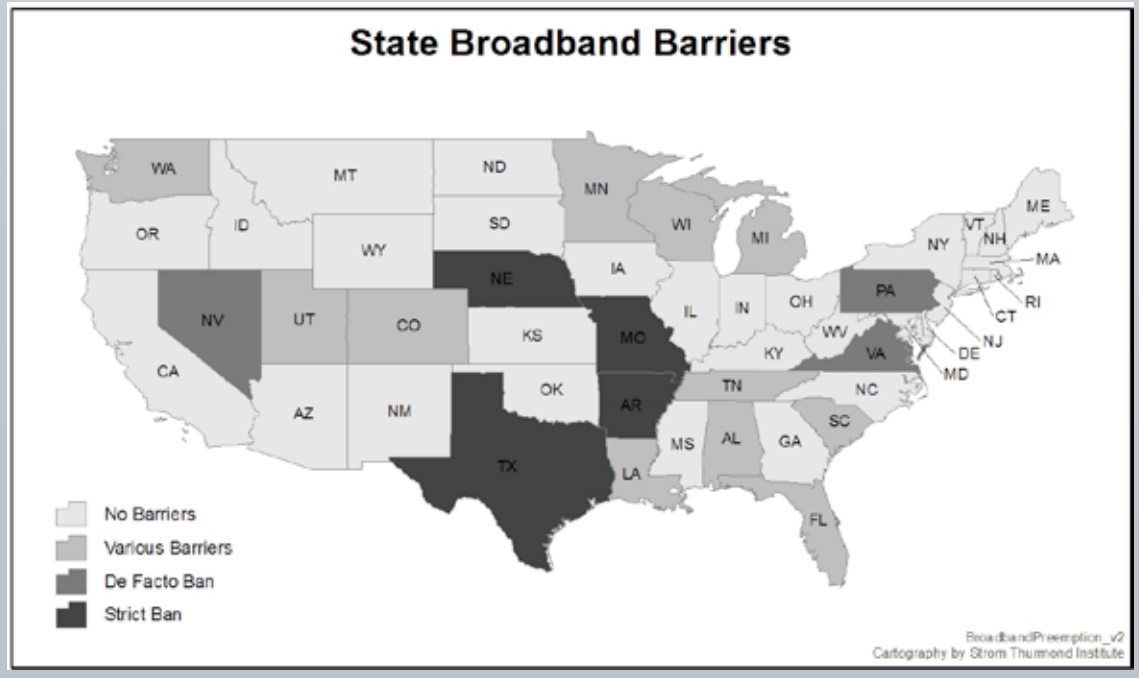

Figure One: State Broadband Barriers 2010.
Source: Mitchell, M. (2010). Breaking the Broadband Monopoly. Minneapolis, MN: The New Rules Project.

ship, initial estimates reveal that in states with lower population densities, ICT restrictions may contribute to lower overall new firm job growth and fewer technology jobs in a state.

For states with population densities higher than the national average, there is a positive relationship between state level ICT restrictions and patent activity and technology company employment. These were the only two variables that were statistically reportable. This is opposite of the relationship with lower density states and highlights the potential importance of Broadband technology for regions with lower density. However, these results are preliminary and only provide initial insight into the potential impact of these policies on state small business and entrepreneurial activity. Future research should consider the inclusion of a wider range of variables that may also impact and/or interact with state small business growth and entrepreneurial activity. However, these results underscore the importance of the ICT policy environment on state business activity, along with the sensitivity of these results to population density and levels of rurality.

Conclusions

It is unlikely that states with ICT legislative restrictions intend to limit business and/or entrepreneurial activity with these policy actions. However, in a more competitive, global business environment there may be a required set of technological infrastructure elements that must be in place for many new firms to be successful and existing ones to be innovative. As such, efforts that limit the potential growth of this infrastructure may indeed have substantial short- and long-term consequences.

These preliminary estimates reveal that advanced ICT infrastructure may be an additional pre-requisite to successful community and economic development. This may be especially true for rural states. Future research should consider further clarification of the impact of these policy measures on a state's economic and business environment, along with the importance of measures of rurality on these relationships. Additional research should consider how these policies interact with other state level characteristics. This research is an important first look at the possible consequences of these policy measures, and begins to discuss critical infrastructure issues that are important for the future of all of our nation's communities.•

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The Baller Herbst Law Group, baller.com.

United States Census Bureau, census.gov.

RECOMMENDED READING

The Baller Herbst Law Group provides detailed information on the legislative environment surrounding public investments in Broadband and the National Broadband Strategy. baller.com

The Federal Communication's site dedicated to Broadband is very informative about many Broadband issues. broadband.gov

The Pew Internet and American Life survey is informative about ongoing digital divides across the United States. pewinternet.org