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Estimating The Impacts Of The National Broadband Plan On Local Rural Exchange Carriers In Oklahoma

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Key Findings and Summary of Results

- The federal National Broadband Plan (NBP) looks to redirect over $15.5 billion from Universal Service Funds (USF) currently provided to Rural Local Exchange Carriers (RLECs) to the Connect America Fund (CAF) through the year 2020.

- Oklahoma RLECs currently employ nearly 1,200 workers who earn nearly $56 million in wages.

- Oklahoma RLECs received over $90 million in USF funding in 2010. These funds were distributed in 73 of the 77 counties in Oklahoma ensuring the continuation of service for over 186 thousand subscribers.

- Over the five-year period beginning in 2012, we estimate that the diversion of USF funding away from Oklahoma RLECs could result in the loss of 2,900 direct and indirect jobs leading to the loss of over $118 million in wages. These impacts would extend to state and local governments who would notice the reduction of $10.3 million in property, sales and income tax revenues.

Introduction

In 2009, the Federal Communications Commission (FCC) created a National Broadband Plan (NBP) to encourage the deployment of broadband access to all Americans to support evolving needs for data communications. In 2010, The FCC created a Notice of Proposed Rulemaking (NPRM) to communicate potential changes to current telecommunications funding mechanisms to support the implementation of the NBP. Under this NPRM, Universal Service Funds (USF) currently directed to Rural Local Exchange Carriers (RLECs) in support of wired and wireless access to rural citizens would be reallocated to support the mission of the NBP. The redistribution of USF funds away from local providers located in proximity to their customer base and towards large wireless broadband providers would entail both a change of service and a redistribution of economic activity.

RLECs currently use USF funds to provide rural citizens access to voice telecommunications systems as directed by the federal government. The RLECs rely on these funds to provide continued access to voice communications. Further, many RLECs recently committed significant capital towards infrastructure improvements designed to provide broadband access to their existing customer base. The Economic and Research Policy Institute (ERPI) at Oklahoma City University was asked to assess the impact of the proposed changes outlined in the NPRM on the continued operation of Oklahoma RLECs. In this document, we address the significant issues associated with the changes and assess their aggregate impacts on these local carriers.

Background

In the 20th century, the focus of universal service was providing voice communications capability to all Americans, rural and urban. This focus stemmed from the Communications Act of 1934 that stated that all people should have access to rapid communications at reasonable charges. The charge to provide telecommunications support to rural areas was expanded in the Telecommunications Act of 1996 which formally created the Universal Service Fund to support providers of services to high cost (and largely rural) areas. Speaking to the success of the program, the Federal Communications Commission states, "The Universal Service Fund program -- or USF-- has helped connect virtually every American to our 20th century communications grid, first bringing basic telephone service to places where there was no economic case for service, and then extending the benefits of mobile phone service to rural and underserved areas[1]."

In the first decade of the 21st century, the needs of rural customers, indeed all customers, changed as the proliferation of data began to saturate telecommunications networks. During this time, wireless telecommunications technology matured and the use of "land-line" telephones began to decline. This changing landscape created unique challenges for RLECs as they attempted to meet the evolving needs of their customers while continuing to provide regulated voice service. Without specific federal direction, a patchwork of broadband capability began to crop up as many RLECs proceeded to invest in broadband on their own. Ironically, the USF program that encouraged the development of wired communications access to high cost populations allowed RLECs to move into the broadband market by providing both the infrastructure foundation as well as the network of high capacity lines that serve as the backbone of the broadband deployment. It is expected that even if a movement towards wireless broadband as supported in the National Broadband Plan were to materialize, its success would ultimately depend on access to quality wired connections, routes, and switches dependent on a continuation of some USF support.[2]

In early 2009, the U.S. Congress directed the Federal Communications Commission (FCC) to develop a National Broadband Plan (NBP) to ensure *every American* has access to broadband capability. A central part of the plan involves the creation of the Connect America Fund (CAF) as the next generation USF program. According to the plan, up to $15.5 billion would be shifted from the existing USF programs to the newly created CAF through 2020 to support the deployment of broadband services in high-cost areas. This shift of funds has created concern for RLECs as they begin to question their communications role(s) going forward. Oklahoma RLECs are concerned their ability to maintain the same quality of voice service to rural customers will be diminished. Additionally, they are troubled that their existing investment in broadband may be nullified.

[1] http://www.fcc.gov/topic/universal-service-fund

[2] See www.fcc.gov/guides/getting-broadband for a full description of the types of broadband access as well as the role of circuit switching, packet switching, and wireless communications in providing broadband access

Current USF Objectives

The FCC created the USF in 1997 to provide universal telecommunications access to all parts of the United States regardless of cost as mandated by the Telecommunications Act of 1996. The Universal Service Administration Company (USAC) administers the fund as four separate programs:[3]

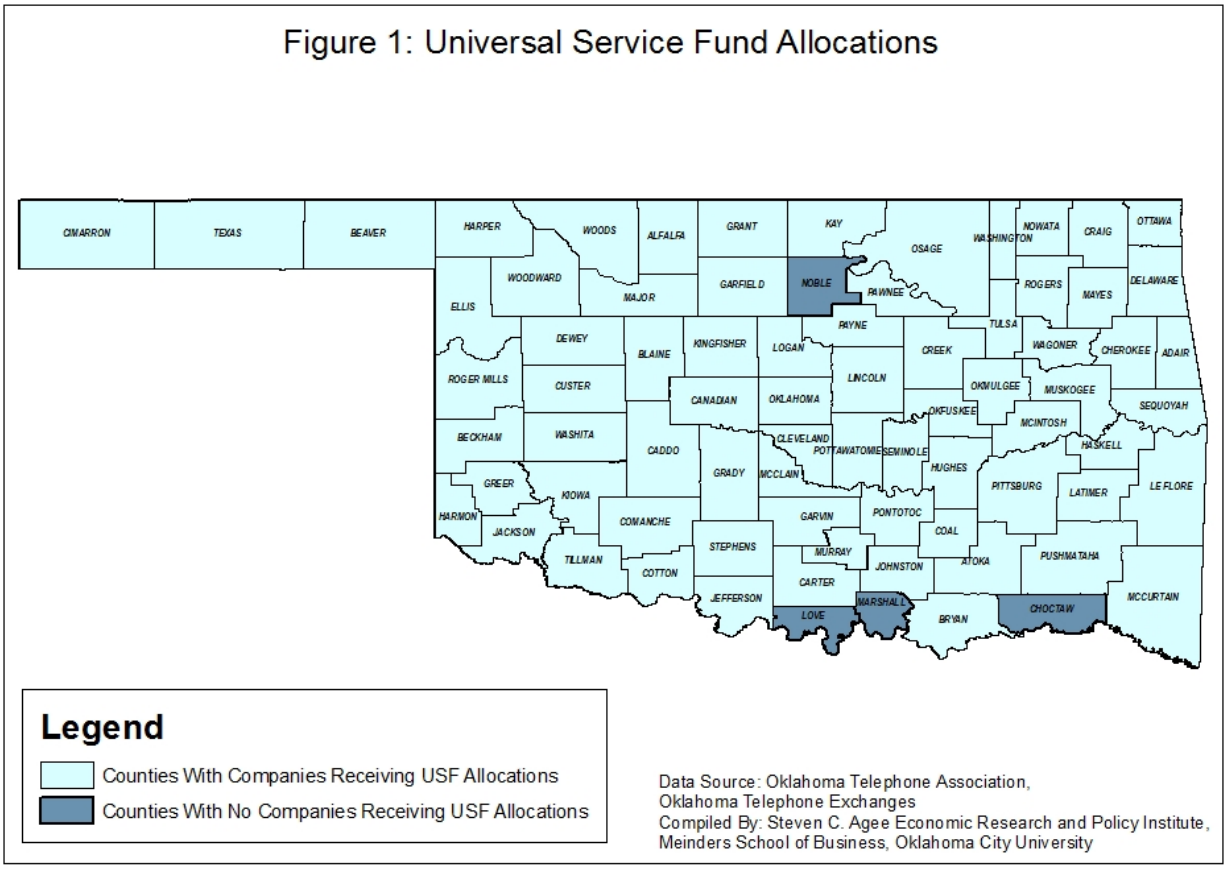
- **High Cost** - This support ensures that consumers in all regions of the nation have access to and pay rates for telecommunications services that are reasonably comparable to those in urban areas.
- **Low Income** - This support, commonly known as Lifeline and Link Up, provides discounts that make basic, local telephone service affordable for more than 7 million low-income consumers.
- **Rural Health Care** - This support provides reduced rates to rural health care providers for telecommunications and Internet services so they pay no more than their urban counterparts for the same or similar telecommunications services.
- **Schools & Libraries** - This support, commonly referred to as E-rate support, provides affordable telecommunications and Internet access services to connect schools and libraries to the Internet. This support goes to service providers that provide discounts on eligible services to eligible schools, school districts, libraries, and consortia of these entities.

With a potential shift of funding away from existing RLECs to new broadband entrants, it will be difficult for RLECs to maintain the current level of service without new pricing mechanisms. These new pricing formulas may intrude on the objectives of the existing programs, as the key feature of the existing USF arrangement is a cost offset to the provision of communications services to areas where a lack of population density drives up the average cost per line.

[3] See www.usac.org for more information.

Oklahoma USF Coverage Area and Demographics

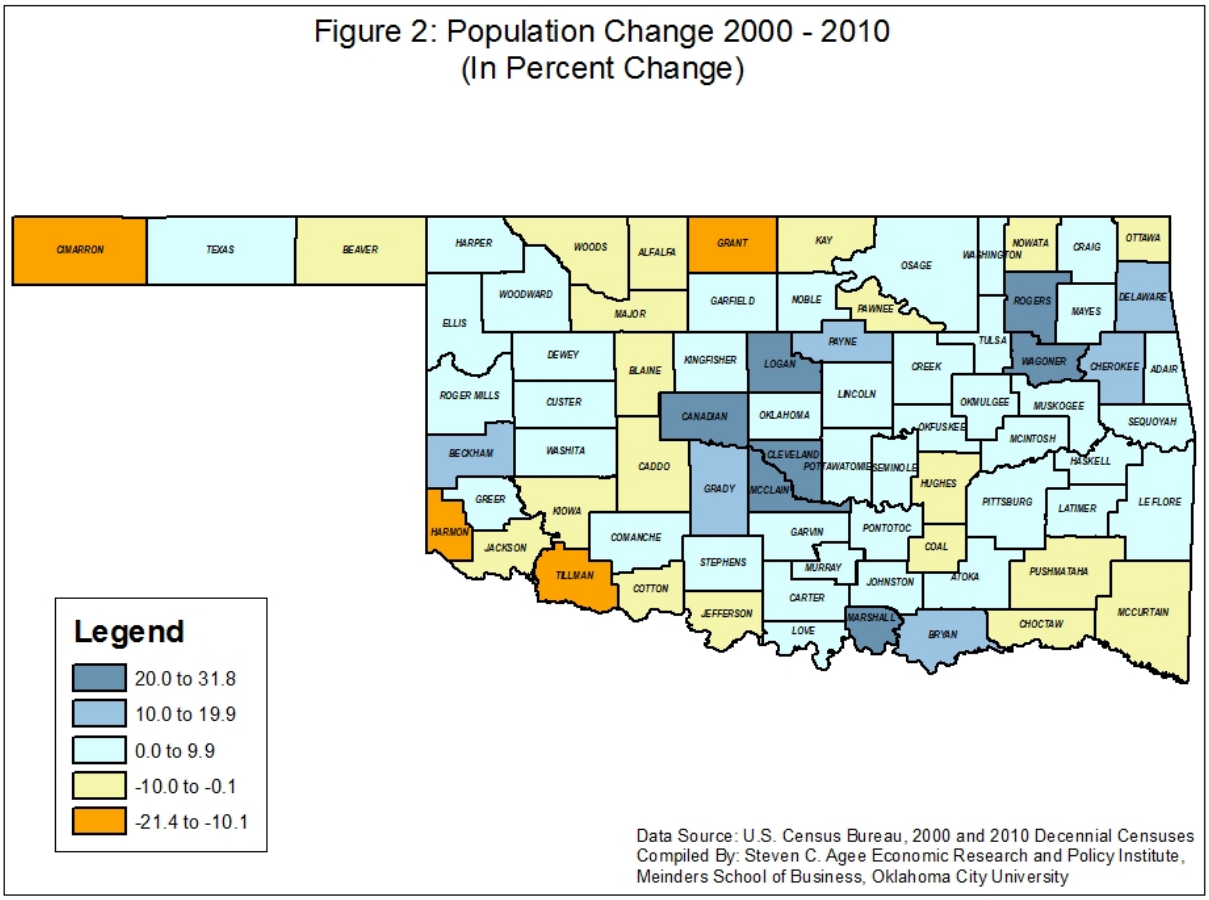
The USF program as it is currently operated touches nearly every county in Oklahoma. Indeed, telecommunications providers receive USF funds in 73 out of the 77 Oklahoma counties (Figure 1). These include all areas not currently served by AT&T. Service area boundaries do not coincide with county boundaries as some areas cross county boundaries and many counties contain multiple service areas. As such, Figure 1 identifies all counties that have at least one RLEC service area.



That nearly all counties would be reached by the service area of at least one Oklahoma RLEC is not surprising given the disperse nature of the state's population. Many of the state's rural areas are in fact becoming less dense as the population slowly migrates towards metropolitan areas. As this migration pattern continues, the average cost per line in rural areas is adversely impacted, placing even greater importance on pro-

grams like the USF. There seems to be legitimate concern that an effort to provide broadband access to these areas by depleting USF funds may reduce the quality and availability of basic communication services.

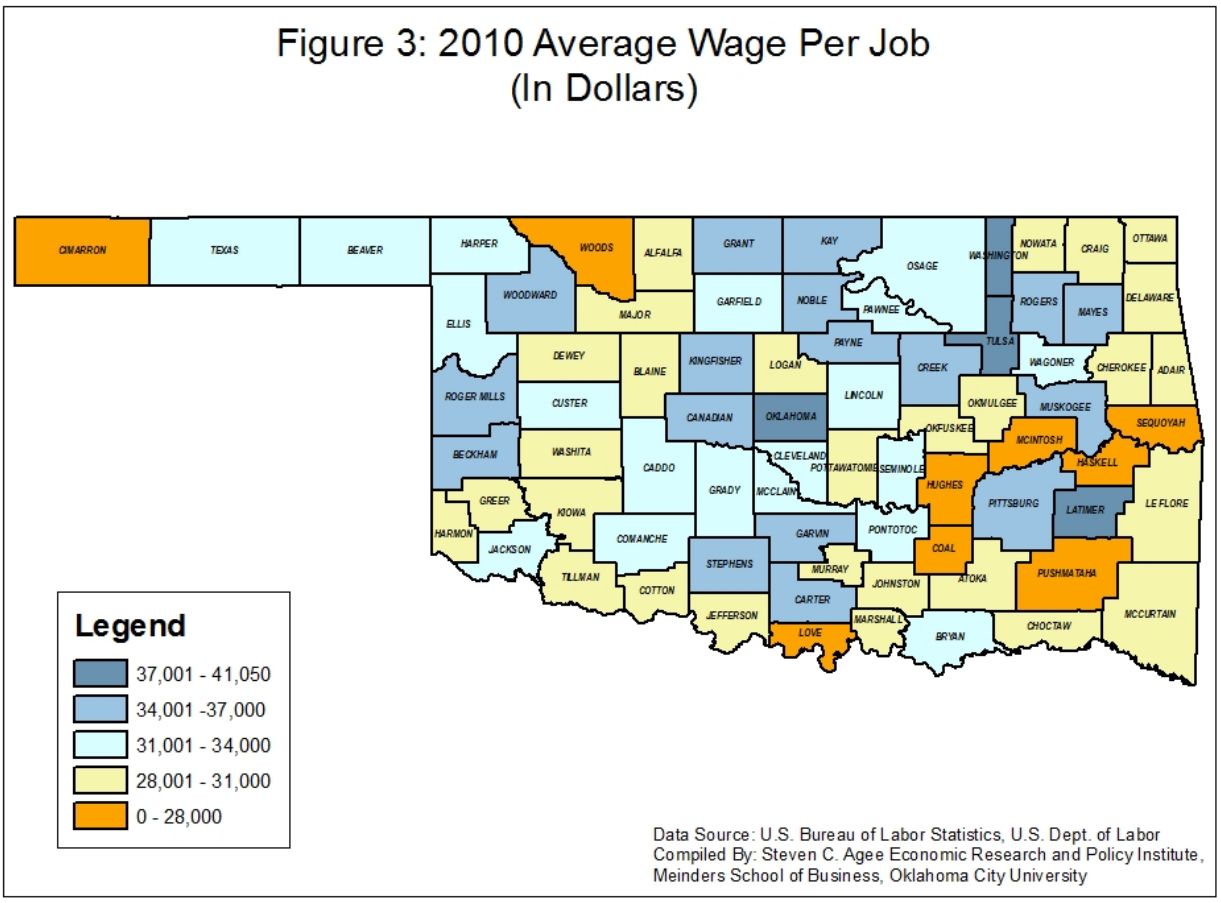
The U.S. Census Bureau released population distribution data that shows that 93.7% of the country now lives in Metropolitan and Micropolitan Statistical Areas[4]. Indeed, 23 Oklahoma counties lost population from 2000 to 2010, with 4 of those counties experiencing more than a 10% decline (Figure 2). Over this same time period, total Oklahoma population increased by 8.7% with the Oklahoma City MSA leading the way at 14.6%. As the country's (and Oklahoma's) population continues to urbanize, the cost of providing the same level of facilities based services to rural customers will continue to increase as the cost per subscriber escalates. The loss of profitability will be exacerbated for rural carriers by the loss of USF funding.



[4] U.S. Census Bureau

At 54.7 people per square mile, Oklahoma ranked 37th in population density in 2010[5]. As such, Oklahoma is more rural than the nation at 87.4 people per square mile. Tulsa County is the most dense at 1,058 people per square mile while Cimarron County is the least at 1.3 people per square mile. Even still, portions of Tulsa County receive USF funds.

In addition to the rural nature of the state, Oklahoma wages fall below the national average. According to the Bureau of Economic Analysis (BEA), average wage per job was $45,716 nationally in 2008[6]. Wages in Oklahoma trailed significantly at $37,836. As Figure 3 demonstrates, only 4 of the 77 Oklahoma counties had average wages above $37,000 in 2010.



[5] U.S. Census Bureau
[6] Regional Economic Information System, U.S. Bureau of Economic Analysis

Before proceeding to a presentation of economic impacts, it is enlightening to consider the backdrop against which the broadband plan is proposed. Each spring, the Pew Research Center's Internet and American life Project conducts a survey of U.S. residents to gauge trends in broadband attitudes and patterns of use. Among the interesting findings of the Home Broadband 2010 report are:[7]

- Nearly two-thirds of all Americans currently have broadband access at home
- By a 53% to 41% margin, respondents indicate they do not believe the spread of affordable broadband access should be a government priority
- Nearly 21% of American adults do not use the internet. Of this group of non-users:
    - Nearly half indicate that they do not find online content relevant to their lives
    - 90% indicate no interest in using the internet in the future

While development of reliable data and telecommunications infrastructure is undoubtedly an important feature of regional economic development plans, it is not clear that such a program need originate as a federal priority. Indeed, as indicated previously, many RLECs are responding to market forces under the current operation of the USF program to build broadband access on their existing networks.

Methodology

The impact estimates detailed within this report are derived from an input-output model of the Oklahoma economy using RIMS II multipliers provided by the U.S. Bureau of Economic Analysis. An input-output (IO) model reveals the economic flows between households, firms and governments that occur in a given period of time (typically one year). From these flows (linkages), multipliers are calculated that assess the continued impact of initial economic expenditures. These extended impacts are often called indirect and induced impacts. Total economic impact of an event such as the loss of USF funds equals the sum of the direct, indirect and induced impacts that derive from the initial event.

Model Assumptions

Regional economic activity is characterized by payment flows for goods and services between industries, households, and the public sector. In any given year, payments and receipts by each of these institutions provide a snapshot of the institutional linkages that characterize the regional economy. From the snapshot of these flows, estimates are derived of the degree to which one regional industry depends on the pro-

[7] See http://www.pewinternet.org/Reports/2010/Home-Broadband-2010.aspx for the full report.

duction of another. For example, the production of telecommunications services in Oklahoma is most reliant on the output (or production) from Professional Services, Manufacturing and other Information industries. Thus, a direct increase in the production of telecommunications services requires an indirect increase in these support industries. The initial production by telecommunications providers coupled with the increase in production in these support industries represents the first layer of economic impact analysis.

Additional economic impacts are realized when individuals employed in these industries spend the portion of their income attributed to the initial increase in demand for telecommunications services in the local economy. As these dollars flow into the local economy they set off a secondary chain of economic ripple effects referred to as induced impacts. Similar impacts occur as the employees of the telephone companies spend a portion of their incomes in the local economy.

All impacts are the product of multipliers derived from patterns of business and consumer spending within the state. For this report multipliers are constructed from economic models developed by the Bureau of Economic Analysis within the RIMS II multipliers nationally available and commonly used in impact analysis[8]. Spending patterns are adjusted where necessary by research personnel to reflect local knowledge of industry activity. All data employed in the estimation of economic impacts were provided by the Oklahoma Telecom Association and/or their agents and reflect 2010 operations.

Data

Data for the analysis were provided by twenty-seven of the forty RLECs in Oklahoma[9]. Many provided USF funding levels for Local Switching Support (LSS), Interstate Common Line Support (ICLS) and High Cost Loop Fund (HCLF) and all 27 provided information on revenues, expenses, employment and wages, income and number of subscriber lines. Statewide estimates for each were calculated using averages from participating RLECs. Statewide RLEC data estimates are reported in Table 1.

Table 1: Estimated Statewide Data from Regulated Operations

	Participating RLECs		
	Total	Per Line	Statewide Estimate
Employment	1,191	0.01	1,511
Wages	$55,818,105	$380.45	$70,813,077
Revenues	$229,580,090	$1,564.78	$291,254,468
Expenses	$200,796,917	$1,368.60	$254,738,985
Income	$28,783,173	$196.18	$36,515,482
Lines in Service	146,717	N/A	186,131
LSS Support	$8,520,964	$58.08	$10,810,035
ICLS Support	$27,618,397	$188.24	$35,037,801
HCLF Support	$35,767,310	$243.78	$45,375,837

[8] For a complete discussion of the RIMS II multipliers, please see *www.bea.gov/scb/pdf/regional/perinc/meth/rims2.pdf*.
[9] For a list of participating RLECs, see Appendix A.

The total number of Oklahoma access lines used in all statewide calculations was taken from a National Exchange Carrier Association (NECA) 5-year trending report for 2009. Using this total, we estimated that the 27 participant companies provided 78.8% of all RLEC access lines.

Economic Impacts

Rural Local Exchange Carriers provide many valuable services to local communities. Their primary mission is to act as a lifeline to rural customers who wish to reach friends, relatives, businesses and emergency services. In recent years, Oklahoma RLECs have begun expanding the list of services available to rural customers as the evolution of technology created the opportunity for data transmission. RLECs began investing in infrastructure to provide quality data services to existing rural customers. The value that rural customers receive from all RLEC services cannot be quantified easily using traditional impact methodology. It should be understood that this report merely quantifies the employment and wage impacts resulting from a loss of Universal Service Funds by Oklahoma RLECs. By excluding the monetary investment in additional infrastructure and any loss of nonmonetary benefits of landline access to rural customers, it is likely that this report understates the full impact of the loss of Universal Service Funds.

Of the forty RLECs in Oklahoma, twenty-seven provided data for the analysis. From the sample of twenty-seven participating providers, a representation of the entire RLEC industry in Oklahoma was constructed. All economic impacts originate from an initial change in economic activity. From this initial disturbance, spillover, or multiplier effects are estimated. For the purposes of this analysis, the initial economic disturbance comes in the way of a reduction in funding for the USF program. Specifically, all impacts represent the estimated economic consequences of foregoing Oklahoma RLECs current distribution of USF funds as those funds are shift to the CAF program and directed towards large, national providers of broadband services.

Based on USF loss projections, we estimate that Oklahoma RLECs will lose nearly 1,000 direct employees over the five-year period from 2012 – 2016 with direct wage losses of nearly $46 million. Based on the RIMS II employment multiplier (2.977), an additional 1,940 employees will be impacted statewide resulting in lost indirect wages of over $72 million.

Table 2: Estimated Employment and Wage Impacts (Losses)[10]				
	Direct		Direct + Indirect/Induced	
Year	Change in Employment	Change in Wages[11]	Change in Employment	Change in Wages[12]
2012	108.11	$5,066,531.03	321.87	$13,026,809.39
2013	169.03	$7,921,691.41	503.26	$20,367,853.97
2014	227.33	$10,654,168.97	676.85	$27,393,462.65
2015	236.17	$11,068,252.77	703.16	$28,458,134.06
2016	240.02	$11,249,077.72	714.65	$28,923,062.04
Total All Years	980.65	$45,959,721.90	2,919.79	$118,169,322.11

Fiscal Impacts

Fiscal impacts come from three primary sources: property, sales and income tax losses due to declining employment in the telecom industry. Fiscal Impacts resulting from the loss of USF funding are reported in Table 3. Property taxes are paid locally so the impacts will be felt primarily at the local level. An effective property tax rate of 1.53% was calculated based on the ratio of per capita property tax payments to per capita income in 2008[13]. We assumed that 100% of Oklahoma RLEC employees reside within the state and that 70% are homeowners. Additionally, with the loss of employment we assumed that 50% of the residents would leave the state. Based on the reduction in employment, we estimate local governments will lose nearly $1.5 million in property tax revenues over the 5-year period.

Table 3: Fiscal Impacts				
Year	Wage Impacts	Property Tax Collections	Retail Sales Tax	OK Personal Inc. Tax
2012	$13,026,809.39	$163,148.00	$293,103.21	$683,907.49
2013	$20,367,853.97	$255,087.37	$458,276.71	$1,069,312.33
2014	$27,393,462.65	$343,076.23	$616,352.91	$1,438,156.79
2015	$28,458,134.06	$356,410.19	$640,308.02	$1,494,052.04
2016	$28,923,062.04	$362,232.96	$650,768.90	$1,518,460.76
Total All Years	$118,169,322.11	$1,479,954.75	$2,658,809.75	$6,203,889.41

[10] All wage data is based on 2010 data supplied by Oklahoma RLECs. Constant wages are assumed.
[11] Based on the average wage for RLEC employees in Oklahoma of $46,866.59.
[12] Based on the 2009 average wage in Oklahoma of $37,238 per annum. Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages
[13] See Taxfoundation.org.

The state of Oklahoma employs a 4.5% sales tax on local purchases. Assuming that 50% of income is spent on local goods and services, the direct loss of $118.2 million in wages would lead to a reduction of $2.7 million in statewide sales tax collections.[14] Personal Income Tax loss estimates are calculated based on the gross wages of telecom employees for direct losses and Oklahoma mean wages for indirect and induced losses. It is estimated that the state of Oklahoma would lose $6.2 million in personal income tax collections for the five-year period.

Conclusion

While development of wider reaching broadband access may indeed be a legitimate economic development strategy, it is not clear that doing so at the expense of degrading local wired networks facilitates the program's stated objectives. Perhaps Americans are aware of the potential impacts both to the quality of their existing service and to the economic realities of their communities when they express 53% opposition to the statement that broadband accessibility should be a national policy priority. It is also interesting to note that among the population subset of Americans that do not currently have broadband access in their home, opposition to the idea of making access to broadband services a policy priority actually increases.

The present report analyzed the size and distribution of the local exchange carrier market in Oklahoma and found that nearly all counties were affected by a RLEC. Employment data extrapolated from the 27 participating RLECs suggest that the statewide community of providers employs over 1,500 Oklahomans and generates annual wages of nearly $71 million. The proposed National Broadband Plan would redirect funds away from the Universal Service Fund where it supports local providers who run wired lines to high-cost areas and toward the Connect America Fund where it would potentially subsidize large wireless operators as they attempt to deliver broadband services in high-cost areas – likely relying on the hard-wired networks put in place by existing RLECs.

Based on the assumption that the removal of USF funds would adversely affect the current operations of Oklahoma carriers, we found that over a five-year period the impacts would likely reach over 2,900 Oklahoma jobs and $118 million in Oklahoma wages lost. This reduction in employment and wages is estimated to translate into an estimated $1.5 million reduction in local property taxes, $2.7 million in lost state sales tax, and $6.2 million in foregone state personal income tax collections.

[14] This does not include additional revenues that are lost due to local sales taxes which were not estimated due to the variability of rates across localities.

Appendix A: Participating RLECs

Atlas Telephone Company
Beggs Telephone Company
Carnegie Telephone Company
Central Oklahoma Telephone Company
Cherokee Telephone Company
Chickasaw Telephone Company
Chouteau Telephone Company
Cimarron Telephone Company
Cross Telephone Company
Dobson Communications Corporation
Hinton Telephone Company
KanOkla Telephone Association
McLoud Telephone Company
Mid-America Telephone
Oklahoma Communication Systems
Oklahoma Telephone and Telegraph Company
Oklahoma Western Telephone Company
Panhandle Telephone Cooperative
Pine Telephone Company
Pinnacle Communications
Pioneer Telephone Cooperative
Pottawatomie Telephone Company
Salina Spavinaw Telephone Company
South Central Telephone Association
Southwest Oklahoma Telephone Company
Totah Telephone Company
Valliant Telephone Company
Wyandotte Telephone Company