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Lessons for Georgia: Telecommunications Tax Reform in Some of the Other Southeastern States

Richard R. Hawkins

**Fiscal Research Center
Andrew Young School of Policy Studies
Georgia State University
Atlanta, GA**

**FRC Report No. 256
January 2013**



ANDREW YOUNG SCHOOL
OF POLICY STUDIES

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Acknowledgments

The author acknowledges Carolyn Bourdeaux, David Sjoquist and Sally Wallace for valuable comments.

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Lessons for Georgia: Telecommunications Tax Reform in Some of the Other Southeastern States

Abstract

In this paper, telecommunications tax reform efforts from several other southeastern states are examined. The research reveals four major policy issues—including whether local government policymakers will have a revenue source under reform. After reviewing the proposed Georgia legislation of 2011, attention is turned to employment and investment in the industry post reform. The research indicates that one state, Florida, has done relatively well in the post-reform period, but industry jobs are in decline nationally (even before the 2008 recession) and there is no evidence that reform guarantees a strong industry in a particular state.

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I. Introduction

"The current system of telecommunications taxation in Georgia -sales tax, property tax and franchise fees - is clearly deficient in many respects." McHugh (1996)

"The CT (Communication Taxes) Study Committee finds that (Georgia's) taxation of telecommunications is complex and does not abide by rules of fairness and transparency." Georgia Senate Communications Taxes, Fees, and Telecommunications Franchising Process Study Committee (2007)

"The Georgia tax structure is antiquated and should be updated to achieve tax parity and tax equity across a broad base of communications platforms." Special Council on Tax Reform and Fairness for Georgians (2011)

The quotations above are indicative of an interesting policy problem in Georgia. To the author's knowledge everyone who has studied the taxation of telecommunications in Georgia has found it deficient, but the findings have not led to significant change so far. Thus, differential taxation of telecommunications still exists in Georgia today. This means that a Georgia customer purchasing a telecommunications service via one delivery method can face a very different tax and fee structure than another purchasing via a different method.

This paper will examine changes in some other Southeastern states, where varying degrees of movement toward uniform taxation of telecommunications has occurred. From this research, four important policy issues have been identified and each will be discussed here. This analysis will then address how proposed 2011 Georgia legislation addressed the issues. Finally, this study will include an assessment of whether any initial evidence exists that these reforms improve employment and investment in a state's telecommunications sector.

Before proceeding, the reader should understand what telecommunications consists of in the second decade of the 21st Century. In general, firms in the industry provide individuals and households and other firms with information by transmitting voice, data, text, sound, and video. This information can be delivered in the form of telephony (through various structures), television packages, Internet access and even telecommunication resellers. The basic distinction among the firms is delivery methods such as wire-based, wireless, and satellite infrastructure (with some firms using a hybrid). In general, discussion here will not include independent contractors, Internet cafes and other related retailers.

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II. The General Tax Issue

In Georgia, the two largest taxes and fees are the state (and local) sales tax and the local franchise fees that are passed on to the customer. Smaller taxes/fees include the State Universal Service Fund, Public Service Commission fees, right-of-way fees, occupational taxes and 9-1-1 fees (Georgia Senate Communications Taxes, Fees, and Telecommunications Franchising Process Study Committee, 2007). The reader should note that not every tax or fee applies to every telecommunication service. In fact, a subscriber to a video streaming service that claims to not have tax nexus in Georgia will probably find none of these taxes or fees on her bill.¹

Like many states, the mentioned set of taxes and fees for telecommunications can be viewed as an attempt to cram a changing industry into an antiquated tax system. Some of this is due to legal constraints—such as the tax nexus issue—and some is by the failure of the studies by McHugh (1996), the Georgia Senate Communications Committee (2007), and the Special Council (2011) to convince policymakers to do otherwise.

There are two fundamental inefficiencies in the set of taxes and fees for telecommunication services, both in Georgia and in many other states. The first is incomplete extension of the general sales tax to these services. For example, Georgia historically taxed charges for local phone service, but did not tax charges for long-distance calls.² A related issue is the unequal treatment of substitutes. Here, a cell phone plan for a Georgia resident (which includes free long distance) has been subject to the sales tax while individually billed long distance through traditional service has been exempt.

The second inefficiency is the set of extra taxes/fees that are imposed on some, but not all telecommunication services—even when the exempt and taxed providers produce close substitutes. An example here is the 9-1-1 fee that, until recently, did not apply to

¹ This does not mean the subscriber does not owe any taxes, simply that the vendor claims no Georgia tax nexus (similar to some online retailers) and is not collecting them.

² As identified in a 2004 Federation of Tax Administrators survey (available at <http://www.taxadmin.org/fta/pub/services/services.html>).

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prepaid wireless service. But even today, a Georgia resident can purchase service from an online company without the mentioned Georgia nexus and avoid the fee.³

Franchise fees are an area of this second inefficiency that deserves special mention. Historically, franchise fees were payments from the monopoly phone company to local governments in exchange for the use of public right of way. When cable companies created their networks, a similar fee structure was applied to these wire-based service providers. Now, however, Georgia includes a mix of wire-based and wireless service providers and to quote Richard McHugh (1996), "... one would have to feel increasingly uncomfortable with the design and traditional rationale for the existing system of public utility franchise taxation" (p. 22). In other words, delivery of information via fiber-optic cable (that can be underground) is subject to a franchise fee while delivering the same content via large wireless towers (often on private property) is not and this unequal treatment is difficult to defend.

For traditional television choices, the cable customer faces a blend of state and local taxes plus local franchise fees. The satellite customer, however, would definitely not face franchise fees, might be subject to a state sales tax and, by congressional action in 1996, could not be subject to a local sales tax (Schictel and Donnelly, 2008). For the newer streaming services, a provider with nexus will only collect state and local sales taxes.

The primary interest in full reform is eliminating, to the degree possible, this type of differential treatment in Georgia. A key element of such a reform would include removing the local franchise fees since they apply to some but not all providers of telecommunication services. It should be noted that treatment of these companies by the corporate income tax and the property tax are of less interest here, but not without some tax policy issues. For example, McHugh (1996) pointed out that Georgia assessment of traditional utilities for property tax liability was "often negotiated between the state's assessor and the public utility" based on various business-valuation methods (p. 3). This state-level value was then allocated to localities based on various measures of economic activity.

³ In the case of many online purchases, a Georgia resident is legally required to remit a use tax payment if the sales tax is not collected (although obviously, many do not). There does not appear to be an equivalent mechanism for uncollected 911 fees.

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III. Reform in Select Other States

This section includes a review of reform legislation in Florida, North Carolina, Tennessee and Virginia. It can be argued that all four started where Georgia is today, with franchise fees and selective taxes that often only applied to traditional wire-based services. For example, local governments in Florida formerly levied a telephone franchise fee *and* a separate right-of-way permit fee before reform.

Of the four, Virginia and North Carolina, have been praised recently by the Georgia Public Policy Foundation with both being called, "examples of states that have approached reform in a broader way" (Tresh, 2010). Policymakers in Virginia chose a new, broad communications sales tax and eliminated several older state and local taxes and fees on January 1, 2007 (Bowen, 2006). The eliminated set included a local consumer utility tax (on landline and wireless telephone), a local 911 tax, the Virginia relay center surcharge, a local gross receipts tax, a local video programming excise tax and a local consumer utility tax on cable television. The policy change also included a new statewide 911 tax and state oversight of existing local franchise (rights-of-way) fees. The Virginia communications tax is fairly broad based, but still includes a significant exemption for internet access charges.

In North Carolina, tax reform came in several stages (Harper and Dennen, 2008). In 2002, the state imposed a new state-level 5 percent sales tax on receipts to satellite television companies as a general offset to the local franchise fees that cable companies were subject to (commonly 5 percent). The new North Carolina tax led to a legal challenge and, ultimately, equal treatment of cable and satellite (to the consumer), beginning in January of 2006. At this point, cable companies remitted a comparable (to satellite) state-level sales tax from customers, but received a credit for local franchise fees. State policymakers went a step further in January of 2007 by beginning the elimination of franchise fees altogether. For economic analysis later in this report, I choose 2006 as the crucial year for North Carolina telecommunications tax reform because the franchise fee credit initiated that year provides an incentive for wire-based providers to invest in additional infrastructure.

Two other Southeastern states deserve mention although the commitment to uniform treatment of the industry is somewhat lacking. In 2001, Florida tax policy was changed to generally level the playing field by replacing several local taxes and fees, including franchise

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fees, with the Communications Services Tax (CST) that included both a state rate and a local rate that were applied to the same tax base (Resnick and Robin, 2003). Currently, the state rate is 9.17 percent. For local governments, the average rate is 4.8 percent but the median is 5.5 percent (author's calculations based on Florida Department of Revenue data).

The intent in Florida was a movement toward uniform treatment of service providers, but the Florida CST did not fully accomplish uniformity. First, wire-based residential telephone service was exempt from the CST. Second, the regular sales tax remained applicable to equipment rental. Finally, satellite television services were taxed at a higher state rate, but without a local CST. In areas with a low local rate, this creates a disadvantage for satellite providers.

In Tennessee, the general sales tax applies to both wire-based and wireless telecommunication services. However, it has an unusual rate structure that is summarized in Table 1.

TABLE 1. TELECOMMUNICATIONS TAX RATES IN TENNESSEE

Item	Rate (Percent)
<i>Cable and Wireless Cable Tax Brackets</i>	
\$0 - \$15 per month	0
\$15 - \$27.50	8.25
>27.51	7 + local
<i>Satellite Television</i>	
To Business or Residence	8.25 (no local)
<i>Interstate Telecommunications</i>	
To Business	7.5
To Residence	8.5 (including 1.5 to local)
<i>Intrastate Telecommunications</i>	
To Business or Residence	9.5 (including 2.5 to local)

Source: Tennessee Department of Revenue (2011b).

The first \$15 of a resident's cable television bill is exempt from tax.⁴ The next \$12.50 is subject to a higher rate, 8.25 percent. Beyond this bracket, the state rate falls but local rates also apply (frequently 2.25 or 2.75 percent). Satellite customers do not pay local sales taxes, but do pay a flat 8.25 percent tax without the \$15 exemption allowed for cable customers.

⁴ In essence, the least expensive cable television package is tax free.

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Policymakers in Tennessee took an unusual approach to franchise fees in 2008 (Ashburn, 2008). Legislation that year created a statewide franchise arrangement for wire-transmission video providers only that replaced local franchise agreements as each agreement with a local government expired. Thus, cable television providers in Tennessee are at a disadvantage to satellite providers via the franchise fee (5 percent, statewide) but receive an advantageous sales tax rate, relative to the satellite service with the latter's flat rate tax.

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IV. Four Policy Issues Beyond Rate Harmonization

From the published material on telecommunications tax changes in Florida, North Carolina, Tennessee and Virginia, four policy issues emerge. The first is whether local governments will continue to have the ability to levy a telecommunications tax (or fee) with a rate of their choosing. Policymakers in Florida and Tennessee chose to allow local autonomy while those in North Carolina and Virginia did not. For Tennessee, the local general sales tax rate applies (excepting satellite) while only Florida allows counties and municipalities to choose unique telecommunications tax rates.

The second issue follows the elimination of local franchise fees which occurred, to some degree, in all four states. Here, the question is what, if anything, will replace these fees under reform. In North Carolina and Virginia, state policymakers initiated revenue sharing which, in the short term, reduced the impact of the lost fees on local governments. In North Carolina, for example, just over 22 percent of net state tax revenues were shared with cities and counties, with the shares determined by the jurisdiction's population (Eleff, 2006). For Virginia, the state created a Communications Sales and Use Tax Trust Fund where localities could be compensated for lost franchise fees.⁵ In Tennessee, franchise dollars from wire-based video providers remained a local revenue source, but increasingly through a state-administered franchise system.

The treatment of satellite television service is the third issue. To the author's knowledge, satellite service has never been subject to local taxes in these states, even before the above-mentioned federal legislation. In Florida, the state tax rate on satellite service is higher in order to offset the absence of local taxes. This creates a political issue, however, as satellite providers are eager to identify any particular tax disadvantage for satellite customers (without identifying any tax or fee advantages) and to ask those customers to lobby for a tax reduction.⁶

⁵ Virginia policymakers did not immediately eliminate local franchise fees. Rather, as they expired, the fees were not renewed.

⁶ Direct TV and the Dish Network have apparently collaborated on the web site stopsatelliteta.com toward accomplishing this goal.

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The position of satellite service providers is probably best expressed by Mike Palkovic, an Executive Vice President of DIRECTV, Inc. who testified before a U.S. House subcommittee:

“[f]ranchise fees are NOT taxes, and should not be equalized between businesses that need to acquire valuable property rights and businesses that do not” (Palkovic, 2008). For an opposing view, the reader should see McHugh (1996) for arguments why franchise fees are obsolete and should be replaced. It should be noted that satellite service providers use bandwidth in the spectrum and do not pay for this valuable property right.

The treatment of other video streaming services is related to the satellite issue (perhaps one should think of this as issue 3-b). These firms are not subject to the traditional franchising process in Georgia (and might even dispute the telecommunications label). They offer, however, a strong substitute product for franchised cable television providers and should not be subject to discriminatory tax treatment. There are two important limitations, however, in applying a broad, neutral communications tax to these providers. First, some will inevitably claim no Georgia tax nexus and resist any attempt to force them to collect a tax. Second, local taxation (beyond a uniform local rate) may be impractical. If a Georgian travels the state, streaming content and making payments on a mobile device, it will be very difficult to determine the appropriate tax rate for each payment.”⁷

Finally, tax reform should address whether any relief will exist for firms that are unusually high users of telecommunication services. In Florida and North Carolina, taxes are capped at a statutory maximum and heavy users have the ability to use a direct pay mechanism.⁸ Tennessee created a more generous sales tax treatment for call centers, with a complete tax exemption but with two important caveats. First, the exemption was not extended to the five percent franchise fee, and second, it was only offered to large centers with more than 250 employees (Tennessee Department of Revenue, 2011a). For Virginia, the author’s research indicates no relief for high users of telecommunications.⁹

⁷ To some degree, this problem exists for travel outside of Georgia as well. For now, the location of the bank-issued credit or debit account can generally be used to determine the rate.

⁸ Under direct pay, the provider will not collect from a company such as a call center, rather the latter will directly remit the use tax to the state. The Florida maximum liability cap is \$100 thousand per year while the North Carolina cap is \$50 thousand (FL Statute 202.12 and NC DOR Sales and Use Tax Technical Bulletins Section 46).

⁹ For example, the Virginia Department of Taxation CT-75 tax return package for 2011 does not include a tax cap or stated maximum.

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V. Georgia's Proposed 2011 Reform

In 2011, the Joint Committee on Georgia Tax Structure helped prepare legislation based on the findings of the Special Council on Tax Reform and Fairness for Georgians. Some of the legislation addressed a reform of Georgia taxation of communication services. While the legislation was withdrawn before a vote could be taken, the communication section fit well with the tax reform measures from the other states.

The 2011 Georgia bill addressed the four policy issues with the following. First, local governments would use an indirect communications tax approach in that a new 7 percent statewide communications services tax would be levied and half would be called the local communications services tax (Special Council on Tax Reform and Fairness for Georgians, 2011). This approach is similar to Florida's except that the proposed Georgia local rate would have been constant statewide. Second, local franchise fees would have been eliminated under the bill, but the new local tax would apply to a broader tax base and would therefore help to offset the lost franchise fees.

For the third issue, satellite service providers would not be subject to the local tax, but the consumer's overall tax rate would be uniform in that a satellite customer would pay a 7 percent state rate.¹⁰ Finally, qualified call centers would not have to pay more than \$25,000 annually in telecommunications services taxes (including the state and local portions), thus providing tax relief to the largest users of the relevant services.

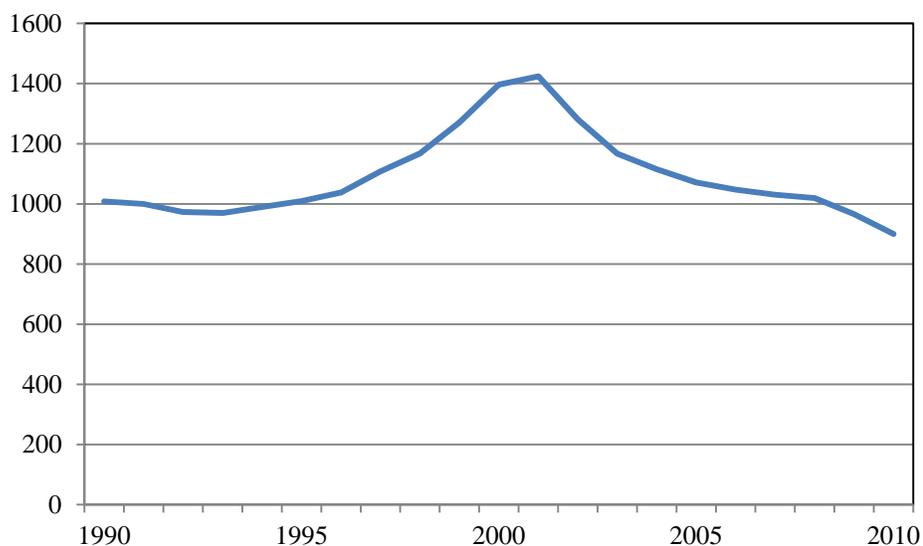
¹⁰ Industry representatives objected to a higher state rate.

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VI. Economy 1: The Overall Sector

This analysis now turns to the effect of telecommunications tax reform on employment, investment, and connectivity. Before discussing the role of telecommunications in the Georgia economy, however, the reader should understand that the industry experienced great changes over the past two decades. Toward the end of the 20th Century, employment in the telecommunications industry was growing (Figure 1) with close to 10 percent growth in *both* 1999 and 2000. Since 2001, however, the industry has become more capital intensive while employment has declined steadily across the U.S. In fact, between 2001 and 2010, the industry reduced employment by 37 percent. The industry once accounted for more than 1 percent of all jobs in the U.S. but this share has fallen to less than 0.7 percent.

FIGURE 1. TELECOMMUNICATIONS EMPLOYMENT IN THE U.S. 1990 TO 2010 (THOUSANDS)



Source: U.S. Bureau of Labor Statistics data.

A fiber optic bubble is largely perceived as the source of this employment pattern (see Figure 1) (U.S. Joint Economic Committee, 2003). U.S. companies overbuilt fiber optic networks in the late 1990s anticipating demand that did not quickly materialize. An industry that borrowed more than \$1 trillion in the late 1990s had, according to one estimate, an

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overall utilization rate below 3 percent in 2003 (DeMarzo, Kaniel and Kremer, 2007 and Brenner, 2003). Wireless technologies then overtook fiber in meeting many communication needs and this structural change led to increasing reliance on independent contractors for project-based work rather than full-time employees (U.S. Bureau of Labor Statistics, 2011).

Some additional analysis in the literature on the fiber optic bubble merits mention here. First, DeMarzo, Kaniel and Kremer (2007) argue that new technologies, in themselves, are potential sources for an economic bubble. The pattern of rapid investment followed by employment declines can occur independent of tax policy in a particular state. Second, bankrupt companies for whom debt payments were reduced may have had a price advantage over companies that never filed for protection. Since Bell South never filed, the Atlanta-based company may have been adversely affected by this phenomena in Georgia and in the other states where it competed for fiber-optic-based customers (U.S. Joint Economic Committee, 2003).

Mobile service providers have somewhat avoided a bubble despite a similar, rapid investment pattern. One strategy was the use of mergers (e.g., AT&T and Cingular) to reduce competition. Another was to host mobile virtual network operators in order to use excess capacity. For example, AT&T hosts numerous virtual operators including TracFone, a company that specializes in mobile service without a contract.

Even during the period of fiber-optic-based employment decline, there is some evidence that revenues increased for the overall telecommunications sector. For example, U.S. telecommunications employers reported sales of \$491 billion in the 2007 Census, a figure up 19 percent over reported sales in the 2002 Census. Meanwhile, companies such as Qwest, AT&T and Verizon reported increases in key investment measures in the FCC Automated Reporting Management Information System through 2007 (the last year this data were collected).

The job outlook for the industry also reflects the new capital intensity. The U.S. Bureau of Labor Statistics (2011) projects total 2018 employment of 931 thousand, a decline of almost nine percent from the 2008 total (Table 2), which was already shown to be considerably lower than the 2001 peak. In fact, the only significant occupational increase is in network systems-data communications analysts (approximately, six thousand new jobs) and the most important projected decline is for the equipment-install-and-repair occupations

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TABLE 2. TELECOMMUNICATIONS EMPLOYMENT PROJECTIONS FOR THE FIVE LARGEST OCCUPATION GROUPS

Occupation	Employment in 2008	Employment in 2018	Change
All Employees	1021.5	931.9	-89.6
Office and Administrative Support Occupations	267.7	246.2	-21.5
Installation, Maintenance, and Repair Occupations	267.3	236.6	-30.7
Sales and Related Occupations	177.7	160.9	-16.9
Computer and Mathematical Science Occupations	125.7	121.2	-4.4
Management, Business, and Financial Occupations	110.1	101.2	-8.9

Source: U.S. Bureau of Labor Statistics Office of Occupational Statistics and Employment Projections data.

(roughly, 30 thousand fewer jobs). The declines are also apparent in the occupational outlook narrative for installers, where bureau analysts point out there will be new networks but the new equipment requires less maintenance.

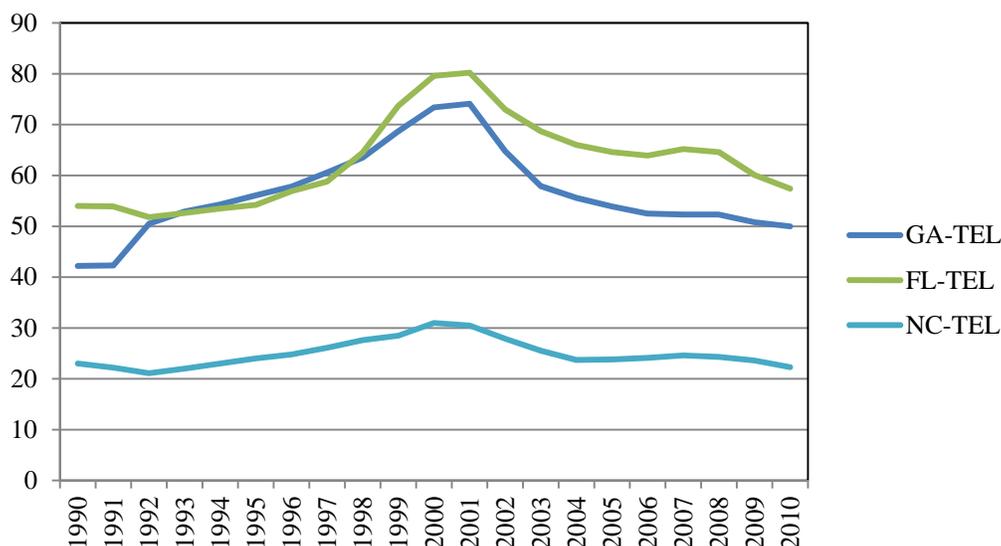
Finally, as mentioned, another employment trend has been the use of contract labor in lieu of company employees. Network equipment upgrades, such as the addition of 4G connectivity, has relied on the contractor approach (Knutson and Day, 2012).

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VII. Economy 2: Employment by State

The telecommunications employment picture for Georgia, Florida, and North Carolina has been similar (Figure 2) to that of the U.S. in that the job total spiked at the beginning of the 21st Century and has largely been in decline since. It should be noted that comparable data for Tennessee and Virginia are not available and employment patterns for the larger Information sector is not entirely consistent with the Telecommunications sub-sector.¹¹

FIGURE 2. TELECOMMUNICATIONS EMPLOYMENT IN SELECT STATES 1990-2010 (EMPLOYMENT IN THOUSANDS)



Note: Telecommunications employment numbers are not available for the other two states of interest: Tennessee and Virginia.

Source: U.S. Bureau of Labor Statistics data.

An important question is how significant the job losses (in the sectors listed in Figure 1) in the reform states have been relative to the overall decline. To examine the issue, the location quotient has been calculated and appears in Table 3.¹²

¹¹ Where employment data for both the Information sector and the Telecommunications sub-sector are both available, the correlation coefficient is high. For more sophisticated measures such as the location quotient (explained in the next footnote), the measures can show very different patterns.

¹² An industry location quotient for a state is simply the share of employment for that industry in that state divided by the share of employment for that industry in the U.S. For example, if 2 percent of Georgia workers work in the telecommunications industry while 1 percent of U.S. workers work in the industry, the location quotient is 2 or 2/1.

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TABLE 3. KEY EMPLOYMENT SHARE MEASURES FOR THE TELECOMMUNICATIONS SECTOR IN SELECT STATES 1990 TO 2010 (POST TAX REFORM VALUES ARE IN BOLD TEXT)

Year	Share of Total Employment		Location Quotient		
	Georgia	US	Georgia	Florida	North Carolina
1990	1.41	0.92	1.53	1.09	0.80
1991	1.44	0.92	1.56	1.11	0.78
1992	1.69	0.89	1.89	1.08	0.75
1993	1.70	0.87	1.95	1.08	0.78
1994	1.66	0.87	1.92	1.07	0.79
1995	1.65	0.86	1.92	1.05	0.81
1996	1.64	0.87	1.89	1.06	0.81
1997	1.68	0.90	1.86	1.02	0.79
1998	1.70	0.93	1.83	1.05	0.79
1999	1.78	0.99	1.81	1.10	0.75
2000	1.86	1.06	1.75	1.06	0.75
2001	1.88	1.08	1.74	1.04	0.73
2002	1.67	0.98	1.70	1.04	0.74
2003	1.51	0.90	1.68	1.06	0.75
2004	1.43	0.85	1.68	1.04	0.73
2005	1.35	0.80	1.68	1.03	0.76
2006	1.28	0.77	1.67	1.04	0.77
2007	1.26	0.75	1.68	1.09	0.79
2008	1.27	0.75	1.71	1.12	0.79
2009	1.31	0.74	1.77	1.12	0.82
2010	1.31	0.69	1.89	1.15	0.83

Note: The Georgia Location Quotient is the Georgia industry share of total employment divided by the same ratio for the U.S. For 1990, 1.53 is calculated as 1.41 (Georgia) divided by 0.92 (U.S.). Job wise, the industry was 53 percent larger in Georgia than nationwide.
Source: Author's calculations on U.S. Bureau of Labor Statistics data.

For the U.S., one can observe in the table the employment increase of the telecommunications sector (up to 1.08 percent of non-farm employment) and the decline (down to 0.69 percent). From the table, all three states have fared well compared to the industry overall. Thus, the declines in the sectors listed in Figure 1 were somewhat smaller in relative terms for Georgia, Florida and North Carolina. The latter two fared best, where the 2010 North Carolina quotient of 0.83 and the 2010 Florida quotient of 1.15 are the best

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measured for the past two decades, meaning the job losses in telecommunications for both states has been relatively mild. The post-reform employment picture in these states is generally positive, but the reader should recognize that the location quotient in North Carolina began to rise before reform and the measure for Florida did not increase immediately after reform.

For Georgia, the most encouraging location-quotient finding is slight increases in the final three years, 2008 to 2010. However, this simply represents fewer job losses as telecommunications only accounted for 1.3 percent of Georgia jobs in 2010, far less than the share in 2001 (almost 1.9 percent).

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VIII. Economy 3: Investment and Connectivity

Given the basic descriptive data above, there is no immediate evidence that job increases are a likely outcome of telecommunication tax reform.¹³ Another question, however, is whether there is evidence that reform states have improved investment and connectivity.¹⁴ Connectivity is important to Georgia residents, but it is also very important for economic development purposes.

With this in mind, The Federal Communications Commission (FCC) formerly reported select infrastructure measures, by state, for large incumbent local exchange carriers (basically, large traditional phone companies). The data were reported through 2007, giving a somewhat dated but still important view of activities by these companies in Georgia and the other states of interest.

In the Appendix, one can find the relevant data for four measures of infrastructure investment: Cable Sheath Investment per Kilometer, Central-Office-Terminated Loop Plant - Ratio of Fiber Strands to Copper Pairs, Ratio of Total Switched Access Lines in Service to Loop Plant Central-Office-Terminated Fiber Strands and Digital Investment per Access Line Served (Tables A1 through A4). Note that for three of these, a higher number is better; only for the ratio of switched lines to fiber strands does a low number indicate more investment in a particular state.

Rather than reviewing the large amount of data in the Appendix, Table 4 has been constructed to calculate select average annual growth rates for Florida and North Carolina pre- and post-tax reform. The best investment growth in the post-tax-reform environment occurred in Florida. Cable sheath growth increased from 2.0 percent to 2.4 percent while the corresponding growth rates for Georgia declined, from 3.2 to 1.6 percent. Conversely, investment trends for North Carolina were mixed. The growth rate for cable sheath investment declined in that state (while also declining for Georgia) and growth in digital investment per access line served increased basically everywhere. Again, although the

¹³ To more definitively assess the impact of the reform would require statistical analysis that is beyond the scope of this report. This report can only comment on whether there is an impact that might be reflected in the descriptive data.

¹⁴ See Röller and Waverman (2001) for a widely cited study on this relationship.

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TABLE 4. SELECT TELECOMMUNICATIONS INVESTMENT GROWTH RATES PRE- AND POST-TAX REFORM

	1998 to 2001	2002 to 2007	1998 to 2005	2006 to 2007
-----Cable Sheath Investment per Kilometer-----				
Florida	2.0%	2.4%		
North Carolina			2.4%	1.4%
Exhibit: Georgia	3.2%	1.6%	2.4%	1.5%
-----Digital Investment per Access Line Served-----				
Florida	3.6%	5.6%		
North Carolina			4.0%	5.9%
Exhibit: Georgia	4.8%	5.1%	3.7%	7.5%

Note: Incumbent Local Exchange Carrier (ILEC) is a term for basically the traditional wire-based telephone companies.

Source: Author's calculations on U.S. Federal Communications Commission Electronic ARMIS Filing System Data.

TABLE 5. SELECT MEASURES OF CONNECTIVITY, SELECT STATES

State	Population Reaching Speed Threshold		Population With at Least Two Wireline Providers		Population With Any Wireline Technology	
	Share	Rank	Share	Rank	Share	Rank
Florida	0.9973	7	0.871	13	0.9713	12
Georgia	0.9907	18	0.8479	17	0.9563	20
North Carolina	0.9846	27	0.8008	27	0.9569	18
Tennessee	0.9873	21	0.7938	30	0.9372	31
Virginia	0.9356	40	0.8408	19	0.9407	28

Notes: Speed threshold is download speed greater than 3 mbps and upload speed greater than 0.768 mbps.

Source: The National Broadband Map data.

measures for Florida are strong post-reform, one cannot definitively state that tax reform increases investment.

Recently, the National Telecommunications and Information Administration combined with the Federal Communications Commission to create the National Broadband Map, an indication of community connectivity. State data for three key measures of connectivity can be found in Table 5 and the rapid investment in Florida is evident in the measures of download speeds. In fact, Florida ranks 13th or better across all measures.¹⁵

¹⁵ The reader should note, however, that the ranking differences often reflect arguably small differences in the share of the population. For example, more than 99 percent of the population in Florida and in Georgia met the speed criteria, yet Florida 11 spots higher.

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Since the data are new, these measures will be more important in the future as they can be used to help determine the role of telecommunications tax policy in connectivity going forward.

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IX. Conclusions

Broad reform for the telecommunications industry means a tax and fee system that treats providers of similar services the same regardless of how the services are delivered. Thus, the firm that runs wire underground should not be treated differently than the firm that delivers content via the frequency spectrum. An exception can be claimed for any local government that must maintain the delivery method (e.g., trimming trees next to wires), but franchise fees generally increase with revenue while maintenance costs may not.

Tax reform does include some difficult policy choices. One is whether local governments will be allowed to tax the telecommunications industry and if they are, how should the tax be structured? Another choice is related, franchise fees have been an important revenue source for local governments and advocates of reform have to address whether this source will be replaced. The author prefers a local component within a state tax, as was proposed for Georgia in 2011, but the research clearly shows that other mechanisms are available.

The goal of any industry tax reform is twofold. The first is the fairness, transparency, parity and equity mentioned above, but the secondary goal is a strong telecommunications industry with relatively strong employment and investment.¹⁶ The limited data analyzed here indicate this exists in Florida today, and the connectivity measures for that state are very strong relative to peer states in the region. For North Carolina, reform came later and the findings are mixed. A lack of detailed employment and recent investment data for Tennessee and Virginia does not allow one to reach any conclusions for those states.

From this research, three important areas for future study emerge. As mentioned, updates to the National Broadband Map should be examined as this connectivity is important to Georgia residents and for the state's overall economic development efforts. A second issue is how the tax structure will respond to future changes in the industry. From the data associated with the map, the current focus is clearly speed through both wired and wireless information delivery systems. At some point, however, new systems themselves will be introduced, and it isn't clear how they will interact with a state's telecommunications tax structure.

¹⁶ An important caveat, however, is no one should anticipate a return to employment levels at the end of the 20th Century.

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Finally, one issue not examined here is the role of population density in employment, investment and connectivity. Florida, for example, has 20 Metropolitan Areas and the demographic structure may have increased attractiveness to the industry. For Georgia, Atlanta will likely remain a leader in connectivity but important questions remain on investment and connectivity improvements elsewhere in the state.

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TABLE A1. CABLE SHEATH INVESTMENT PER KILOMETER

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Florida	27,136	27,545	28,479	28,814	29,221	29,549	29,434	30,869	32,886	32,927
Georgia	18,343	18,694	19,570	20,148	20,617	20,996	21,339	21,696	21,997	22,334
North Carolina	18,625	18,469	19,809	20,471	20,867	21,265	21,595	22,004	22,378	22,702
Tennessee	14,348	14,643	15,157	15,502	15,814	16,033	16,298	16,608	16,964	17,283
Virginia	18,016	18,396	18,846	19,652	19,984	20,409	20,970	22,640	23,827	25,281
All Large ILEC	18,611	19,131	19,960	20,607	21,237	21,586	21,881	22,528	23,245	23,989

Source: U.S. Federal Communications Commission Electronic ARMSIS Filing System Data.

TABLE A2. CABLE TECHNOLOGY INVESTMENT AND EXPENSE (AERIAL, UNDERGROUND & BURIED CABLE)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Florida	0.62	0.61	0.64	0.43	0.45	0.5	0.55	0.6	0.64	0.67
Georgia	1.27	1.43	1.34	0.8	1.01	1.02	1.04	1.09	1.13	1.06
North Carolina	0.92	1.04	0.88	0.69	0.74	0.74	0.76	0.81	0.83	0.87
Tennessee	0.59	0.72	0.7	0.49	0.55	0.56	0.62	0.71	0.78	0.8
Virginia	2.19	2.07	2.23	2.48	2.41	2.45	2.11	2.89	2.96	3.52
All Large ILEC	0.89	0.92	1.06	1.16	1.28	1.12	1.17	1.31	1.43	1.57

Source: U.S. Federal Communications Commission Electronic ARMSIS Filing System Data.

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TABLE A3. RATIO OF TOTAL SWITCHED ACCESS LINES IN SERVICE TO LOOP PLANT CENTRAL-OFFICE-TERMINATED FIBER STRANDS

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Florida	138	147	140	134	111	103	87	73	64	55
Georgia	82	78	66	57	42	39	36	31	28	27
North Carolina	98	90	87	78	70	67	60	52	46	40
Tennessee	139	117	109	96	81	76	65	54	45	40
Virginia	34	36	34	30	27	27	25	22	20	15
All Large ILEC	80	79	68	56	48	53	48	40	34	28

Source: U.S. Federal Communications Commission Electronic ARMIS Filing System Data.

TABLE A4. DIGITAL INVESTMENT PER ACCESS LINE SERVED

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Florida	350	348	367	389	393	398	412	439	473	517
Georgia	400	413	433	460	468	471	489	515	558	600
North Carolina	411	413	432	470	471	481	503	540	580	614
Tennessee	361	368	392	431	438	442	461	485	514	550
Virginia	387	391	409	439	469	456	473	508	545	574
All Large ILEC	375	373	388	416	439	452	470	496	531	568

Source: U.S. Federal Communications Commission Electronic ARMIS Filing System Data.

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About the Author

Richard Hawkins is Professor of Economics at the University of West Florida and a Principal Associate with the Fiscal Research Center. He did his undergraduate work at Emory University and received his Ph.D. in economics from Georgia State University. While at GSU he was a Research Associate in the Fiscal Research Center. His research interests include public finance, particularly the sales tax.

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Lessons for Georgia: Telecommunications Tax Reform in Some of the Other Southeastern States

Publisher(s): Fiscal Research Center of the Andrew Young School of Policy Studies

Author(s): Richard Hawkins

Date Published: 2013-01-11

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Subject(s): Government Reform