The State of Broadband Competition in America – 2010

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The Competition Debate

Even before the FCC's national broadband plan was released in March 2010, some critics were wary that the plan would not sufficiently address the issue of creating a more competitive environment in the market. From their perspective, the root cause of the United States' poor standing in the world and at home for broadband adoption, quality of service and price is the lack of adequate competition.

Likewise, critics feel the ability for broadband to serve as an economic engine and source of notable innovation within the U.S. is limited due to the dominance of telecom and Internet service provider monopolies or duopolies within markets nationwide. Without sufficient competition, the contention is that there are no incentives for providers to serve significant segments of rural and low-income urban areas.

The opposing view is that competition is robust. A recent editorial in the *Christian Science Monitor* states: "Some 95 percent of Americans have access to at least four wireless carriers that offer broadband, in addition to the old standbys such as cable, satellite, and phone line carriers still offering broadband access." The editorial states that broadband access is quickly moving beyond the possibility of monopoly or duopoly abuse.

Those subscribing to this position subsequently conclude that no action needs to be taken to address competition, but rather we should attack issues such as lack of spectrum, and subsidize broadband network build-outs and adoption in un-served areas. Any efforts to induce competition are frowned upon and actively fought by incumbent providers, with the frequent message "we'll build more network capacity if the government doesn't regulate us."

With that in mind, we wanted to look at the current competitive landscape to see what the data tells us. BroadBand Scout℠ is the first comprehensive database of Internet usage in the U.S. based on an innovative survey process that allows us to observe the usage and carrier information for roughly 20 percent of U.S. households. For this particular research report, we analyzed the competitive landscape at the state level. In analyzing, we are specifically able to answer the following questions:

- What is the competitive picture state by state?
- How do the states comparatively rank in their level of competitiveness?
- Are there factors such as population density, percentage of rural versus urban areas, Internet usage and speeds consumed that affect a state's ranking?
- Is there more or less competition at the county level?

Methodology

A detailed description of the methodology used in creation of this report is presented on page 10. The key steps we took were to:

1. Establish a benchmark for a perfect competitive environment;

2. Use over two million data points to measure market share for the top 10 providers in each state and the District of Columbia; and

3. Measure how closely each state matches the benchmark using a derivative of the Kolmogorov-Smirnov test for uniformity. That measurement is labeled throughout the rest of this report as Comp_Stat. The states and the District are ranked in order based on their Comp_Stat. The lower the value of Comp_Stat, the greater is the degree of competitiveness within a state.

We then assessed the data to determine if factors such as population size or Internet usage affected the competitive picture within or between states. This produced some unexpected observations and begs for more extensive research.

RESULTS:

Once we had established the competitive measurement. We were then able to rank order each state by Comp_Stat. This can be seen below. As you can see, Arkansas is the most competitive state, while at the other end, Rhode Island is observed to be the least competitive state.

Competition by State

As we dig under the covers a bit, you begin to see what is driving these rankings. For the state of Arkansas, the table below outlines the top 10 broadband carriers and their relative market share.

State	Carrier	rank	Comp_Stat	MarketShare
AR	Carrier 1	1	0.310	30%
AR	Carrier 2	2	0.310	19%
AR	Carrier 3	3	0.310	11%
AR	Carrier 4	4	0.310	11%
AR	Carrier 5	5	0.310	10%
AR	Carrier 6	6	0.310	10%
AR	Carrier 7	7	0.310	3%
AR	Carrier 8	8	0.310	3%
AR	Carrier 9	9	0.310	2%
AR	Carrier 10	10	0.310	2%

In Arkansas, the top six carriers each have over 10% market share. It is this relative "flatness" compared to other states that drives our assessment of competition.

Likewise, we see how this differs from our lowest-ranked state – Rhode Island. This can be seen below.

State	Carrier	rank	Comp_Stat	MarketShare
RI	Carrier 1	1	0.756	78%
RI	Carrier 2	2	0.756	17%
RI	Carrier 3	3	0.756	2%
RI	Carrier 4	4	0.756	1%
RI	Carrier 5	5	0.756	0%
RI	Carrier 6	6	0.756	0%
RI	Carrier 7	7	0.756	0%
RI	Carrier 8	8	0.756	0%
RI	Carrier 9	9	0.756	0%
RI	Carrier 10	10	0.756	0%

Here, we have a much different picture than in Arkansas. In Rhode Island, we see that the top two carriers dominate, representing approximately 95% of the top 10. As we get to competitors 3 through 10, we see their relative market share drop to 2% and below.

Macro Level Effects

Understanding why states are observed to be more competitive or less competitive is a multi-faceted exercise. For example, it is accepted that topography and concentrations of people are major drivers of competition.

For example, Rhode Island is the smallest state and its population is highly concentrated. This bodes well for infrastructure providers being able to quickly secure a major market share position. What we typically observe is a dominant DSL provider and a dominant cable provider. In Rhode Island, the two major providers are Cox Communications (cable) and Verizon (DSL).

As we move along to another state with high concentrations of people, California, we see that it ranks #5. However, California has multiple major markets: the Bay area, Los Angeles and San Diego. As you separate these three markets, we see that there are different carriers that play in each market. When you roll this up to a statewide level, California looks much more competitive.

Similarly, when we look at New York State where more than 50% of the people and households are concentrated in New York City and the immediate surrounding areas, we see that its competitive ranking drops to #40.

TRENDS:

While it makes sense that concentrations of people attract more dominant providers which in turn decreases the relative competitiveness, we also wanted to see if there were certain state-level attributes or factors that were correlated closely with competition. As we present this, bear in mind that we do not necessarily have a cause-and-effect relationship going on here.

To probe for potential correlations, we selected various state-level census demographics, as well as the latest census survey information on Internet usage. Because BroadBand Scout also is able to determine the actual speeds being realized by consumers, we were able to assess if actual download and upload speeds correlated to competition. All in all, we analyzed more than 100 attributes.

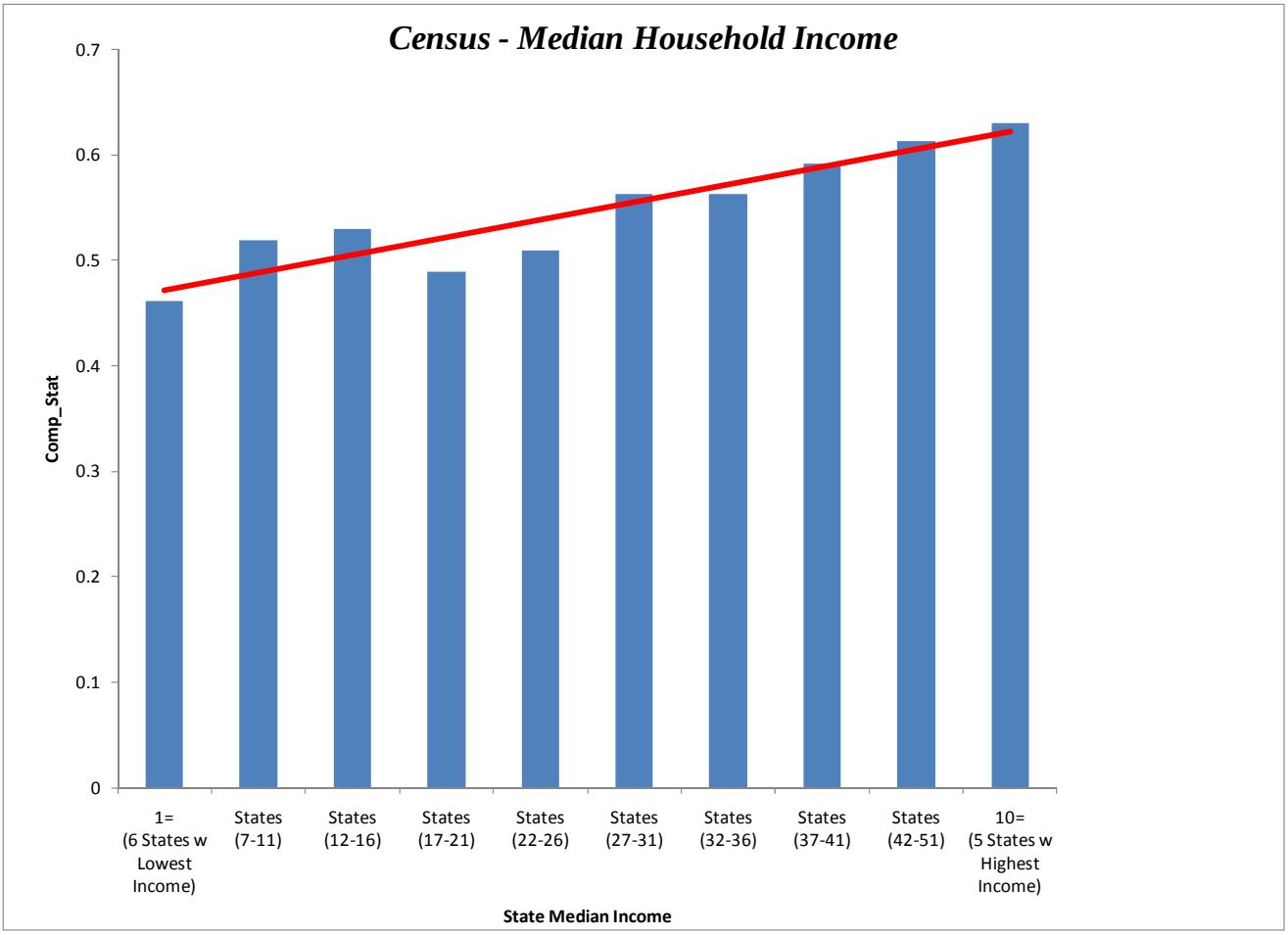
Going through that process, we observed a handful of attributes that correlate significantly with competition. Select attributes are shown below.

Source	Attribute	Correlation with Comp_Stat
Census	Median Home Value	0.48 **
Census	Median Household Income	0.48 **
Census Internet Survey	State Usage: Percent Using Broadband	0.46 **
Scout	Weighted Average Upload Speed	0.42 **
Census Internet Survey	State Usage: Percent Using Internet at Home	0.42 **
Census	Age 35-44 in Houshold	0.34 **
Scout	Weighted Average Download Speed	0.33 **
*** All correlations significant at the 0.01 level of significance*		

As you can see, the top two correlated variables are Median Home Value and Median Household Income. The data we reviewed, on the face of it, seemed to tell us that as income and home values show an increase from state to state, the Comp_Stat increases, meaning the level of competition decreases.

Likewise, it seemed that when speed and percent of people using the Internet (or broadband) shows an increase from state to state, that the level of competition again decreases.

To get another view of this correlation, we can also look at this trend graphically. Here we look at the relationship between Median Household Income and Competition.



The horizontal x-axis shows the states with lowest to highest income. A value of '1' represents the 5 states with the lowest state level median income. Likewise a value of '10' represents the 5 states with the highest income. On the y-axis is Comp_Stat, which measures competition as described earlier.

Thus, we see that the 5 states with the lowest income have the most competition, while the 5 states with the highest income have the least competition. The Red Line simply shows the overall trend of the relationship.

This may at a certain level be counter-intuitive. However, when you look at this one layer deeper, it begins to make sense. In more prosperous states where there are many users, and more wealth, this tended to attract the largest providers. As infrastructure was enabled and larger providers began to dominate markets, it became increasingly difficult for new entrants to establish themselves.

If what the data tell us is true, then this begs a few significant questions:

- If more lucrative markets tend to become less competitive, will this trend continue?
- If the most lucrative markets tend to become less competitive, what will incent those providers to increase their networks and available speeds?
- In the areas with lower incomes that have more competitive environments, what factors will increase broadband adoption (an assumption being that there are barriers either to constituents buying services from these competitors, or competitors selling services)?

A County-Level View

While the focus of this report was on understanding competitiveness at a state level, we also wondered whether this same dynamic occurs at the county level within a state. In other words, do we see the same monopolies and duopolies occur at the county level as we see at the state level for similar reasons.

In reviewing the data, this does not appear to be the case, especially as we moved to more rural counties. What we saw instead was noise. As we got down to the county level, it appeared that the competitive environment was much more volatile. Some counties are extremely competitive while others are even more monopolized. The highly competitive areas appear more the result of local communities having a greater hand in determining their broadband future than areas where the larger providers are acting mainly for financial reasons.

CONCLUSIONS:

There are a number of conclusions to draw from this preliminary research. Indeed, broader and deeper research would undoubtedly reveal answers to many questions addressed in current broadband discussions and the FCC's national broadband plan. We will highlight here only several of the most pronounced conclusions.

The Myth of Competitiveness

Contrary to claims of those who feel the U.S. has “robust broadband competition,” it is clear that half of the states have a duopoly rather than true competitive markets. The only question for these states is how much of a market share the top two providers collectively command. In states such as Ohio and Nevada, where there is a 30+ percentage gap between the top two providers, some will argue this is a monopoly.

The other contention, that consumers and businesses have a wealth of options for providers (one industry executive estimated “everyone has at least four wireless carries, plus cable, satellite” etc.), also has flaws. This is perhaps true when taking in the nation as a whole, but when analyzed at the

state and county levels which is where in reality the selection of possible providers actually exists, there are far fewer choices.

Even in the most competitive states, the bottom five competitors have 3% market share or less. These competitors are obviously not offering services throughout their states, so clearly any remaining providers are less than a competitive force. Furthermore, if others are adding dial up service providers to their list of consumer choices, this is disingenuous distraction because consumers know dial-up is Internet access but it isn't broadband.

The Impact of Population Density

There is a general assumption that population density directly affects competition, with more competitors located where there are more people. As we mentioned previously, the presences of multiple major metropolitan areas can result in a state being more competitive, whereas one large metropolitan area in a state can result in it being less competitive. Conversely, a clearly rural state such as Nebraska can prove to be quite competitive.

We believe people need to assess their specific state or county to determine if population density plays a direct role in predicting or facilitating competition. Even when doing a comparative analysis of counties in California, which run the gamut from low to high density, results proved inconclusive. We suggest looking for factors such as topography and the breakdown of industry types to combine with density as part of your analytical reasoning.

Wealth's Impact on Competitiveness

It was a surprise to see the results from analyzing the correlation between wealth (as measured by median income and median home value) and competition. It is probably safe to accept that most people assume the least wealthy areas of the country have the least competitive markets because providers are reluctant to serve these areas. Our research seems to contradict this, and might lead some to question its validity in challenging a popular assumption.

We hesitate to draw what could be the obvious conclusion that, if a state's constituents become wealthier, competitiveness in broadband will drop. We take the position that wealth attracted or facilitated (and still does) one or two large providers to come into the area initially and establish market dominance such that their resulting barriers prevented competition from becoming widely established. It very well may be that specifically because less affluent states did not attract one of the largest providers (at least for a while), several smaller regional or local providers were able to establish stronger market positions.

Broadband Stimulus Impact on Competitiveness

In reviewing statistics on Round 1 broadband stimulus grant awards, we noticed an interesting development. Nine of the 14 states that won the lion's share (over $1.2 billion) of stimulus funds are in

the top (most competitive) half of our chart. Relative to the total amount of money available, very little was awarded to the five least-competitive states.

We do not dispute that money awarded to the more competitive states went to under-served communities within those states, and in fact, commend both agencies involved for a hard job done well under difficult circumstances. However, NTIA and RUS may want to consider working toward a more balanced distribution, or even a weighted distribution, to those states that are both under-served and clearly not competitive.

Our Methodology in Detail

Because BroadBand Scout tracks actual Internet usage at the household level, we can begin to assess how this rolls up at any level of geography. When we considered competition at a state level, we adopted the following methodology:

- The first thing we did was to identify the top 10 broadband carriers for each state plus the District of Columbia. In every state analyzed, we observed that after the first few largest carriers that market share quickly drops into the single digits, with the maximum market share of the 10th largest carrier only being 3%.

- The next step was to determine what would constitute the most competitive environment. For this, we chose to structure our view to evaluate uniform distribution. That is, in the most competitive situation, we said that the top 10 carriers would have equal (or 10%) market share amongst these competitors.

- As states become “top heavy” or more monopolized, they tend to stray further and further away from this most competitive or equal share situation.

- To measure this difference between "actual market share" and "most competitive market share," we used a derivative of the Kolmogorov-Smirnov test for uniformity. This involved measuring the maximum difference observed between the cumulative distributions of providers' actual market shares and the most competitive market share.

- Therefore, states with a large difference are less competitive and those with smaller differences are more competitive.

- This statistic or measurement was then used to rank each state with regard to their competition.

Once this metric was established, we were then able to look at ancillary state-level factors such as average income, Internet usage, actual speed and many other state-level attributes to determine if there were any trends or correlations with their competitive environment.

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Prior to launching ID Insight in 2003, Adam Elliott was the President of ChexSystems℠, the recognized leader in providing risk and fraud solutions for the retail banking industry. Adam has also held analytic leadership roles at Deluxe, Time Warner and Fingerhut. A recognized name in the analytics area, Adam has won numerous awards for marketing and training. He is a former board member for the National Center For The Prevention of Economic Crime.

About ID Insight
Northfield, Minn.-based ID Insight, the innovator in Access-Point Intelligence, combines its massive collection of data on people and access points with patent-pending analytics to help companies research new markets, prevent fraud, reduce costs and capture more business. ID Insight provides next-generation market research, verification, authentication, and fraud solutions to financial services companies, credit issuers, retailers, online merchants and broadband providers nationwide. For more information, visit www.IDInsight.com.

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Craig Settles, President of Successful.com, is an industry analyst and business strategist who helps private and public sector organizations implement broadband technology. Author of *Fighting the Next Good Fight: Bringing True Broadband to Your Community*, blogs and many in-depth reports, Mr. Settles is a prominent thought leader on executing appropriate broadband strategies. He is also Director of Communities United for Broadband, a national grass roots effort to assist communities launch their networks.

About Successful.com
Successful.com has delivered community broadband services since 2006. Prior to this, the firm provided marketing services to technology companies, and business strategy services to end-user organizations beginning with its inception in 1986. Previous broadband needs assessment clients include the City of Glendale, Calif., Longmont, CO, the Little Tokyo area of Los Angeles and several cities in Santa Clara County, Calif. For over 20 years the firm's workshops, consulting services and books have helped government and other organizations worldwide use technology to cut costs, improve business operations and increase revenue.

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