

Update: Rural Population Loss Still Tied to Poor Broadband

Broadband Communities' ongoing study of all U.S. counties continues to show that poor or no broadband drives away jobs and, eventually, people. However, the effect is less clear than it was in the recent past.

By Steven S. Ross / *Broadband Communities*

In the four years I have studied rural broadband and economic growth, I have consistently shown that at least a quarter and as much as half of rural population loss is due to lack of broadband access (confidence level 96 percent for a quarter of population loss). This pattern held with almost no change from the last census in 2010 through 2016 (see the box on p. 8 for a list of key articles and findings using data through 2016).

Last year, the pattern changed slightly, but the uncertainties – the “fuzziness” – of the data I use to make the calculations increased greatly. Deeply rural counties continued to lose population, although at a slower rate. A quarter to half that loss is still attributable to lack of good broadband access,

but the level of certainty is lower – just over 80 percent (four out of five chances) rather than 96 percent (24 out of 25).

THE URBAN CORE LOST POPULATION

From 2010 to mid-2016, the population of all rural counties (as measured by the census) declined by about 1.25 percent. That's about 500,000 people. It does not sound like a lot in a nation that has a population of more than 325 million, but it is more than enough to reduce property values and rural wealth significantly. Property values declined in rural areas as jobs dried up and people left. Until mid-2016, people, for the most part, moved to urban areas, raising the need for spending on new urban infrastructure and quickly increasing urban property values.

WHAT'S RURAL?

How to measure the rural population isn't clear-cut – even federal agencies disagree. The Census Bureau (Department of Commerce) and the National Center for Health Statistics (Department of Health and Human Services) define “rural” slightly differently. (To be on the safe side, I always run the data both ways, but the results I report use the census definitions, mainly because the census supplies confidence intervals at the county level and NCHS does not add detail.)

The disagreement about what's rural explains some contradictory findings you may see in the press. For example, the Pew Research Center, whose findings on rural-urban migration are widely reported, uses the National Center for Health Statistics Urban Rural Classification Scheme for Rural Counties. That scheme considers many exurban counties near major urban centers as “rural.” Thus, in the Pew studies, the “rural” population actually grew 3 percent between 2000 and the end of 2016, reaching 46 million. According to the census, the rural population *declined* from 2010 to mid-2017, ending at just under 42 million. The census defines “rural” counties as those not tied economically to an urban core or its commuter-accessible suburbs.

SUMMARY OF FINDINGS

- 1 Other than in a few metro-adjacent counties, rural population fell by 24,000 to 33,000 (as measured or estimated) from mid-2016 to 2017. That loss is one-quarter to one-third the annual rate from 2010 to mid-2016.
- 2 There is still more rural population loss in states that restrict municipal broadband. However, the data are fuzzier. The trend is confirmed, but the precision is worse.
- 3 The precision is worse for normal reasons – sampled data are always a bit worse each year until the next complete census – and abnormal reasons as well, such as illegal immigrant populations’ beginning to shift from rural areas before ICE enforcement ramped up last fall. The National Broadband Map data has also deteriorated. This has only a tiny effect on the most broadband-deprived counties (because zero broadband is zero) but adds to the fuzziness in counties that may have broadband in micropolises and none outside the little population centers.

In the last year, however, more people migrated to distant suburban and exurban districts at the expense of the urban cores and (slightly) distant rural counties. Suburban and exurban counties tend to have better broadband than truly rural areas.

The shift from overheated urban cores went almost unnoticed. These areas have the largest median family incomes, and until last year, they increased in population. Because the poorest rural residents tend to leave – whether entire families or young adults just starting their careers – their leaving may actually raise median family incomes in their home counties. I detailed that effect in late 2017, using data through the end of 2016 (income data is collected by calendar year). Rural counties (as measured by the census) are aging faster than the nation as a whole, especially in counties that depend mainly on agriculture. Rural counties in the Midwest are aging fastest of all.

RURAL POPULATION LOSS SLOWED

However, the trend of steady rural population loss slowed in 2017. The changes have been examined in great detail by Kenneth M. Johnson, senior demographer at the Carsey School of Public Policy at the University of New Hampshire. Last year, overall growth resumed in the 1,976 counties of nonmetropolitan America. Johnson noted that the population gain was smaller than Pew suggested, just 33,000 (less than 0.1 percent, or an average of

16 individuals per rural county), “but it contrasts with a loss of 47,000 two years ago.” He attributed the swing mainly to renewed domestic in-migration to rural counties near metropolitan areas.

METRO-ADJACENT COUNTIES GAINED POPULATION

That is not the whole story. No matter which definition of “rural” is used, metro-adjacent rural counties tend to grow faster than remote rural counties

because metropolitan sprawl spills over into them. The deep recession that began in 2008 reversed this long-term trend, Johnson says, and for several years, metro-adjacent counties lost more population than remote rural counties.

Between July 2016 and July 2017, metro-adjacent rural counties gained 57,000 residents from urban cores and migration from deeply rural counties because, Johnson says, “a domestic migration gain supplemented immigration and natural increase.”

FIGURE 1. DOMESTIC MIGRATION BY METROPOLITAN STATUS, 2015 TO 2017

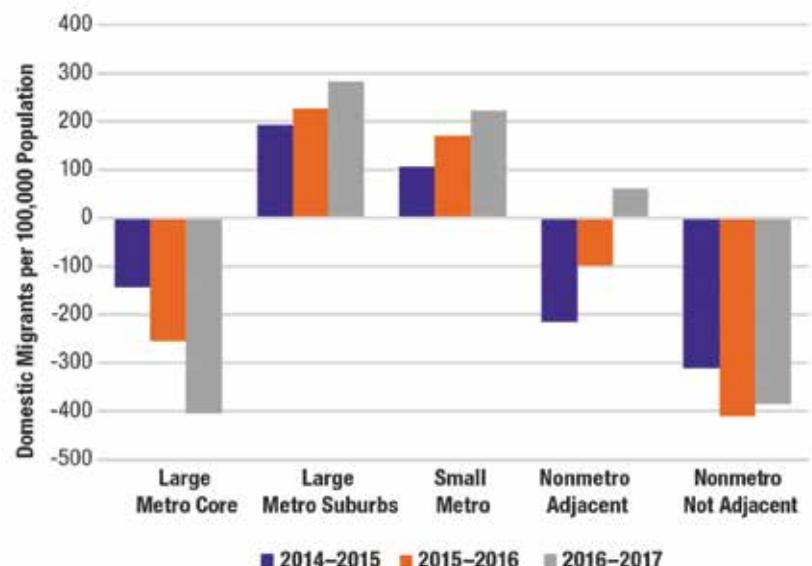


Chart by demographer Kenneth Johnson shows that within-country migration changed mainly for rural counties adjacent to metropolitan areas last year. But overall, deep-rural counties continued to lose population.

Deep rural counties – those least likely to have broadband – continued to lose population.

Rural counties not near metropolitan areas continued to lose population. These are precisely the counties less likely to be served by adequate (or any) broadband – especially outside small town centers.

In short, nothing really changed overall, compared with our earlier studies. Or did it? Remember, the rural counties overall grew by 33,000, but the adjacent counties grew by 57,000, which suggests they pulled 24,000 people from deeply rural areas. The losses in these deeply rural counties averaged three to four times that number annually from 2010 to mid-2016.

CALCULATING POPULATION CHANGE

My analysis (and Pew's, except for the definition of "rural") relies on Census Bureau population data. Current numbers for county characteristics come from the American Community Survey (ACS) annual reports from 2012 to 2016. Pew combines the annual totals to get a five-year change.

I calculate on the combined change and on annual changes so I can get a better feel for data precision. Current Pew numbers for natural population increase or decrease and migration flows come from population estimates for 2014, the most comparable year to the ACS data because it is the midpoint of the 2012–2016 ACS data stream.

Between the once-a-decade census counts, everyone relies on the ACS. But the ACS in rural areas is tricky. Each rural census tract is sampled about once every three years. Often, a tract is an entire county. Urban areas typically have at least one tract sampled every three months or so. This is perfectly reasonable for the country as a whole. The most frequent sampling happens where most people live. Of course, the census also adjusts its population estimates for areas it does not sample in a given year by looking at similar counties it does sample, preferably nearby.

However, the precision of the comparisons declines the longer ago the

last census was, and the last census was in spring 2010.

POPULATION LOSS

The population of the United States as a whole has been rising. Starting in 2011, the number of abortions fell by 500,000 a year, and live births increased. The generally improving economy, plus Affordable Care Act family health coverage, allowed more families to afford children. But the economy has not improved uniformly, and many rural areas are still in poor economic shape. Many states did not expand Medicaid, raising insurance costs and cutting availability. Last year, another uncertainty was created – illegal residents began to be deported in large numbers.

For each of the 3,144 counties, I compared population gain or loss to its broadband coverage ranking within its state, as derived from the National Broadband Map, and to broadband availability for the country as a whole. I also disaggregated the state data by major economic activity of each county as defined by the United States Department of Agriculture and compared states that restrict communities from creating their own broadband networks with states that do not. Some of the "restriction" states

MAJOR ARTICLES IN THIS SERIES

November-December 2014: "Bad Broadband Equals Low Population Growth" reported a clear relationship nationally between population loss from 2010 to 2013 and the percentage of each county's population that had access to at least 25 Mbps service

May-June 2015: "New Evidence on Muni Broadband" showed that lack of broadband access was the cause of population loss in a quarter to half the counties. The 20 states that restricted municipalities from building their own networks suffered four times the rural population loss rate of the 30 states with no such restrictions even though their overall population growth rates were higher. The restriction states also strongly tended to have much larger digital divides between have and have-not counties.

November-December 2016: "Broadband: The Key Ingredient for Rural Economic Development" showed that lack of broadband was associated with population loss in rural counties whose dominant activity was farming, retirement, manufacturing or recreation, no matter whether the counties were rural or near-urban. The one exception was mining counties, whose population trends depended more on world commodity prices than on broadband availability.

November-December 2017: "Measuring Broadband and Job Loss: Population or Income?" found a clear relationship between broadband access and median family income but no income difference between states that restricted municipal broadband and those that did not.

have loose restrictions. Others have tight restrictions. Some restrictions have been in effect for a century, some for only a few years. So I performed more than 100 data runs to make sure that including or excluding various states and other variables did not affect the overall conclusions.

The National Broadband Map (NBM) data on broadband availability comes from the Federal Communications Commission's Form 477. Because network deployers can claim many more premises on Form 477 than are actually served, the NBM is wildly optimistic. The data quality peaked in 2014 and has declined since then. This creates much of the data fuzziness.

Many public-interest groups worry about the affordability of the broadband that is available. My data is not set up to examine that question in great detail, but I do not see much difference in population loss (and thus presumably

The deteriorating quality of the National Broadband Map makes the data "fuzzy."

job loss) due to the price of broadband. I do see a drop in take rate, but the effect is small compared with that of family size, presence of school-age children or type of economic activity. At any common prevailing price, if a household or business needs the broadband, a difference of \$100 a month or more in cost has little effect. The only differences in population loss arise from up-front carrier charges of \$10,000 (or more) to share the cost of a deployment.

Going forward, I will look at changing state laws – Tennessee and Alabama have become more welcoming to broadband deployments by electric co-ops, for example. I also note that ownership of 5G microcells raises

the stakes for deployers unless they share facilities or go into business with small, Tier-3 local exchange carriers or municipal or co-op carriers. And of course, I will be watching changes in health insurance enrollment, Medicaid and deportations.

Another effect involves new broadband funding (\$600 million for the Rural Utilities Service, \$200 million a year in new rural-targeted small-carrier subsidies from the Connect America Fund and a possible additional \$600 million from the new farm bill in House-Senate conference committee negotiations as of press time). ❖

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