

Review of Rural U.S. Economic and Health Care Trends

SEPTEMBER 2022

Dr. Alison Davis

CEARH | Center for Economic Analysis of Rural Health
University of Kentucky

This study was supported by the Federal Office of Rural Health Policy (FORHP), Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services (HHS) under cooperative agreement U1ZRH33331-02-01 The information, conclusions and opinions expressed in this brief are those of the authors and no endorsement by FORHP, HRSA, HHS, or Center for Economic Analysis of Rural Health at the University of Kentucky is intended or should be inferred.

For more information, contact Alison Davis (alison.davis@uky.edu)

Center for Economic Analysis of Rural Health | CEARH
University of Kentucky, College of Agriculture, Food and Environment
411 C.E. Barnhart Building Lexington, Kentucky 40546

TABLE OF CONTENTS

Executive Summary	3
Demographic Trends	4
<i>Figure 1. Population Change for Nonmetro Counties, 2010-2019</i>	4
<i>Figure 2. Percent Change in Population Across States, 2010-2019</i>	5
<i>Figure 3. Components of Population Change Across the Rural-Urban Continuum, 2010-2019</i>	6
<i>Figure 4. Poverty Rates, 2010-2019</i>	7
<i>Figure 5. County Poverty Rates, 2019</i>	8
Rural Hospitals	8
<i>Table 1. Rural Hospital Closure Conversions, 2010-July 2022</i>	9
<i>Table 2. Rural Hospital Closure Conversions by Hospital Type, 2010-July 2022</i>	9
<i>Table 3. Top 15 Sectors Impacted from a Reduction in Hospital Employment, Nonmetro, 2011-2021</i>	11
<i>Table 4. Top 15 Sectors Impacted from a Reduction in Hospital Employee Spending, Nonmetro, 2011-2021</i>	12
Patient Bypass and Referrals	12
Emergency Medical Services	14
<i>Table 5. Rural Salary for Health Care Workers, 2020</i>	15
<i>Table 6. Industry Profile for EMTs and Paramedics, May 2021</i>	16
Health Care Workforce	17
<i>Table 7. Employment and Wages by Health Care Sector, 2011-2021</i>	17
<i>Figure 6. Health Professional Shortage Areas Primary Care, April 2021</i>	18
<i>Figure 7. Health Professional Shortage Areas Mental Health, April 2021</i>	19
<i>Table 8. U.S. Supply and Demand for General Surgeons Across Rurality (6 Levels), 2030</i>	20
<i>Table 9. U.S. Supply and Demand for General Surgeons across Rurality (3 Levels), 2030</i>	20
<i>Figure 8. U.S. Rural Counties without Obstetrical Service Clinicians, 2019</i>	21
<i>Figure 9. Obstetricians per 100,000 Women of Childbearing Age in Rural U.S. Counties, 2019</i>	22
Insurance Status	23
<i>Figure 10. Uninsured Rates for Nonmetro Counties, 2019</i>	23
<i>Figure 11. Distribution of Insurance Issuers by Percentage of Counties, Rurality, and Medicaid Expansion, 2018</i>	24
<i>Figure 12. Rural and Urban Average Adjusted Premiums, 2014-2018, by Medicaid Expansion Status</i>	25
<i>Figure 13. Health Coverage Among the Nonelderly in Rural Areas by State Medicaid Expansion Status, 2013-2015</i>	26

Telehealth and Broadband	27
<i>Figure 14. Educational Attainment and Telehealth Utilization, 2015</i>	27
<i>Figure 15. Broadband Penetration (and Health Access) by County Rurality, 2019</i>	28
COVID-19	29
<i>Figure 16. Unemployment, Nonmetro vs Metro, 2007-April 2021</i>	30
<i>Figure 17. Monthly Unemployment Rates in Nonmetro vs Metro, January 2019-April 2021</i>	30
<i>Figure 18. Nonmetro vs. Metro Unemployment by County Economic Type, week including March 21, 2021</i>	31
Appendix	32
<i>Table A. Number of Hospital Closures per State, 2010-July 2022</i>	32

EXECUTIVE SUMMARY

The Center for Economic Analysis of Rural Health (CEARH) was asked by the Federal Office of Rural Health Policy to provide a summary of research that describes economic trends related to health care over the last decade. The CEARH team reviewed recent literature and publicly available data to explore important issues at the nexus of health care and local economic vibrancy. This is not an exhaustive exploration but instead serves to highlight some of the key issues in Rural America. Of course, this review would not be complete without a look at the economic implications associated with COVID-19. While we look at some of the short term impacts, the full impacts will not be known for several years, particularly because the COVID-19 pandemic has not ended at the time this paper was published.

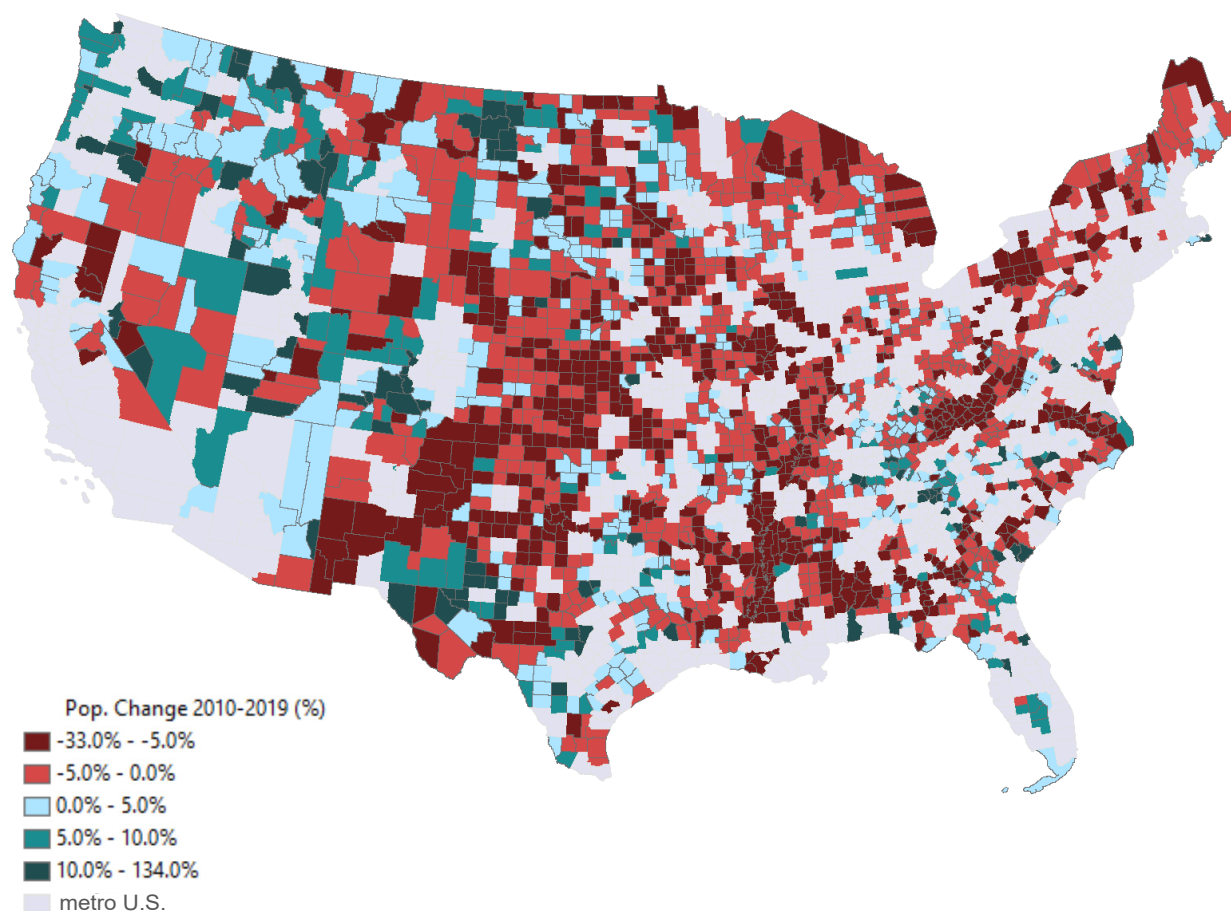
Key takeaways from this review:

- Rural America is diverse. Parts of Rural America (Western United States) are experiencing population growth and others (Rural South, Appalachia, Native Lands) continue to see a decline in population. Many of those communities facing population loss are also persistent poverty communities (communities in poverty over several decades).
- There have been 140 rural hospital closures between January 2010 and July 2022. While some facilities have converted to other health care purposes, the majority have completely shut down. Closures impact access to emergency care due to increased ambulance times and, as a result, can affect the ability to address life threatening issues in a timely manner.
- There are additional losses to a community associated with a rural hospital closure including both the loss of hospital spending as well as a reduction in employee spending (due to a loss of employment). Other industries including restaurants, professional services, and other health care services are negatively impacted when a rural hospital closes or contracts in size.
- Rural ambulance services are facing significant challenges including reimbursement, workforce, and funding for operations. The closure of rural hospitals further exacerbates these issues.
- There continues to be a shortage of health professionals in many rural areas. For some professions, there is an excess supply of providers in urban areas and a shortage in rural places. Recruitment and retention continues to be a top priority.
- Those states that opted to expand Medicaid have lower uninsured rates (in both rural and urban areas). Insurance premiums through health insurance markets continue to climb as number of insurance companies decline.
- Telehealth has emerged as an important mechanism for delivering patient care, particularly through COVID-19. The lack of broadband access in many rural communities continues to be of utmost concern. In addition, the quickly changing policy landscape determining reimbursement remains of keen interest to providers.

DEMOGRAPHIC TRENDS

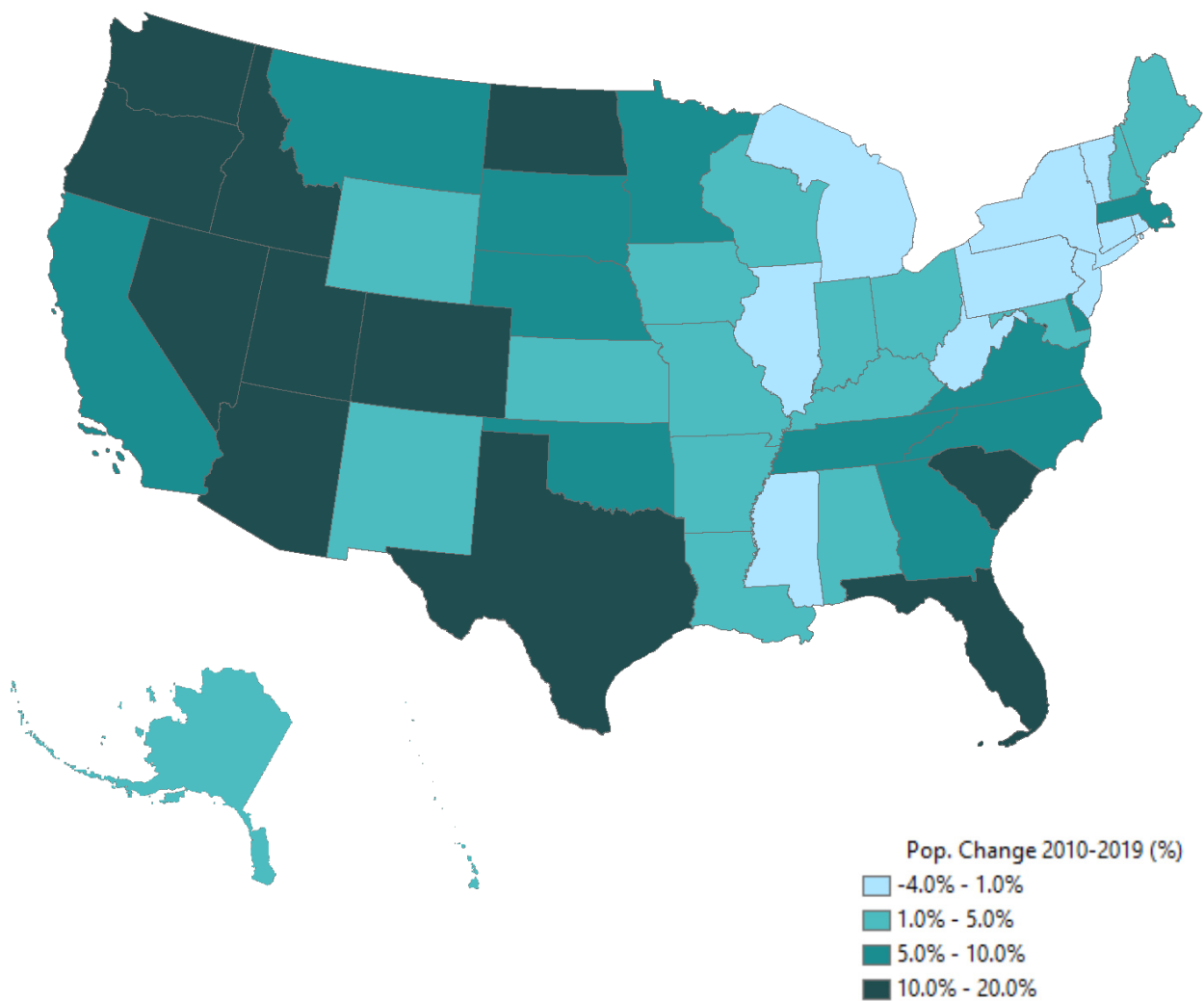
The population trends in rural communities can be a bit deceiving because of the vast differences in rural across the United States. There are rural counties that have experienced growth, see Figure 1. Those places tend to be in the West and are in closer proximity to urban communities. The dark red counties shown in Figure 1 below are those nonmetro communities that have experienced a significant decline in population over the last decade. These communities are mostly located in Tribal communities, the Midwest Corn Belt, the Black Belt, and Appalachia (notably Kentucky and West Virginia). Mississippi, Illinois, West Virginia and several Northeastern States experienced overall population loss from 2010 to 2019 (Figure 2). The Western states, Florida, and Texas had populations that grew the fastest during the same time period.

Figure 1. Population Change for Nonmetro Counties, 2010-2019



Source: U.S. Census Bureau, Population Estimates Program

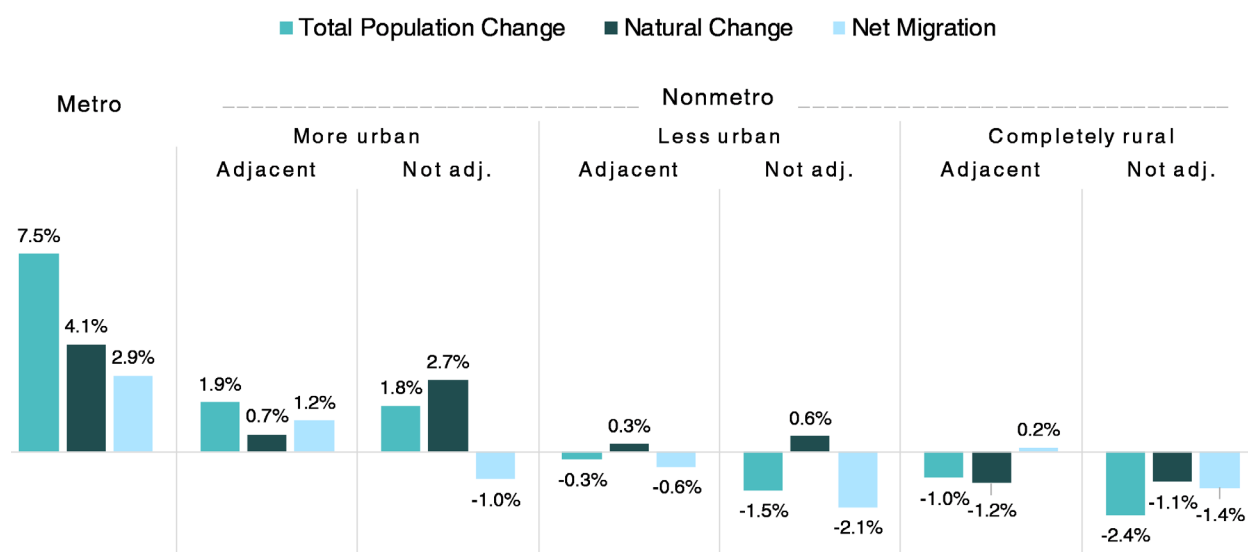
Figure 2. Percent Change in Population Across States, 2010-2019



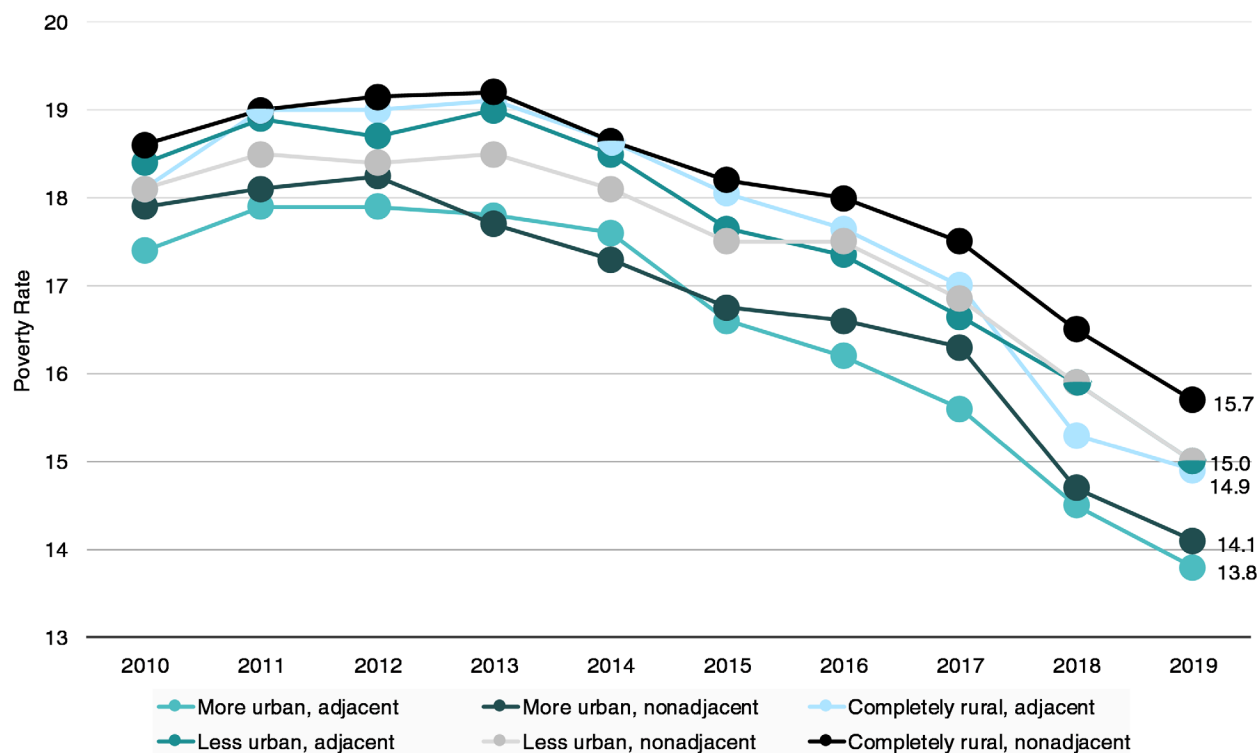
Source: U.S. Census Bureau, Population Estimates Program

Figure 3 highlights the components of population change. It is important to note that these numbers are prior to COVID, so we expect to see some changes when these estimates are updated to reflect the impact of the pandemic. Metro communities grew at a significant rate between 2010 and 2018 largely due to the number of births outpacing the number of deaths (natural change) and a positive net migration rate. This migration rate includes both the inflow and outflow of domestic and international residents. In urban areas, international migration comprises approximately 30 to 50 percent of the total net migration. In more rural places, net migration and natural change components are both negative in completely rural counties. This pattern reflects that deaths exceed births and that people are leaving rural places without replacement.

Figure 3. Components of Population Change across the Rural-Urban Continuum, 2010-2019

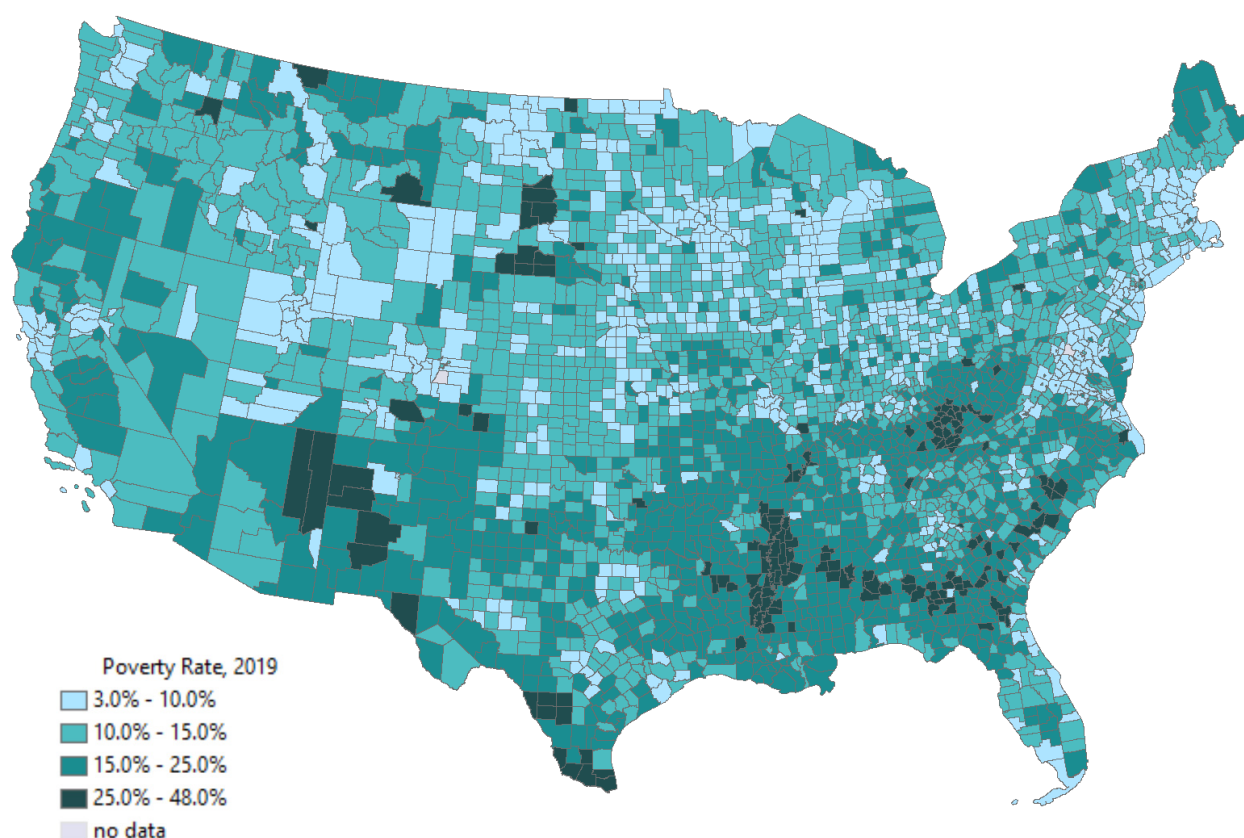


Source: U.S. Census Bureau, Population Estimates Program

Figure 4. Poverty Rates, 2010-2019

Source: U.S. Census Bureau, Small Area Income and Poverty Estimates

Figure 4 highlights poverty rates by rurality between 2010 and 2019. Those counties defined as *completely rural, nonadjacent* consistently experience the highest rates of poverty. In 2019, the poverty rates in these rural counties was 15.7 percent compared to 13.8 percent for *more urban, adjacent* counties. Poverty rates across all types of counties peaked in 2012 and 2013, and have steadily dropped since then. Poverty rates are highest in the Black Belt, Central Appalachia, and in Native Lands (Figure 5).

Figure 5. County Poverty Rate, 2019

Source: U.S. Census Bureau, *Small Area Income and Poverty Estimates*

RURAL HOSPITALS

As of July 2022, there have been 140 rural hospital closures since 2010.^{1,2} Table 1 provides an overview of the number of hospitals that permanently closed versus those that converted to another health care facility. Fifty-five percent of hospital closures were permanent and 21 percent of closed hospitals converted to an urgent or emergency care facility. Table 2 details conversions by type of hospital. In all instances, at least 50 percent of the closed hospitals were not converted to another health care facility. Mobley et al (2020) found that where the closed hospital was converted to some other type of health care facility, 37.8 percent of communities saw an increase in the number of PCPs, compared to where the hospital was completely abandoned only 14.6 percent of communities saw an increase in the number of PCPs.³ In addition, the majority of communities with a hospital closure (61.2 percent) saw an increase in the number of advanced practice providers (APPs, includes physician assistants and advanced nurse practitioners).

¹ Data available at <https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/>

² A list of closures by state is provided in the Appendix.

³ Mobley E, F Ullrich, RBA Baten, M Shrestha, and K Mueller, "Health Care Professional Workforce Composition before and after Rural Hospital Closure," RUPRI Center for Rural Health Policy Analysis Rural Policy Brief, April 2020. Available at <https://rupri-public-health.uiowa.edu/publications/policybriefs/2020/Hospital%20Closure%20Workforce.pdf>

Table 1. Rural Hospital Closure Conversions, 2010-July 2022

Type of Conversion	Number of Hospitals Converting
Nursing or Rehabilitation Facility	8
Outpatient/Primary Care/Rural Health Clinic	25
Urgent or Emergency Care	29
None	78
Grand Total	140

Source: University of North Carolina Sheps Center, July 2022

Table 2. Rural Hospital Closure Conversions by Hospital Type, 2010-July 2022

Type of Hospital and Conversion	Number of Hospitals, 2010-2022	Percentage of Closures
Critical Access Hospitals	44	
None	26	59.1%
Nursing or Rehabilitation Facility	3	6.8%
Outpatient/Primary Care/Rural Health Clinic	8	18.2%
Urgent or Emergency Care	7	15.9%
Medicare-dependent Hospital	26	
None	13	50.0%
Nursing or Rehabilitation Facility	1	3.8%
Outpatient/Primary Care/Rural Health Clinic	5	19.2%
Urgent or Emergency Care	7	26.9%
Prospective Payment System	58	
None	32	55.2%
Nursing or Rehabilitation Facility	4	6.9%
Outpatient/Primary Care/Rural Health Clinic	8	13.8%
Urgent or Emergency Care	14	24.1%
Other	12	
None	7	58.3%
Outpatient/Primary Care/Rural Health Clinic	4	33.3%
Urgent or Emergency Care	1	8.3%

Source: UNC Sheps Center, July 2022

Rural Hospital Closure and Ambulance Transport Times

A hospital closure raises concerns about access to emergency care for those residents living in the service area of the closed hospital. Specifically, transportation times could be longer after the hospital closure, potentially affecting health outcomes for life-threatening conditions. For 9-1-1 calls defined as rural (calls originating from a rural location), the mean transport time prior to a hospital closure was 14.2 minutes (Troske and Davis, 2019).⁴ The transportation time increased to 25.1 minutes after the hospital closed, a statistically significant increase of 10.9 minutes or a 76.4 percent increase. In urban ZIP codes, there was no change in transport times after an urban hospital closure. Patients 65 years and older living in rural areas had a similar change in transport time as all rural patients. The times increased from 13.9 minutes to 27.6 minutes, a 13.7-minute increase or a 97.9 percent change after a hospital closure. Nikpay et al (2021) found that the average length of ambulance trips for municipal Emergency Medical Services (EMS) agencies increased by 22 percent in locations of recent rural hospital closures and that the burden of hospital closures was significantly larger for public than private EMS agencies.⁵

Industries Most Impacted by a Hospital Closure

Over the last decade, there was a two percent reduction in hospital employment (approximately 18,596 jobs) in nonmetro communities (JobsEq, 2022). In addition to the nearly 19,000 hospital jobs lost, there are additional negative employment impacts that occur across other industries because of a reduction in hospital spending (indirect impact) as well as a reduction in hospital employee spending (induced impact). The indirect and induced effects together are known as an economic multiplier effect. This multiplier effect varies by community.

Indirect Impacts (a result of hospital spending)

In aggregate, for every one nonmetro hospital job lost there are 0.11 jobs lost as a result of a reduction in hospital purchases. Table 3 highlights the estimated job loss, by the top 15 most impacted sectors, due to a reduction in hospital spending from 2011-2021.

⁴ Troske, S and A Davis, "Do Hospital Closures Affect Patient Time in an Ambulance?" Rural and Underserved Health Research Center, 2019. Available at <https://www.ruralhealthresearch.org/publications/1238>

⁵ Nikpay S, C Tschautscher, NL Scott, and M Puskarich, "Association of hospital closures with changes in Medicare-covered ambulance trips among rural emergency medical services agencies," Academic Emergency Medicine Research Letter, May 2021. Available online at <https://onlinelibrary.wiley.com/doi/pdf/10.1111/acem.14273>

Table 3. Top 15 Sectors Impacted from a Reduction in Hospital Employment, Nonmetro, 2011-2021

Industry	Estimated Full-time Job Loss 2011-2021, Nationwide (Nonmetro Counties)
Full-Service Restaurants	293 jobs
Temporary Help Services	209 jobs
Limited-Service Restaurants	102 jobs
Industrial Machinery and Equipment Repair & Maintenance	82 jobs
Offices of Lawyers	70 jobs
Ambulance Services	68 jobs
Postal Service	59 jobs
Janitorial Services	59 jobs
Office Administrative Services	56 jobs
Corporate, Subsidiary, and Regional Managing Offices	48 jobs
Landscaping Services	42 jobs
Offices of Certified Public Accountants	34 jobs
Dry cleaning and Laundry Services	31 jobs
General Automotive Repair	28 jobs
Commercial Banking	26 jobs

Source: *JobsEq*, 2022

Induced Impacts (a result of employee spending)

For every 1 hospital job lost, there are an additional 0.3 jobs lost as a result of a reduction in spending by hospital employees. From 2011-2021, there was a three percent reduction in hospital employment (approximately 19,000 jobs) in nonmetro communities. As a result, the following additional estimated employment impacts resulted in response to a reduction in hospital employee spending. Table 4 highlights the estimated job loss, by the top 15 most impacted sectors, due to a reduction in hospital employee spending from 2011-2021.

Table 4. Top 15 Sectors Impacted from a Reduction in Hospital Employee Spending, Nonmetro, 2011-2021

Industry	Estimated Full-time Job Loss 2011-2021, Nationwide (Nonmetro Counties)
General Medical and Surgical Hospitals	309 jobs
Limited-Service Restaurants	291 jobs
Full-Service Restaurants	273 jobs
Colleges, Universities, and Professional Schools	131 jobs
Lessors of Residential Buildings and Dwellings	129 jobs
Supermarkets and Other Grocery Stores	121 jobs
Religious Organizations	120 jobs
Offices of Physicians (except Mental Health Specialists)	118 jobs
Wired Telecommunications Carriers	97 jobs
Nursing Care Facilities (Skilled Nursing Facilities)	97 jobs
Services for the Elderly and Persons with Disabilities	65 jobs
Commercial Banking	65 jobs
Home Health Care Services	64 jobs
Hotels (except Casino Hotels) and Motels	62 jobs
Warehouse Clubs and Supercenters	60 jobs

Source: *JobsEq*, 2022

PATIENT BYPASS AND REFERRALS

Though many rural hospitals offer an array of services, local residents may choose more distant health care facilities for both inpatient and outpatient care services. Most rural hospital bypass studies using quantitative data found bypass rates that ranged from 25 percent to 50 percent while qualitative studies of rural patients showed an even greater bypass rate that ranged from 16 percent to 70 percent.⁶ Across inpatient and outpatient admissions, patients are more likely to access care nearby for emergency and urgent care than for elective or scheduled care. Rural patients may choose not to seek care at their nearest rural hospital for many reasons. Patient perception of the local hospital, including the perception of quality and reputation of local services and providers, may affect a patient's choice to seek care locally. Satisfaction with the local hospital is also associated with rural hospital bypass.⁷

⁶ Relevant studies: Radcliff T, M Brasure, I Moscovice, and J Stensland, "Understanding rural hospital bypass behavior," *Journal of Rural Health*, Summer 2003; 19(3): 252-259. Weigel PA, F Ullrich, CN Finegan, and MM Ward, "Rural Bypass for Elective Surgeries," *The Journal of Rural Health*, vol. 33, no. 2, pp. 135-145, Spring 2017. Malone T and M Holmes, "Patterns of Bypass and Inpatient Care-Seeking by Rural Residents," Findings Brief, NC Rural Health Research Program, April 2020. Premkumar D, D Jones, and P Orazem, "Hospital Closure and Hospital Choice: How Hospital Quality," *Agricultural Policy Review*, pp. 8-11, Winter 2017.

⁷ Liu JJ, GR Bellamy and M McCormick, "Patient Bypass Behavior and Critical Access Hospitals: Implications for Patient Retention," *The Journal of Rural Health*, vol. 23, no. 1, pp. 17-24, Winter 2007.

A Center for Medicare & Medicaid Services (CMS) study explored rural Medicare patient bypass behavior using both quantitative and qualitative methods.⁸ The findings from this study suggested that rural hospital characteristics including high quality ratings, high number of primary care physicians in the Hospital Service Area (HSA), large number of beds, and offering telehealth and advanced care led to lower bypass rates. Older beneficiaries and females were less likely to bypass their local hospital. Through interviews, the findings confirmed the challenges that many older rural Medicare beneficiaries face accessing care outside of their home community due to limited transportation options, or the concern of placing a burden on their family or caregiver to provide transportation.

When stakeholders were asked if publicly available hospital quality data were used to inform patients' hospital bypass decisions, participants indicated that hospital quality information is most often based on word-of-mouth, not existing hospital quality data sources like HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems). Listening session participants noted the importance of the relationship between primary care providers and rural Medicare beneficiaries, particularly the loyalty that patients feel for their providers. These relationships often extend beyond the rural Medicare beneficiary to other members of the family, which contributes to rural Medicare beneficiaries choosing their home hospitals – there is a strong, long-lasting trust in the local health care system. In addition, rural communities with a large number of primary care providers often have greater access to specialty care providers, which increases the likelihood that rural Medicare beneficiaries seek inpatient hospital care locally.

Depending on the extent of the bypass behavior, hospitals may experience lower patient volumes, reduced service offerings, financial distress, and/or eventually closure (Radcliff et al, 2003).⁹ Malone and Holmes (2020) found that rural hospitals are more likely to be bypassed by local residents if they are a Critical Access Hospital (CAH), smaller, less profitable, and do not offer obstetric services. Patients who bypassed were slightly more likely to be seeking elective care, obstetric services, and/or services related to the circulatory system or musculoskeletal system.¹⁰ Furthermore, the study found that there were significantly different bypass behaviors by race/ethnicity and income.

Lahr et al (2019) found, in a 2019 survey of 111 Rural Health Clinic managers, practice supervisors, nurse managers, CEOs, medical directors and physicians, that more than one in five appointments for Medicare beneficiaries at surveyed Rural Health Clinics (RHCs) resulted in outside referrals.¹¹ In addition, the majority (64 percent) of RHC respondents reported that they have trouble finding specialists for Medicare patient referrals. Mental health, behavioral health, and psychiatry together were identified as the most difficult specialties for rural Medicare beneficiaries to access, followed by neurology and dermatology. The study also explored the difficulty finding a specialist based on distance to the nearest hospital. The results suggested that it was more difficult to find a specialist the further the RHC was to the nearest hospital.

⁸ CMS Office of Minority Health. Examining Rural Hospital Bypass for Inpatient Services. Baltimore, MD: Centers for Medicare & Medicaid Services; December 2020. Available at <https://www.cms.gov/files/document/ruralhospitalbypassfinalreport.pdf>

⁹ Radcliff T, M Brasure, I Moscovice, and J Stensland, "Understanding rural hospital bypass behavior," *Journal of Rural Health*, Summer 2003; 19(3): 252-259.

¹⁰ Malone T and M Holmes, "Patterns of Bypass and Inpatient Care-Seeking by Rural Residents," Findings Brief, NC Rural Health Research Program, April 2020.

¹¹ Lahr M, H Neprash, C Henning-Smith, M Tuttle, and A Hernandez, "Access to Specialty Care for Medicare Beneficiaries in Rural Communities, University of Minnesota Rural Health Research Center, Policy Brief, December 2019. Available at https://3pea7g1qp8f3t9ooe3z3npx1-wpengine.netdna-ssl.com/wp-content/uploads/2019/12/UMN-Access-to-Specialty-Care_12.4.pdf

EMERGENCY MEDICAL SERVICES

Recently, there have been numerous stories highlighting the crises facing ambulance agencies across rural America.¹² In 2021, the RUPRI (Rural Policy Research Institute) Health panel published a summary of challenges facing rural ambulance services.¹³ The following five challenges were identified:

1. Longer distances and challenging terrains, often associated with rural places, lead to increased transport times.
2. EMS reimbursement is based on a transportation model, not necessarily a health provider model, and as a result insurance (both private and public) is not sufficient to cover the “provider” costs of care, including standby and fixed costs
3. The EMS workforce has transitioned from a largely volunteer basis to a mostly paid staffing model. In addition, there is a shortage of paid personnel to fill existing EMS positions.
4. Efforts to regionalize EMS activity has led to dynamic load-responsive ambulance deployment. However, areas that are more remote with low population density and a shortage of personnel, do not benefit from this system, particularly in places that require coverage across multiple ambulance agencies.
5. At both the Federal and State levels EMS oversight and funding is fragmented. As a result, there is inadequate planning to appropriately allocate EMS resources, collect quality data to support improvement activities, and support EMS services most in need.

Troske and Davis (2019) found that there was a 2.6 minute difference in EMS ground transportation time for transports that started in urban areas (14.3 minutes) compared to transports that started in rural areas (16.9 minutes) for all calls reported from 2010 to 2015 to the National Emergency Medical Services Information System (NEMSIS).¹⁴ Furthermore, King et al (2018) found that the 2015 average total call time was 18 minutes longer in rural areas than urban, and 34 minutes longer for “wilderness” calls.¹⁵ *Wilderness* is a designation for the most remote, rural counties.

Ambulance organizations vary in the mix of services they provide, including the share of responses resulting in an individual being transported to a facility, the blend of emergency and non-emergency transports, and, even within emergency and non-emergency transport categories, the level of transport (advanced life support and basic life support). Different types of services require different capabilities and inputs and therefore contribute differentially to an agency’s costs. Often ambulance organizations share personnel, facilities, and vehicles with fire departments or hospitals. As a result, determining the specific share of costs that should be allocated to an ambulance service to determine if costs are being fully reimbursed can be challenging.¹⁶

¹² Media coverage examples <https://www.nbcnews.com/health/health-care/there-s-shortage-volunteer-ems-workers-ambulances-rural-america-n1068556>; <https://www.npr.org/sections/health-shots/2021/07/05/1012418938/rural-ambulance-services-at-risk-as-volunteers-age-and-expenses-mount>; <https://winchestersun.com/2021/04/28/rural-ambulance-services-in-danger-of-closing/>; <https://www.abc57.com/news/rural-ambulance-crews-are-running-out-of-money-and-volunteers-in-some-places-the-fallout-could-be-nobody-responding-to-a-911-call>; <https://www.nytimes.com/2021/04/25/us/rural-ambulance-coronavirus.html>

¹³ MacKinney A, K Mueller, A Coburn, A Knudson, J Lundblad, and T McBride, Characteristics and Challenges of Rural Ambulance Agencies – A Brief Review and Policy Considerations, RUPRI (Rural Policy Research Institute) Health Panel, January 2021.

¹⁴ Troske, S and A Davis, “Do Hospital Closures Affect Patient Time in an Ambulance?” Rural and Underserved Health Research Center, 2019. Available at <https://www.ruralhealthresearch.org/publications/1238>

¹⁵ King N, M Pigman, S Huling, B Hanson, EMS Services in Rural America: Challenges and Opportunities, NRHA Policy Brief May 2018. Available at https://www.ruralhealthweb.org/NRHA/media/Emerge_NRHA/Advocacy/Policy%20documents/05-11-18-NRHA-Policy-EMS.pdf

¹⁶ Available at <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AmbulanceFeeSchedule/Downloads/Ground-Ambulance-Data-Collection-System-Sampling-Instrument-Considerations-Recommendations.pdf>

A survey conducted in 2016 in South Dakota revealed that South Dakota's EMS agencies are struggling to maintain a staffed agency.¹⁷ The author's analysis of the survey data revealed that 78 percent of agencies report staffing, or having enough people to adequately staff, is a challenge and 94 percent of agencies report workforce (recruiting, retaining, motivating and engaging workers) is their greatest issue. Statewide, only 36% of agencies agree or strongly agree that they have enough staff. In addition, Uppal and Gondi (2019) establish that a key factor contributing to current and impending EMS shortages is a lack of certified personnel.¹⁸ Cash et al (2021) found that approximately 73 percent of the US adult population lives within 30 miles of an existing paramedic education program; however, this decreases to 22 percent in rural areas. Geographic barriers to accessing paramedic education remain a challenge for ongoing efforts to address the rural EMS workforce shortage.¹⁹

A 2019 survey of 3,000 EMS workers, of which 32 percent of the respondents were from rural areas, highlighted changing demographics, service models, job titles, concerns about hiring EMS personnel, and budget shortfalls as the most pressing issues for the profession.²⁰ Lower salaries were also provided as one reason why it was difficult to recruit EMTs, paramedics and ambulance drivers. Table 5 summarizes the distribution of salaries for these occupations as well as the broader health care practitioners and health care support occupations in rural communities.

Table 5. Rural Salary for Health Care Workers, 2020

Occupation	Mean Annual Salary	Median	Entry Level Salary	Experienced Salary	Lowest 10% Salary	Highest 90% Salary
Nonmetro						
EMT	\$33,700	\$31,600	\$23,200	\$38,900	\$21,900	\$48,400
Paramedic	\$34,000	\$32,000	\$23,500	\$39,300	\$22,100	\$48,900
Ambulance Driver	\$26,700	\$29,150	\$19,700	\$30,200	\$19,100	\$39,200
Health Care Practitioners	\$74,600	\$79,100	\$35,900	\$93,000	\$31,700	\$126,500
Health Care Support	\$28,000	\$28,950	\$21,000	\$31,500	\$20,200	\$37,700
All Counties						
EMT/Paramedic	\$40,370	\$36,650	\$24,650	N/A	\$24,650	\$62,150

Source: *JobsEq, 2020 and U.S. Bureau of Labor Statistics, May 2020*

¹⁷ Corrin, Jenna A., "Dead Zones: An Analysis of South Dakota's Rural EMS System" (2020). Honors Thesis. 98. <https://red.library.usd.edu/honors-thesis/98>

¹⁸ Uppal N and S Gondi Addressing the EMS Workforce Shortage: How Medical students can Help Bridge the Gap, *Journal Of Emergency Management*, 17(5), 2019.

¹⁹ Rebecca E. Cash, Carson E. Clay, William J. Leggio & Carlos A. Camargo Jr (2021) Geographic Distribution of Accredited Paramedic Education Programs in the United States, *Prehospital Emergency Care*, DOI: 10.1080/10903127.2020.1856984

²⁰ Available at <https://www.ems1.com/ems-trend-report/articles/2019-ems-trend-report-how-will-ems-advance-at-current-pace-of-change-VojhR6acxEBtr9yB/>

Health care practitioners include anyone who provides care including doctors, nurses, EMTs, therapists, midwives, and oral care. Health care support includes nursing assistants, personal care aides, massage therapists, medical transcriptionists, dental assistants, and home health aides.

Nationally, the mean wage for EMTs and paramedics is \$40,370 which is approximately \$6,000 higher than EMTs and paramedics in nonmetro areas. There is a larger metro/non-metro wage difference at the upper end of the pay scale for EMTs/paramedics where the 90th percentile salary for metro EMTs/paramedics is \$62,150 versus \$48,900 in nonmetro counties.

Table 6 summarizes the industries that employ the largest number of EMTs and paramedics across all communities in the United States. For example, 'other ambulatory health care services,' which includes private ambulance services, is the largest, employing 117,280 EMTs. This industry also pays the lowest wages. Outpatient care centers employ only 4,510 EMTs and paramedics but pays the highest wage. These outpatient care centers are often not located in rural communities. Local governments employ the second largest share of EMTs and paramedics. However, the strain on local public finances in rural communities makes these ambulance services vulnerable to reduced county budgets.

Table 6. Industry Profile for EMTs and Paramedics, May 2021

Industry	Employment	Hourly Mean Wage	Annual Mean Wage
Other Ambulatory Health Care Services	117,280	\$18.15	\$37,750
Local Government	71,940	\$22.45	\$46,702
General Medical and Surgical Hospitals	48,740	\$20.20	\$42,012
Outpatient Care Centers	4,510	\$22.65	\$47,107
Offices of Physicians	3,390	\$21.97	\$45,709

Source: U.S. Bureau of Labor Statistics, *Occupational Employment and Wages*, May 2021

HEALTH CARE WORKFORCE

Table 7 summarizes total employment changes between 2011 and 2021 by health care sector in nonmetro communities. Estimates are provided for several recent years (2019, 2020 and 2021) because of the large shocks to the health care sector due to COVID-19. While employment fell for several health care sectors between 2019 and 2020, many of those sectors regained employment one year into COVID-19. The hospital industry experienced the greatest loss of employment of over 23,000 people between 2011 and 2021. Many rural hospitals furloughed workers when COVID-19 started. The largest decline in employment occurred between 2019 and 2020 when over 15,000 jobs were lost. Overall, despite hospitals returning to normal activity in late 2020, estimated hospital jobs continued to decline. Other industries expanded including outpatient care centers, offices of physicians, offices of other health practitioners, and medical and diagnostic laboratories.

Table 7. Employment and Wages by Health Care Sector, 2011-2021

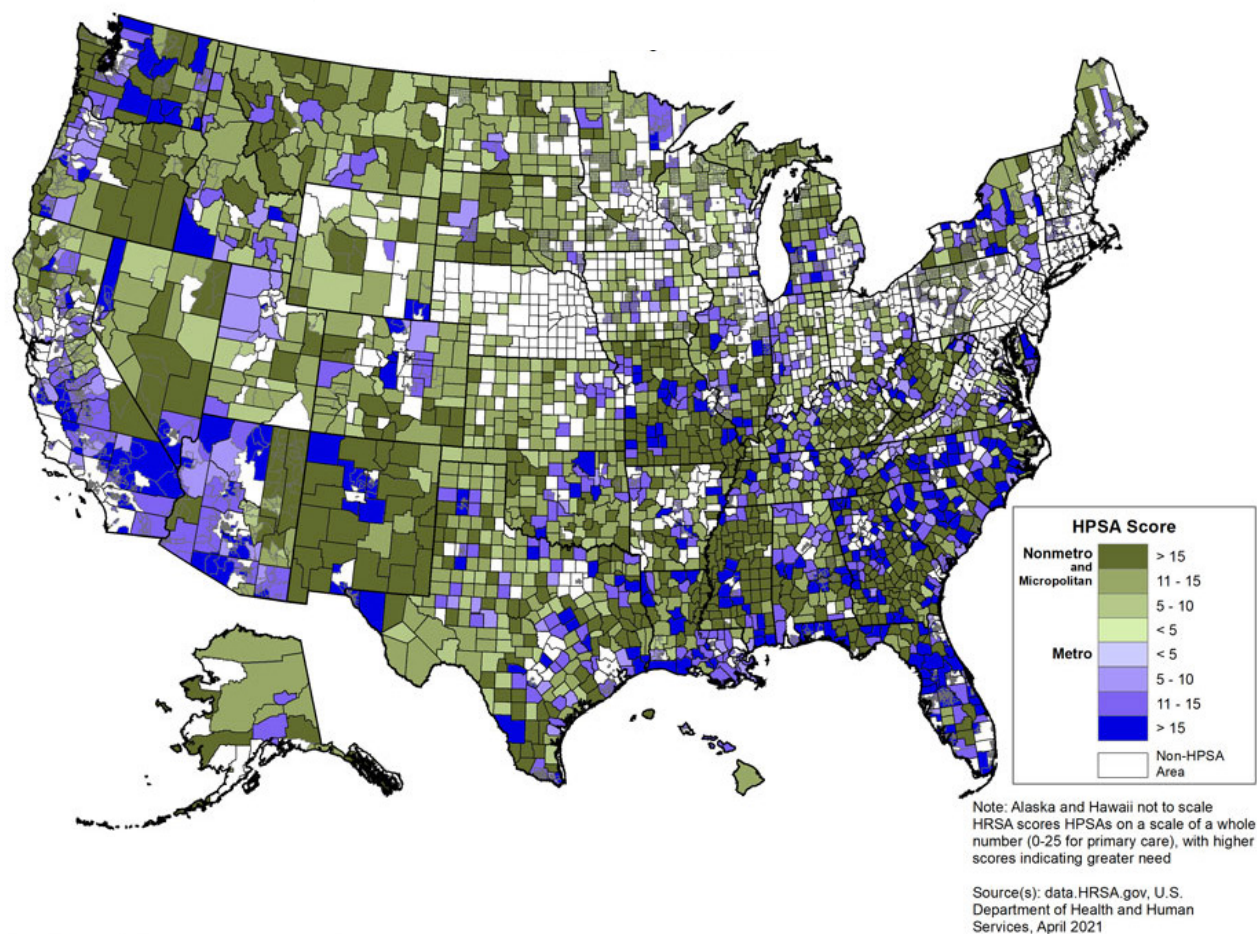
NAICS Code	Industry	2011 Employment	2019 Employment (Prior to COVID)	2020 Employment (During COVID)	2021 Employment (1 Year into COVID)	2011-2021 Change in Employment	2021 Wages
6211	Offices of Physicians	221,419	230,673	227,740	234,360	12,941	\$83,329
6212	Offices of Dentists	85,888	91,794	85,219	91,839	5,951	\$52,629
6213	Offices of Other Health Practitioners	81,256	98,017	94,486	101,348	20,092	\$42,397
6214	Outpatient Care Centers	81,639	103,273	102,184	104,460	22,821	\$53,876
6215	Medical and Diagnostic Laboratories	7,662	8,425	8,528	8,828	1,166	\$64,892
6216	Home Health Care Services	135,511	138,058	131,878	129,388	(6,123)	\$31,491
6219	Other Ambulatory Health Care Services	37,029	42,142	41,194	40,743	3,714	\$42,169
6221	General Medical and Surgical Hospitals	720,156	716,921	701,272	697,126	(23,030)	\$58,502
6222	Psychiatric and Substance Abuse Hospitals	33,304	34,511	32,924	31,930	(1,374)	\$50,574
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	4,537	4,970	4,969	5,276	739	\$59,268

Source: *JobsEq, 2021 (4th quarter). Based on 4-quarter moving average.*
Census tracts that FORHP considers rural are not included here.

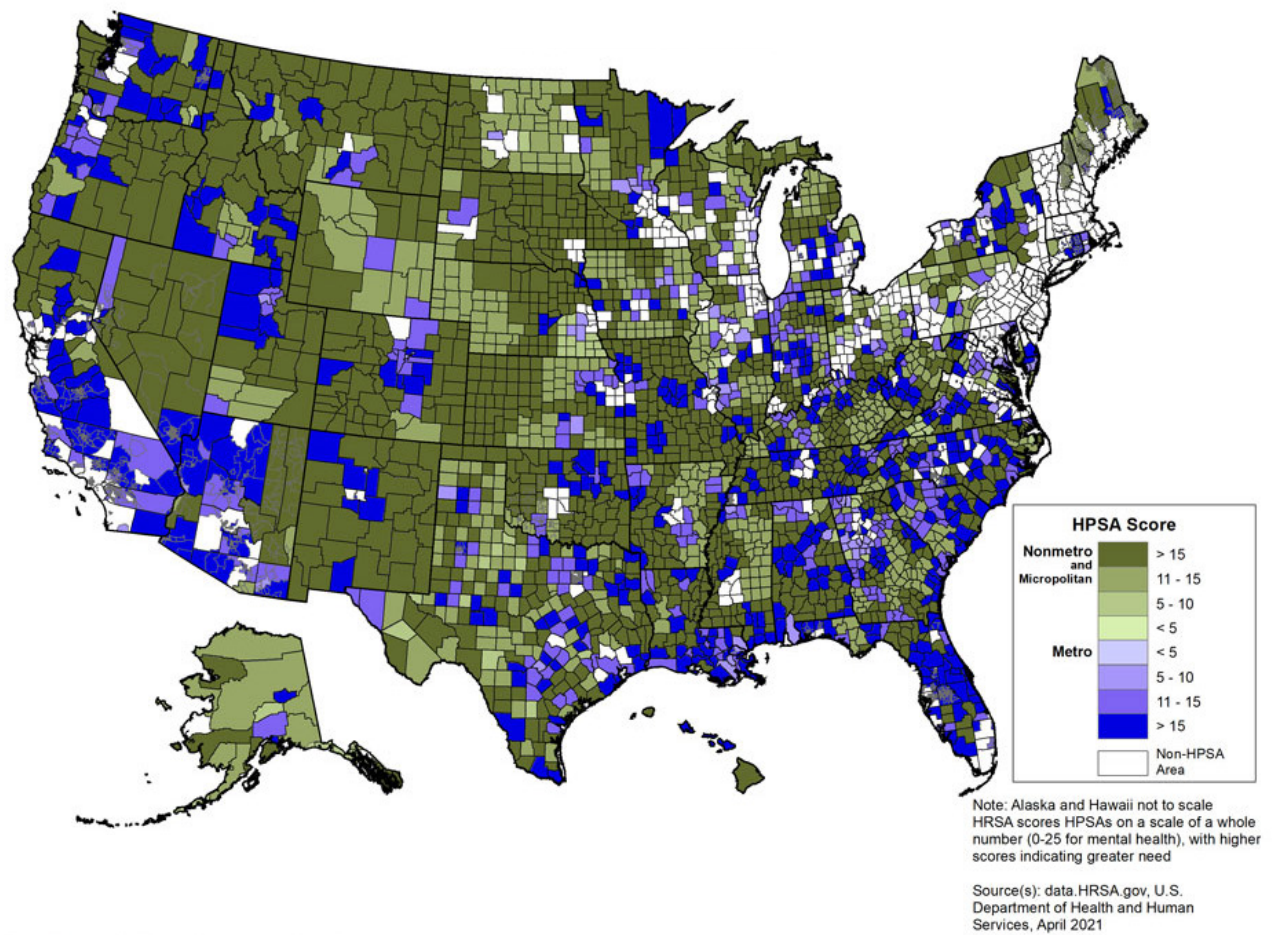
Health Care Workforce Shortages

There continue to be concerns about the future health care workforce in rural areas. Figure 6 below highlights the 2021 Health Professional Shortage Areas (HPSA) across both metro and nonmetro counties. A HPSA is determined based on the number of full-time equivalent health care professionals relative to the population, with additional consideration given to high-need indicators, including the percentage of the population living at or below the federal poverty level. The darker green colors in Figure 6 represent nonmetro counties with higher HPSA scores reflecting greater need. There are significant shortages in the South and Southwest. These designations are also provided for dental and mental health professionals. Figure 7 highlights the significant mental health professional shortages across nonmetro counties.

Figure 6. Health Professional Shortage Areas Primary Care, April 2021



Source: Rural Health Information Hub, April 2021 at <https://www.ruralhealthinfo.org/rural-maps/mapfiles/hpsa-primary-care.jpg?v=9>

Figure 7. Health Professional Shortage Areas Mental Health, April 2021

Source: Rural Health Information Hub, April 2021 at <https://www.ruralhealthinfo.org/rural-maps/mapfiles/hpsa-mental-health.jpg?v=9>

Tables 8 and 9 highlight the predicted supply and demand in 2030 for general surgeons by degree of rurality. There is significant excess demand for general surgeons in noncore rural areas compared to an excess supply of surgeons in large central metro areas. For example, in noncore rural areas, there is 50 percent adequacy, meaning that only 50 percent of the demand will be met with the expected number of general surgeons in 2030. It is estimated that the demand for general surgeons will be met in all other places but Large Fringe Metro (Suburban) and that there will be a significant surplus in Large Central Metro (Urban) counties. There are a number of studies that estimate supply and demand projections for health care occupations but very few studies that rigorously estimate shortages in other health care professions in nonmetro areas. The Center for Economic Analysis for Rural Health hosts a data site that maps county-level data by provider type (General Practitioner, Primary Care, Ob/GYN, Registered Nurses, Physician Assistants, and Pediatricians). However, these data do not predict provide shortages or future demand.

Table 8. U.S. Supply and Demand for General Surgeons across Rurality (6 Levels), 2030

Rural-Urban Classification	Supply	Demand	Supply - Demand	Percent Adequacy (100 * Supply ÷ Demand)
Noncore (Rural)	960	1,910	-950	50%
Micropolitan (Rural)	2,230	2,150	80	104%
Small Metro (Urban)	2,650	2,660	-10	100%
Medium Metro (Urban)	5,280	4,950	330	107%
Large Fringe Metro (Suburban)	4,990	6,470	-1,480	77%
Large Central Metro (Urban)	9,010	5,650	3,360	159%
Total	25,120	23,790	1,330	106%

*Notes: Numbers may not sum to totals due to rounding. All numbers are in Full-Time Equivalents (FTEs).
Source: Using HRSA's Health Workforce Simulation Model to Estimate the Rural and Non-Rural Health Workforce, September 2020. U.S. Department of Health and Human Services Health Resources and Services Administration Bureau of Health Workforce National Center.*

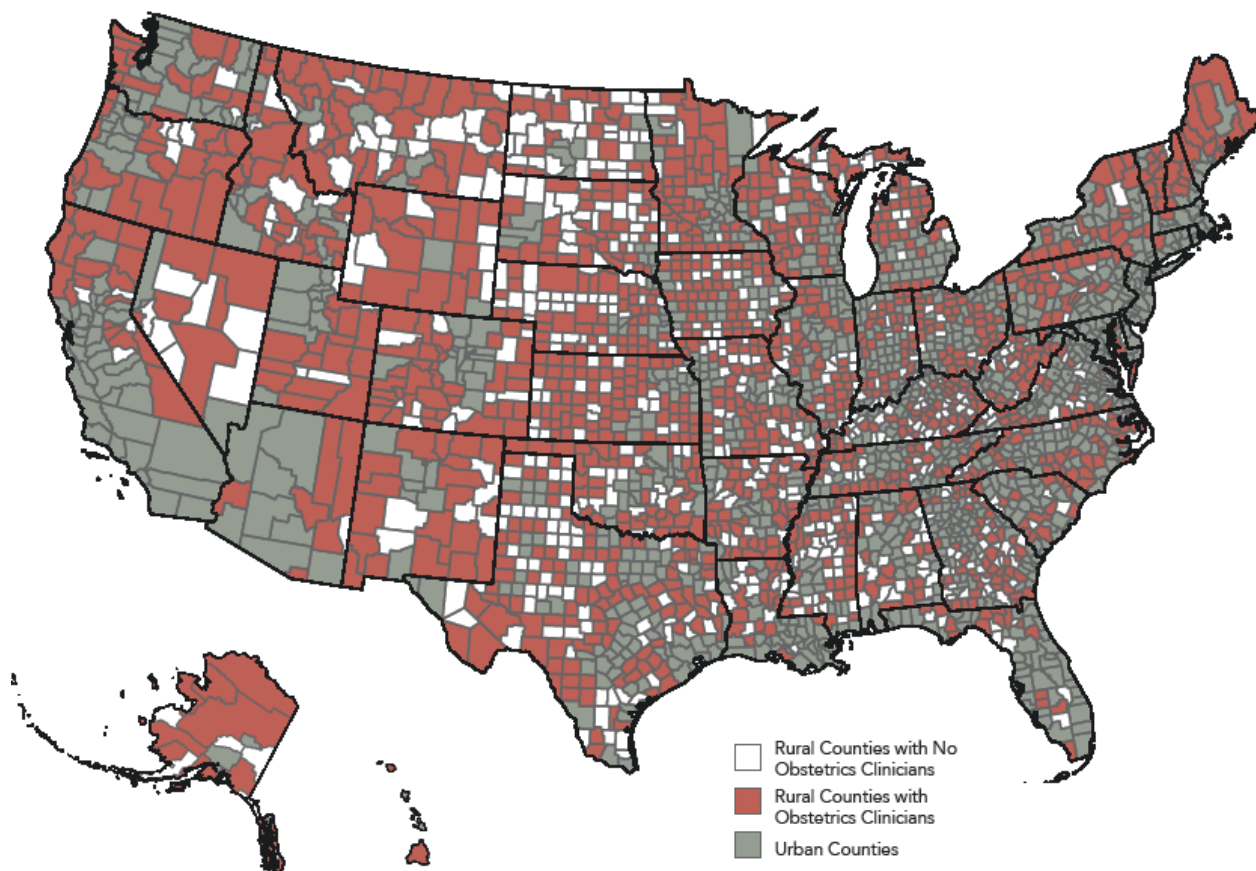
Table 9. U.S. Supply and Demand for General Surgeons across Rurality (3 Levels), 2030

Rural-Urban Classification	Supply	Demand	Supply - Demand	Percent Adequacy (100 * Supply ÷ Demand)
Rural	3,190	4,060	-870	79%
Suburban	4,990	6,470	-1,480	77%
Urban	16,940	13,260	3,680	128%
Total	25,120	23,790	1,330	106%

*Notes: Numbers may not sum to totals due to rounding. All numbers are in Full-Time Equivalents (FTEs).
Source: Using HRSA's Health Workforce Simulation Model to Estimate the Rural and Non-Rural Health Workforce, September 2020. U.S. Department of Health and Human Services Health Resources and Services Administration Bureau of Health Workforce National Center.*

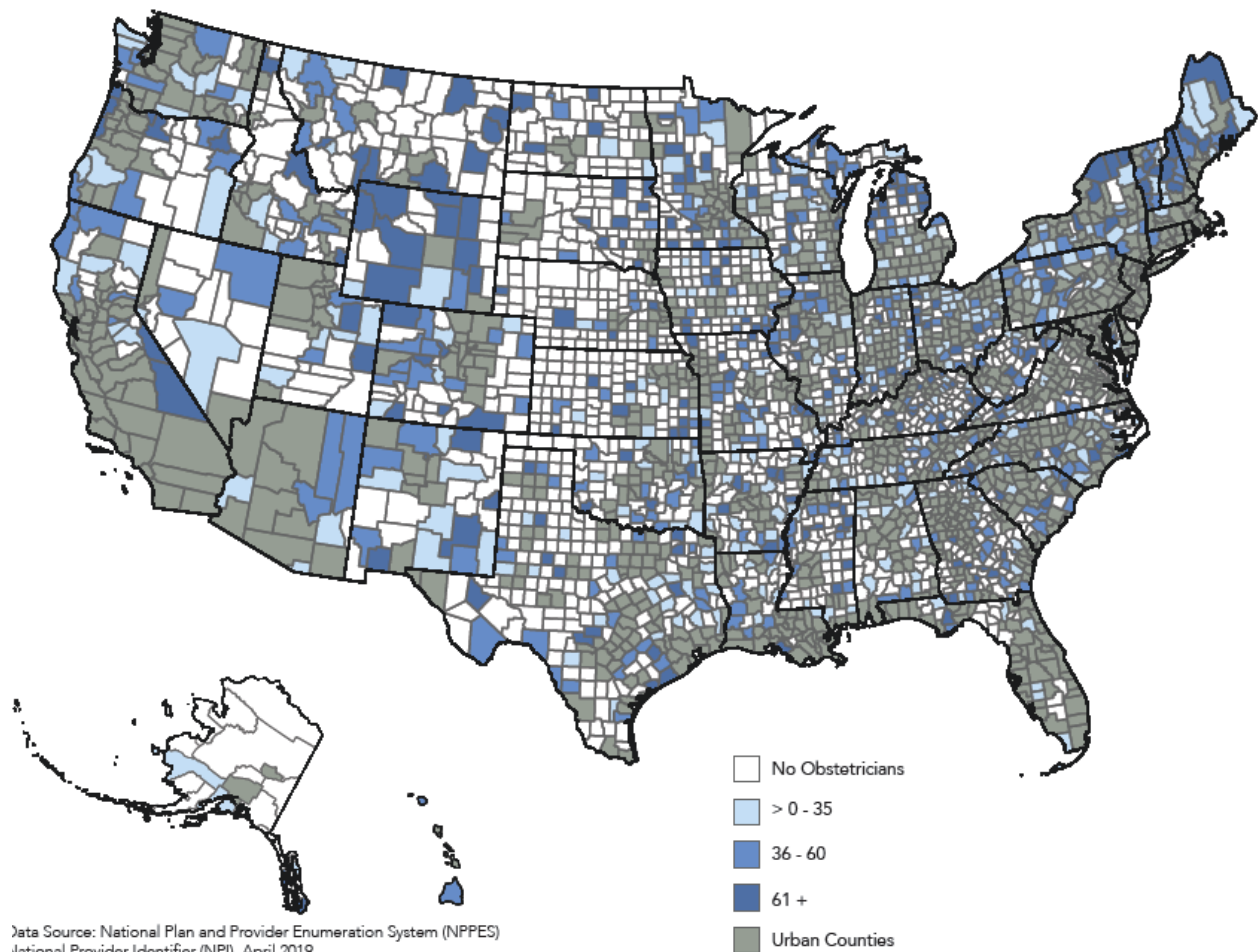
There are also significant disparities between rural and urban areas in the supply of clinicians who provide obstetrical services (Figure 8). Nearly a third (31 percent) of nonmetropolitan counties have no obstetrics clinicians.²¹ Figure 9 highlights the number of obstetricians per 100,000 women of childbearing age (15-49 years old) in 2019.

Figure 8. U.S. Rural Counties Without Obstetrical Service Clinicians, 2019



Source: WWAMI RHRC U.S. Policy Brief #168 available at https://depts.washington.edu/fammed/rhrc/wp-content/uploads/sites/4/2020/06/RHRC_PB168_Patterson.pdf

²¹ Patterson DG, Andrilla CHA, Garberson LA. The Supply and Rural-Urban Distribution of the Obstetrical Care Workforce in the U.S. Policy Brief #168. WWAMI Rural Health Research Center, University of Washington; June 2020. Available at https://depts.washington.edu/fammed/rhrc/wp-content/uploads/sites/4/2020/06/RHRC_PB168_Patterson.pdf

Figure 9. Obstetricians per 100,000 Women of Childbearing Age in Rural U.S. Counties, 2019

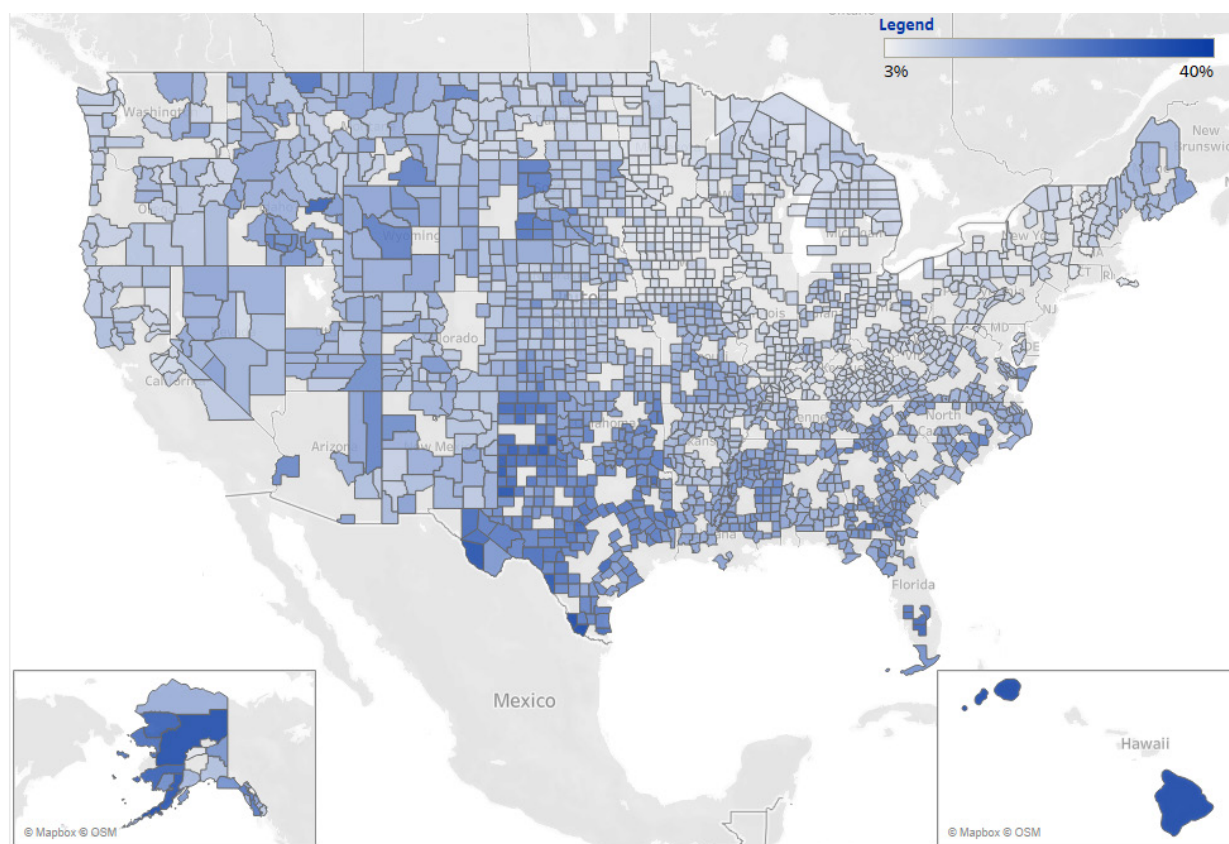
Data Source: National Plan and Provider Enumeration System (NPPES)
National Provider Identifier (NPI), April 2019

Source: WWAMI RHRC U.S. Policy Brief #168 available at https://depts.washington.edu/fammed/rhrc/wp-content/uploads/sites/4/2020/06/RHRC_PB168_Patterson.pdf

INSURANCE STATUS

Residents of rural counties still lack insurance at higher rates than those living in urban areas. About 12.3 percent of people in completely rural counties lacked health insurance compared with 11.3 percent for mostly rural counties and 10.1 percent for mostly urban counties.²² Figure 10 provides the distribution of uninsured rates in 2019, by county, for nonmetro counties across the United States.²³ The highest rates of uninsured individuals are in Texas and other southern states. There are pockets of higher rates of uninsured in West, Alaska and Hawaii.

Figure 10. Uninsured Rates for Nonmetro Counties, 2019



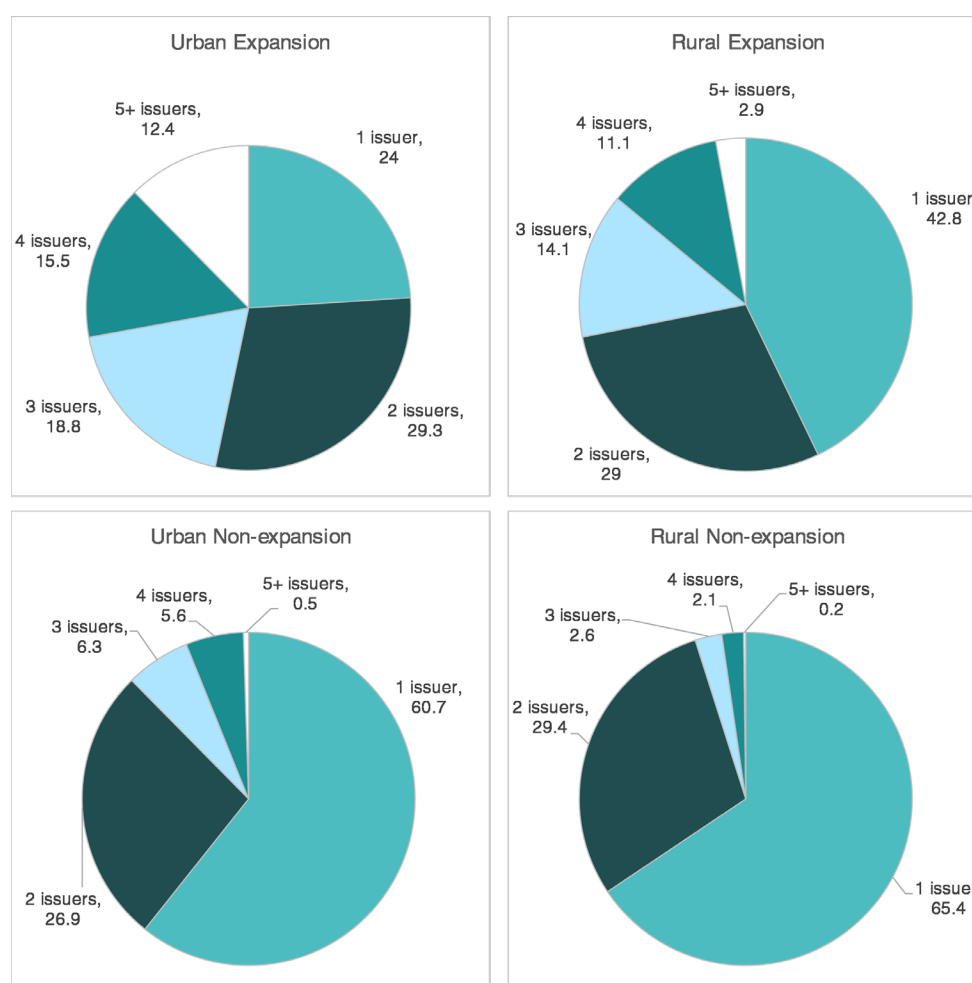
Source: Data from *County Health Rankings, 2019*. Map from *Center for Economic Analysis of Rural Health* available at <https://cearh.ca.uky.edu/data/rural-health-characteristics>

²² Available at <https://www.census.gov/library/stories/2019/04/health-insurance-rural-america.html>

²³ Center for Economic Analysis of Rural Health map data, available at <https://cearh.ca.uky.edu/data/rural-health-characteristics>

The Patient Protection and Affordable Care Act (ACA) in 2010 led to the development of Health Insurance Marketplaces designed to provide affordable health care insurance coverage. Over time, the number of providers and the premiums have increased.²⁴ Previous research has suggested that there needs to be at least three insurance companies in a market to result in competitive priced premiums.²⁵ Figure 11 highlights the differences in number of insurance companies in rural and urban counties and whether the state expanded Medicaid coverage. In 42.8 percent of the rural counties in states that expanded Medicaid, there is only one issuer. In comparison, 65.4 percent of counties in states where there was no Medicaid expansion had only one issuer. There are few differences across rural and urban counties.

Figure 11. Distribution of Insurance Issuers by Percentage of Counties, Rurality, and Medicaid Expansion, 2018



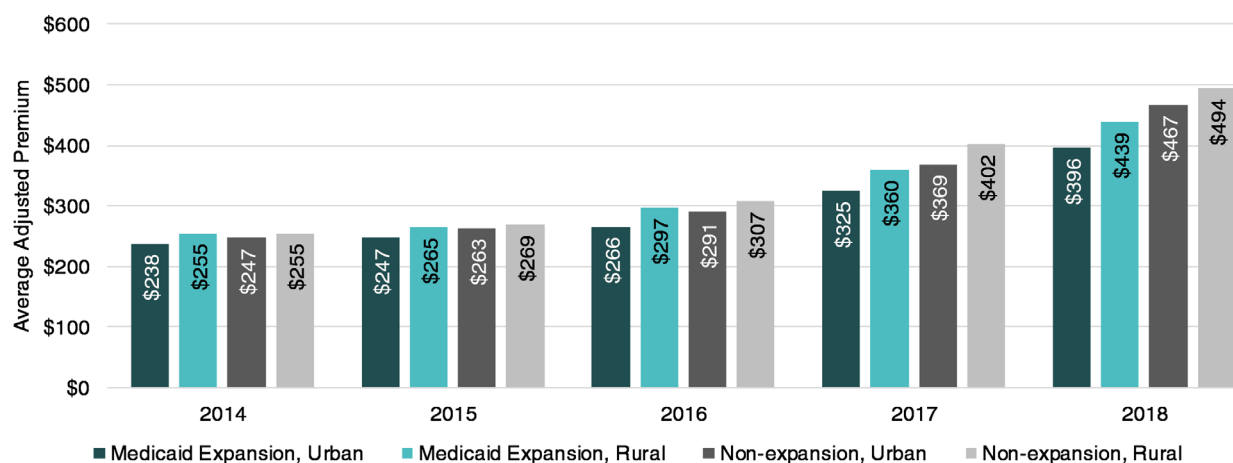
Source: Data from RUPRI Policy Brief 2018-3 Health Insurance Marketplaces: Issuer Participation and Premium Trends in Rural Places, available at <https://rupri.public-health.uiowa.edu/publications/policy-briefs/2018/HIM%202018%20Issuer%20Participation.pdf>

²⁴ RUPRI Policy Brief 2018-3, available at <https://rupri.public-health.uiowa.edu/publications/policybriefs/2018/HIM%202018%20Issuer%20Participation.pdf>

²⁵ RUPRI Policy Brief May 2016, Health Insurance Marketplaces: Premium Trends in Rural Areas, available at <http://www.public-health.uiowa.edu/rupri/>

Figure 12 illustrates the escalating premiums across urban and rural counties, differentiated by Medicaid Expansion status. The baseline premiums were essentially the same across rurality and Medicaid expansion in 2014, but the rates in non-expansion states has grown at a slightly higher rate than in states that expanded Medicaid. The lowest average adjusted premiums in 2018 were in urban counties in states where Medicaid expanded (\$396) and highest in rural counties where the state did not expand Medicaid (\$494).

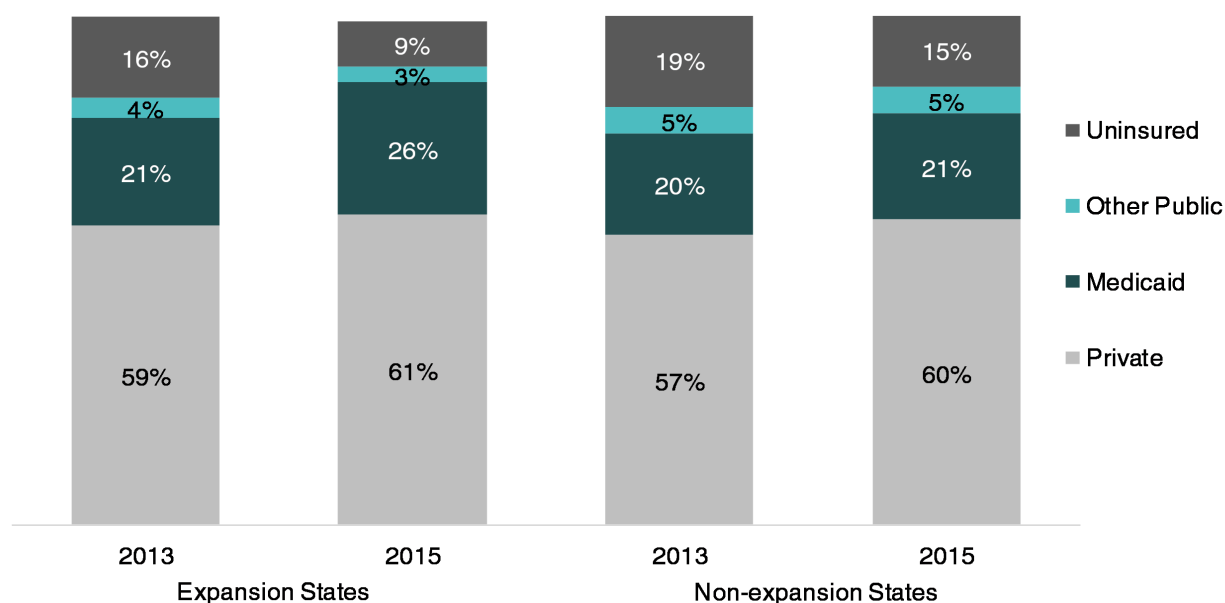
Figure 12. Rural and Urban Average Adjusted Premiums, 2014-2018, by Medicaid Expansion Status



Source: Data from RUPRI Policy Brief 2018-3 Health Insurance Marketplaces: Issuer Participation and Premium Trends in Rural Places, available at <https://rupri.public-health.uiowa.edu/publications/policy-briefs/2018/HIM%202018%20Issuer%20Participation.pdf>

The expansion of Medicaid permitted through the ACA played an important role in increasing access to health care in rural areas. Nearly 14 million Medicaid enrollees live in rural areas, representing 17 percent of all Medicaid beneficiaries.²⁶ Moreover, in states with both rural and urban areas, Medicaid coverage rates are generally higher in rural areas of the state compared to other areas.²⁷ Figure 13 further explores the changes in rural health insurance coverage post ACA implementation. Medicaid coverage increased from 21 percent to 26 percent in states where Medicaid expanded compared to increasing by one percentage point in states where expansion did not occur. The overall rate of uninsured was 9 percent in Medicaid expansion states versus 15 percent in non-expansion states.

Figure 13. Health Coverage Among the Nonelderly in Rural Areas by State Medicaid Expansion Status, 2013-2015



Source: Data from American Community Survey, 2013 and 2015 1-year estimates, includes nonelderly individuals ages 0-24. Analysis by Kaiser Family Foundation made available in <https://www.kff.org/medicaid/issue-brief/the-role-of-medicaid-in-rural-america/>

²⁶ Centers for Medicare & Medicaid Services (CMS), U.S. Department of Health and Human Services. 2021b. CHART Model. Baltimore, MD: CMS. <https://innovation.cms.gov/innovation-models/chart-model>

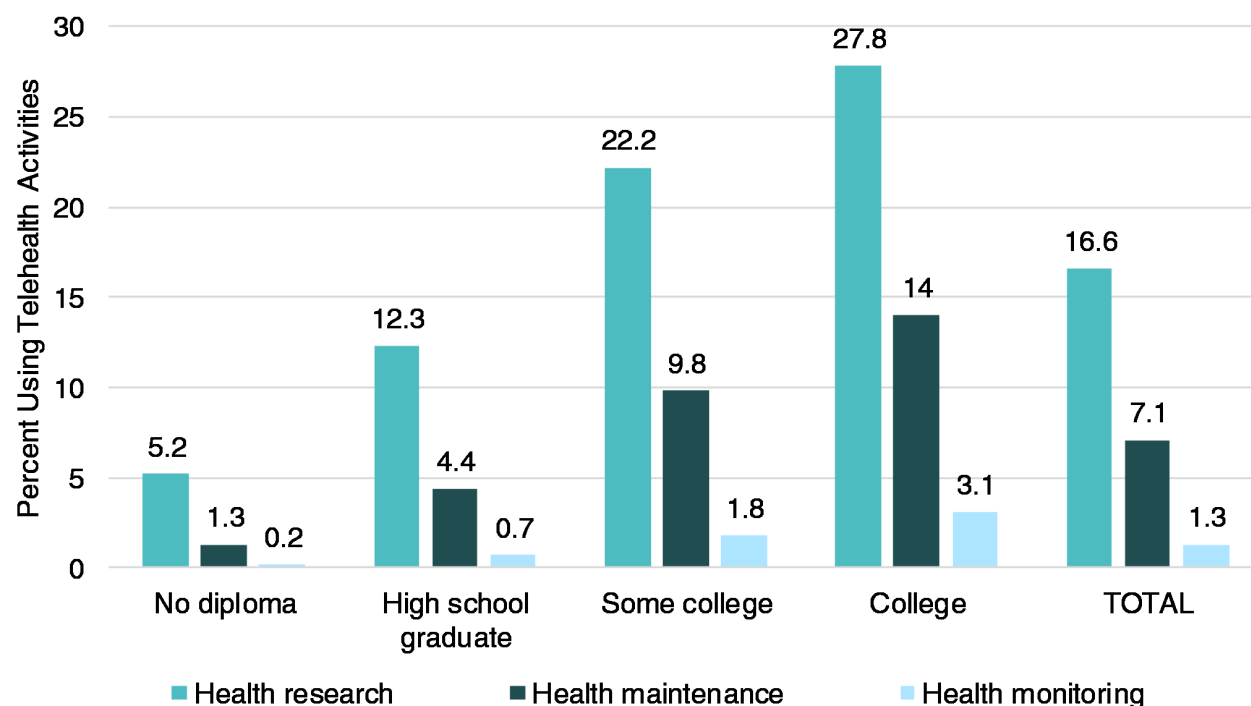
²⁷ Foutz J, S Artoga, and R Garfield, "The Role of Medicaid in Rural America," Kaiser Family Foundation Issue Brief, April 2017. Available at <https://www.kff.org/medicaid/issue-brief/the-role-of-medicaid-in-rural-america/>

TELEHEALTH AND BROADBAND

The use of telehealth can help reduce barriers to care for people who live far away from specialists or who have transportation or mobility issues. Effective telehealth systems can allow individuals to age in place and could be a strategy to reduce the outmigration of the rural population. Telehealth is also a potential strategy to support health care providers feel less isolated, thus improving recruitment and retention of providers.²⁸ Telehealth can also improve monitoring, timeliness, and communications within the health care system.

A 2018 Economic Research Service study explored how rural individuals used (or didn't use) telehealth services and the factors that affected use.²⁹ Figure 14 highlights that there is a relationship between educational attainment and telehealth use. For example, the more educated an individual is the more likely that individual uses telehealth for online health research, health maintenance (contacting providers, maintaining records and paying bills) and health monitoring (the transmission of data gathered by remote medical devices to medical personnel). In general, telehealth utilization is lower across all educational levels in rural places.

Figure 14. Educational Attainment and Telehealth Utilization, 2015



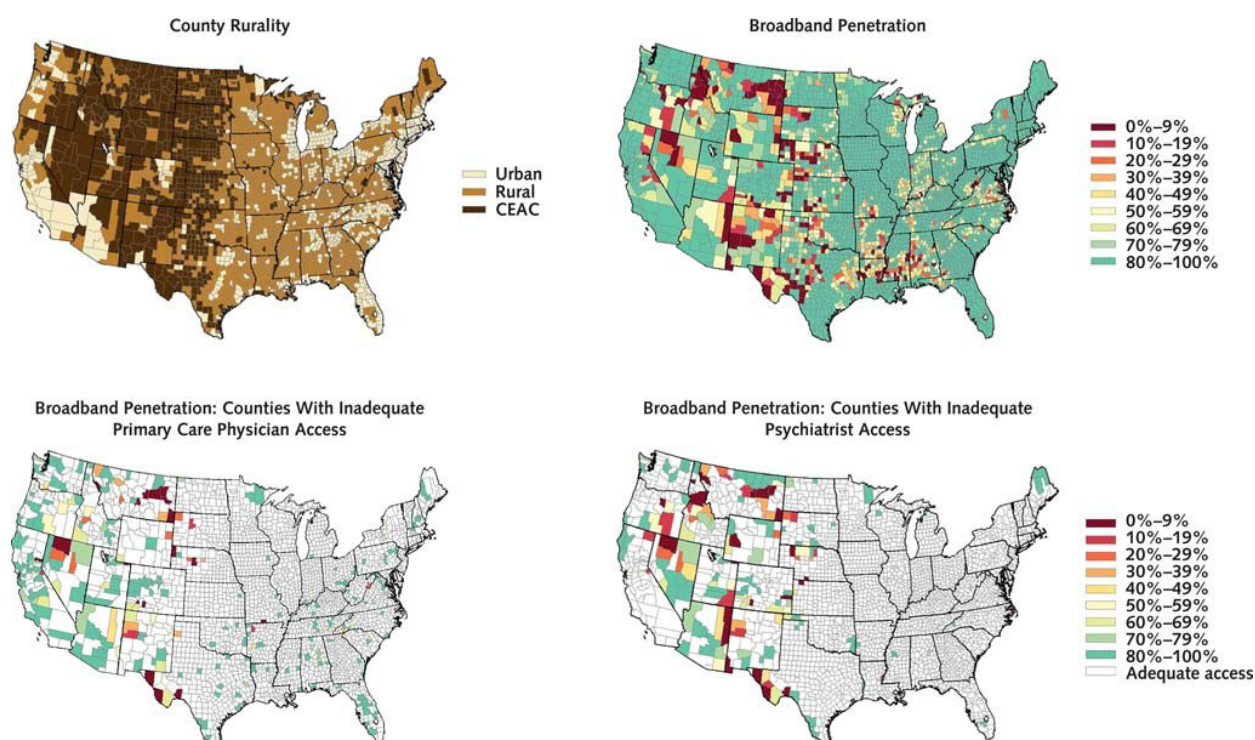
Source: Data from Amber Waves November 2018 publication, available at <https://www.ers.usda.gov/amber-waves/2018/november/educational-attainment-a-key-factor-in-rural-patient-uptake-of-telehealth-activities/>

²⁸ HRSA publication available at <https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/rural/publications/2015-telehealth.pdf>

²⁹ Stenberg P, "Rural Individuals' Telehealth Practices: An Overview," USDA Economic Research Office, Economic Information Bulletin 199, November 2018. Available at: <https://www.ers.usda.gov/amber-waves/2018/november/educational-attainment-a-key-factor-in-rural-patient-uptake-of-telehealth-activities/>

Telehealth programs require adequate broadband access, which is often limited in rural and underserved settings. Disparities in broadband access can serve to exacerbate disparities in other social determinants of health. As of June 2020, 33 percent of rural Americans lack access to high-speed broadband Internet to support video-based telehealth visits, defined by the Federal Communications Commission as download speeds of at least 25 Mbps.^{30,31} Data show that broadband penetration rates are substantially lower in the most rural counties (Figure 15) where access to primary care physicians and psychiatrists is also inadequate.

Figure 15. Broadband Penetration (and Health Access) by County Rurality, 2019



Source: Maps from *The Limitations of Poor Broadband Internet Access for Telemedicine Use in Rural America: An Observational Study*, 2019. Available at <https://www.acpjournals.org/doi/10.7326/M19-0283>

The policies governing reimbursement for telehealth services are complex. Before the pandemic, coverage of telehealth services under traditional Medicare was limited to beneficiaries living in rural areas only, with restrictions on where beneficiaries could receive these services and which providers could be paid to deliver them.³² During COVID-19, federal waivers and regulatory changes made it easier for providers to deliver telehealth services to Medicare and Medicaid patients. As of July 2021, the current administration has proposed expanding reimbursement for telehealth and mental and behavioral health services, including paying providers for audio-only services (an alternative when broadband services are not available).

³⁰ Hirko et al (2020) Telehealth in response to the COVID-19 pandemic: implication for rural health disparities. *Journal of American Medical Informatics Association*, 2020, 27(11): 1816-1818.

³¹ Federal Communications Commission (FCC). Connect2HealthFCC Data. Available at <https://www.fcc.gov/reports-research/maps/connect2health/data.html>

³² Drake C, Y Zhang, KH Chaiyachati, and D Polsky, *The Limitations of Poor Broadband Internet Access for Telemedicine Use in Rural America: An Observational Study*, *Annals of Internal Medicine*, September 2019. Available at <https://www.acpjournals.org/doi/10.7326/M19-0283>

COVID-19

NPR, Harvard University's T. H. Chan School of Public Health, and the Robert Wood Johnson Foundation collaborated on a project, which gathered data through interviews with more than 3,400 adults across the nation, of which 543 households were located in a rural community. The findings specific to rural America include:³³

- 42 percent reported facing serious financial problems during the pandemic.
- 31 percent said they've used up all or most of their savings.
- 21 percent reported serious problems paying credit cards, loans or other debt.
- 10 percent reported not having any household savings prior to the pandemic.
- 43 percent said that at least one adult in the household has lost their job, lost their business, been furloughed, or had their wages or hours reduced.
- Among rural households with job or wage losses during the pandemic, 66 percent reported facing serious financial problems.
- 34 percent reported having either no high-speed internet connection at home or problems with their internet connection that interfere with their ability to do their jobs or schoolwork.
- 24 percent said that someone in their household has been unable to get medical care for a serious problem when they needed it during the pandemic, and 56 percent of those respondents who were unable to get care report negative health consequences as a result.
- Most Black or Latino rural households (85 percent) reported facing serious financial problems during the coronavirus outbreak, compared to 36 percent of white rural households.
- 40 percent reported either having serious problems with their internet connection to do schoolwork or their jobs, or that they do not have a high-speed internet connection at home.

Many rural communities believe they will be the long-term benefactors of COVID as the media has publicized an exodus of individuals moving from urban to rural. While there has been some increased moving patterns due to COVID, most individuals who are moving are moving to other smaller urban areas or natural amenity rich locations. The rate of moving also slowed down towards the end of 2020. Thus, the strategy of attracting new residents to those places who are experiencing population loss might be a challenge.³⁴

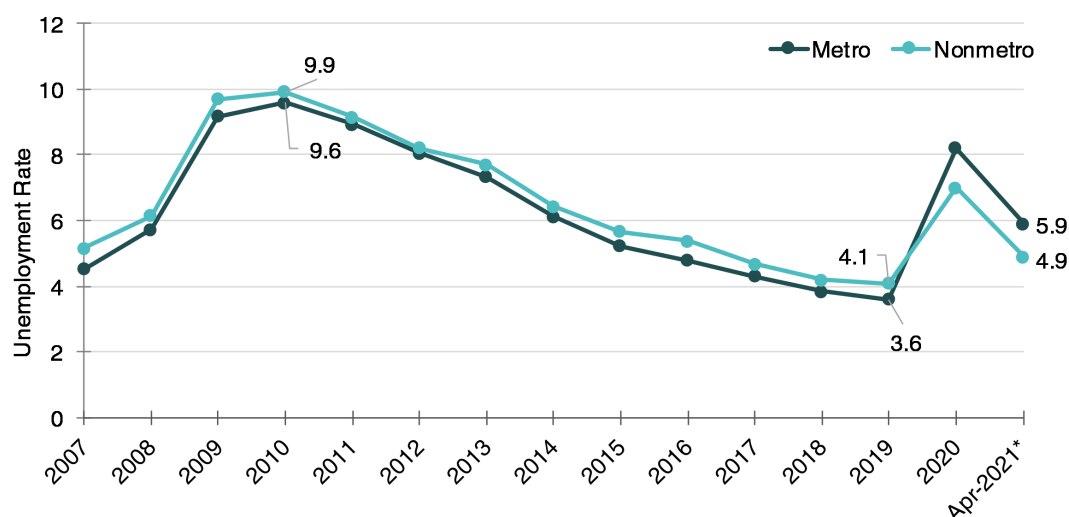
³³ The Impact of Coronavirus on Households in Rural America, October 2020. Available at https://cdn1.sph.harvard.edu/wp-content/uploads/sites/94/2020/12/Rural-Report-NPR_Harvard_RWJF-2020-Coronavirus-Poll-.pdf

³⁴ Did Covid-19 Prompt Moving? United Van Lines Reveals Customer Motivations for Moving During the Pandemic, October 2020. Available at <https://www.unitedvanlines.com/newsroom/covid-moving-trends>

COVID-19 Employment Trends

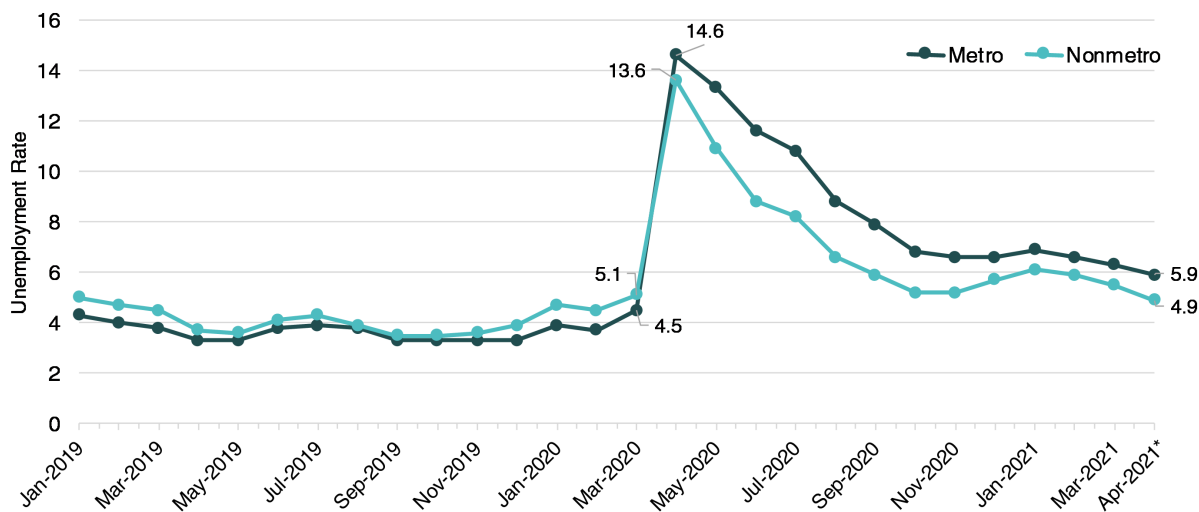
Prior to COVID-19, unemployment rates in nonmetro counties were slightly higher than metro counties. During COVID-19 and the ensuing recovery (as seen in Figures 16 and 17), nonmetro communities actually fared better.

Figure 16. Unemployment, Nonmetro vs Metro, 2007-April 2021



Source: USDA, Economic Research Service using data from U.S. Department of Labor, Bureau of Labor Statistics, Local Area Unemployment Statistics program. Unemployment rate estimates for April 2021 are preliminary.

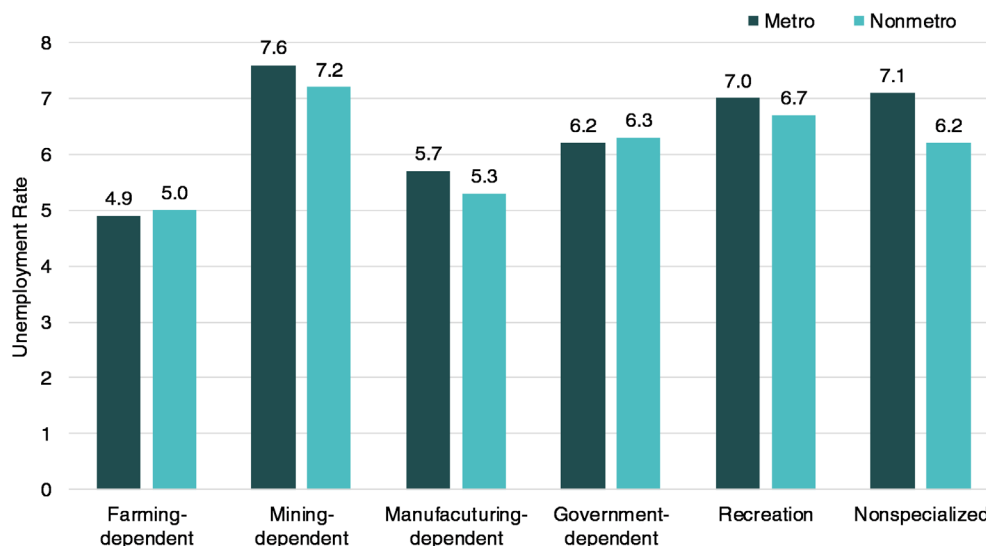
Figure 17. Monthly Unemployment Rates in Nonmetro vs Metro, January 2019-April 2021



Source: USDA, Economic Research Service using data from U.S. Department of Labor, Bureau of Labor Statistics, Local Area Unemployment Statistics program. Unemployment rate estimates for April 2021 are preliminary.

Figure 18 highlights unemployment rates by county economic type for the week including March 12, 2021. Communities that were mining dependent had higher unemployment rates both in Nonmetro and metro counties. Because of COVID, those communities that relied on recreation for a significant source of their economic base had higher rates of unemployment. For almost all county economic types, the unemployment rates in metro areas exceeded nonmetro areas.

Figure 18. Nonmetro vs Metro Unemployment by County Economic Type, week including March 21, 2021



Source: USDA, Economic Research Service release, *The COVID-19 Pandemic and Rural America*, using data from U.S. Department of Labor, Bureau of Labor Statistics, Local Area Unemployment Statistics program. Available at <https://www.ers.usda.gov/covid-19/rural-america/>

APPENDIX

Table A. Number of Hospital Closures per State, 2010-July 2022

Alabama	6
Alaska	1
Arizona	3
Arkansas	1
California	4
Florida	5
Georgia	8
Illinois	2
Indiana	1
Kansas	8
Kentucky	3
Louisiana	1
Maine	3
Maryland	1
Massachusetts	1
Michigan	1
Minnesota	4
Mississippi	4
Missouri	10
Nebraska	2
Nevada	1
New York	3
North Carolina	7
Ohio	2
Oklahoma	7
Pennsylvania	4
South Carolina	4
South Dakota	1
Tennessee	16
Texas	21
Virginia	2
West Virginia	2
Wisconsin	1
Grand Total	140

Data available at <https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/>