SHIFTING DIVIDES:
Exploring Rural Economic and Health Outcome Disparities in the United States

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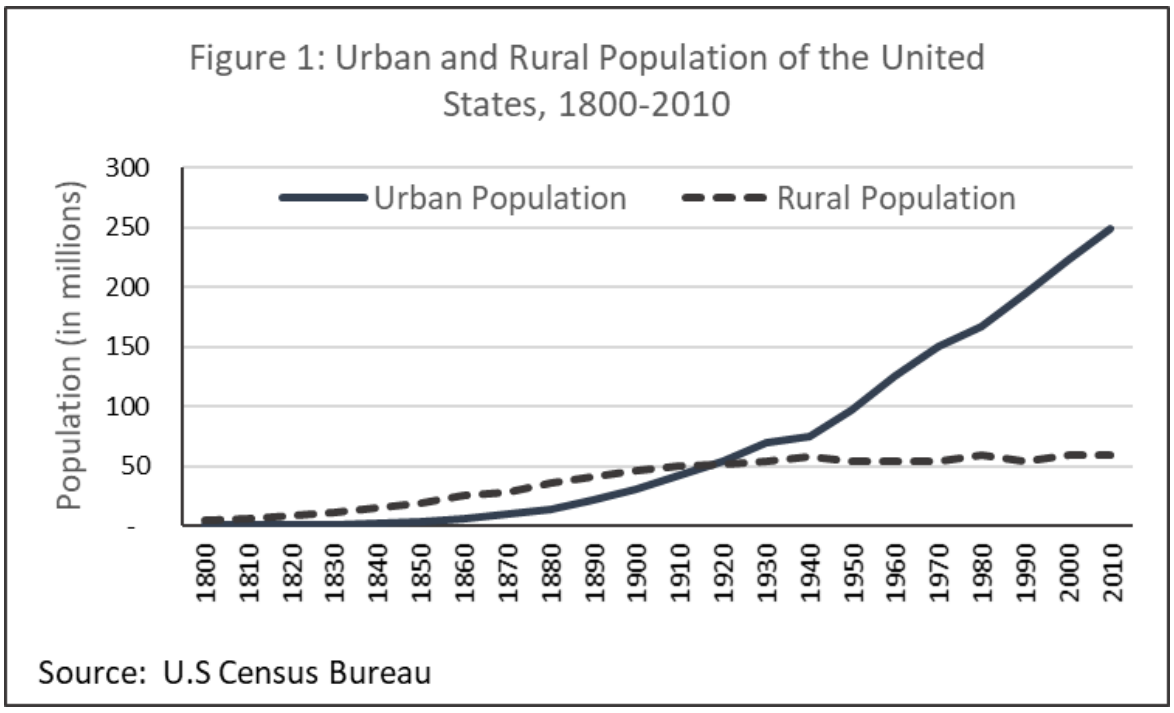
INTRODUCTION

Few divides are as simplistic and enduring as the one between urban and rural America. This is because urban and rural America often seem headed in different directions. The last time urban and rural America had similarly-sized populations was in 1920. According to the U.S. Census Bureau, America's urban population has increased by 110 percent since 1960 while its rural population has fallen by five percent (Figure 1). Precisely because its population is shrinking, now constituting less than fifteen percent of the U.S. population, rural America tends to be given short-shrift in most analyses of national demographic and economic trends.[1]

Even when rural places are included in national studies they are usually lumped together under the catchall heading of 'rural.' This conflates important distinctions between large and small rural counties, between accessible and remote counties, and between counties with economies based in agriculture, extraction, forestry, tourism, and service provision (Isserman 2005). Likewise, because Whites and married-couple households are still more common in rural places than in urban ones, other than for Native Americans, too little effort is typically made to chronicle issues of racial, ethnic, and demographic diversity among rural populations.

Nor do issues of rural poverty, public health, and social immobility always get the national attention they merit. According to the Census Bureau, rural places comprise the vast majority of U.S. counties with persistent poverty—communities where the poverty rate has been higher than 20% for more than 50 years (Blank 2005). In terms of public health, while a number of recent books and press reports have focused on rising rural suicide and substance abuse rates, far less national attention is paid to rural America's elevated mortality rates for the broader infectious and chronic diseases.



Other than following the age-old adage to "move to the big city"-- sociologists Patrick Carr and Maria Kefalas (2009) use the term 'hollowing out the middle' to describe how the best and brightest rural youth are too often encouraged to leave rural communities rather than stay and make a difference--the pathways available to rural residents to improve their lives *in situ* through improved education, expanded entrepreneurship, and better health care utilization are poorly articulated.

Among recent studies of upward social and economic mobility, Harvard University's *Opportunity Atlas* does not explicitly consider rural areas. Nor does PolicyLink's *National Equity Atlas*, which chronicles racial and economic equity. *Rural Dreams* (Krause and Reeves 2017), a recent study of rural economic mobility by the Brookings Institution (which makes partial use of data from Harvard's *Opportunity Atlas*), limits its comparisons to deeply rural places, and omits consideration of the many rural counties just beyond the metropolitan fringe.

Federal leadership on these issues has been uneven and fragmented, often conflating farm policy with rural policy (Lapping, Daniels, and Keller 1989). With each new administration, a new rural strategic development plan is put forth. The most recent, a report by the President's Task Force on Agriculture and Rural Prosperity (USDA 2018), identifies five generic strategies for enhancing rural prosperity. These include expanding Internet connectivity, growing social capital, supporting rural workforce development, promoting technical innovation, and improving transportation infrastructure to promote economic development. Unfortunately, no effort is made

to connect these strategies to particular places or communities.

Rural health conditions are only slightly better monitored and understood. Just this year the American Hospital Association published *Rural Report: Challenges Facing Rural Communities and the Roadmap to Ensure Local Access to High-quality, Affordable Care* (2019) a national study of rural health conditions. The Rural Health Information Hub, formerly the Rural Assistance Center, maintains an interactive website[2] that allows users to access a variety or rural health statistics at multiple spatial scales. The National Rural Health Association has long advocated for rural health policy and convened rural health leaders. The largest health-focused philanthropic organization, the Robert Wood Johnson Foundation, has launched a new rural health equity effort.

With metropolitan areas having replaced cities and suburbs as the standard unit of urban geography, this working paper takes a closer look at the current extent of urban-rural and intra-rural divides across America. By doing so, it breaks new ground in three areas. First, it makes intelligent use the U.S. Department of Agriculture's 2013 Rural Urban Continuum Codes (RUCCs), which divide rural areas into six place types depending on their size and adjacency to metropolitan areas. Second, unlike the Census Bureau's tabulations of rural characteristics, it explicitly distinguishes between inputs (such as education attainment) and outcomes (such as income and economic activity). Third, it differentiates between economic outcomes and health outcomes, while recognizing the interconnectedness of these two issues. Having done so, it then circles back to identify states in which rural counties are doing well with respect to both health and economic outcomes (i.e., labeled "leaders"), are doing well in terms of either health outcomes or economic outcomes (partial leaders), or are doing poorly in terms of health and/or economic outcomes (i.e., labeled "laggards").

These distinctions between leaders and laggards are meant to be descriptive rather than normative or predictive. Conditions in a state identified as a laggard may be improving, just as conditions is a leader state may be declining. Nor does the designation of leader or laggard status automatically imply causality. A state may be doing everything right in terms of rural economic and social development practices and still be a laggard. By a similar token, counties in states identified as leaders may simply be in a better position to take advantage of improving conditions in nearby urban areas.

The notion of doing well or doing poorly can also be used to compare outcome disparities between rural and urban areas. With this in mind, we develop a second list of "leaders and laggards," noting which rural areas are ahead of their state's urban areas as well as which are falling further behind.

Part I of this working paper reviews how we organize different rural data sources and presents a few key national-level rural demographic, economic, and health care comparisons. Part II summarizes the major state-level differences between urban and rural populations using the most recent data from the American Community Survey. Part III focuses in greater detail on rural economic outcomes, comparing rural areas between states, and with urban areas in the same state. Part IV does the same thing for rural health outcomes. Part V combines the results of

previous chapters by presenting two state-level summary lists of rural outcome leaders and laggards. Part VI concludes with an overall summary of findings and uses them to propose a more thorough organizing approach to jointly improving rural economic and health outcomes and reducing rural-urban disparities. Because of the sheer volume of data included in this working paper, each section begins with a bullet point listing of its major findings.

I. RURAL DIVIDES: A NATIONAL VIEW

As a group, rural counties have:

- Fewer jobs per capita, higher unemployment rates, and lower labor force participation rates;
- Higher poverty rates and lower incomes;
- Lower housing costs but high housing cost burdens; and,
- Higher mortality rates.

Rural Data and Categorizations

The Census Bureau currently classifies 2,115 of America's 3,242 counties (and county equivalents[3]) and 14.2 percent[4] of its population as rural—which is to say, as non-urban.

This simple urban-rural dichotomy proved to be too undiscerning for the Department of Agriculture, leading it, in 1975, to put forth a new and more detailed classification system known as the Rural Urban Continuum Code (RUCC) system. The nine RUCC classifications are based on county population size, density, the presence of agricultural and extractive industries,[5] and distance to the closest metropolitan area, and include: (1) Urban Code 1: County population greater than one million; (2) Urban Code 2: County population of 250,000 to 1 million; (3) Urban Code 3: Population less than 250,000; (4) Rural Code 4: Population of 20,000 or more *and adjacent* to a metro area; (5) Rural Code 5: Population of 20,000 or more and *not adjacent* to a metro area; greater than one million; (6) Rural Code 6: Population of 2,500 to 19,999 and *adjacent* to a metro area; (7) Rural Code 7: Population of 2,500 to 19,999 and *not adjacent* to a metro area; greater than

one million; (8) Rural Code 8: Population less than 2,500 and *adjacent* to a metro area; and, (9) Rural Code 9: Population less than 2,500 and *not adjacent* to a metro area.

To make this typology more tractable, we combined RUC codes 4, 6 and 8 into a "Metro-Adjacent" category grouping, and RUC codes 5, 7 and 9 into a "Far-Rural" category grouping. These groupings are presented graphically in Maps 1 and 2. Map 1 distinguishes urban counties from rural counties adjacent to metropolitan areas (RUC codes 4, 6 & 8), and far-rural counties (RUC codes 5,7 & 9). Map 2 divides America's rural counties into three size categories: (i) those with more than 20,000 residents (RUC codes 4 and 5); those with 2,500 to 19,999 residents (RUC codes 6 and 7), and those with fewer than 2,500 residents (RUC categories 8 and 9).

Note that these categorizations are based solely on size and proximity and do not account for a county's economic base (Isserman 2005). As a practical matter, most counties with economies based in extractive or forest industries tend to fall into the Far-Rural Category while many counties with agricultural economies fall within the Metro-Adjacent grouping.

Except where noted, demographic, economic and housing market data for each RUCC county grouping were compiled from the 2017 American Community Survey, or ACS. Conducted annually, the ACS is a sample survey which reaches roughly 2.4 percent of U.S. households, with the sampling factor for rural areas running slightly less than for urban areas.[6] Because it is based on a sample, all ACS estimates are accompanied by calculations of margins-of-error, making it possible to reliably compare ACS estimates across time. Job count data by county for 2016 was downloaded from the Census Bureau's County Business Patterns website.[7]

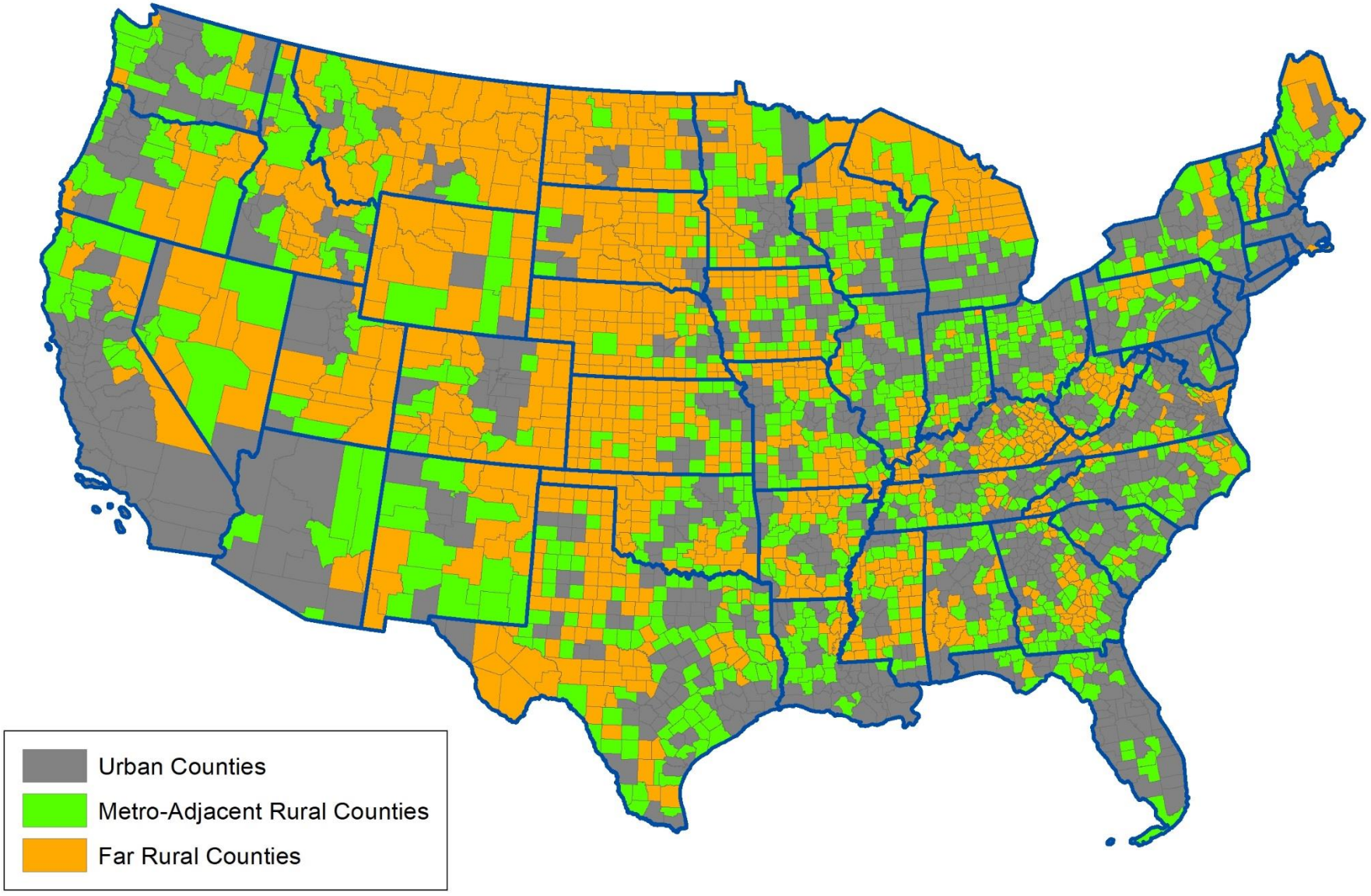
Life expectancy estimates and overall mortality rate estimates by county were obtained for 2014 from the Institute of Health Metrics and Evaluation (IHME) at the University of Washington. The IHME packages and distributes a variety of health-related information from around the world, including the U.S., in easy-to-use map and tabular data formats.[8]

In addition to publishing overall mortality rates, the IHME also distributes county-level illness and disease-specific mortality rate data for 21 causes of death and 29 different cancer types. These county-level Illness-specific mortality rates are constructed instead of observed. They are calculated by multiplying national- and state-level death rates (organized by age, gender, race, and specific cause of death) by the age-, gender, and race-specific composition of each county.

Rural Divides: A National View

Table 1 compares America's urban and rural counties across more than two-dozen demographic, economic, and health dimensions. Rural counties are further divided by population size (less than 2,500 residents, 2,500 to 19,999 residents, and more than 20,000 residents) and urban county proximity. Except where noted, all amounts and percentages are calculated by averaging county-specific numbers within each county type or size category. This is to say that the estimates are not weighted by population or employment: For the purpose of averaging, each county is counted as an observation regardless of its population size or employment.

Map 1: Urban and Rural Counties by Metropolitan Proximity



Map 2: Urban and Rural Counties by County Population Size

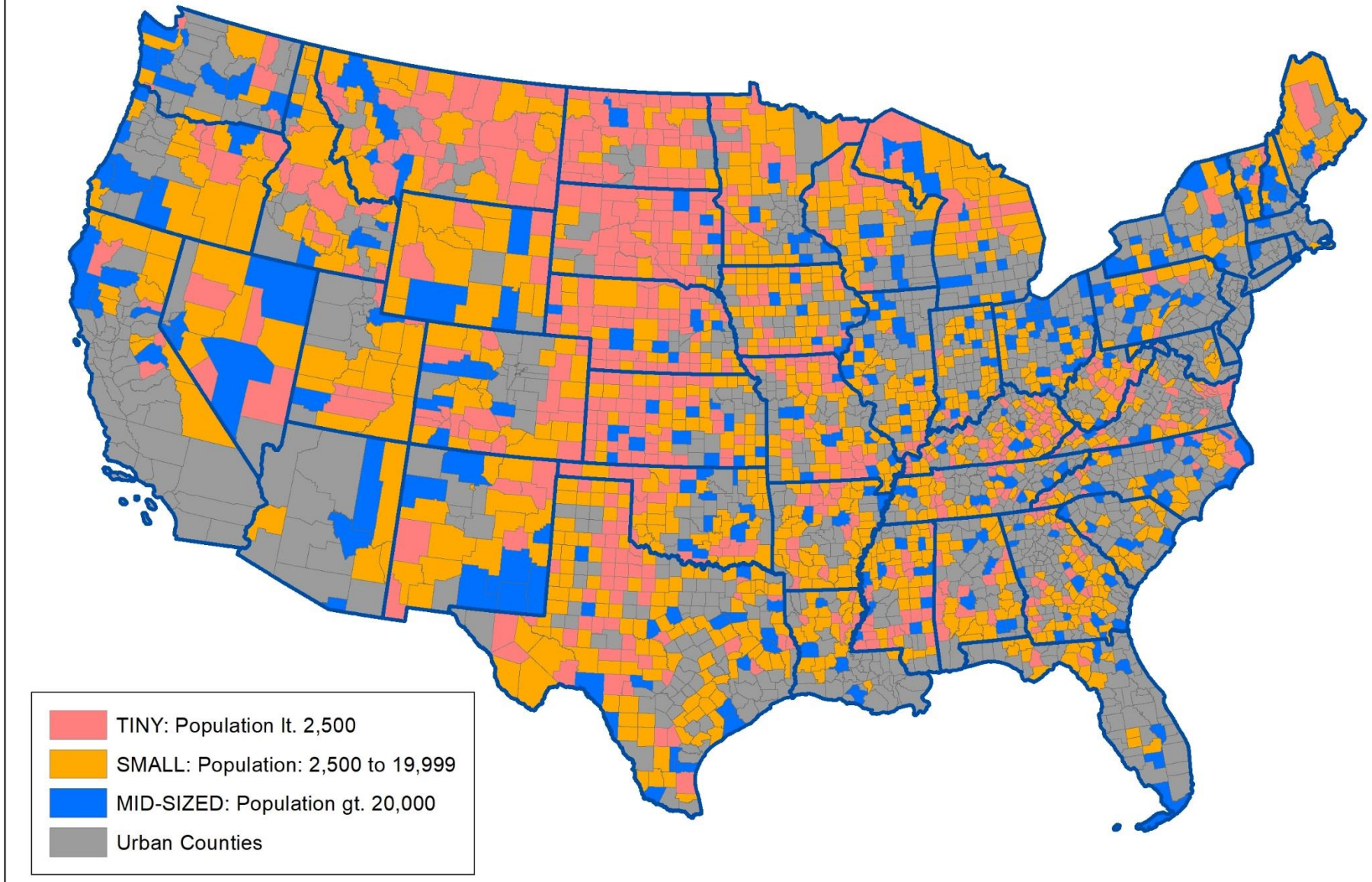


Table 1: National-level Demographic, Economic, and Health Comparisons between Rural and Urban Counties								
Characteristic	All Counties	Urban Counties	Rural Counties					
			All	Metro-adjacent	Far Rural	Mid-sized Counties (more than 20,000 residents)	Small Counties (2,500 to 19,999 residents)	Tiny Counties (less than 2,500 residents)
Number of Counties	3,233	1,257	1,976	1,027	949	306	1,026	644
Population [1]								
2016 Residents (millions)	313.5	268.5	45.0	29.2	15.8	17.9	22.0	4.9
Avg. Population per County	96,969	213,604	22,773	28,432	16,649	58,497	21,404	7,609
Population Share	100%	86%	14.4%	9.3%	5.0%	5.7%	7.0%	1.6%
Population Growth Rate, 2000-2016	13.2%	15.1%	3.3%	3.3%	3.1%	6.1%	1.9%	-1.0%
Demographic Characteristics								
Avg. White Population Share	68.2%	62.5%	71.9%	71.1%	72.7%	70.9%	71.4%	73.0%
Avg. Family Household Share	65.0%	62.9%	66.4%	67.0%	65.7%	65.7%	66.7%	66.1%
Avg. Median Age	40.0	36.6	42.2	41.8	42.5	39.2	41.4	44.8
Avg. Share of Pop. w/High School Degree	33%	29%	36%	37%	35%	34%	37%	36%
Avg. Share of Pop. w/Bachelors Degree	13%	15%	12%	12%	13%	14%	12%	13%
Economic Characteristics [2]								
Jobs (millions)	121.6	108.4	13.1	8.3	4.8	6.0	6.2	1.0
Share of U.S. Jobs	100.0%	89.1%	10.8%	6.8%	4.0%	4.9%	5.1%	0.8%
Job Growth Rate. 2005-2016	6.4%	7.2%	-1.5%	-2.4%	-0.4%	0.5%	-1.6%	0.0%
Average Pct. Agriculture & Forest Jobs	1.8%	0.9%	2.5%	1.9%	3.1%	0.4%	1.7%	4.6%
Average Pct. Mining Jobs	4.3%	1.4%	6.2%	2.6%	10.0%	1.3%	2.5%	14.3%
Unemployment Rate	6.2%	5.8%	6.4%	6.8%	5.9%	6.7%	6.6%	5.9%
Labor Force Participation Rate	57.0%	57.2%	56.9%	56.0%	57.9%	60.0%	56.5%	56.4%
Median Household Income ($000)	$46.6	$50.8	$43.9	$43.5	$44.6	$46.1	$43.4	$44.0
Poverty Rate	15.5%	13.2%	17.0%	17.5%	16.4%	17.2%	17.5%	16.2%
Homeownership Rate	69.3%	64.6%	72.3%	72.4%	72.3%	67.7%	72.0%	75.0%
Share of Homeowners w/Excess Burdens	23.0%	23.1%	22.7%	22.7%	22.7%	21.9%	23.1%	26.2%
Share of Renters w/Excess Burdens	46.7%	47.9%	40.4%	41.2%	38.3%	42.2%	38.8%	32.6%
Health Characteristics [3]								
Percent w/ Health Insurance [4]	86.3%	83.5%	88.2%	88.3%	87.9%	87.8%	88.1%	89.1%
Avg. Life Expectancy (years)	75.5	72.6	77.5	77.2	77.8	77.7	77.1	77.9
Age 0-4 Overall Mortality Rate (per 1000)	0.69	0.61	0.74	0.75	0.73	0.69	0.76	0.74
Age 5-25 Overall Mortality Rate (per 1000)	0.93	0.80	1.02	1.03	1.01	0.93	1.05	1.03
Age 65+ Overall Mortality Rate (per 1000)	50.82	47.95	52.64	53.64	51.57	52.88	53.55	51.08
Cardiovascular Disease Mortality Rate (per 10,000)	270.0	246.4	285.0	292.3	277.2	280.5	294.5	272.2
Pulmonary Diseases Mortality Rate (per 10,000)	116.5	104.6	124.0	124.5	123.3	124.1	126.5	119.8
Lung & Colorectal Cancer Mortality Rate (per 10,000)	84.8	78.5	88.9	91.8	85.6	87.6	91.4	85.3
Breast Cancer Mortality Rate (per 10,000)	25.5	24.4	26.2	26.9	25.6	26.5	26.8	25.2
Prostate Cancer Mortality Rate (per 10,000)	25.4	23.7	26.5	26.9	26.0	25.7	26.9	26.2
Self-harm & Violence Mortality Rate (per 10,000)	21.4	19.2	22.8	22.5	23.2	21.8	23.0	23.1
Substance Abuse Mortality Rate (per 10,000)	12.6	12.1	13.0	13.1	12.8	14.1	13.2	12.0

Source Notes:

1. American Community Survey (ACS); data is for 2016 except as noted
2. Job Counts are from County Business patterns; other estimates are from the ACS; data is for 2016 except as noted.
3. Life Expectancy and Mortality Rates are from the Institute of Health Metrics and Evaluation; estimates are for 2014
4. As reported in the ACS for 2016

America's 2,100-plus rural counties currently include slightly more than fourteen percent of its population. The population of America's rural counties in 2016 was 71.9 percent White, versus 62.5 percent for its urban counties. Two-thirds of rural households in 2016 were families (versus 62.9% of urban households); and at 73.3, the median age of rural county residents was just 0.1 years less than that of urban county residents. The share of rural adults who had graduated from high school was notably higher than the share of urban residents (36% vs 29%), but the share of rural residents with Bachelor's degrees was notably lower (12% vs. 15%).

In terms of economics, America's rural counties included 10.8 percent of its jobs (versus 14.4 percent of its population). Not surprisingly, rural economies are more tilted toward agriculture and resource extraction than urban economies, although actual employment levels are quite modest. As of 2016, 6.2 percent of rural jobs were in mining and fossil-fuel extraction, and just 2.5 were in agriculture and forestry industries.

Rural economies, many of which were already depressed, recovered more slowly from the effects of the Great Recession than urban economies. As of 2016, the number of rural jobs was 1.5% off its 2005 level. By comparison, the number of urban jobs grew by 7.2 percent over the same period. At 6.4 percent, rural unemployment rates averaged 0.8 percent higher than urban unemployment rates. Rural labor force participation rates were only slightly lower than urban rates (56.9% vs. 57.2%), but because rural wage levels are lower than urban levels, the average 2016 median household income among rural counties was nearly $7,000 lower than among urban counties. At 17 percent, the rural county poverty rate was nearly four percentage points higher than the urban county poverty rate.

While homeownership rates notably higher among rural counties than urban ones (72.3% versus 64.6%), the share of homeowners with mortgages who are overly burdened by their housing costs—as occurs when the ratio of monthly housing costs-to-income exceeds thirty percent—is roughly comparable. Rural renters are in somewhat better shape. The share of rural renters who were overly cost-burdened in 2016 stood at 40.4 percent, versus 47.9 percent for urban renters. Still, this somewhat better rural performance offers minor consolation to the 4-of-10 rural renters who pay more than thirty percent of their income for rent. Counter-balancing their lower housing burdens, rural households tend to pay more in living expenses like transportation, energy, and food costs (Salamon and MacTavish 2017).

In terms of health outcomes, residents of rural counties live an average of five years longer than residents of urban counties. On the not-so-positive side of the health outcome ledger, rural mortality rates are notably higher than urban mortality rates among young children, older children and young adults, and seniors (Rural and urban mortality rates among adults aged 26 to 64 are roughly comparable.).

Among the principle causes of death, the average mortality incidence of cardiovascular and pulmonary diseases and illnesses are all much higher in rural counties than in urban ones, as are mortality rates for lung and colorectal cancer. Average mortality rates for breast and prostate cancer, as well as suicide and domestic and public violence are all somewhat higher in rural counties than in urban

ones, while rural mortality rates for alcohol and drug abuse are only slightly higher.

Rural counties, like urban ones, are far from homogeneous. Compared to more distant rural counties, those adjacent to urban counties are more populous (on average) as well as slightly younger. They are home to more jobs, even as their economies were more adversely affected by the Great Recession. They also provide far more health care options, from public health initiatives to free disease screenings to comprehensive physical and mental health care.

The economies of distant rural counties are much more dependent on mining, oil and natural gas, and forestry jobs than those neighboring urban areas. As has been true for decades, unemployment rates and poverty rates are notably higher in far-rural counties than in those adjacent to urban areas, while median household income levels and labor force participation rates are both lower. Homeownership rates are comparable, but because rents are higher and incomes are lower, the share of renters paying more than 30 percent of their incomes for rent is higher in metro-adjacent rural counties than in far-rural ones.

On average, residents of metro-adjacent rural counties have shorter life expectancies than residents of far-rural counties and suffer from slightly higher age cohort--based mortality rates. The rate of deaths due to cardiovascular disease and illness and lung and colorectal cancer are significantly higher among metro-adjacent rural counties than among more distant rural counties. Deaths due to substance abuse occur slightly more frequently in metro-adjacent counties, while deaths attributable to suicide and violence occur slightly less frequently.

Size also matters, but not overly so. Smaller rural counties are slightly whiter and older than larger ones. Their economies are more heavily tilted toward agriculture, forestry, mining, and fossil fuels. By some economic measures, larger rural counties out-performed their smaller rural counterparts, adding more jobs between 2005 and 2016, posting higher average median household incomes, and benefiting from higher labor force participation rates. By other economic measures—unemployment rates, poverty rates, homeownership rates, and excess rental housing cost burden rates—larger rural counties are doing worse or no better or worse than smaller rural counties.

In terms of health outcomes, mortality rates for children and young adults are notably lower among larger rural counties than among smaller ones. The frequency of deaths attributable to cardiovascular disease, pulmonary disease and illnesses, and the most common types of cancer are generally higher in small rural counties than in either tiny or mid-sized rural counties. The smaller a rural county, the more likely its residents are to be covered by health insurance.

II. RURAL POPULATION COMPARISONS BY STATE

Rural residents:

- Mostly reflect their states and urban counties in terms of racial, ethnic, and household composition;
- Have a higher average age than urban residents; and,
- Graduate from college at much lower rates.

Rural population numbers vary widely by state, as does the share of rural residents. As of 2017, there were just six states—Wyoming, Vermont, Montana, South Dakota, Mississippi, and North Dakota—in which a majority of residents lived in rural counties. There were another twelve states in which rural residents accounted for less than half but more than one-third of the population (Table 2). At the opposite extreme, the two states with the smallest rural population shares in 2017 were California, with just two percent of its population living in rural counties; and Massachusetts, with just one percent.

New Jersey, Rhode Island, Delaware and the District of Columbia contain no rural counties. We note again the partial nature of these distinctions. Rural activities are frequently present in urban counties just as urban activities are commonly present in rural ones. New Jersey provides a prime example of this. Despite having no officially rural counties, the state's 9,000-plus farms make agriculture New Jersey's third largest industry behind pharmaceuticals and tourism.

More populous states tend to be more urban: the correlation coefficient comparing state population size and rural population share is -0.56. States with more land area tend to include more rural counties but not always a larger share of rural residents.

Except for South Dakota, the five states with the largest shares of their rural populations living in metro-adjacent rural counties (Vermont, Maine, West Virginia, and New Hampshire) are all located in the New England or Mid-Atlantic subregion and are fairly small in terms of both land area and population size.

Wyoming and Montana go the other way with more than half of their residents living in far-rural counties. Other states in which more than a quarter of their populations live in far-rural counties include Alaska (46%), North Dakota (41%), South Dakota (39%), Vermont (31%), Mississippi (31%), and Kentucky (25%). Vermont is the only state in which metro-adjacent *and* far-rural counties both include more than thirty percent of the state population.

In terms of county size, 49 percent of rural residents live in counties with a population between 2,500 and 19,999, 40 percent live in counties with more than 20,000 residents, and 11 percent live in counties with fewer than 2,500 residents. Montana, New Hampshire, Wyoming, and New Mexico lead the list of states having the fewest rural residents living in large rural counties. Wyoming also leads the list of states in terms of the proportion of residents living in small rural counties with between 2,500 and 19,999 residents. Other states in which a plurality of rural residents live in small counties include Vermont (37%), Alaska (31%), Maine (28%), Mississippi (27%) and Arkansas (26%). The Dakotas, North and South, lead the list of states in which a plurality of rural residents live in tiny counties—those with 2,500 or fewer residents.

Table 2: 2017 Rural Population Shares by Rural County Type and State

State (sorted by rural population share)	2017 State Population	Rural Population Share	(State) Population Share by Rural County Proximity				(State)bPopulation Share by Rural County Size Category					
			Share in Metro-adjacent Rural Counties (sorted high-to-low)		Share in Far Rural Counties (sorted high-to-low)		Share in Larger Rural Counties (Population > 20,000)		Share in Small Rural Counties (2,500 to 19,999 Population)		Share in Tiny Rural Counties (Population < 2,500)	
Wyoming	569,412	69%	Vermont	35%	Wyoming	61%	Montana	29%	Wyoming	42%	South Dakota	32%
Vermont	600,127	66%	Maine	30%	Montana	51%	New Hampshire	28%	Vermont	37%	North Dakota	22%
Montana	1,004,612	65%	West Virginia	26%	Alaska	46%	Wyoming	22%	Alaska	31%	Montana	12%
South Dakota	826,297	63%	New Hampshire	25%	North Dakota	41%	New Mexico	20%	Maine	28%	Alaska	10%
Mississippi	2,890,123	54%	South Dakota	24%	South Dakota	39%	Hawaii	19%	Mississippi	27%	Vermont	10%
North Dakota	719,722	51%	Mississippi	23%	Vermont	31%	Vermont	19%	Arkansas	26%	Nebraska	9%
Alaska	719,983	46%	Wisconsin	23%	Mississippi	31%	Mississippi	18%	Iowa	25%	Kentucky	9%
Kentucky	4,287,887	41%	Iowa	21%	Kentucky	25%	Kansas	14%	Montana	24%	Mississippi	8%
Maine	1,294,998	41%	Alabama	21%	Nebraska	22%	Nebraska	13%	Kentucky	24%	West Virginia	6%
Iowa	3,016,358	41%	Arkansas	20%	New Mexico	22%	Oklahoma	13%	West Virginia	22%	Iowa	6%
West Virginia	1,784,004	38%	Oklahoma	19%	Iowa	20%	Ohio	13%	North Dakota	20%	Wyoming	5%
Arkansas	2,890,095	38%	Idaho	19%	Kansas	19%	Idaho	12%	South Dakota	19%	Kansas	5%
New Hampshire	1,289,255	37%	North Carolina	19%	Hawaii	19%	North Carolina	12%	Oklahoma	18%	Arkansas	5%
Nebraska	1,839,825	35%	Ohio	19%	Arkansas	18%	South Dakota	12%	Idaho	18%	Missouri	4%
Oklahoma	3,780,828	34%	Tennessee	19%	Oklahoma	15%	Iowa	10%	Missouri	14%	Maine	4%
Idaho	1,626,557	33%	Indiana	18%	Idaho	14%	West Virginia	10%	Indiana	14%	Virginia	3%
New Mexico	2,043,896	33%	Kentucky	16%	West Virginia	13%	Oregon	10%	Wisconsin	13%	Idaho	3%
Kansas	2,820,265	32%	Minnesota	15%	New Hampshire	12%	Wisconsin	10%	Minnesota	13%	Minnesota	3%
Wisconsin	5,612,611	26%	South Carolina	15%	Maine	11%	North Dakota	9%	Kansas	13%	Alabama	3%
Missouri	5,891,760	25%	Missouri	15%	Missouri	10%	Maine	9%	Nebraska	13%	Wisconsin	3%
Alabama	4,729,116	24%	Montana	13%	Michigan	9%	Kentucky	8%	Alabama	13%	Oklahoma	3%
Tennessee	6,436,601	23%	Louisiana	13%	Colorado	8%	Alabama	8%	New Mexico	12%	Tennessee	2%
Minnesota	5,366,210	22%	Kansas	13%	Minnesota	7%	Tennessee	8%	Tennessee	12%	North Carolina	2%
Indiana	6,412,384	22%	Nebraska	13%	Oregon	7%	Arkansas	8%	Louisiana	10%	Michigan	2%
North Carolina	9,783,738	22%	Georgia	13%	Utah	5%	Washington	7%	Georgia	10%	Georgia	2%
Ohio	11,289,161	20%	New Mexico	11%	Georgia	4%	South Carolina	7%	New Hampshire	9%	Colorado	1%
Hawaii	1,383,246	19%	North Dakota	10%	Tennessee	4%	Michigan	7%	Michigan	9%	Indiana	1%
Michigan	9,698,121	18%	Pennsylvania	10%	Indiana	4%	Indiana	7%	South Carolina	8%	Louisiana	1%
Georgia	9,931,935	17%	Oregon	9%	Virginia	4%	Nevada	7%	North Carolina	8%	New Mexico	1%
Oregon	3,947,954	16%	Michigan	9%	Illinois	4%	Missouri	7%	Ohio	7%	Texas	1%
Louisiana	4,531,570	16%	Virginia	9%	Nevada	3%	Pennsylvania	6%	Utah	7%	Washington	1%
South Carolina	4,751,345	15%	Wyoming	9%	Texas	3%	Minnesota	6%	Texas	6%	Illinois	1%
Colorado	5,316,870	12%	Illinois	8%	Wisconsin	3%	Georgia	6%	Virginia	6%	Oregon	0%
Virginia	8,116,130	12%	Texas	7%	Alabama	3%	Connecticut	5%	Colorado	6%	Nevada	0%
Pennsylvania	12,377,251	11%	Washington	7%	Washington	3%	Colorado	5%	Illinois	6%	Utah	0%
Illinois	12,551,822	11%	Nevada	6%	North Carolina	3%	Louisiana	5%	Oregon	6%	Pennsylvania	0%
Texas	26,794,198	11%	New York	6%	Louisiana	3%	Illinois	5%	Pennsylvania	5%	Ohio	0%
Utah	2,946,717	11%	Connecticut	5%	Ohio	2%	New York	4%	New York	3%	South Carolina	0%
Washington	7,037,413	10%	Utah	5%	Pennsylvania	1%	Arizona	4%	Maryland	3%	California	0%
Nevada	2,846,365	9%	Colorado	5%	New York	1%	Texas	3%	Nevada	2%	Florida	0%
New York	19,285,448	7%	Arizona	4%	Arizona	1%	Utah	3%	Arizona	2%	New York	0%
Connecticut	3,486,033	5%	Florida	3%	California	1%	Virginia	3%	Washington	2%	Arizona	0%
Arizona	6,654,096	5%	Maryland	3%	Massachusetts	0%	Florida	1%	Florida	2%	Connecticut	0%
Florida	19,858,469	3%	California	1%	South Carolina	0%	California	1%	California	1%	Delaware	0%
Maryland	5,856,088	3%	Massachusetts	1%	Florida	0%	Massachusetts	1%	Massachusetts	0%	D.of Columbia	0%
California	38,242,946	2%	Alaska	0%	Connecticut	0%	Alaska	0%	Connecticut	0%	Hawaii	0%
Massachusetts	6,552,347	1%	Hawaii	0%	Maryland	0%	Delaware	0%	Delaware	0%	Maryland	0%

Note: Delaware, New Jersey, Rhode Island and the District of Columbia have no rural counties

Race, Household Type & Age

To what extent are there systematic demographic variations between rural and urban counties? To find out, we compared metro-adjacent and far-rural counties with their same-state urban counterparts along dimensions of race and ethnicity, family share, and median age. These comparisons are presented in Table 3.

In terms of racial and ethnic composition, rural counties mostly reflect their states and urban counties. Indeed, the only state in which the share of rural Whites exceeds the share of urban Whites by five percent or more is Tennessee. Similarly, Kentucky is the only state where the White resident share of far-rural counties substantially exceeds the White resident share of urban counties. On the opposite side of the urban-rural demographic coin, the share of urban Whites significantly exceeds the share of rural Whites only in South Carolina.

The sharpest urban-rural racial and ethnic composition differences are between urban counties and metro-adjacent rural counties. Among the states in which metro-adjacent rural counties are notably whiter than urban counties are New York (+27%), California (+25%), Maryland (+23%), Illinois (+22%), Nevada (+19%), and Alaska (+18%). Except for Nevada, these states are all extremely racially diverse, suggesting that the higher White population shares among metro-adjacent rural counties may be the result of continuing "white flight" from urban counties to nearby rural ones. There are only three states whose metro-adjacent rural counties are less White than their urban counties: Arizona (in which the metro-adjacent rural county White resident share lags the urban county share by 19%), South Carolina (-10%), and Montana (-6%).

Rural counties mostly mirror their states in terms of household composition as well. There are just five states in which the family share of rural households (i.e., households in which members are related by marriage or birth) exceeds the family share in urban counties by more than three percent: Arizona (in which the rural family share exceeds the urban share by 5%), Ohio (+5%), Indiana (+4%), Nevada (+4%), and North Dakota (+4%). At the opposite extreme, in California and Massachusetts, the family share of rural households significantly lags the urban share—by seven percent in California, and by four percent in Massachusetts.

Unlike the case of race, in which urban-rural differences are larger for metro-adjacent rural counties than for far-rural ones, the situation is reversed in the case of household composition. Far-rural counties are notably more family-oriented (in terms of household shares) than metro-adjacent counties. Among the states in which far-rural county family shares most exceed urban county family shares are Ohio (where the far-rural family share exceeds the urban county share by 8%), Arizona (+6%), Indiana (+5%), and Florida (+5%).

In California by contrast, the far-rural county family share lags the urban county family share by eight percentage points. Falling just behind California in this regard is New Mexico, where the far-rural county family share lags the urban share by five percent.

California, Arizona, and New Mexico offer an interesting contrast in terms of household makeup and ethnicity. All three states have

Table 3: Selected Demographic Characteristics: Rural vs. Urban Counties

Difference in White Population Shares Between Rural and Urban Counties					Difference in Families as a Share of Households Between Rural and Urban Counties					2017 Median Age			
State (sorted by rural excess over urban)	All Rural Counties	Metro-adjacent Rural Counties	Far Rural Counties	Urban County White Pop. Share (reference only)	State (sorted by rural excess over urban)	All Rural Counties	Metro-adjacent Rural Counties	Far Rural Counties	Urban County Family Share (reference only)	State (sorted by rural median age)	Rural County Median Age (years)	State (sorted by rural vs. urban age difference)	Age Difference (years)
Tennessee	5%	14%	3%	62%	Arizona	5%	5%	6%	65%	Maine	47.2	California	8.9
Missouri	4%	13%	3%	66%	Ohio	5%	4%	8%	63%	Connecticut	46.9	North Dakota	8.5
Kentucky	4%	7%	4%	69%	Indiana	4%	4%	5%	65%	Michigan	46.3	Oregon	6.6
Michigan	4%	16%	3%	63%	Nevada	4%	5%	0%	64%	Oregon	46.1	Michigan	6.4
Ohio	4%	13%	3%	66%	North Dakota	4%	3%	4%	58%	New Hampshire	45.8	Connecticut	6.1
Illinois	4%	22%	3%	57%	West Virginia	3%	4%	3%	63%	Vermont	45.4	Maryland	5.6
Wisconsin	4%	10%	3%	70%	Tennessee	3%	3%	3%	66%	Maryland	45.3	Nebraska	5.5
Nebraska	4%	9%	3%	68%	Missouri	3%	3%	2%	64%	California	45.1	Utah	5.4
Indiana	4%	11%	2%	67%	Montana	2%	2%	3%	61%	Wisconsin	45.1	Alaska	5.4
New York	3%	27%	2%	53%	Kentucky	2%	2%	3%	65%	West Virginia	44.6	New Hampshire	5.2
Minnesota	3%	11%	2%	68%	Pennsylvania	2%	2%	2%	64%	Virginia	44.6	Wisconsin	5.2
Georgia	3%	12%	2%	47%	Alaska	2%	0%	2%	66%	Montana	44.4	Minnesota	5.2
Pennsylvania	3%	15%	2%	68%	Vermont	2%	2%	2%	60%	Washington	44.3	Virginia	4.6
New Hampshire	3%	5%	2%	78%	Minnesota	2%	2%	1%	64%	Nebraska	44.3	Washington	4.6
Iowa	3%	5%	2%	73%	Iowa	2%	1%	2%	64%	Pennsylvania	44.2	Iowa	4.3
Kansas	3%	7%	2%	67%	Wisconsin	2%	2%	1%	63%	North Dakota	44.1	Maine	4.2
Nevada	3%	19%	2%	54%	Louisiana	1%	1%	1%	65%	Massachusetts	43.9	Arkansas	4.1
Arkansas	3%	4%	2%	62%	Idaho	1%	1%	2%	68%	North Carolina	43.5	Vermont	3.9
Texas	2%	13%	1%	58%	Nebraska	1%	1%	1%	64%	Minnesota	43.4	Kansas	3.6
South Dakota	2%	4%	2%	69%	Georgia	1%	1%	0%	67%	Colorado	43.2	Wyoming	3.6
Hawaii	2%	na	2%	20%	Oregon	1%	2%	-2%	63%	Nevada	43.0	New Mexico	3.4
Vermont	2%	3%	2%	81%	Arkansas	1%	2%	0%	66%	New York	42.9	Colorado	3.4
Virginia	2%	7%	1%	56%	Michigan	1%	2%	0%	65%	Iowa	42.8	Missouri	3.4
Colorado	2%	11%	1%	68%	Oklahoma	1%	0%	2%	66%	Tennessee	42.8	Illinois	3.2
Washington	2%	12%	1%	63%	Connecticut	1%	1%	na	66%	Illinois	42.8	Massachusetts	2.9
West Virginia	2%	3%	1%	78%	North Carolina	1%	1%	1%	66%	Arkansas	42.4	North Carolina	2.9
Alabama	1%	5%	1%	57%	Florida	1%	1%	5%	64%	New Mexico	42.3	Texas	2.8
Connecticut	1%	14%	1%	65%	Maryland	1%	1%	na	67%	Missouri	42.3	New York	2.7
Maine	1%	2%	1%	81%	Maine	1%	1%	1%	62%	Hawaii	42.1	Pennsylvania	2.3
Maryland	1%	23%	na	47%	Texas	1%	1%	0%	69%	Kansas	42.1	West Virginia	2.3
Oregon	1%	4%	1%	70%	New Mexico	1%	2%	-5%	64%	South Carolina	42.0	Georgia	2.2
Idaho	1%	3%	1%	71%	Alabama	0%	1%	-1%	66%	Florida	41.6	Tennessee	2.2
Oklahoma	1%	1%	1%	60%	Kansas	0%	1%	0%	65%	Alabama	41.3	South Dakota	2.1
Wyoming	1%	6%	0%	74%	Illinois	0%	0%	1%	65%	Kentucky	41.3	South Carolina	2.0
California	1%	25%	1%	49%	New York	0%	0%	0%	63%	Ohio	41.1	Alabama	2.0
Utah	1%	8%	0%	64%	South Carolina	0%	0%	-1%	66%	South Dakota	40.8	Kentucky	2.0
Louisiana	1%	3%	0%	52%	Colorado	0%	1%	-2%	64%	Indiana	40.7	Idaho	1.7
Florida	0%	8%	0%	65%	Washington	0%	0%	-2%	64%	Georgia	40.6	Oklahoma	1.3
Massachusetts	0%	13%	0%	68%	Wyoming	-1%	-3%	1%	66%	Idaho	40.4	Montana	1.2
North Carolina	0%	0%	0%	58%	Virginia	-1%	-1%	-1%	67%	Wyoming	40.1	Indiana	1.1
Mississippi	0%	2%	0%	50%	Mississippi	-1%	-2%	0%	69%	Texas	39.9	Mississippi	1.0
North Dakota	-1%	6%	-1%	75%	Utah	-2%	-1%	-2%	75%	Arizona	39.8	Ohio	0.6
New Mexico	-1%	-3%	-1%	62%	New Hampshire	-3%	-3%	-3%	68%	Oklahoma	39.6	Louisiana	0.6
Arizona	-2%	-19%	-1%	65%	Hawaii	-3%	na	-3%	70%	Mississippi	38.4	Nevada	-0.2
Alaska	-2%	18%	-2%	56%	South Dakota	-3%	-6%	-2%	66%	Louisiana	38.0	Arizona	-0.3
Montana	-2%	-6%	-1%	76%	Massachusetts	-4%	-4%	-3%	64%	Alaska	37.5	Florida	-2.7
South Carolina	-3%	-10%	-2%	59%	California	-7%	-6%	-8%	69%	Utah	36.1	Hawaii	-3.3

Note: Delaware, New Jersey, Rhode Island and the District of Columbia have no rural counties

large Latino populations, so one might expect to observe something of a bias toward families. In California's case, this bias is present among urban counties but not metro-adjacent or far-rural counties. New Mexico's metro-adjacent rural counties have a higher share of families than do its urban counties, but its far-rural counties have a much lower share. Finally, in Arizona, the share of families in both metro-adjacent and far-rural counties significantly exceeds the urban county share. Three states, and three very different distributions of families among urban and rural counties.

Although not necessarily apparent from national-level demographic statistics[9], the characteristic that most differentiates rural counties from urban counties is median age. As a rule, residents of rural counties are notably older than residents of urban counties. Indeed, the only two states in which rural residents are characteristically younger than urban residents—that is, have a significantly lower median age—are Hawaii and Florida. In Hawaii, the median age of rural residents is 3.3 years less than that of metropolitan area residents. In Florida, rural residents are 2.7 years younger on average than urban residents.

By contrast, there are twelve states in which the rural median age is at least five years higher than the urban median age. Among the leaders in this category of older rural median age states are California (in which the rural median age is a staggering 8.9 years higher than the urban median age), followed by North Dakota (+8.5 years), Oregon (+6.6 years), Michigan (+6.4 years), and Connecticut (+6.1 years).

The states in which rural residents are the oldest are Maine (in which the rural county median age is 47.2 years), Connecticut (46.9 years), Michigan (46.3 years), and Oregon (45.8 years). At the opposite extreme, there are four states—Utah, Alaska, Louisiana, and Mississippi-- where the rural county median age is well below 39 years of age.

There is also a modest connection between rural-urban age and race differentials. Comparing White population shares between urban and rural counties with differences in median age yields a modest correlation coefficient of 0.20. Simply put, the states where rural populations are proportionately Whiter than urban populations are the same states where rural residents are older than urban residents. This is not a huge correlation as these things go, but it is large enough to merit mention.

Educational Attainment Disparities

Another population characteristic that varies widely between rural and urban counties is educational attainment. Nationally, the share of adult urban residents (those aged 25 years and older) who have completed a four-year college education stands at 20 percent. By contrast, the national share of comparably-aged rural residents with a four-year college degree is 12 percent. The picture is exactly the opposite for high school graduates, with 36 percent of current rural residents having earned a high school a degree, versus 26 percent of urban residents.

The two left-hand columns of Table 4 summarize state shares of rural residents aged 25 years-and-older who have graduated from high school and a four-year college. Table 4's two right-hand columns summarize the differences in high school and college completion rates between urban and rural counties in each state.

Table 4: Rural County Educational Attainment Levels and Rural-Urban Differentials

Rural Educational Attainment				Rural-Urban Educational Attainment Disparities			
Share of Current Residents with HIGH SCHOOL Diplomas		Share of Current Residents with 4-Year COLLEGE Degrees		HIGH SCHOOL School Graduation Rate Disparityl (sorted by rural-urban difference)		COLLEGE Graduation Rate Disparity (sorted by rural-urban difference)	
Pennsylvania	47%	Massachusetts	21%	Colorado	5%	Massachusetts	-5%
West Virginia	44%	Colorado	21%	Minnesota	2%	Colorado	-7%
Ohio	43%	Connecticut	20%	North Dakota	2%	Connecticut	-9%
Tennessee	42%	Montana	20%	Vermont	2%	Utah	-10%
Indiana	41%	Vermont	20%	Virginia	1%	Montana	-10%
Louisiana	41%	New Hampshire	19%	Washington	1%	New Hampshire	-11%
Missouri	39%	Hawaii	19%	California	0%	California	-11%
Arkansas	39%	South Dakota	18%	Nebraska	0%	Wyoming	-12%
Kentucky	38%	Wyoming	18%	Kansas	0%	Hawaii	-12%
Wisconsin	38%	Utah	18%	Utah	0%	Washington	-12%
Florida	38%	North Dakota	17%	Oregon	0%	Vermont	-12%
Georgia	37%	Maine	16%	Massachusetts	-1%	North Dakota	-14%
Michigan	37%	Idaho	15%	Alaska	-2%	South Dakota	-14%
Iowa	37%	Nebraska	15%	New Hampshire	-2%	Idaho	-14%
Illinois	37%	California	15%	North Carolina	-3%	Kansas	-17%
Alabama	37%	Washington	15%	Illinois	-3%	Nebraska	-17%
Oklahoma	36%	Alaska	15%	Maryland	-4%	Alaska	-18%
Maine	36%	Minnesota	15%	Texas	-4%	Oregon	-18%
New York	36%	Kansas	15%	New York	-5%	Minnesota	-19%
Maryland	35%	Iowa	14%	Hawaii	-5%	New Mexico	-19%
Virginia	35%	Maryland	14%	Georgia	-5%	North Carolina	-20%
South Carolina	35%	Wisconsin	14%	Connecticut	-6%	Nevada	-20%
Minnesota	34%	Oklahoma	13%	Arizona	-6%	Arizona	-20%
Texas	33%	Michigan	13%	South Dakota	-6%	Maine	-21%
Alaska	33%	Oregon	12%	Iowa	-6%	Maryland	-21%
Nebraska	33%	North Carolina	12%	Montana	-6%	Mississippi	-21%
Mississippi	32%	New York	12%	Idaho	-7%	Texas	-22%
South Dakota	32%	Illinois	12%	Maine	-8%	Iowa	-22%
Vermont	32%	Texas	11%	New Mexico	-8%	Oklahoma	-23%
North Carolina	32%	New Mexico	11%	Wisconsin	-8%	Michigan	-24%
Nevada	31%	Nevada	11%	Missouri	-8%	Wisconsin	-24%
North Dakota	31%	South Carolina	11%	Michigan	-10%	South Carolina	-24%
Kansas	31%	Pennsylvania	11%	South Carolina	-10%	New York	-24%
Hawaii	31%	Mississippi	11%	Florida	-10%	Virginia	-24%
New Hampshire	31%	Virginia	11%	Oklahoma	-11%	Illinois	-25%
Arizona	30%	Missouri	11%	Wyoming	-11%	Alabama	-27%
Oregon	30%	Ohio	11%	Tennessee	-11%	Georgia	-28%
New Mexico	30%	Indiana	10%	Alabama	-12%	Florida	-28%
Montana	30%	Arkansas	10%	Nevada	-12%	Missouri	-29%
Wyoming	29%	Arizona	10%	Mississippi	-12%	Arkansas	-29%
Idaho	29%	Louisiana	10%	Ohio	-12%	Kentucky	-29%
Connecticut	29%	West Virginia	10%	Kentucky	-13%	Louisiana	-31%
Colorado	28%	Tennessee	10%	Indiana	-14%	Indiana	-31%
Washington	27%	Alabama	9%	Arkansas	-15%	Tennessee	-32%
Utah	27%	Georgia	9%	Pennsylvania	-15%	Ohio	-33%
California	26%	Florida	9%	Louisiana	-16%	West Virginia	-34%
Massachusetts	26%	Kentucky	9%	West Virginia	-25%	Pennsylvania	-36%

Note: Delaware, New Jersey, Rhode Island and the District of Columbia have no rural counties

Because each state has its own high school graduation criteria and mix of higher education institutions and universities (and because we don't know how many current state residents attended high school or college in the same state in which they currently reside), we shouldn't spend too much effort comparing state high school and college completion rates other than to note that top-ranked Pennsylvania has nearly double the high-school completion rate of bottom-ranked Massachusetts. Yet in a nice twist of statistical fate, Massachusetts is at the top of the list of rural resident college completion rates (with 22% of its current rural residents having obtained a four-year college degree), while Pennsylvania, with an 11% rural resident college completion rate, is far down the same list.

Among individual states, there is no state in which the share of rural college graduates exceeds the urban share. By contrast, there are 26 states in which the share of rural residents with a four-year college degree lags the urban college graduate share by twenty percent or more. Among this group of rural educational laggards, the most prominent are Pennsylvania (in which the share of rural residents with college degrees lags the urban share by 36%), West Virginia (-34%), Ohio (-32%), Tennessee (-32%), Indiana (-31%), and Louisiana (-31%).

Urban-rural high-school completion rate gaps, while smaller, are still notable. There are six states in which the share of rural residents with a high school degree exceeds the urban share. By contrast, there are sixteen states in which the share of rural residents with high school degrees lags the corresponding urban share by twenty percent or more. Among the foremost laggards are West Virginia (in which the share of rural residents with college degrees lags the urban share by 25%), Louisiana (-16%), Pennsylvania (-15%), and Arkansas (-15%).

These differentials refer to the share of *current* residents with high school degrees, not high school graduation rates. Depending on the number of in- and out-migrants to each state (and where they end up living), it is quite possible for rural high school graduation rates to be higher than urban rates even if rural educational attainment levels are lower.

In this respect, educational attainment as measured by the Census Bureau is better regarded as an outcome measure than as an input measure. This caveat notwithstanding, sharp-eyed readers will note that the ranked list of rural high school graduation rate laggards roughly corresponds to the ranked list of college graduate laggards. Indeed, the correlation coefficient between the two urban-rural educational attainment differentials is a very robust 0.71, indicating that there is a very significant and positive association between urban-rural high school completion rate differences and college completion rate differences. Simply put, the states where rural residents most lag urban residents in terms of completing high school are the same states where urban college graduates most outnumber rural college graduates. Ultimately, this association may have less to do with the quality of education in each state and more to do with the types of jobs available in each state and household location preferences.

III. RURAL ECONOMIC & HOUSING MARKET OUTCOMES COMPARISONS BY STATE

Rural counties:

- Have experienced greater job losses since 2015, excluding oil and gas regions.
- Have consistently higher poverty rates and consistently lower household incomes than their urban counterparts.
- Have higher homeownership rates and slightly lower housing cost burdens than their urban counterparts.

We now turn to the analytical heart of this working paper—the extent to which patterns of rural economic performance and urban-rural differences in economic performance are repeated across economic indicators and states.

Comparing Rural Economic Performance Among States

When comparing economic outcomes between places, one should ideally make use of outcome-oriented performance indicators such as worker productivity (which measures the difference between the value of economic outputs and inputs) and earnings per worker (which reflects the degree to which rising productivity is returned to workers in the form of higher wages). Alas, this information is not regularly collected for rural areas as part of the Decennial Census, the ACS, or the Census Bureau's *County Business Patterns* series. Among the local economic data that are collected are total employment, employment by business and industrial sector, unemployment rates, labor force participation rates, poverty rates, and median household income. These multiple measures are presented for each state's rural counties in Table 5 and discussed below.

Rural Job Growth and Decline: Nineteen states gained rural jobs between 2005 and 2016, while twenty-eight lost them. With more than 69,000 new jobs, Texas dominated the list of rural job gainers. Well behind was North Dakota (+33, 886 new rural jobs), followed by Montana (+26,619), Oklahoma (+26,065), and South Dakota (+18,571). Most of the job growth in these states was due to expanded shale oil drilling and hydraulic fracturing operations. Rounding out the top ten list of states with more than 10,000 new rural jobs between 2005 and 2016 were Utah, New Mexico, Idaho, Alaska, and Colorado.

At the declining end of the rural job change continuum are Ohio (whose rural areas lost 37,909 jobs between 2005 and 2016), North Carolina (-32,156 rural jobs), Virginia (-31,151 rural jobs), Alabama (-30,092 rural jobs), and Arkansas (-24,031 rural jobs). Other states in which rural employment declined by 10,000 or more jobs between 2005 and 2016 include Michigan, Mississippi, Indiana, Georgia, South Carolina, Illinois, West Virginia, California, and Iowa. Seven of the twelve largest rural job losers are in the South. Four others are in the Midwest. Rural job losses in these states were especially concentrated in manufacturing, agricultural services, and construction.

Column 2 of Table 5 puts these absolute change numbers in percentage form. Percentagewise, the states in which the number of rural jobs grew fastest between 2005 and 2016 included North Dakota (+31%), Utah (+21%), Alaska (+21%), Montana (+15%), Idaho (+11%), Texas (+11%), New Mexico (+10%) and South Dakota (+10%). The big percentage job gainers were oil

Table 5: Rural Economic Outcome Measures by State

Column 1: Rural Job Growth, 2005-2016		Column 2: Percent Rural Job Growth, 2005-2016		Column 3: Rural Share of State Job Growth, 2005-2016		Column 4: Rural Unemployment Rate, 2016		Column 5: Rural Labor Force Participation Rate, 2016		Column 6: Rural Median Household Income ($000), 2016		Column 7: Rural Poverty Rate, 2016	
Texas	69,195	North Dakota	31%	Montana	73%	North Dakota	2.7%	Connecticut	67.9%	Connecticut	73.5	Arizona	26.6%
North Dakota	33,886	Utah	21%	Wyoming	53%	Nebraska	3.3%	North Dakota	67.6%	Alaska	68.9	Louisiana	24.7%
Montana	26,619	Alaska	21%	North Dakota	48%	Iowa	4.1%	Wyoming	67.4%	North Dakota	61.6	Mississippi	24.7%
Oklahoma	26,065	Montana	15%	New Mexico	46%	Minnesota	4.2%	Nebraska	67.1%	Massachusetts	60.6	New Mexico	23.1%
South Dakota	18,571	Idaho	11%	Alaska	45%	South Dakota	4.2%	Massachusetts	66.7%	New Hampshire	60.1	South Carolina	23.1%
Utah	17,296	Texas	11%	South Dakota	40%	New Hampshire	4.4%	South Dakota	66.5%	Wyoming	59.6	Kentucky	22.8%
New Mexico	16,733	New Mexico	10%	Idaho	30%	Vermont	4.5%	Alaska	65.9%	Utah	58.4	Georgia	22.8%
Idaho	15,911	South Dakota	10%	Hawaii	25%	Wyoming	4.5%	Iowa	64.8%	Hawaii	57.6	Alabama	21.7%
Alaska	15,130	Arizona	9%	Oklahoma	21%	Kansas	4.5%	Kansas	64.6%	Nevada	55.8	Florida	21.4%
Colorado	12,629	Oklahoma	8%	Louisiana	9%	Wisconsin	4.5%	Minnesota	64.5%	Vermont	52.7	Arkansas	20.5%
Washington	9,885	Wyoming	8%	Utah	7%	Utah	5.0%	Vermont	64.0%	Maryland	52.7	North Carolina	20.4%
Wyoming	9,755	Washington	7%	Nevada	5%	Massachusetts	5.1%	New Hampshire	63.7%	Minnesota	52.3	Tennessee	19.4%
Louisiana	6,524	Hawaii	6%	Colorado	4%	Montana	5.1%	Wisconsin	63.4%	Colorado	51.7	West Virginia	19.2%
Arizona	5,050	Colorado	5%	Texas	4%	Indiana	5.5%	Colorado	63.2%	Iowa	50.3	Missouri	18.8%
Hawaii	4,953	Nevada	4%	Arizona	3%	Idaho	5.6%	Utah	62.2%	Wisconsin	50.0	Oklahoma	18.4%
Minnesota	3,425	Louisiana	4%	Washington	3%	Colorado	5.7%	Montana	61.6%	Nebraska	50.0	Texas	18.1%
Nevada	2,928	Minnesota	1%	Minnesota	2%	Maryland	5.8%	Indiana	61.4%	South Dakota	49.6	California	17.3%
Oregon	745	Oregon	0%	Nebraska	1%	Connecticut	6.0%	Maryland	61.2%	New York	48.9	Oregon	17.1%
Nebraska	588	Nebraska	0%	Oregon	1%	Oklahoma	6.0%	Idaho	60.7%	Washington	48.3	Virginia	16.8%
Massachusetts	-724	Florida	-1%	Massachusetts	0%	Maine	6.1%	Hawaii	60.1%	Montana	47.9	Washington	16.6%
Maryland	-1,366	Kansas	-1%	Florida	0%	Ohio	6.1%	Ohio	59.8%	Indiana	47.4	Idaho	16.2%
Florida	-1,905	Tennessee	-2%	Maryland	-2%	Hawaii	6.2%	Maine	59.0%	Illinois	47.3	Michigan	15.8%
Connecticut	-2,840	Missouri	-2%	California	-2%	Pennsylvania	6.2%	Illinois	58.9%	Ohio	46.6	South Dakota	15.5%
Maine	-3,230	Wisconsin	-2%	New York	-2%	Texas	6.6%	New York	58.0%	Kansas	46.6	New York	15.4%
Kansas	-4,702	Maine	-2%	Tennessee	-4%	Illinois	6.7%	Nevada	57.2%	California	46.5	Ohio	15.4%
Vermont	-5,021	Pennsylvania	-2%	Pennsylvania	-4%	Missouri	6.8%	Pennsylvania	56.6%	Pennsylvania	46.1	Montana	15.3%
New Hampshire	-5,121	Kentucky	-2%	Georgia	-11%	Virginia	6.8%	Missouri	56.3%	Maine	45.2	Hawaii	15.2%
Tennessee	-5,953	Iowa	-2%	Kansas	-11%	New York	6.9%	Michigan	56.0%	Michigan	44.8	Maine	14.7%
Missouri	-6,607	Massachusetts	-2%	North Carolina	-13%	Michigan	7.1%	Oklahoma	56.0%	Idaho	44.5	Illinois	14.6%
Pennsylvania	-8,430	New Hampshire	-3%	Iowa	-14%	Arkansas	7.4%	North Carolina	55.3%	Texas	44.2	Kansas	14.3%
Wisconsin	-8,471	New York	-3%	Illinois	-14%	Washington	7.5%	Texas	55.3%	Oregon	43.2	Utah	14.0%
Kentucky	-9,447	Maryland	-3%	Connecticut	-15%	Tennessee	7.7%	New Mexico	54.5%	Oklahoma	42.9	Pennsylvania	13.8%
New York	-9,904	Vermont	-3%	Kentucky	-17%	Georgia	7.7%	Washington	54.4%	Virginia	42.3	Indiana	13.5%
Iowa	-10,634	Illinois	-3%	Wisconsin	-18%	Nevada	7.8%	Mississippi	54.0%	New Mexico	42.1	Colorado	13.5%
California	-11,358	Indiana	-4%	Virginia	-20%	Oregon	8.1%	Tennessee	54.0%	Florida	39.8	Maryland	13.2%
West Virginia	-13,081	Georgia	-4%	South Carolina	-23%	Kentucky	8.2%	Virginia	53.9%	Missouri	39.8	Nevada	12.9%
Illinois	-15,923	Mississippi	-5%	Maine	-27%	West Virginia	8.2%	Oregon	53.9%	North Carolina	39.5	Alaska	12.7%
South Carolina	-19,711	Michigan	-5%	Michigan	-29%	North Carolina	8.4%	Georgia	53.4%	West Virginia	39.3	Wisconsin	11.9%
Georgia	-19,774	Ohio	-5%	Missouri	-29%	Florida	8.5%	Arkansas	53.2%	Arizona	38.5	Nebraska	11.9%
Indiana	-19,835	Connecticut	-5%	New Hampshire	-49%	New Mexico	8.6%	South Carolina	53.1%	Tennessee	38.2	Vermont	11.9%
Mississippi	-21,386	North Carolina	-5%	Indiana	-53%	Louisiana	8.6%	California	53.1%	Georgia	37.7	Iowa	11.8%
Michigan	-23,580	California	-6%	Ohio	-67%	California	8.8%	Alabama	52.3%	Kentucky	37.0	Minnesota	11.7%
Arkansas	-24,031	West Virginia	-7%	Alabama	-101%	Alabama	9.1%	Kentucky	52.0%	Arkansas	36.6	Wyoming	11.6%
Alabama	-30,092	Arkansas	-7%	West Virginia	-101%	South Carolina	9.5%	Louisiana	51.7%	Alabama	36.4	Massachusetts	10.5%
Virginia	-31,151	Alabama	-9%	Vermont	-143%	Mississippi	9.5%	West Virginia	49.9%	South Carolina	36.1	North Dakota	10.5%
North Carolina	-32,156	South Carolina	-9%	Arkansas	-188%	Alaska	9.9%	Florida	49.5%	Louisiana	35.7	New Hampshire	9.5%
Ohio	-37,909	Virginia	-10%	Mississippi	-668%	Arizona	13.0%	Arizona	47.2%	Mississippi	35.4	Connecticut	6.8%

Note: Delaware, New Jersey, Rhode Island and the District of Columbia have no rural counties

and gas-producing states, or, as in Utah and New Mexico, had a small number of rural jobs to begin with.

At the opposite extreme, Virginia's rural counties lost ten percent of their jobs between 2005 and 2016, followed closely by South Carolina (-9%), Alabama (-9%), and Arkansas (-7%), West Virginia (-7%), and California (-6%). California's rural job losses were due to the lingering effects of the Great Recession. The large percentage job losses in the other states were due to declines in rural manufacturing activity (South Carolina, Alabama, and Arkansas) and coal production (West Virginia).

Another way to look at rural job changes is as a share of state job growth or loss. As indicated in Column 3 of Table 5, rural job growth accounted for an astounding 73 percent of Montana's statewide job growth between 2005 and 2016. Other states in which rural job growth accounted for more than twenty percent of statewide job growth between 2005 and 2016 include Wyoming (+53%), North Dakota (+48%), New Mexico (+46%), Alaska (+45%) and South Dakota (+40%). All of these states, including New Mexico, saw significant gains in oil and natural gas production during this period. But with oil and gas production subject to boom-and-bust cycles, whether these recent job gains are likely to prove sustainable over the long run is still an open question.

At the opposite extreme, rural job losses accounted for 668 percent of Mississippi's statewide job losses between 2005 and 2016, 188 percent of Arkansas' job losses, 143 percent of Vermont's job losses, 101 percent of West Virginia's job losses, and 101 percent of Alabama's job losses. In each of these states, the number of rural manufacturing and natural resource jobs was shrinking even as the numbers of urban manufacturing and business service jobs was growing. Nationally, the number of rural jobs fell by one percent between 2005 and 2016.

Rural Unemployment and Labor Force Participation Rates: Unemployment rates measure the extent to which people who could be working are not, either because they can't find a job or because they are too discouraged to seek work. Labor force participation rates measure the share of people whose age and health status allows them to work, but for whatever reason—typically child-rearing, care-giving or because of having a disability—they choose not to. As of 2017, the national unemployment rate was 4.9 percent while the rural unemployment rate stood at 7 percent. The overall rural labor force participation rate in 2107 stood at 57 percent while the national rate stood at 62.7 percent.

Column 4 of Table 5 compares 2016 rural unemployment rates by state. Led by Connecticut (in which the 2016 rural unemployment rate was just 2.7%), there were ten states with rural county unemployment rates less than five percent, including Nebraska (3.3%), Iowa (4.1%), Minnesota and South Dakota (4.2%), New Hampshire (4.4%), and Vermont, Wyoming, Kansas, and Wisconsin (all 4.5%). Except for Wisconsin and Minnesota, all of these states have fewer than three million residents, with the result that small swings in rural employment reveal themselves as large changes in unemployment rates.

Led by Arizona with its 13 percent statewide unemployment rate, there were thirteen states in which the 2016 rural unemployment rate topped eight percent. Except for Arizona, New

Mexico, California and West Virginia, all of these high rural unemployment rate states are in the Southeast.

Column 5 of Table 5 compares 2016 rural labor force participation rates by state. Led by Connecticut's 67.9 percent rate, there were fourteen states in which the rural labor force participation rate was higher than the national average. These high-performing states were mostly small in terms of their populations and mostly located in the New England or Great Plains subregions.

At the opposite extreme, there were three states—Arizona, Florida, and West Virginia—in which the 2016 rural labor force participation rate was less than fifty percent, meaning that less than one of every two adults was counted as being in the labor force. Arizona and Florida both have large numbers of rural retirees. Arizona also has a large Native American population. West Virginia has the highest share of adults receiving disability benefits. Other states with extremely low rural labor force participation rates include Louisiana, Kentucky, Alabama, California, South Carolina, Arkansas, and Georgia.

Rural Income and Poverty Levels: Nationwide, the 2016 median household income among rural households was $44,600. The 2016 rural poverty rate was 17.3 percent. These rural statistics compare unfavorably to the 2016 national median household income of $57,617, and the national poverty rate of 12.7 percent.

Columns 6 and 7 of Table 5 list 2016 rural median household income levels and poverty rates, sorted high-to-low by state. Led by Connecticut and Alaska, there were eight states in which the rural median household income was greater than the national median. At the opposite end of the income spectrum, led by Mississippi and Louisiana, there were thirteen states with 2016 rural median household income levels below $40,000. Except for Arizona and West Virginia, all are in the Southeast or South Central subregions.

The rural poverty rate listings in Column 7 are essentially the inverse of the median household income listings in Column 6. Led by Arizona, Louisiana, and Mississippi, there are eleven states in which the 2016 rural poverty rate exceeded twenty percent. Except for Arizona and New Mexico, all are in the South. Led by Connecticut and New Hampshire, there were eleven states in which the 2016 rural poverty rate was less than the national rate of 12.7 percent. Except for Alaska and Massachusetts, all of these low rural poverty rate states are either in the Northeast or Great Plains regions or have fewer than four million residents.

All in all, the states in which rural counties have the lowest unemployment rates, the highest labor force participation rates, the highest median household incomes, and the lowest poverty rates tend to be located in New England or the Great Plains and are all relatively small in terms of their population size. This suggests there is something about the rural labor market in these states which makes them more resistant to cyclical downturns as well as better able to convert state-level employment growth into jobs for their rural residents and higher incomes for their rural families.

Rural-Urban Economic Disparities

Instead of comparing rural economic performance between states as Table 5 does, Table 6 uses the same or similar measures to

identify rural vs. urban economic performance disparities within states.

Rural-Urban Job Growth Disparities: Column 1 of Table 6 sorts states in order of their rural-urban job growth differentials. Montana's rural counties, for example, added 2.7 times as many jobs between 2005 and 2016 as did its urban counties. The only other state in which rural job growth exceeded urban job growth was Wyoming.

There were four states (North Dakota, New Mexico, Alaska, and South Dakota) in which rural counties added between seven and nine jobs for every ten jobs added by urban counties. There were ten states in which rural counties added one new job (or less) for every ten new jobs added by urban counties, and twelve states in which rural counties lost one job (or less) for every ten new urban county jobs. Mississippi's rural counties lost 1.2 jobs for every one new urban county job, Arkansas' rural counties lost 2.1, and Alabama's rural areas lost more than 85! West Virginia's urban counties gained hardly any jobs between 2005 and 2016, but even so, far outperformed their rural counterparts.

There were just three states, Ohio, Michigan, and Connecticut, in which urban counties lost jobs between 2005 and 2016. In Ohio, rural areas lost 2.1 jobs for every job lost in an urban county. In Michigan and Connecticut, urban job losses substantially exceeded rural job losses.

Column 2 of Table 6 compares rural and urban job growth *rates*. The value listed is the rate of rural job change between 2005 and 2016 divided by the rate of urban job change in the same state. In New Mexico's case for example, the rate of rural job growth was 2.25 times the rate of urban job growth between 2005 and 2016. In Montana, the rate of job growth was 2.1 times the rate of urban job growth. Other states in which the rate of rural job growth substantially exceeded the urban rate included Hawaii, Alaska, and North Dakota. In Arizona and Idaho, the rate of rural job growth between 2005 and 2016 slightly exceeded the urban rate.

There were also numerous cases in which the rate of rural job decline exceeded either the rate of urban job growth or decline. Among the states in which the rate of rural job loss could be considered extreme were Alabama, West Virginia, Ohio, Connecticut, Arkansas, and Michigan. Elsewhere, the rate of rural job loss was either comparable to or less than the rate of urban job change.

Rural-Urban Unemployment Rate (Table 6 column 3) and Labor Force Participation Rate (column 4) Disparities: Led by Connecticut and Massachusetts, there were seventeen states in which 2016 rural county unemployment rates were less than their urban counterparts. These rural standouts are mostly in New England and the Great Plains. By contrast, the eleven states in which rural county unemployment rates substantially exceeded urban county unemployment rates were mostly in the South and Pacific regions. Elsewhere, rural and urban unemployment rates were fairly comparable.

This was not the case for labor force participation rates. In the vast majority of states, the rural labor force participation rate was between five and ten percentage points lower than the urban labor force participation rate. Whether for reasons of culture, lifestyle or economic necessity, far more residents of urban counties have a need to work than do residents of rural counties. Indeed, the only states in

Table 6: Rural-Urban Economic Outcome Disparities by State

Column 1: Ratio of Rural Job Growth-to-Urban Job Growth, 2005-2016		Column 2: Ratio of Rural Job Growth Rate-to-Urban Job Growth Rate, 2005-2016		Column 3: Rural Unemployment Rate minus Urban Rate, 2016 (sorted from best to worst)		Column 4: Rural Labor Force Participation Rate minus Urban Rate, 2016 (sorted from best to worst)		Column 5: Rural Median Household Income ($000) minus Urban Value, 2016 (sorted from best to worst)		Column 6: Rural Poverty Rate minus Urban Rate, 2016 (sorted from best to worst)	
Montana	2.7	New Mexico	2.27	Connecticut	-1.3%	Connecticut	1.2%	North Dakota	4.0	Connecticut	-3.5%
Wyoming	1.1	Montana	2.09	Massachusetts	-0.9%	Massachusetts	-0.6%	Nevada	2.9	Nevada	-1.5%
North Dakota	0.9	Hawaii	1.81	Illinois	-0.8%	Wyoming	-0.8%	Connecticut	1.1	Indiana	-1.4%
New Mexico	0.9	Alaska	1.75	Indiana	-0.8%	Idaho	-2.8%	Wyoming	0.4	North Dakota	-1.1%
Alaska	0.8	North Dakota	1.38	Nebraska	-0.7%	Kansas	-3.1%	Montana	-2.1	Massachusetts	-0.6%
South Dakota	0.7	Arizona	1.12	Wyoming	-0.7%	Indiana	-3.3%	Indiana	-4.8	Wisconsin	-0.6%
Idaho	0.4	Idaho	1.10	Michigan	-0.5%	Nebraska	-4.4%	Utah	-5.2	Iowa	-0.3%
Hawaii	0.3	Louisiana	0.86	Ohio	-0.5%	Ohio	-4.4%	Ohio	-5.7	Nebraska	-0.2%
Oklahoma	0.3	Utah	0.84	Kansas	-0.4%	Wisconsin	-4.7%	West Virginia	-6.3	New York	0.3%
Louisiana	0.1	Nevada	0.79	Pennsylvania	-0.4%	Iowa	-4.8%	New Mexico	-6.6	Michigan	0.3%
Utah	0.1	Oklahoma	0.68	Maryland	-0.3%	Montana	-5.5%	Wisconsin	-7.6	Ohio	0.5%
Nevada	0.1	Wyoming	0.52	Wisconsin	-0.3%	Vermont	-5.6%	Idaho	-7.6	Pennsylvania	0.7%
Colorado	0.0	South Dakota	0.48	Minnesota	-0.2%	New York	-5.6%	Nebraska	-7.9	Illinois	1.2%
Texas	0.0	Washington	0.45	New Hampshire	-0.2%	Colorado	-5.9%	Iowa	-8.3	Wyoming	1.4%
Arizona	0.0	Texas	0.42	Nevada	-0.2%	North Dakota	-6.0%	Michigan	-8.5	Vermont	1.5%
Washington	0.0	Colorado	0.30	North Dakota	-0.2%	South Dakota	-6.0%	Oklahoma	-8.5	Minnesota	1.6%
Minnesota	0.0	Minnesota	0.09	Iowa	-0.1%	New Mexico	-6.1%	South Dakota	-8.6	New Hampshire	2.1%
Nebraska	0.0	Oregon	0.04	New York	0.2%	West Virginia	-6.1%	Florida	-9.7	Kansas	2.2%
Oregon	0.0	Nebraska	0.03	Georgia	0.2%	Hawaii	-6.2%	Alaska	-10.1	California	2.2%
Massachusetts	0.0	Florida	-0.15	Vermont	0.3%	Utah	-6.4%	Arkansas	-10.6	Colorado	2.2%
Florida	0.0	Tennessee	-0.18	Colorado	0.4%	Michigan	-6.4%	Maine	-10.7	West Virginia	2.3%
Maryland	0.0	Iowa	-0.20	Idaho	0.4%	New Hampshire	-6.8%	Massachusetts	-11.8	Texas	2.4%
California	0.0	Kansas	-0.23	South Dakota	0.4%	Pennsylvania	-6.9%	Pennsylvania	-11.8	Idaho	2.6%
New York	0.0	Kentucky	-0.30	Oklahoma	0.4%	Minnesota	-7.0%	Vermont	-12.0	Oregon	2.6%
Tennessee	0.0	New York	-0.30	Montana	0.6%	Alabama	-7.0%	Alabama	-12.2	Montana	2.7%
Pennsylvania	0.0	Massachusetts	-0.31	Utah	0.7%	Maine	-7.1%	Tennessee	-12.4	Maine	3.1%
Georgia	-0.1	Vermont	-0.35	Texas	0.8%	Maryland	-7.1%	Louisiana	-12.5	Utah	3.3%
Kansas	-0.1	Maine	-0.41	California	1.0%	Illinois	-7.4%	Mississippi	-12.6	Oklahoma	3.4%
North Carolina	-0.1	Pennsylvania	-0.43	New Mexico	1.1%	Nevada	-7.5%	North Carolina	-12.6	Tennessee	3.5%
Iowa	-0.1	North Carolina	-0.50	Mississippi	1.2%	Alaska	-7.5%	Kansas	-13.2	Maryland	3.6%
Illinois	-0.1	New Hampshire	-0.56	Missouri	1.2%	Mississippi	-8.2%	South Carolina	-13.3	New Mexico	3.7%
Kentucky	-0.1	Wisconsin	-0.58	Maine	1.2%	Arkansas	-8.3%	Texas	-13.4	Arkansas	3.9%
Wisconsin	-0.2	Maryland	-0.61	Tennessee	1.3%	Oklahoma	-8.4%	Oregon	-13.5	South Dakota	4.4%
Virginia	-0.2	Georgia	-0.62	Florida	1.3%	South Carolina	-9.0%	Arizona	-13.8	Alaska	4.7%
Connecticut	-0.2	California	-1.08	Oregon	1.4%	Missouri	-9.3%	Colorado	-13.8	Washington	4.8%
South Carolina	-0.2	Missouri	-1.09	North Carolina	1.4%	North Carolina	-9.4%	Missouri	-14.4	Alabama	4.9%
Maine	-0.2	Mississippi	-1.14	Virginia	1.5%	Tennessee	-9.6%	Illinois	-14.5	North Carolina	5.5%
Missouri	-0.2	South Carolina	-1.21	West Virginia	1.5%	Florida	-9.7%	New Hampshire	-15.1	Missouri	5.6%
New Hampshire	-0.3	Illinois	-1.29	Hawaii	1.6%	Louisiana	-10.0%	Kentucky	-15.1	Hawaii	6.0%
Indiana	-0.3	Indiana	-1.41	Louisiana	1.6%	Oregon	-10.0%	Minnesota	-15.8	Louisiana	6.1%
Michigan	-0.4	Virginia	-1.54	Washington	1.6%	California	-10.6%	New York	-15.8	Florida	6.2%
Vermont	-0.6	Michigan	-2.57	Arkansas	1.7%	Texas	-10.6%	Georgia	-17.8	Virginia	6.4%
Mississippi	-1.2	Arkansas	-4.45	Alabama	2.0%	Washington	-11.0%	Hawaii	-18.4	Mississippi	7.0%
Ohio	-2.1	Connecticut	-4.49	Kentucky	2.1%	Georgia	-11.7%	Washington	-18.4	Georgia	7.1%
Arkansas	-2.1	Ohio	-10.31	South Carolina	2.5%	Kentucky	-12.7%	California	-19.8	South Carolina	7.6%
West Virginia	-76.1	West Virginia	-154.91	Alaska	3.6%	Arizona	-13.1%	Maryland	-26.4	Kentucky	7.8%
Alabama	-85.2	Alabama	-341.40	Arizona	6.1%	Virginia	-14.2%	Virginia	-33.7	Arizona	10.2%

Note: Delaware, New Jersey, Rhode Island and the District of Columbia have no rural counties

which urban and rural labor force participation rates are comparable are Connecticut, Massachusetts, and Wyoming. In the most disparate case, Virginia, the rural county labor force participation rate lags the urban county rate by 14.2 percent. Other states in which rural residents are much less likely than urban residents to work include Arizona (in which the rural labor force participation rate lags the urban rate by 13.1%), Kentucky (-12.7%), Georgia (-11.7%), Washington (-11%), and Texas and California (-10.6%). On the whole, the states with the largest rural-urban labor force participation rate disparities have rural economies based in (low-wage) and often seasonal agriculture and service jobs and urban economies based in (high-wage) business services. This suggests that at least some of the difference between urban and rural labor force participation rates reflects a greater attraction to employment in response to higher wages and pay levels.

Rural-Urban Median Household Income (Column 5) and Poverty Rate (Column 6) Disparities: Given their lower wages, lower living costs, lower labor force participation rates, and higher unemployment rates, it is not particularly surprising that rural incomes mostly lag urban incomes. Indeed, led by North Dakota, there are just four states in which rural median incomes exceed urban median incomes. The difference is small in all four cases and is more a function of urban incomes being on the low side rather than rural incomes being on the high side.

Among the 47 states listed in Column 5, the average difference between urban and rural median household income levels is $11,000. This amount is equivalent to about one-fifth the national household median income level in 2016. The five states in which rural incomes most lag urban incomes are Virginia (in which the urban-rural median income difference is a whopping $33,700), Maryland (-$26,400), California (-$19,800), Washington (-$18,400), and Hawaii (-$18,400). All five states feature wealthy and expensive urban areas surrounded by agriculturally-based rural economies.

Column 6, the right-hand most column of Table 6, reports 2016 rural vs. urban poverty rate disparities by state. Among the 47 states listed, rural poverty rates are higher than urban poverty rates by an average of three percent. All told, there are eight states in which rural poverty rates are lower than urban rates, and 39 in which they are higher. Repeating a by-now familiar pattern, the states in which rural poverty rates are either lower than or comparable to urban poverty rates are mostly in the Northeast and Midwest. Except for Hawaii and Arizona, the states in which rural poverty rates most exceed urban rates are entirely in the South, where more than 150 years after the Civil War the exploitive legacy of slavery is still being felt. In a more contemporary vein, the states with the biggest rural-urban poverty rate disparities also have lower state income tax rates, making it more difficult for them to fund the types of programs and institutions designed to alleviate structural poverty.

Homeownership Rates & Excess Housing Cost Burdens

We conclude our study of rural economic outcomes with a look at housing. Rural housing markets operate differently than urban ones. The rural housing stock is smaller and more homogeneous than the urban stock; and rural residents move much less frequently than urban residents. As a result, rural housing

markets are less liquid than urban markets, making rural housing transactions less frequent than urban transactions; and rural housing prices and rents more idiosyncratic. Rural property transactions frequently include out buildings in addition to residences.

Homeowners far outnumber renters in rural communities, and most new homes are custom or owner-built rather than developer-built. Because vacant homes in urban areas can be easily rented out, urban rents reflect urban housing prices as well as the difference between apartment supply and demand. By contrast, rural rent levels are almost entirely determined by the balance between rental unit supply and demand. Because of these differences, the types of statistics commonly used to describe and compare urban housing markets (e.g., median sales prices and rents, vacancy rates, time-on-market) are much less reliable when used to describe rural markets.

For all these reasons, it makes more sense to compare rural housing market conditions across states rather than to compare urban-rural housing market disparities within states. The two exceptions to this are homeownership rates and the ratio of yearly housing expenditures to yearly income. The latter measure is known as housing cost burden. According to federal housing policy guidelines and the U.S. Census Bureau, regardless of where they live, households who pay more than thirty percent of their incomes for housing are said to have excess burdens.

Homeownership Rates: Table 7 compares urban and rural homeownership rates by state. It also compares the shares of urban and rural homeowners and renters with excess housing cost burdens (i.e., burdens greater than 30%). Nationally, the 2017 homeownership rate among rural counties stood at 71 percent, eight percentage points higher than the homeownership rate in urban counties. Among states, the 2017 rural homeownership rate exceeded 75 percent in Michigan (78%), Connecticut (77%), Minnesota (76%), West Virginia (76%), Maine (75%) and Indiana (75%). At the opposite extreme, led by Oregon, there were five states in which fewer than two-thirds of rural households were homeowners.

There are six states in which the rural homeownership rate exceeds the urban rate by ten percent or more: New York (+19%), Nevada (16%), California (+12%), North Dakota (11%), Connecticut (11%), and Texas (11%). At the opposite extreme, there are two states in which the rural homeownership rate lags the urban rate: Idaho (-1%) and South Dakota (-1%).

Homeowner Cost Burdens: Nationally, just 18% of rural homeowners in 2017 paid more than 30 percent of their incomes for housing. (The corresponding share for urban homeowners was 23%.) On the high cost side of the cost burden ledger, there were three states in which the share of rural homeowners with excess housing cost burdens exceeded 25 percent: California (27%), Massachusetts (27%), and Vermont (26%). On the low cost side, there were five states in which fewer than 15 percent of homeowners faced excessive cost burdens: North Dakota (12%), West Virginia (14%), Indiana (14%), Iowa (14%), and Illinois (14%).

In terms of urban-rural cost burden disparities there were four states in which the excess burden rate was higher for rural homeowners than urban homeowners: Vermont, Massachusetts, Colorado, and New Hampshire.

Table 7: Rural Homeownership and Excess Housing Cost Burdens by State

2017 Homeownership Rate				Share of HOMEOWNERS with 30% or more Cost Burdens (2017)				Share of RENTERS with 30% or more Cost Burdens (2017)			
Rural Counties (sorted high to low)		Rural-Urban Disparity (sorted high to low)		Rural Counties (sorted high to low)		Rural-Urban Disparity (sorted high to low)		Rural Counties (sorted high to low)		Rural-Urban Disparity (sorted high to low)	
Michigan	78%	New York	19%	Wyoming	35%	Vermont	3%	California	52%	Maryland	2%
Connecticut	77%	Nevada	16%	California	27%	Massachusetts	3%	Maryland	49%	Wyoming	0%
Minnesota	76%	California	12%	Massachusetts	27%	Colorado	2%	Massachusetts	47%	Massachusetts	0%
West Virginia	76%	North Dakota	11%	Vermont	26%	New Hampshire	1%	Vermont	45%	New Hampshire	-1%
Maine	75%	Connecticut	11%	Hawaii	25%	Maryland	0%	Washington	45%	South Dakota	-1%
Indiana	75%	Texas	11%	Connecticut	24%	Wisconsin	0%	Hawaii	44%	Idaho	-1%
Pennsylvania	74%	Hawaii	10%	New Hampshire	23%	South Dakota	0%	New Hampshire	44%	Washington	-1%
Iowa	74%	Wisconsin	9%	Maryland	23%	North Carolina	0%	Oregon	44%	California	-2%
Illinois	74%	Illinois	9%	Colorado	22%	Kentucky	0%	New York	44%	North Carolina	-2%
Wisconsin	74%	Alaska	9%	Oregon	21%	Michigan	0%	Connecticut	44%	Arkansas	-2%
Utah	73%	Michigan	9%	Florida	20%	Minnesota	-1%	Colorado	43%	Kentucky	-3%
Vermont	73%	Arizona	8%	Washington	20%	Kansas	-1%	Michigan	43%	Maine	-4%
Virginia	72%	Massachusetts	8%	Georgia	20%	North Dakota	-1%	North Carolina	43%	South Carolina	-4%
New Hampshire	72%	Indiana	7%	North Carolina	20%	Nebraska	-1%	Maine	42%	Ohio	-4%
New York	72%	Ohio	7%	Maine	20%	Iowa	-1%	Florida	42%	Michigan	-4%
Ohio	72%	Virginia	7%	South Carolina	20%	Missouri	-1%	Georgia	42%	Utah	-5%
Texas	71%	Arkansas	7%	Montana	19%	Idaho	-1%	Louisiana	42%	Missouri	-5%
South Carolina	71%	Vermont	7%	Mississippi	19%	Arkansas	-2%	Idaho	42%	Minnesota	-5%
Florida	71%	Florida	7%	Wisconsin	19%	Georgia	-2%	South Carolina	41%	Georgia	-5%
Tennessee	71%	Nebraska	6%	Idaho	19%	Connecticut	-2%	Minnesota	41%	Oklahoma	-5%
Maryland	71%	Kentucky	6%	Virginia	19%	South Carolina	-2%	Mississippi	40%	Louisiana	-5%
Kentucky	71%	Tennessee	6%	Michigan	18%	Utah	-2%	Virginia	40%	Mississippi	-5%
Arizona	71%	Minnesota	6%	Alaska	18%	Montana	-2%	Ohio	40%	Tennessee	-5%
Alabama	70%	Pennsylvania	6%	New York	18%	Alaska	-2%	Tennessee	39%	Vermont	-5%
Nevada	70%	Iowa	6%	Nevada	18%	Mississippi	-2%	Arkansas	39%	West Virginia	-5%
Nebraska	70%	North Carolina	5%	Alabama	17%	Washington	-2%	Kentucky	39%	Connecticut	-6%
Massachusetts	70%	West Virginia	5%	Kentucky	17%	Virginia	-2%	Missouri	39%	Colorado	-6%
Arkansas	70%	Maine	5%	Tennessee	17%	Alabama	-2%	Pennsylvania	39%	Kansas	-6%
Missouri	69%	Washington	5%	Missouri	17%	Indiana	-3%	Utah	38%	Oregon	-6%
Mississippi	69%	Oregon	4%	New Mexico	17%	Maine	-3%	New Mexico	38%	Virginia	-6%
Montana	69%	Montana	4%	Minnesota	16%	Ohio	-3%	Montana	38%	Wisconsin	-6%
New Mexico	69%	Maryland	4%	Utah	16%	Tennessee	-3%	Illinois	38%	Montana	-7%
North Dakota	69%	Oklahoma	4%	Arizona	16%	Oklahoma	-3%	Wisconsin	38%	Alabama	-7%
North Carolina	69%	Utah	4%	Texas	16%	West Virginia	-3%	Indiana	38%	New York	-7%
Kansas	69%	Colorado	4%	Pennsylvania	16%	Oregon	-3%	Alabama	37%	Pennsylvania	-7%
Alaska	69%	Georgia	4%	Arkansas	16%	California	-3%	South Dakota	37%	Indiana	-8%
Idaho	68%	Kansas	4%	Kansas	15%	Texas	-4%	Kansas	37%	Texas	-8%
Oklahoma	68%	Missouri	3%	Ohio	15%	Pennsylvania	-4%	Texas	37%	Hawaii	-9%
Colorado	68%	South Carolina	3%	South Dakota	15%	Arizona	-6%	Oklahoma	36%	Illinois	-9%
South Dakota	68%	Mississippi	3%	Oklahoma	15%	Hawaii	-6%	Nevada	36%	Iowa	-9%
Washington	67%	Alabama	2%	Louisiana	15%	Nevada	-6%	Alaska	36%	New Mexico	-9%
Louisiana	66%	New Hampshire	2%	Nebraska	15%	Louisiana	-7%	West Virginia	35%	Alaska	-9%
Georgia	66%	New Mexico	2%	Illinois	14%	Florida	-8%	Iowa	35%	Florida	-11%
California	66%	Louisiana	1%	Iowa	14%	New Mexico	-8%	Arizona	35%	Arizona	-11%
Hawaii	66%	South Dakota	-1%	Indiana	14%	Illinois	-10%	Nebraska	31%	Nevada	-11%
Oregon	65%	Idaho	-1%	West Virginia	14%	New York	-11%	North Dakota	30%	North Dakota	-11%
Wyoming	43%	Wyoming	-19%	North Dakota	12%	Wyoming	-17%	Wyoming	0%	Nebraska	-12%

Note: Delaware, New Jersey, Rhode Island and the District of Columbia have no rural counties

By contrast, there were 37 states in which excess burden rates were lower among homeowners in rural counties. All in all, except for Massachusetts on the high side and New York and Illinois on the low side, rural homeowners overpay for housing at slightly lower rates than urban homeowners in the same state.

Renter Cost Burdens: The overpayment picture is notably different for renters. Nationally, 40 percent of rural renters overpay for housing, versus 48 percent of urban renters. Among individual states, the places where rural renters most overpay for housing—that is, the states in which they devote more than 30 percent of their annual incomes to housing costs—are California (52% of rural renters), Maryland (49%), Massachusetts (47%), Vermont (45%) and Washington (45%). By contrast, the states in which rural renters are least stressed by high rents are North Dakota (in which 30% of renters have excess burdens) and Nebraska (31%).

Whereas rural renters have higher housing cost burdens than rural homeowners, the opposite is true when comparing rural renters to urban ones—rural rental cost burdens are considerably lower. Leading the lower burden pack are Nebraska (in which the share of rural renters who overpay for housing is 12% less than the urban share), North Dakota (-11%), Nevada (-11%), Arizona (-11%), and Florida (-11%). The only state in which proportionately more rural renters than urban renters overpay for housing is Maryland.

In sum, because rural housing costs are generally lower than urban housing costs, rural homeownership rates are consistently higher than urban rates while rates of housing overpayment are consistently lower. Rural renters also have fewer overpayment problems than urban renters, but this advantage is less compelling: Except for North Dakota and Nebraska, there are no states in which less than a third of rural renters don't overpay for housing based on government guidelines. Among individual states, rural housing market conditions were most favorable in North Dakota, South Dakota, Nebraska, New York, and Illinois, and least favorable in Massachusetts, Maryland and Connecticut.

Correlation Analysis & Regional Differences

Thus far we have examined each rural economic performance and rural-urban disparity measure in isolation. It is now time to explore how they overlap one another, as well as how well our casual observations of regional differences hold up in fact. With so much data involved, this is most conveniently done with statistics.

Statistical overlaps are best explored using Pearsons correlation coefficients, which capture the joint variation of any two interval variables around their respective means. Differences in values between groups are best investigated using a procedure known as analysis-of-variance (ANOVA), which compares how each variable varies around its group mean as compared to the overall mean. In the current case, we use ANOVA to investigate differences in rural economic performance across the New England, Mid-Atlantic, Midwest, Southeast, South Central, Great Plains, Southwest, Intermountain, and Pacific regions.

Correlation Analysis: Table 8 reports the Pearson correlation coefficient results.[10] Its top half reports correlations between rural economic outcome measures. Its bottom half reports correlations between selected rural-

Table 8: Selected Rural Economic Outcome and Rural-Urban Disparity Associations			
Outcome or Difference Measure[1]		Highly Correlated Outcome or Difference Measures	Correlation Coefficient
Rural Economic Outcome Measure	Rural Job Growth, 2005-2016	Rural Job Growth Rate, 2005-2016	0.80
	Rural Job Growth Rate, 2005-2016	Rural Job Growth	0.80
	Rural Unemployment Rate	Rural Labor Force Participation Rate	-0.81
		Rural Median Household Income	-0.51
	Rural Labor Force Participation (LFP) Rate	Rural Median Household Income	0.81
		Rural Unemployment Rate	-0.81
	Rural Median Household Income	Rural LFP Rate	0.81
		Rural Unemploymen Rates	-0.51
	Rural Homeownership Rate	Share of Cost-burdened Rural Renters	0.59
		Share of Cost-burdened Rural Homeowners	-0.54
	Share of Cost-burdened Renters	Rural Homeownership Rate	0.59
Rural-Urban Disparity Measures	Ratio of Rural-to-Urban Job Growth, 2005-2016	Ratio of Rural-to-Urban Job Growth Rate	0.95
	Rural-Urban Unemployment Rate Difference	Rural-Urban Poverty Rate Diff.	0.79
		Rural Unemployment Rate	0.78
		Rural-Urban LFP Rate Diff.	-0.65
		Rural LFP Rate	-0.62
	Rural-Urban Labor Force Participation Rate Difference	Rural LFP Rate	0.75
		Rural-Urban Poverty Rate Diff.	-0.73
		Rural-Urban Unemployment Rate Diff.	-0.65
		Rural Median Household Income	0.61
		Rural Unemployment Rate	-0.60
	Rural-Urban Median Household Income Difference	Rural Homeowner Share with Excess Burdens	-0.53
		Rural Homeownership Rate	0.51
	Urban-Rural Poverty Rate Difference	Rural-Urban Unemployment Rate Diff.	0.79
		Rural-Urban LFP Rate Diff.	-0.73
		Rural Unemployment Rate	0.65
		Rural LFP Rate	-0.64
		Rural Median Household Income	-0.60
	Rural-Urban Homeownership Rate Difference	Rural Homeownership Rate	0.65
		Rural Renter Share with Excess Burdens	0.56
	Rural-Urban Homeowner Excess	Rural Renter Share with Excess Burdens	0.52

1. Data is for 2016 unless otherwise noted.

urban disparity measures, as well as with rural outcome measures. Only those relationships whose correlation coefficients have an absolute value greater than 0.5 are reported. Correlation coefficients indicate correlation, not causation, so care should be taken not to assign a causal direction, even to relationships with very high correlation coefficient values.

Among Table 8's most important results:

- With a correlation coefficient of 0.80, rural job change magnitudes and rates are highly correlated with one another. Put simply, those rural counties gaining or losing the most jobs are also gaining or losing jobs at the fastest rates. In rural areas, job growth

seems to build on itself, as does job shrinkage.

- Rural unemployment rates and rural labor force participation rates are inversely correlated. The rural counties where unemployment rates are the highest are the same counties where fewer adults are counted as being in the work force. Rural unemployment rates are also inversely correlated with median household incomes. This reflects the fact that household incomes are consistently lower in counties where there is less work.
- Rural labor force participation rates are also highly correlated with household incomes. This is tautological: In places where more people work, rural households have more money to spend.
- Higher homeownership rates are negatively correlated with the share of cost-burdened homeowners, but positively correlated with the share of cost-burdened renters. In rural counties where homeowners predominate, homeownership is more affordable than renting.
- Differences between rural and urban unemployment rates are positively mirrored by differences between rural and urban poverty rates (correlation coefficient = 0.79). In a nutshell, the states where rural unemployment rates most exceed urban poverty rates are the same states where rural poverty rates most exceed urban poverty rates.
- Rural-urban unemployment rate disparities are also positively correlated with rural unemployment rates, and negatively correlated with rural labor force participation rates and rural-urban labor force participation rate disparities. All of these results are consistent with mainstream labor market theories and conventions, indicating that rural labor markets aren't all that much different than their urban counterparts.
- The poverty rate gap between rural and urban counties is consistently larger in states with higher rural unemployment rates, lower rural labor force participation rates, and lower rural household incomes. The magnitude of the rural-urban poverty rate gap is also highly correlated with the size of other rural-urban gaps, including the rural-urban unemployment rate gap and the rural-urban labor force participation rate gap.
- Differences between rural and urban (median) household incomes are larger in states with higher rural homeownership rates and lower in states in which rural homeowners are more cost-burdened.
- Differences between rural and urban poverty rates are larger in states where rural unemployment rates are higher and where rural incomes and labor force participation rates are lower.
- Differences between rural and urban homeownership rates are larger in states with higher rural homeownership rates as well as in states where more renters are cost burdened.
- Differences between rural and urban counties in terms of the share of cost-burdened homeowners broadly match rural-urban differences in the share of cost-burdened renters. Or, put more simply, the states where urban homeownership is less affordable than rural homeownership are

the same states where renting is less affordable in urban counties than in rural counties.

Subregional Analysis of Variance: The United States is a country of regions and subregions. To what degree do rural economies in the same regions and subregion perform similarly? To find out, we used a technique known as analysis of variance, or ANOVA, to compare each state's rural economic performance and rural-urban disparity measures to a nominal (e.g., 0 or 1) variable identifying its subregional location. We considered nine subregions: New England, the Mid-Atlantic region, the Midwest, the Southeast, the South Central region, the Great Plains, the Intermountain region, the Southwest, and the Pacific Coast region. Note that we did not include Alaska and Hawaii in the Pacific Coast region.

The results of this analysis are presented in Table 9. The first column of values in Table 9 lists the 47-state average value for each economic performance or outcome measure. (Note that there are three states, Delaware, Rhode Island, and New Jersey that don't have any rural counties.) The second column of values lists the r-squared value for each ANOVA model. The higher the r-squared value, the greater the degree of intra-regional consistency.[11] The remaining nine columns indicates whether and by how much each regional average differs from the 47-state average. Only those regional differences determined to be statistically significant at the .10 level are listed in Table 9.[12] The others are listed as "n/s", or not significant, meaning that they are statistically indistinguishable from the national average.

With this explanation in mind, we turn now to the results for each subregion:

- New England: New England's rural counties (located in Connecticut, Maine, Massachusetts, New Hampshire and Vermont) are doing slightly better overall than rural counties elsewhere. On the positive side, New England's rural median household incomes, homeownership rates, and labor force participation rates are all higher than the national rural average. Unfortunately, so too are its unemployment rates, poverty rates, and shares of cost-burdened homeowners and renters. The labor force participation gap between New England's rural and urban counties is slightly wider than in other regions but its rural-urban income gap is notably narrower.

  The Mid-Atlantic Region: In almost every economic outcome category, the performance of the Mid-Atlantic region's rural counties (including those in Maryland, New York, Pennsylvania and West Virginia) closely matches national rural averages. In terms of rural-urban differentials, the Mid-Atlantic region's rural counties lag their urban counterparts by more than the national average on measures of labor force participation, median household income, and homeownership.

- The Midwest: Rural counties in the Midwest (including those located in Indiana, Illinois, Iowa, Michigan, Minnesota, and Wisconsin) have performed much worse than rural counties elsewhere in terms of recent job growth, but are otherwise comparable in terms of unemployment rates, labor force participation rates, poverty rates, and shares of cost-burdened homeowners and renters. Homeownership rates among

Table 9: Rural Economic Outcome and Rural-Urban Disparity Measures: Regional Variations												
Economic Outcome or Rural-Urban Disparity Measure		47-state Average	Adjusted r-squared	Regional Difference compared to National Average								
				New England (5 states)	Mid-Atlantic (4 states)	Midwest (6 states)	Southeast (10 states)	South Central (4 states)	Great Plains (4 states)	Mountain (5 states)	Southwest (3 states)	Pacific (3 states)
Rural Economic Performance or Outcome Measure	Rural County Job Change, 2005-2016	-1,882	0.29	n/s	n/s	-18,931	-18,387	14,274	n/s	14,560	n/s	n/s
	Percent Rural County Job Change, 2005-2016	1%	0.30	n/s	n/s	n/s	-5%	n/s	7%	11%	7%	n/s
	Rural Share of State Job Change, 2005-2016	-26%	-0.02	n/s	n/s	n/s	-59%	n/s	n/s	n/s	n/s	n/s
	Rural Unemployment Rate	7%	0.87	1%	0%	1%	-2%	0%	3%	2%	-3%	-1%
	Rural Labor Force Participation Rate	59%	0.88	6%	-2%	2%	-6%	-3%	8%	4%	-6%	-5%
	Rural Median Household Income ($000)	$47.4	0.84	$12.4	-$0.6	$0.7	-$9.6	-$6.5	$4.2	$5.0	-$1.9	-$1.4
	Rural Poverty Rate	16.3%	0.84	2.1%	0.2%	-1.0%	1.6%	0.4%	0.7%	-4.6%	0.8%	0.4%
	Rural Homeownership Rate	70%	0.90	3%	3%	5%	0%	0%	0%	-5%	0%	-4%
	Share of Cost-burdened Rural Homeowners	19%	0.83	4%	-1%	-3%	-1%	-3%	-5%	3%	-2%	4%
	Share of Cost-burdened Rural Renters	39%	0.15	5%	3%	0%	2%	-1%	-5%	-7%	-3%	8%
Rural-Urban Difference or Ratio	Rural-to-Urban Job Change Ratio	-3.4	-0.07	n/s	-15.63	n/s	n/s	n/s	n/s	n/s	n/s	n/s
	Rural-to-Urban Percent Job Change Ratio	-11.0	-0.08	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s
	Unemployment Rate Difference	-7.1%	0.54	n/s	n/s	n/s	8.6%	8.2%	n/s	n/s	9.4%	8.4%
	Labor Force Participation Rate Difference	1%	0.37	-4%	-7%	-7%	-11%	-10%	-6%	-5%	-10%	-12%
	Median Household Income Difference ($000)	-$11,500	0.63	$2.38	-$3.90	$3.34	-$2.15	-$0.23	$4.71	-$0.96	n/s	-$1.69
	Poverty Rate Difference	2.9%	0.64	n/s	n/s	n/s	3.3%	0.9%	n/s	-0.5%	1.2%	0.3%
	Homeownership Rate Difference	6%	0.50	0%	3%	2%	-2%	0%	-1%	n/s	3%	1%
	Share of Cost-burdened Homeowners	-3%	0.37	n/s	-2%	0%	0%	n/s	n/s	-1%	-4%	n/s
	Share of Cost-burdened Renters	-6%	0.66	n/s	1%	0%	0%	0%	-2%	2%	-5%	n/s

Midwestern rural counties currently stand at 75 percent, about five percentage points higher than the average for all rural counties. In terms of rural-urban differentials, Midwestern rural counties lag their urban counterparts by more than the national average on measures of labor force participation but do better than nearby urban counties with regard to household income and homeownership rates.

The Southeast: Rural counties in the Southeast (including those in the states of Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia,) fall far behind rural counties elsewhere in nearly every economic performance category. Eighty-five percent of state job losses in the South since 2005 have occurred in its rural categories. Rural households in the South make nearly $10,000 less per year than rural households elsewhere. At nearly 18 percent, the rural poverty rate in the South is the highest of any rural region. Rural-urban unemployment rate, poverty rate, homeownership rate, and household income gaps are also larger in the South than elsewhere in the U.S. The only good news for the Southeast is that 70% of rural households own their own homes, the same proportion as in other subregions.

- The South Central Region: The experiences of rural residents living in the South Central region differ widely by state. Those living in rural counties in Texas and Oklahoma have seen their economies grow, their residents add new wealth, and many of the historical gaps with their urban counterparts begin to narrow. Those living in rural counties in Missouri and Arkansas have seen their economies continue to falter and the historical gaps with their urban counterparts grow.
- The Great Plains: The growth of shale oil and gas drilling has created new jobs and wealth in rural counties in the Great Plains subregion, especially in North and South Dakota; but has not solved persistent problems of unemployment or poverty. At nine percent, the 2016 unemployment rate in the Great Plains' rural counties was two percent higher than the national rural county average. Likewise, at 17 percent, the rural poverty rate in the Great Plains subregion is still higher than in the nation's other rural counties. On the positive side, the household income gap between rural and urban counties in the Great Plains region is nearly $5,000 smaller than in other regions
- The Intermountain Region: The recent economic performance of rural counties in the Intermountain region (including Colorado, Idaho, Montana, Utah, and Wyoming) is the best of any region. Between 2005 and 2016, rural counties nationwide lost an average of nearly 2,000 jobs; those in the Intermountain region gained almost 15,000 jobs. Household incomes in the Intermountain region's rural counties are $5,000 higher on average than in other rural regions, and poverty rates are 4.6 percent lower. Rural homeownership rates in the Intermountain region continue to lag rates in other rural regions, and the rural unemployment rate continues to be higher, but these gaps are gradually being narrowed. With the Intermountain region's urban and rural counties growing in tandem, traditional urban-rural economic gaps are not being narrowed.

- The Southwest: The Southwest (including the states of Arizona, Nevada, and New Mexico) includes proportionately more federal and sovereign Native American lands than any other region, and most of those lands are sparsely populated. As a result, except for their consistently higher unemployment rates, and consistently lower household incomes and labor force participation rates, the economic performance of rural counties in the Southwest doesn't differ markedly from rural counties elsewhere in the U.S. Compared to the rest of the country, urban-rural poverty rate, labor force participation rate, and unemployment rate gaps are all notably larger.
- The Pacific Coast Region: California, Oregon, and Washington's rural counties all have very large land areas. Otherwise, they are very different. Some have economies based in farming, others in ranching, and still others in forestry and mining. Some have populations that are predominantly White and native-born. Others have large immigrant populations. This diversity notwithstanding, the economic performance of rural counties in the Pacific region varies only slightly from the national rural average. Unemployment rates and household incomes are slightly lower, while poverty rates are slightly higher. The one exception is that housing throughout the Pacific region is much more expensive, adding to the share of rural homeowners and renters who are cost-burdened and depressing rural homeownership rates. In terms of urban-rural differences, Oregon and Washington's rural areas have managed to keep pace economically with their growing urban counties. California's rural counties, by contrast, are falling further and further behind its surging urban economies.

IV. RURAL LIFE EXPECTANCY & MORTALITY RATE COMPARISONS

On the whole, rural residents suffer from:

- Lower life expectancies; and,
- Higher, but diverse mortality rates.

Numerous scholars have pointed to the relationship between health and economic and social environments. For example, Urie Bronfenbrenner's Social Ecological Framework has long been used to demonstrate how social and cultural aspects of the human environment impact health through layers of interacting systems (Bronfenbrenner 1979). Nancy Krieger's 1994 Ecosocial Theory explains the distribution of disease as related to societal-level consumption and production of resources (Kreiger 1994). More recently, Bruce Link and Jo Phelan's Fundamental Cause Theory explains the associations between socioeconomic status and mortality as a function of the enduring connections between status, economic resources, and political (Link and Phelan 1995).

Residents of rural America are not only poorer and less likely to be employed than residents of urban America, they are also more likely to die at a younger age and suffer from higher mortality rates. Rural-urban health outcome disparities are not unrelated to economic outcome disparities, but they do they not march in lockstep either. This section draws on county-based life expectancy and mortality rate data for 2014 published by the University of Washington's Institute of Health Metrics and Evaluation (IHME) to identify states where rural residents are consistently healthier and/or unhealthier than their urban counterparts.

Life Expectancy Comparisons

We begin with average life expectancy. There are several reasons why rural residents tend to live shorter lives than urban residents. In addition to the impacts of socioeconomic status, which our findings suggest are reduced in rural places, cities offer various protective factors. Urban occupations are generally safer and better regulated than rural occupations, drinking water is more likely to be treated in urban communities than in rural towns, and medical and public health services are more available and of higher quality in urban places than in rural ones.

According to the National Institutes of Health (Singh 2014), Americans residing in large metropolitan areas in 2009 had a life expectancy of 79.1 years, compared to 76.9 years in small urban towns and 76.7 years in rural areas.

These differences are growing. Between 1969 and 2009, residents in metropolitan areas experienced significantly greater gains in life expectancy than those in nonmetropolitan areas. This was partially a result of differences in lifestyle and improvements in access to healthcare.

Table 10 compares rural and urban average life expectancies by state. Average life expectancies are further broken down into life expectancies for metro-adjacent rural counties and far-rural counties. None of these comparisons account for inter-state and inter-county disparities by gender, age, race and ethnicity, though ample evidence demonstrates that inequities across demographic groups are present (Williams, Lawrence, and Davis 2019). Among African-American, Native American, and Latino

Table 10: Average Rural Life Expectancies by State

Average Life Expectancy in Years				Disparities Between Rural & Urban Average Life Expectancy (Years)			
Metro-adjacent Rural Counties		Far Rural Counties		Metro-adjacent Rural Counties vs. Urban Counties (sorted from best to worst)		Far Rural Counties vs. Urban Counties (sorted from best to worst)	
Connecticut	80.7	Massachusetts	81.8	Wyoming	1.4	Massachusetts	1.6
Massachusetts	80.3	Minnesota	80.6	North Dakota	1.2	North Dakota	0.9
Utah	80.2	Hawaii	80.6	South Dakota	0.7	Wyoming	0.6
Minnesota	80.2	Colorado	80.5	Utah	0.2	Michigan	0.2
New Hampshire	80.1	Nebraska	80.0	Connecticut	0.2	South Dakota	0.2
Vermont	80.0	Vermont	79.9	Washington	0.1	Alaska	0.2
North Dakota	79.9	Iowa	79.9	Massachusetts	0.1	Nebraska	0.2
Washington	79.7	North Dakota	79.7	New Hampshire	0.1	Idaho	0.1
Iowa	79.6	New Hampshire	79.5	West Virginia	-0.1	Colorado	-0.1
Wisconsin	79.6	New York	79.4	Idaho	-0.2	Kansas	-0.1
South Dakota	79.3	Idaho	79.4	Vermont	-0.2	Ohio	-0.1
Nebraska	79.3	Washington	79.3	Indiana	-0.3	Iowa	-0.3
Idaho	79.2	Michigan	78.9	Pennsylvania	-0.5	Washington	-0.3
New York	79.1	South Dakota	78.8	Nebraska	-0.5	Vermont	-0.3
Colorado	79.0	Wisconsin	78.8	Iowa	-0.5	Minnesota	-0.3
Maine	78.9	California	78.8	Michigan	-0.5	Indiana	-0.5
California	78.8	Maine	78.7	Maryland	-0.5	North Carolina	-0.5
Montana	78.7	Oregon	78.7	Maine	-0.5	Texas	-0.5
Oregon	78.6	Kansas	78.6	Ohio	-0.6	Mississippi	-0.5
Pennsylvania	78.6	Pennsylvania	78.5	Wisconsin	-0.6	Hawaii	-0.5
Maryland	78.4	Montana	78.5	Missouri	-0.7	Arkansas	-0.5
Wyoming	78.3	Utah	78.4	Minnesota	-0.7	Pennsylvania	-0.5
Michigan	78.2	Wyoming	78.3	Kansas	-0.8	New Hampshire	-0.5
Kansas	78.0	Illinois	78.2	Arkansas	-0.8	Illinois	-0.6
Illinois	77.8	Ohio	78.0	Montana	-0.8	New Mexico	-0.7
Arizona	77.8	Alaska	77.9	New York	-0.9	New York	-0.7
Ohio	77.5	New Mexico	77.9	Illinois	-1.0	West Virginia	-0.7
Indiana	77.5	Arizona	77.9	Louisiana	-1.0	Maine	-0.7
New Mexico	77.4	Indiana	77.4	Alabama	-1.0	Oklahoma	-0.8
Missouri	77.1	Texas	77.4	Texas	-1.0	Alabama	-0.9
Nevada	77.0	North Carolina	77.2	North Carolina	-1.0	Oregon	-0.9
Virginia	76.9	Florida	77.1	Oregon	-1.1	Montana	-1.0
Texas	76.8	Nevada	76.7	Oklahoma	-1.1	Tennessee	-1.1
North Carolina	76.6	Missouri	76.6	Mississippi	-1.1	Missouri	-1.1
West Virginia	76.2	Virginia	75.9	New Mexico	-1.2	Arizona	-1.3
Florida	75.9	West Virginia	75.6	Tennessee	-1.2	Wisconsin	-1.4
Kentucky	75.4	Oklahoma	75.5	Georgia	-1.3	California	-1.5
Georgia	75.4	Arkansas	75.4	Arizona	-1.4	Utah	-1.5
Oklahoma	75.2	Georgia	75.1	Kentucky	-1.4	Georgia	-1.6
Arkansas	75.1	Tennessee	75.0	California	-1.5	Florida	-1.7
Tennessee	74.9	South Carolina	74.8	Colorado	-1.5	South Carolina	-1.8
Louisiana	74.8	Alabama	74.5	Virginia	-1.7	Louisiana	-2.0
South Carolina	74.7	Mississippi	74.5	Nevada	-1.8	Nevada	-2.1
Alaska	74.5	Kentucky	74.3	South Carolina	-1.9	Kentucky	-2.6
Alabama	74.4	Louisiana	73.8	Florida	-2.8	Virginia	-2.7
Mississippi	73.8	Connecticut	na	Alaska	-3.2	Dist. of Columbia	na
Delaware	na	Delaware	na	Delaware	na	Delaware	na
Dist. of Columbia	na	Dist. of Columbia	na	Dist. of Columbia	na	Maryland	na
Hawaii	na	Maryland	na	Hawaii	na	New Jersey	na
New Jersey	na	New Jersey	na	New Jersey	na	Rhode Island	na
Rhode Island	na	Rhode Island	na	Rhode Island	na	Connecticut	na

populations, structural racism contributes to a higher disease burden. Nationwide, the average 2014 life expectancy for metro-adjacent rural counties was 77.7 years. Among far-rural counties, it was 77.8 years.

Metro-adjacent Rural Counties: First the good news. In terms of average life expectancy, residents of metropolitan-adjacent rural counties can expect to live more than two years longer than average if they live in Connecticut, Massachusetts, Utah, Minnesota, New Hampshire, Vermont, and North Dakota. Most of these are small states where residents of metro-adjacent rural counties are within a couple of hours driving time of a major urban hospital. Connecticut, Massachusetts, Minnesota, and Vermont are also among the states that spend the most per capita on health care.

On the not-so-positive side, life expectancies are notably lower than average among residents of metro-adjacent rural in Mississippi, Alabama, Alaska, South Carolina, Louisiana, Tennessee, Arkansas, Oklahoma, Georgia, and Kentucky. Except for Alaska, all are southern states, and all spend less per capita on public health and health care than states in other regions. These same states (plus Oklahoma and West Virginia) also lag in terms of their average life expectancies among residents of far-rural counties.

Comparing average life expectancy disparities within rather than between states, there are three states in which residents of metro-adjacent rural counties live notably longer than residents of urban counties: Wyoming, North Dakota, and South Dakota. By contrast, there are fifteen states in which the residents of metro-adjacent rural counties can expect to live a year (or more) less than their urban counterparts. Among the states in which average life expectancies in metro-adjacent counties most lag urban life expectancies are Alaska (-3.2 years), Florida (-2.8 years), South Carolina (-1.9 years), Nevada (-1.8 years) and Virginia (-1.7 years).

Far-rural Counties: Massachusetts is the only state where residents of far-rural counties can expect to live longer than residents of urban counties. By comparison, there are thirteen states in which far-rural average life expectancies lag urban life expectancies by more than a year. Among the states in which far-rural life expectancies most lag rural life expectancies are Virginia (-2.7 years), Kentucky (-2.6 years), Nevada (-2.1 years), and Louisiana (-2.0 years).

Mortality Rate Comparisons by Age Cohort

Because they can be more easily disaggregated by age and race, public health experts generally prefer mortality rates to life expectancies when comparing health outcomes by place and time. The Institute of Health Metrics and Evaluation (IHME) currently reports county-level mortality rates for four age groups: (i) children under the age of five; (ii) children, adolescents, and young adults between the ages of five and twenty-five; (iii) adults between the ages of 25 and 65; and, (iv) adults over the age of 65.

Mortality rates vary far more widely between age groups and places than do life expectancies. For the country as a whole, the average mortality rate for children between 0 and 4 years old is .63—meaning that there are .63 deaths per year for every 1000 residents between 0 and 4 years old. Among states, the mortality rate for children aged 0 to 4 years old varies from a low of 0.38 (per thousand population) in Massachusetts to a high of 1.17 in Mississippi.

Mortality rates for those aged 5-to-25 also vary widely by state. Compared to the national rate of 1.84 deaths per thousand, mortality rates for 5-to-25 year-olds vary from a low of 0.55 (per thousand) in Massachusetts to a high of 1.45 in Mississippi and Alabama. Among adults aged 65-and-above, state mortality rates range from a low of 45.5 (per thousand) in Minnesota to a high of 60.25 in Kentucky. The national mortality rate for those aged 65 and above is 50.96 deaths per thousand.

Table 11 presents average 2014 mortality rates by state and age cohort for residents of metro-adjacent and far-rural counties. It also includes a state ranking based on mortality rate differences between urban and rural areas. For the most part, intra-state mortality rate differences between metro-adjacent and far-rural counties are dwarfed by inter-state mortality rates differences.

For children between the ages of 0 and 4, the states with the lowest rural county mortality rates are Connecticut, Massachusetts, New Hampshire, Vermont, New York, Iowa, Minnesota and Maine., New Hampshire. North Dakota, Wisconsin, Nebraska and Pennsylvania also do well in this regard. Except for Alaska, the states with highest rural county mortality rates for children between the ages of 0 ad 4 are all in the Southeast and include Mississippi, South Carolina, Alabama, Georgia, Arkansas, Tennessee, Kentucky, and North Carolina. Outside the Southeast, rural counties in Oklahoma also do poorly. Florida's metro-adjacent counties have notably higher mortality rates for young children than do its far-rural counties.

The list of states with the lowest mortality rates for children, teenagers and young adults between the ages of 5 and 25 mirrors the list for young children, and includes Vermont, New Hampshire, Massachusetts, Connecticut, New York, Minnesota and Iowa. North Dakota, Wisconsin, Nebraska and Maine also perform well. At the opposite extreme, with some of the country's highest mortality rates for children, teenagers and young adults are rural counties in Alaska, Wyoming, Mississippi, Alabama, South Carolina, Louisiana and Arkansas. Also on the list of states with high 5-to-25 year-old rural mortality rates are New Mexico, Tennessee, and Oklahoma. Arizona's young adult mortality rates are also very high, especially among its metro-adjacent rural counties.

The list of low rural mortality rate states for the 65-and-over age cohort is much more diverse. In addition to the expected states like Connecticut, Massachusetts, it includes Arizona, South Carolina, and Hawaii, three states with much higher rural youth mortality rates. By the same token, states like New York and Vermont, which boast low rural mortality rates among their younger residents fall squarely mid-pack in terms of senior mortality rates among seniors.

At the opposite end of the mortality rate spectrum, the list of states whose rural seniors suffer from high mortality rates is again dominated by southern states, most notably Kentucky, Tennessee, Louisiana, Georgia, and West Virginia.

In sum, for children and young adults who grow up in rural areas, the mortality rate story is really three stories: the first, one of low mortality rates for rural counties in the Northeast and Great Plains states; a second

Table 11: Mortality Rate Comparisons by Age Group and Rural County Type

Mortality Rates for 0-4 Year Olds (sorted from best to worst)				Mortality Rates for 5-25 Year Olds (sorted from best to worst)				Mortality Rates for 65+ Year Olds (sorted from best to worst)				Rural County Mortality Rates Compared to Urban Mortality Rates by Age & Rural County Categories (sorted best to worst)			
Metro-adjacent Rural Counties		Far Rural Counties		Metro-adjacent Rural Counties		Far Rural Counties		Metro-adjacent Rural Counties		Far Rural Counties					
CT	0.40	MA	0.34	VT	0.63	MA	0.50	UT	45.84	HI	41.29	North Dakota	lower than Urban in	6 of 6	Age & rural county categories
MA	0.44	NY	0.45	NH	0.64	NY	0.59	CT	46.17	MA	42.54	South Dakota	lower than Urban in	4 of 6	Age & rural county categories
NH	0.46	VT	0.46	MA	0.65	NH	0.68	MN	46.24	CO	43.42	Wyoming	lower than Urban in	4 of 6	Age & rural county categories
VT	0.46	MN	0.48	CT	0.68	MN	0.69	AZ	46.27	MN	44.79	Massachusetts	lower than Urban in	3 of 6	Age & rural county categories
NY	0.49	NH	0.49	NY	0.70	VT	0.70	ND	46.48	NE	45.88	Connecticut	lower than Urban in	1 of 3	Age & rural county categories
IA	0.50	IA	0.50	MN	0.72	IA	0.72	WA	47.30	ND	46.04	Michigan	lower than Urban in	1 of 6	Age & rural county categories
MN	0.50	ME	0.51	IA	0.74	NE	0.77	SC	47.55	WA	47.01	Nebraska	lower than Urban in	1 of 6	Age & rural county categories
ME	0.51	PA	0.55	ND	0.76	ME	0.78	MA	47.56	ID	47.23	New Hampshire	lower than Urban in	1 of 6	Age & rural county categories
ND	0.53	HI	0.56	ME	0.76	MI	0.80	NH	47.92	IA	47.32	New Mexico	lower than Urban in	1 of 6	Age & rural county categories
WI	0.54	NE	0.56	UT	0.78	PA	0.81	CA	48.28	VT	47.92	New York	lower than Urban in	1 of 6	Age & rural county categories
NE	0.56	MI	0.57	NE	0.78	HI	0.81	CO	48.30	SC	47.96	Pennsylvania	lower than Urban in	1 of 6	Age & rural county categories
PA	0.56	WI	0.58	WI	0.78	IL	0.84	IA	48.33	WY	48.76	Washington	lower than Urban in	1 of 6	Age & rural county categories
WA	0.56	CO	0.60	WA	0.80	WI	0.84	NE	48.36	NM	48.76	Arkansas	comparable to Urban in	6 of 6	Age & rural county categories
UT	0.57	IL	0.61	PA	0.81	CO	0.85	MT	48.41	CA	48.83	Idaho	comparable to Urban in	6 of 6	Age & rural county categories
MI	0.62	ND	0.62	MI	0.83	ND	0.87	WI	48.51	OR	49.25	Illinois	comparable to Urban in	6 of 6	Age & rural county categories
WY	0.62	ID	0.64	SC	0.85	OH	0.87	ID	48.60	NH	49.27	Indiana	comparable to Urban in	6 of 6	Age & rural county categories
ID	0.62	OR	0.64	OH	0.86	CA	0.88	VT	48.70	UT	49.45	Iowa	comparable to Urban in	6 of 6	Age & rural county categories
CA	0.63	CA	0.65	WY	0.87	IN	0.89	NM	49.99	MT	49.58	Kansas	comparable to Urban in	6 of 6	Age & rural county categories
IL	0.63	KS	0.65	ID	0.87	KS	0.90	OR	50.28	KS	49.60	Maine	comparable to Urban in	6 of 6	Age & rural county categories
OH	0.63	OH	0.65	IL	0.90	ID	0.92	NY	50.72	AK	49.62	Maryland	comparable to Urban in	3 of 3	Age & rural county categories
SC	0.63	WA	0.66	IN	0.90	OR	0.93	MD	51.11	MI	50.28	Minnesota	comparable to Urban in	6 of 6	Age & rural county categories
OR	0.64	WY	0.66	MD	0.90	SC	0.97	ME	51.43	WI	50.40	Mississippi	comparable to Urban in	6 of 6	Age & rural county categories
IN	0.65	IN	0.67	OR	0.92	WY	0.97	KS	51.74	NY	50.50	Missouri	comparable to Urban in	6 of 6	Age & rural county categories
CO	0.68	UT	0.70	KS	0.94	WA	0.98	PA	51.91	AZ	51.11	Montana	comparable to Urban in	6 of 6	Age & rural county categories
MD	0.68	MT	0.70	CO	0.96	MT	0.99	WY	51.96	ME	51.57	North Carolina	comparable to Urban in	6 of 6	Age & rural county categories
KS	0.69	SC	0.71	CA	0.96	UT	1.03	AK	52.94	IL	52.11	Ohio	comparable to Urban in	6 of 6	Age & rural county categories
MT	0.70	TX	0.76	VA	1.00	AZ	1.04	MI	53.01	PA	52.14	Oklahoma	comparable to Urban in	6 of 6	Age & rural county categories
NV	0.73	AZ	0.77	MO	1.03	NC	1.06	IL	53.15	TX	52.45	Oregon	comparable to Urban in	6 of 6	Age & rural county categories
MO	0.74	FL	0.79	MT	1.04	TX	1.06	TX	53.94	OH	52.45	Tennessee	comparable to Urban in	6 of 6	Age & rural county categories
VA	0.75	MO	0.79	WV	1.07	FL	1.07	FL	53.99	NC	52.52	Texas	comparable to Urban in	6 of 6	Age & rural county categories
WV	0.76	NV	0.80	NC	1.09	MO	1.09	MO	54.16	FL	53.72	Utah	comparable to Urban in	6 of 6	Age & rural county categories
TX	0.78	VA	0.81	NV	1.11	VA	1.10	NC	54.24	NV	54.78	Vermont	comparable to Urban in	6 of 6	Age & rural county categories
NM	0.79	NM	0.81	TX	1.11	WV	1.11	NV	54.34	IN	55.10	West Virginia	comparable to Urban in	6 of 6	Age & rural county categories
KY	0.80	NC	0.82	KY	1.13	NV	1.15	VA	54.36	MO	55.16	Wisconsin	comparable to Urban in	6 of 6	Age & rural county categories
AZ	0.81	WV	0.83	GA	1.20	NM	1.18	IN	54.48	SC	56.11	Alaska	higher than Urban in	1 of 6	Age & rural county categories
NC	0.86	AK	0.87	FL	1.24	SC	1.24	OH	54.83	AR	56.89	Colorado	higher than Urban in	1 of 6	Age & rural county categories
FL	0.90	TN	0.92	OK	1.25	TN	1.25	WV	57.23	VA	57.04	Alabama	higher than Urban in	2 of 6	Age & rural county categories
TN	0.90	OK	0.92	TN	1.28	GA	1.25	SC	57.25	AL	57.28	Arizona	higher than Urban in	2 of 6	Age & rural county categories
OK	0.91	KY	0.93	NM	1.29	OK	1.26	GA	57.47	OK	57.31	Florida	higher than Urban in	2 of 6	Age & rural county categories
AR	0.94	AR	0.96	AR	1.29	AR	1.29	AR	58.00	MS	57.71	Georgia	higher than Urban in	2 of 6	Age & rural county categories
GA	0.96	GA	0.99	LA	1.31	KY	1.30	OK	58.43	GA	57.77	South Carolina	higher than Urban in	2 of 6	Age & rural county categories
LA	0.97	SC	1.12	SC	1.32	AK	1.36	LA	58.75	WV	58.80	California	higher than Urban in	3 of 6	Age & rural county categories
AL	1.05	LA	1.12	AL	1.36	MS	1.39	AL	59.17	TN	59.36	Kentucky	higher than Urban in	3 of 6	Age & rural county categories
SC	1.07	AL	1.15	AZ	1.44	LA	1.46	TN	59.47	LA	61.59	Louisiana	higher than Urban in	3 of 6	Age & rural county categories
MS	1.18	MS	1.16	MS	1.53	AL	1.51	KY	59.66	KY	61.85	Nevada	higher than Urban in	4 of 6	Age & rural county categories
AK	1.28	CT	na	AK	2.47	CT	na	MS	59.88	CT	na	Virginia	higher than Urban in	4 of 6	Age & rural county categories
DE	na	DE	na	DE	na	DE	na	DE	na	DE	na	Delaware	No rural counties		
DC	na	DC	na	DC	na	DC	na	DC	na	DC	na	D. of Columbia	No rural counties		
HI	na	MD	na	HI	na	MD	na	HI	na	MD	na	Hawaii	Not enough urban and rural counties for reliable comparisons		
NJ	na	NJ	na	NJ	na	NJ	na	NJ	na	NJ	na	New Jersey	No rural counties		
RI	na	RI	na	RI	na	RI	na	RI	na	RI	na	Rhode Island	No rural counties		

of high mortality rates among rural counties in the Southeast; and a third of mid-pack youth mortality rates among rural counties in the West and Intermountain regions. These findings reflect other researcher's mixed assessment of child health in rural counties (Probst et al 2018).

For seniors, the mortality rate picture favors those living in rural counties in New England and the Pacific region, while adversely affecting senior residents of rural counties in the South and Mid-Atlantic regions. There are also a few seemingly unusual states like Arizona, Alaska, and New Mexico, where mortality rates diverge between metropolitan-adjacent rural counties and far-rural counties. We hypothesize that this last pattern is due to the differential geographic distribution of under-resourced racial and ethnic minority communities in which comprehensive healthcare access and economic opportunity are reduced, particularly for Native communities residing on reservations where access to services is further restricted.

The right-hand half of Table 11 compares age cohort-based mortality rates between rural and urban counties by state. With two types of rural areas (metropolitan-adjacent and far-rural) and three age cohorts (0-4, 5-25, and 65-and-over) there are potentially six mortality rate categories to compare. In most states, and for most age and rural county categories, rural and urban mortality rates are broadly comparable.

At the healthy end of the rural-urban mortality rate spectrum, rural mortality rates in North Dakota are lower than urban rates in all six rural and age categories. In South Dakota and Wyoming, rural mortality rates are lower than urban rates in four of six categories. In Massachusetts, they are lower in three of six categories. These are the states in which, based on mortality rate comparisons, rural residents are unambiguously healthier than urban residents. There are another eight states—Michigan, Nebraska, New Hampshire, New Mexico, New York, Pennsylvania and Washington—in which rural counties also have a notable but less consistent mortality rate advantage over their urban counterparts.

At the less fortunate end of the rural-urban mortality rate spectrum, mortality rates in rural Virginia and Nevada counties lag their urban counterparts in four of the six age- and place-type categories. Louisiana, Kentucky, and California are only slightly better, with rural mortality rates lagging urban rates in three of six categories. In South Carolina, Georgia, Florida, Arizona, and Alabama, rural county mortality rates lag urban rates in two of six categories. These are the states in which, depending on their age and county of residence, rural residents die more frequently than urban residents.

It is important not to over-interpret the plethora of mortality rate statistics presented in Table 11. Table 11 identifies key rural mortality rate disparities between states, and between urban and rural counties. It does not make attributions about the causes of those differences. We note other scholars' research demonstrating the impact of racism (Williams, Lawrence, and Davis 2019), socioeconomic status (Phelan and Link 1995), environmental risk factors, lifestyle, and health care access and quality on health and well-being (Krieger 2011).

Rural-Urban Mortality Rate Comparisons by Illness Category

Mortality doesn't kill people, illness and disease do. According to the Centers for Disease Control, the leading causes of death in the U.S.

are heart disease, lung cancer, colorectal cancer, breast cancer, prostate cancer, unintentional injuries, respiratory failure (due to bronchitis, emphysema, and asthma), stroke and cerebrovascular disease, Alzheimer's disease, diabetes, influenza, kidney disease and suicide. The incidence of these and other causes of death are collected by individual counties and forwarded to the National Institutes of Health, which tabulates them and calculates illness-based county mortality rates by illness and cause. Note that these mortality rates are not adjusted for age.

With these county-level tabulations in hand, we re-aggregated them by state into urban and rural illness-based mortality rates, as included in Appendix A. This is a lot of information to assimilate even by the data-intensive standards of this working paper. Accordingly, we sorted the states in each illness-based death category by rural mortality rates[13] and then tabulated the number of categories in which a state appeared in the top 10 listings of each category (meaning that its mortality rates were among the lowest) and the bottom 10 (meaning that its mortality rates were among the highest). The results of these tabulations are presented in Table 12 as a series of frequencies indicating the number of times (out of twelve illness categories) that a state's rural counties fall on the ten lowest and highest illness-based mortality rate lists.

Fourteen states appear on the list in which illness-based rural mortality rates are among the very lowest; these include, in order: Montana (which appears on the lowest rural mortality rate list in 8 of 12 illness categories), Connecticut (8), Hawaii (7), Vermont (6), Nebraska (6), North Dakota (6), Alaska (5), Washington (5), Idaho (5), Wisconsin (5), New York (5), Michigan (4), and Iowa (4). Except for Montana, Alaska, and Idaho, these are the same states that appear on the list of lowest overall rural mortality rates presented in Table 11, and they are mostly located in the New England and upper Great Plains regions. Whether for reasons of social inequities, climate, environment, health care spending, quality and accessibility, income and poverty, or lifestyle, these are the states in which residents are much less likely to die of major illnesses and other causes. Just two southern states, South Carolina and Louisiana, appear on this rural low-mortality rate list, and both in just one illness category.

Rural areas of some states are healthier than others in terms of particular illness categories. Death rates due to respiratory infections are particularly low in Vermont, Oregon, and Alaska. Compared to rural counties elsewhere, those in Connecticut and Massachusetts suffer from the lowest suicide-based mortality rates. Hawaii's rural counties stand out because of their low mortality rates due to strokes, pulmonary diseases, breast cancer, and prostate cancer. Fewer rural residents die of cardiac disease in Colorado and Alaska than in other states. Rural mortality rates for colon, lung, breast, and other cancers are consistently low in Colorado and Utah. The incidence of death due to gun and domestic violence is especially low in rural counties in Connecticut and Iowa. Mortality rates due to drug overdoses are also low in rural counties in Iowa, as well as in North Dakota, Nebraska, and South Dakota. Fourteen different states lead the list in which illness-based rural mortality rates are highest. As shown in the second column of Table 12, these include, in order: Alabama (which appears on the highest rural mortality rate list in 10 of 12 illness categories), Tennessee (10), Arkansas (10), Kentucky (9), Georgia (9), Mississippi (8),

Table 12: Number of Illness Categories in Which Rural Mortality Rates are Highest and Lowest, by State

States for which Rural Mortality Rates for Major Illness Categories are among the **10 LOWEST**		States for which Rural Mortality Rates for Major Illness Categories are among the **10 HIGHEST**		States in which Rural Mortality Rates for Major Illness Categories are Much **LOWER** than Urban Rates		States in which Rural Mortality Rates for Major Illness Categories are Much **HIGHER** than Urban Rates	
	Illness Categories (of 12)		Illness Categories (of 12)		Illness Categories (of 10)		Illness Categories (of 10)
Montana	8	Alabama	10	South Dakota	10	Virginia	9
Connecticut	8	Tennessee	10	Alaska	7	Kentucky	9
Massachusetts	8	Arkansas	10	Nebraska	7	Florida	8
Hawaii	7	Kentucky	9	Wyoming	6	Louisiana	6
Vermont	6	Georgia	9	Washington	6	Nevada	6
Nebraska	6	MIssissippi	8	New York	5	Montana	5
North Dakota	6	Louisiana	8	Massachusetts	5	California	5
Alaska	5	West Virginia	7	North Dakota	5	New York	4
Washington	5	Oklahoma	6	Maryland	4	Georgia	4
Idaho	5	Virginia	5	Michigan	4	South Carolina	4
Wisconsin	5	Nevada	5	Idaho	4	Ilinois	3
New York	5	Florida	5	Colorado	4	Arizona	3
Michigan	4	South Carolina	4	North Carolina	3	Vermont	3
Iowa	4	Missouri	4	Vermont	3	Arizona	3
Oregon	2	Arizona	3	Maine	2	Oregon	3
New Hampshire	2	New Mexico	3	Pennsylvania	2	Missouri	3
South Dakota	2	California	2	Connecticut	2	Colorado	2
Ohio	2	Alaska	2	Kansas	2	Utah	2
Maryland	1	Utah	2	Iowa	2	New Mexico	2
South Carolina	1	Ohio	1	New Hampshire	2	Tennessee	2
Louisiana	1	Connecticut	1	Arizona	2	North Carolina	2
Illinois	1	Wyoming	1	West Virginia	2	Wisconsin	2
		Oregon	1	Indiana	1	Massachusetts	2
		Montana	1	Louisiana	1	Alababam	2
		North Carolina	1	Alabama	1	MIssissippi	1
				Florida	1	Iowa	1
				Hawai	1	Pennsylvania	1
				Illinois	1	NewHampshire	1
						Oklahoma	1
						Maryland	1
						ConnecticUtah	1
						Wyoming	1

Major Ilness Categories include: respiratory infections, drug overdoses, suicide, domestic & gun violence, strokes, pulmonary diseases, cardiac diseases, colon cancer, lung cancer, breast cancer,prostate cancer, & all other cancers combined

Louisiana (8), West Virginia (7), Oklahoma (6), Virginia (5), Florida (5), South Carolina (4), and Missouri (4). Except for Nevada and Oklahoma, these states are located in or adjacent to the South, and most also appear on the list of highest overall rural mortality rates presented in Table 12.

Several states stand out for their high rural mortality rates in multiple illness categories. Mortality rates due to cancer are particularly high in rural counties in Louisiana, Kentucky, Mississippi, and Alabama. West Virginia is added to this group of high mortality rate states when strokes, pulmonary diseases, and cardiac diseases are considered. Rural counties in Nevada, Utah, and Alaska do badly in terms of suicide rates. Rural counties in Louisiana lag badly in terms of death due to respiratory infections; rural Kentucky performs very badly in terms of drug overdose deaths, and Mississippi occupies the very bottom of the list in deaths due to gun and domestic violence.

To what extent are variations in illness-specific rural mortality rates due more to differences occurring at the state level than to differences that typically occur between rural and urban areas? To find out, we divided rural mortality rates by urban mortality rates in each of ten illness-based categories. The results of these calculations are listed by state in Appendix B and are summarized in the two right-hand most columns of Table 12.

Among the states in which illness-specific rural mortality rates are well and consistently below urban rates for the same illnesses are South Dakota (10 of 10 categories), Alaska (7), Nebraska (7), Wyoming (6), Washington (6), New York (5), North Dakota (5), Maryland (4), Michigan (4), Idaho (4), Colorado (4), North Carolina (3), and Vermont (3). These are the states where, in terms of not succumbing to a variety of illnesses, it is generally much better to live in a rural county than in an urban one. In terms of cancer, rural counties in Massachusetts and Alaska most consistently lead urban counties. Rural areas of Alaska also lead urban areas in terms of mortality rates due to pulmonary and cardiac diseases and strokes. South Carolina gets a dubious shout-out in this regard: its rural pulmonary, stroke, and cardiac disease mortality rates, which are already high by national standards, are exceeded by its urban mortality rates in the same illness categories.

Among the states in which rural mortality rates most lag urban rates among multiple illness categories are Virginia (lagging in 9 of 10 categories), Kentucky (9), Florida (8), Louisiana (6), Nevada (6), Montana (5), California (5), New York (4), Georgia (4), and South Carolina (4). Among the standouts in this category are Virginia, Kentucky, and Florida, for whom simply moving from a rural to an urban county is associated with a significant mortality rate reduction across multiple illnesses; and Montana, New York, and Vermont, where the opposite is true: moving from an urban to rural county is associated with a notable mortality rate reduction in three or more illness categories. Note that in the cases of Vermont and New York, rural mortality rates are much lower than urban rates in some illness categories but are higher in others. All in all, these comparisons reinforce the notion that overall mortality rates paint too simplistic a picture when used to compare rural health outcomes with urban health outcomes, and that to be accurate, one must take a deeper dive into particular diseases and illness categories.

V. LIVE LONG AND PROSPER: RURAL LEADERS & RURAL LAGGARDS

Regionally:

- The Northeast and Midwest lead in health and economic outcomes; and,
- The Southeast lags in health and economic outcomes.

When Mr. Spock from the 1960s *Star Trek* TV series bade farewell to friends and family, he used the Vulcan phrase, "Live long and prosper." This saying neatly captures the organizing concepts behind this working paper. Regardless of their age, race, ethnicity, household status, country of origin, or where they live, Americans should have the opportunity to live long and prosper. Not live long *or* prosper, but live long *and* prosper.

Keeping this aspirational goal in mind, we now turn to the task of identifying the states in which rural residents are most (and least) able to enjoy healthy *and* prosperous lives. Put another way, in which states is rural prosperity most associated with rural health? We also identify states in which there are large health and economic disparities between residents of urban and rural counties.

A number of statistical methods are available for identifying these types of associations. Much as we calculated correlation coefficients between different economic performance measures, we could do something similar to compare economic and health outcomes. Alternately, we could undertake a cluster analysis which would first cluster similar economic and health attribute measures and then use the resulting attribute clusters to identify case clusters—in this case, groups of states in which rural areas are most similar in terms of both economic and health outcomes.

Instead of these statistically sophisticated-but difficult to interpret approaches, we take a more basic approach of simply identifying those states whose rural counties do particularly well (or poorly) in terms of both economic and health outcomes. Beginning with the rural category rankings presented in Tables 5, 10, and 11, we count up the number of times a state appears in the top (and bottom) third of each of four economic category[14] rankings and four health category[15] rankings. States appearing in the top third of three or more rural categories are labeled as "leaders," while states appearing in the bottom third of three or more categories are labeled "laggards." States that are leaders and laggards in both the economic and health categories are further elevated.

And the Rural State Winners Are…..

The results of these tabulations are shown in Table 13. There are seven states whose rural counties are in the top third of three or more economic outcome categories and three or more health outcome categories. They are mostly located in New England and the Great Plains, and include Iowa, Massachusetts, Minnesota, Nebraska, New Hampshire, North Dakota, and Vermont. Rural residents of these states live consistently longer, die less frequently, are more likely to be employed, rarely fall below the poverty line, and enjoy higher household incomes than the rural counterparts in other states.

There are an additional five states (Alaska, Colorado, Nevada, Utah and Wyoming), all in the West and Intermountain regions, whose rural counties are outperforming their peers economically; and an additional four states

(Connecticut, Hawaii, New York, and Washington) whose rural counties can boast having better health outcomes

Turning to the list of laggards, there are nine states, all in the South, whose rural counties are in the bottom third of three or more economic outcome categories and three or more health outcome categories. They include Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, South Carolina, and West Virginia. Rural residents of these states are likely to die younger and more frequently, are less likely to be employed, commonly fall below the poverty line, and suffer from lower household incomes than rural residents of other states.

There are an additional four states (Arizona, Missouri, New Mexico, and North Carolina whose rural counties are under-performing their rural counterparts in other states economically; and four more states (Alaska, Nevada, Oklahoma, and Tennessee) whose rural residents are doing OK (but just OK) in terms of economic outcomes, but poorly in terms of health outcomes. An additional four states (Connecticut, Hawaii, New York, and Washington) whose rural counties can boast having better health outcomes.

Table 13 also includes a few surprises of both inclusion and omission. The superior performance of New Hampshire and Vermont's rural areas doesn't spill over into Maine. Nor is South Dakota doing as well as nearby North Dakota. Texas' rural areas have created a lot of new jobs, but nowhere near as many as its urban areas, thus keeping it off the list of economic leaders. Alaska's rural counties are in the unusual position of doing well economically but poorly in terms of health outcomes.

Table 13: Rural Economic and Health Outcome Leaders and Laggards

Rural LEADER States			Rural LAGGARD States		
Top Economic & Health Outcomes	Top Economic Outcomes	Top Life Expectancy & Mortality Outcomes	Bottom Economic & Health Outcomes	Bottom Economic Outcomes	Bottom Life Expectancy & Mortality Outcomes
Iowa	Alaska	Connecticut	Alabama	Arizona	Alaska
Massachusetts	Colorado	Hawaii	Arkansas	Missouri	Nevada
Minnesota	Nevada	New York	Florida	New Mexico	Oklahoma
Nebraska	Utah	Washington	Georgia	North Carolina	Tennessee
New Hampshire	Wyoming		Kentucky		
North Dakota			Louisiana		
Vermont			Mississippi		
			South Carolina		
			West Virginia		

Table 14: Rural-Urban Economic and Health Disparity Leaders and Laggards					
LEADERS: Smallest Rural-Urban Disparities			LAGGARDS: Largest Rural-Urban Disparities		
Smallest Economic & Health Disparities btwn Rural & Urban Counties	Smallest Economic Disparities btwn Rural & Urban Counties	Smallest Health Disparities btwn Rural & Urban Counties	Largest Economic & Health Disparities btwn Rural & Urban Counties	Largest Economic Disparities btwn Rural & Urban Counties	Largest Health Disparities btwn Rural & Urban Counties
Connecticut Maryland Massachusetts Michigan Nebraska New Hampshire North Dakota Wyoming	Illinois Indiana Iowa Minnesota Nevada Ohio Wisconsin	Alaska Colorado Idaho New Mexico New York North Carolina Pennsylvania South Dakota Vermont Washington	Alabama Arizona Florida Georgia Kentucky Louisiana Missouri New York Oregon South Carolina Virginia	Hawaii New Mexico Texas Washington	Arkansas California Colorado Montana Nevada

Table 14 builds upon Table 13 to identify states where rural counties are doing consistently better (i.e., "leaders") and worse (i.e., "laggards") than urban counties in the same state. As in Table 13, Table 14 identifies states that are leaders and laggards in terms of reduced rural-urban economic and health disparities together, as well as separately.

There are eight states in which rural counties either lead their urban counterparts in terms of economic and health outcomes, or else lag them only slightly. These joint economic and health disparity leaders include Connecticut, Maryland, Massachusetts, Michigan, Nebraska, New Hampshire, North Dakota, and Wyoming. Three of these leader states are in New England, two are in the Great Plains, and two are major oil and natural gas producers. Massachusetts, Nebraska, and New Hampshire are also on the list of economic and health performance leaders presented in Table 13.

On the other side of the disparity ledger, there are eleven states in which rural counties consistently lag their urban counterparts in terms of economic and health performance indicators. The list of joint laggards includes Alabama, Arizona, Florida, Georgia, Kentucky, Louisiana, Missouri, New York, Oregon, South Carolina, and Virginia. Seven of these laggard states are in the Southeast.

Note that an appearance on the rural-urban disparity laggard list in Table 14 doesn't necessarily mean that a state's rural counties are doing badly in an absolute sense, just that they are doing less well than its urban counties. Comparing the combined laggard lists in Tables 13 and 14 identifies Alabama, Florida, Georgia, Kentucky, Louisiana, South Carolina, and Virginia as the seven states whose rural counties are badly lagging other states as well as their own urban counties in terms of favorable economic and health outcomes.

Rural counties in seven states—Illinois, Indiana, Iowa, Minnesota, Nevada, Ohio, and Wisconsin—are keeping pace with their urban counterparts in terms of economic performance but not health outcomes. The situation is reversed in the ten states (Alaska, Colorado, Idaho, New Mexico, New York, North Carolina, Pennsylvania, South Dakota, Vermont, and Washington) whose rural and urban counties are doing about the same in terms of health outcomes, but not economic performance.

Turning to the laggard side of Table 14, there are four states (Hawaii, New Mexico, Texas, and Washington) in which rural areas are doing much worse than urban counties in terms of economic indicators, and five states (Arkansas, California, Colorado, Montana, and Nevada) with large rural-urban health disparities. None of the rural-urban disparity leader states appear on a laggard list, and none of the disparity laggards appear on a leader list.

Money Matters

When it comes to maximizing rural economic and health performance and minimizing rural-urban disparities, what distinguishes leaders from laggards? Because rural counties have lower income multipliers than urban ones, they are much more dependent on state and local government revenues and spending. States that spend more and devote more of their spending to important public services—assuming that the money is well-spent—should therefore achieve better public health and economic performance outcomes, especially in rural areas.

To see whether this is indeed the case, we compared per capita state and local government spending on public health, elementary and secondary education, higher education, and roads and highways between the two sets of states identified as rural outcome leaders and laggards. We undertook a similar comparison between states identified as leaders and laggards in terms of reduced rural-urban economic and health disparities. These comparisons are presented in Table 15. The same data are reported by state in Appendix C.

In terms of health care expenditures, among the seven states identified as rural economic and health outcome leaders, total per capita spending on health care averaged $9,579 in 2018. This compared with just $7,789 in total per capita health care spending in the nine states identified as rural economic and health outcome laggards. A similar health care spending gap existed between the eight states with the smallest rural-urban outcome disparities and the eleven states with the largest rural-urban disparities.

Similar state spending gaps were observed between rural leaders and laggards with regard to education and highways. The economic and health care rural leader states spent an average of $611 more per resident in 2015 on elementary and secondary education than did the rural laggard states, $255 more per resident on higher education, and $488 more per resident on highways. These estimates are all drawn from the U.S. Census Bureau's Annual Survey of State and Local Government Finance. The spending gaps between rural-urban outcome disparity leaders and laggards were comparable.

Spending is only half the state and local government fiscal story. The other half focuses on revenues, especially tax revenues. To what extent are higher or lower tax structures associated with better or worse rural outcomes and smaller rural-urban disparities? If we are to

believe the usual pablum that higher taxes stifle private activity and investment, we might expect higher state and local tax collections and rates to be associated with poorer rural outcomes, and perhaps larger rural-urban disparities.

In fact, this is not the case. According to the Urban Institute's Tax Policy Center, as a share of total personal income (the most common measure of economic welfare), state and local tax revenues are higher by 1.1 percent among rural economic and health outcome leader states (15.7%) than among laggard states (14.6%). The difference in tax revenue-to-personal-income-share difference between states which have smaller and larger rural-urban disparities is comparable.

The story is similar when comparing tax rates. According to the Tax Policy Center, the combined state and local tax rate for the seven rural leader states averaged 5.8 percent in 2018. This compares with a 2018 average of 7.7 percent for the nine states classified as rural economic and health outcome laggards. States in which rural-urban economic and health disparities are lower also have lower state and local tax rates, on average, than states with larger disparities.

The non-profit Tax Foundation ranks all fifty states according to their overall tax climate, which differs from tax rates in its inclusion of corporate, sales and inheritance taxes as well as personal income and property taxes. According to the Tax Foundation's most recent ranking, the average tax climate ranking of the seven rural leader states is 29 (out of 50). This is actually one position better than the average ranking of the nine rural laggard states. In fact, both groups of states include some highly-ranked states (e.g. New Hampshire and South Carolina) and some poorly ranked states (e.g., Massachusetts). The difference in tax climate ranking between the low-disparity and high-disparity states is even larger, and in a direction that favors the low-disparity (and higher-spending) states. Overall, this evidence suggests that higher state and local tax collections and rates are not an impediment to rural economic and health performance. Nor do they prevent rural counties from keeping pace with their urban counterparts.

To what degree are these results due to inefficiencies in service provision? Most local government services are characterized (up to some point) by declining average and marginal cost curves. To the extent that the fixed costs of delivering a service can be shared over additional residents, the lower the cost of providing that service. Urban finance specialists have long argued that rural services tend to be provided in a less efficient manner than urban services because they can't take advantage of similar economies of scale.

To what extent might the scale economy effect explain observed outcome differences between rural leaders and laggards? To find out, we divided the number of rural counties in each state by the rural population and then calculated the average population per rural county for each set of winners and losers. To the degree that the average population per rural county is greater in the leader states than in the laggard ones, this would support the scale economy argument.

Again, this is not the case. As indicated in Table 15, the rural counties in the economic and health performance leader states are home to an average of 7,663 fewer residents (per

Table 15: Rural Leaders Versus Laggards: Key Budgetary, Density, and Demographic Differences

State Fiscal and Demographic Characteristic	Data Source Notes	Economic & Health Performance			Smaller Rural-Urban Disparities		
		Rural Leaders [A]	Rural Laggards [B]	Difference	Rural Leaders [C]	Rural Laggards [D]	Difference
Per Capita Expenditures on:							
Health Care	1	$9,579	$7,789	$1,790	$9,156	$7,686	$1,470
Elementary & Secondary Education	2	$2,230	$1,619	$611	$2,323	$1,740	$583
Higher Education	2	$1,055	$800	$255	$1,046	$812	$235
Highways	2	$988	$501	$488	$850	$469	$381
Tax Revenues, Rates, and Ranks							
State & Local Tax Revenue as a Share of Personal Income	3	15.7%	14.6%	1.1%	15.5%	14.7%	0.8%
State & Local Tax Rate	3	5.8%	7.7%	-1.9%	5.5%	6.9%	-1.4%
Business Climate Tax Rank	4	29	30	-1	22	28	-6
Institutional Density							
Avg. Population per Rural County	5	15,416	23,079	-7,663	18,276	25,501	-7,225
Average Rural Population Density (persons/sq.mile)	5	19.4	46.5	-27.1	12.1	37.3	-25.2
Avg. Rural Residents per Hospital	6	50,678	31,203	19,475	43,902	32,108	11,794
Avg. Rural Residents per Hospital Bed	6	586	342	244	567	360	207
Rural Demographics & Income							
Rural Population Share	5	38%	27%	11%	27%	19%	8%
Rural Median Household Income (000)	5	$55.4	$37.1	$18.3	$57.9	$39.2	$18.7
Rural White Population Share Difference (v. State)	5	2%	1%	1%	2%	1%	1%

States in Leader and Laggard Categories

A. includes Iowa, Massachusetts, Minnesota,Nebraska, New Hampshire, North Dakota, and Vermont

B. includes Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, South Carolina, West Virginia

C. includes Connecticut, Maryland, Massachusetts, Michigan, Nebraska, New Hampshire, North Dakota, Wyoming

D. includes Alabama, Arizona, Florida, Georgia, Kentucky, Louisiana, Missouri, New York, Oregon, S. Carolina, Virginia

Data Sources

1. Kaiser Family Foundation, 2018
2. Census Bureau, Annual Survey of State and Local Government Finance, 2015
3. Urban Institute Tax Policy Center, 2015
4. Tax Foundation, 2018
5. American Community Survey, 2016

county) than the rural counties in the laggard states. The county population size differential between rural-urban disparity leaders and laggard states is similar. It may indeed be the case that it is more cost-efficient to provide public services in larger and more populous rural counties than in smaller ones, but this efficiency, if it exists, does not seem to manifest itself in better economic and health outcomes.

A comparable argument is also made for population density: that it is more cost-efficient to provide infrastructure and public services to higher-density communities than to lower-density ones. In fact, average population densities are much lower among the states that are classified as economic and health outcome leaders than among those classified as laggards. The average rural population density among the states identified as outcome leaders is 19.4 persons per square mile, whereas for the outcome laggards the average rural population density is 46.5 persons per square mile.

The result is similar for the set of rural-urban disparity leaders and laggards. The average rural population density for the states in which rural and urban economic and health outcomes are most similar is 12.1 persons per square mile. Among the states identified as disparity laggards, the average rural population density, at 37.3 persons per square mile, is more than three times higher.

What of hospitals? Does the presence of a general care hospital in a rural community have any relationship to local health outcomes? To find out, we used the U.S. Department of Homeland Security's Homeland Infrastructure Foundation Database (HIFD)[16] to count up the number of general care hospitals and hospital beds in each rural county, divided those counts into the number of rural residents, and then compared the resulting ratios between the states identified as rural outcome and rural-urban disparity leaders and laggards. The resulting comparisons are included in Table 15.

Surprisingly, the rural hospitals in states identified as health outcome and rural-urban disparity laggards serve fewer residents, on average, than the rural hospitals in the states identified as leaders. Hospitals in rural counties in performance leader states serve an average of 50,678 residents, versus an average of just 31,203 residents for rural counties in laggard states. There are also fewer hospital beds per rural resident—or, as indicated in Table 15, more residents per hospital bed—among leader states than among laggard states. Similar results hold for comparisons between rural-urban disparity leaders and laggards: there are fewer general care hospitals and fewer hospital beds per rural resident in states in which rural-urban economic and health disparities are small than in states in which such disparities are large.

There are many ways to interpret these results. The first is that quantity is not the same thing as quality. The fewer hospitals in the states identified as leaders may offer higher-quality health services than the additional hospitals in the states identified as laggards. Alternately, because rural residents in leader states have lower mortality rates and higher household incomes than rural residents of laggard states, they may have less need for hospital services to begin with, or they may make greater use of health services outside of a hospital. These types of health interaction effects may serve to lessen the need for hospital facilities in healthy communities while increasing them in less healthy ones.

Expected or not, it is possible that all of these distinctions are manifestations of deeper demographic and income differences. To explore this angle, Table 15 also compares the sets of rural leader and laggard states according to their relative population shares, household incomes, and racial composition. The rural population share in the states classified as rural outcome leaders averages 38 percent. This compares with 27 percent for the states classified as rural outcome laggards. Similarly, the rural population share in the states classified as rural-urban disparity leaders averages 27 percent, versus just 19 percent for the laggards. Clearly, the more rural a state's population, the more likely it is to pay attention to rural economic and health needs.

Programs and investments resulting in higher household incomes are especially welcome. At $37,100, the average 2016 median income in the nine states identified as rural outcome laggards was more than $18,000 less than the average median household income in the seven states identified as rural outcome leaders. The median household income difference is even greater between the rural-urban disparity leaders and laggards.

Demographic composition, meanwhile, does not seem to be a determining factor in explaining health and income disparities *between urban and rural populations in the same state.* On average, the rural counties in the seven rural outcome leader states are just two percent whiter than their respective states. The rural counties in the nine rural outcome laggard states are one percent whiter than their respective states. The same two percent and one percent county-state racial share differences also distinguish the rural-urban disparity leaders and laggards. This does not mean that Blacks and Whites receive the same quality of health care or have the same economic opportunities. Quite the opposite in fact: regardless of whether they live in an urban or rural county, African-Americans have far less access to quality health care and treatment than Whites.

VI. REDUCING RURAL DISPARITIES

- Tailor approaches regionally.
- Focus broadly, not sectorally.

Summary of Key Findings

The United States currently includes more than 380 metropolitan areas, each of which is distinct from its counterparts in some key dimension. The same is also true of the nation's rural areas. Notwithstanding the frequent practice of grouping all rural areas and people together as simply "not-urban," the U.S.'s 2,115 rural counties are extremely diverse in terms of their sizes, climate, resource endowments, population and economic characteristics and, as this working paper has documented, their economic performance and health outcomes. Among this paper's most notable findings:

- While some rural counties are less racially and ethnically diverse than their states and neighboring urban counties, on the whole, the demographic composition of a state's rural areas roughly parallels the demographic population of its urban areas. Among the states whose rural counties are much less racially and ethnically diverse than its urban counties are Tennessee, Missouri, Kentucky, Michigan and Ohio. At the opposite extreme, South Carolina's urban counties are notably more diverse than its rural ones.
- *America's rural counties are more family-oriented than its urban ones, but not overwhelmingly so.* Overall, the share of family households in a state's rural counties are within plus-or-minus two percent of the share of families in its urban counties. The notable exceptions are Arizona, Ohio, Indiana, Nevada and North Dakota, in which the rural county family share is four-to-five percent higher than the urban county family share; and Massachusetts and California, in which it is four percent or more less.
- *Unsurprisingly, rural populations are generally older than urban populations.* California's rural population, for example, had a 2017 median age that was 8.9 years older than that of its urban population. Other states in which rural residents were substantially older than its urban ones include North Dakota (+8.5 years), Oregon (+6.6 years), Michigan (+6.4 years), and Connecticut (+6.4 years). The two states in which rural residents are notably younger than urban residents are Florida (-2.7 years difference) and Hawaii (-3.3 years difference).
- *Rural educational attainment levels also vary widely by state.* At 47 percent, Pennsylvania has the highest share of rural residents who completed high school, while Massachusetts, at 26 percent, has the lowest. In terms of rural residents with college degrees, Massachusetts, with 21 percent has the largest share, while Georgia, Florida, and Kentucky, at 9 percent have the lowest. There are also big differences in educational attainment levels between rural and urban areas. Even in top-ranked Massachusetts, the share of rural residents with a college degree lags the urban share by five percent. In bottom-ranked Pennsylvania, the share of rural residents with college degrees lags the substantially lags the urban share by a whopping 36 percent.
- *With regard to economic outcomes, rural unemployment and labor force participation*

rates lag urban ones by an average (per state) of 0.7 and 7.1 percent, respectively. In the most extreme case, the 2016 unemployment rate in Arizona's rural counties was 6.1 percent higher than in its urban counties, while its labor force participation rate was 13.1 percent lower among rural counties than among urban ones. (The only state in which rural counties outperformed their urban counterparts in terms of unemployment and labor force participation rates was Connecticut.)

- *Rural counties also lag their urban counterparts in terms of household incomes and poverty rates, but the differences vary widely be county and state.* Nationwide, the 2016 median household income among rural counties stood at $44,600. This was $11,200 less than the 2016 median household income among urban counties. There were ten states, led by Virginia and Maryland, in which the 2016 median income gap favored urban counties by at least $15,000, but just two (North Dakota and Nevada) in which the income gap notably favored rural counties. Rural counties also lagged urban counties in terms of poverty. Nationally, the 2016 rural county poverty rate stood at 17.3 percent. This was three percentage points higher than the urban county poverty rates. There were eleven states, mostly in the Southeast, in which rural poverty rates exceeded urban rates by five percentage points or more, but only one (Connecticut) in which rural county poverty rates were substantially less than urban county poverty rates.
- *In every state but three, owner-occupied homes are more affordable in rural counties than in urban ones, and as a result, rural homeownership rates are considerably higher than urban homeownership rates.* Rental housing is also much more affordable in rural counties than in urban ones, however because rural incomes are lower still, the proportion of rural homeowners who pay at least 30 percent of their monthly income for housing is much higher than the proportion of rural homeowners who are similarly housing cost burdened.
- A comparison of rural economic outcomes by region finds that rural counties in New England, the Great Plains and the Intermountain region are outperforming rural counties in other regions; that rural counties in the Southeast and Southwest are lagging behind rural counties elsewhere; and that rural counties in the Midwest, Mid-Atlantic, South Central, and Pacific regions are following state- and/or national-level trends rather than regional ones. This aligns with decades of research on variation in rural development patterns that have exacerbated regional differences (Lassey, Lapping, and Carlson 1988).
- *In terms of rural-urban economic disparities, the results are similar.* Rural counties in states in the Southeast and Southwest are falling increasingly behind their urban counterparts, while those in New England, the Great Plains, and the Intermountain region are mostly keeping pace.
- When compared by state, the average life expectancy among residents of metro adjacent rural counties in 2014 was 77.7 years. Among residents of far-rural counties, the state average was 77.8 years. As expected, there is tremendous variation around these averages. Residents of metro-adjacent rural counties in Connecticut,

Massachusetts, Utah, Minnesota, New Hampshire, and Vermont all live an average of more than eighty years, while residents of metro-adjacent rural counties in Mississippi, Alabama, Alaska, South Carolina, Louisiana, and Tennessee all had average life expectancies of less than 75 years. The range of life expectancy variations was similar for residents of far-rural counties.

- In terms of rural-urban life expectancy differences, residents of rural counties adjacent to urban counties live an average of 0.8 years less than residents of urban counties in the same state, while residents of more distant rural counties live an average of 0.7 years less.
- Mortality, or death rates from particular diseases vary tremendously by state. The states with the *lowest rural mortality rates* for six or more of the twelve most common illness categories are Montana, Connecticut, Massachusetts, Hawaii, Nebraska, and North Dakota. The states with the *highest multi-illness mortality rates* are Alabama, Tennessee, Arkansas, Kentucky, Georgia, Mississippi, Louisiana, West Virginia, and Oklahoma.
- In terms of rural-urban mortality rate disparities, residents of rural counties in South Dakota, Alaska, Nebraska, Wyoming, and Washington benefitted from consistently lower mortality rates than did their urban county counterparts in six (or more) of ten illness categories. By contrast, the states where rural residents suffer from much higher multi-illness mortality rates than urban residents in the same state include Virginia, Kentucky, Florida, Louisiana, Nevada, Montana, and California.
- Bringing all these results together, rural counties in Iowa, Massachusetts, Minnesota, Nebraska, New Hampshire, North Dakota, and Vermont all did consistently better in terms of multiple economic and mortality rate categories than did rural counties in other states. By contrast, the states in which rural counties did consistently worse in terms of both economic and health performance were mostly located in the Southeast, and included Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, South Carolina, and West Virginia.
- Mirroring the connection between wealth and health, there is substantial overlap between states on the rural economic and health performance leader list and those on the rural-urban disparity leader list. States that appear on both leader lists include Massachusetts, Nebraska, New Hampshire, and North Dakota.
- Similarly, there is also substantial overlap between states on the rural performance laggard list and the rural-urban disparity laggard list. States that appear on both laggard lists include Alabama, Florida, Georgia, Kentucky, Louisiana and South Carolina.

Reducing Rural Disparities: A Regional Lens

Two-thousand-eighteen brought the welcome news that for the first time since 2010, the population of rural America had increased during the previous year. The overall increase was small, just 33,000 people or 0.1 percent. Of greater import, in more than half of rural counties, the increase was fueled by positive net- migration, prompting observations that rural communities were finally turning the

corner and attracting new residents. Curiously, population loss continued for rural counties in the Northeast and Midwest, in states that are leading in rural health and economic strength.

This good news notwithstanding, America's rural areas continue to lag their urban counterparts. The gaps are largest and growing in the Southeast and South Central regions, and smallest in the Great Plains and Intermountain states. The states whose rural economies lag the most are also the states with the least healthy rural populations. Recent increases in oil and natural gas production in the Permian, Anadarko, and Bakken oil basins have boosted the economies of selected rural counties in Texas, New Mexico, Oklahoma, North Dakota, and Montana, but these improvements have not yet spilled over into neighboring rural counties or made themselves evident in public health statistics. Without visible improvements, these gains are unlikely to result in sustainable community-wide improvement.

The connection between improved economic and health outcomes goes the other way as well: Investments in improved health have long been linked to rural economic growth. As far back as the 1930s, the federal government has recognized that chronic and acute physical health issues in the rural population have contributed to poor socioeconomic outcomes and rural regional atrophy. Investments in preventative health practices, through the Farm Security Administration, was one of the New Deal's earliest rural development programs (Grey 1999). In recent years, however, neither the federal government nor the private sector have made investments in rural health a major priority.

What might be done to narrow these disparities? As should be apparent, given the huge variations in economic and health outcomes between urban and rural counties, as well as among rural counties, a hands-off-one-size-fits-all market approach like the one suggested by the U.S. Department of Agriculture's 2018 *President's Task Force Report* is unlikely to be effective. Indeed, this market-driven, industry-specific approach has historically harmed rural communities more that it has helped them (Lapping, Daniels, and Keller 1989). Instead, since rural economic and health gaps mostly seem to follow regional patterns, the policy pathways aimed at closing them should also be regional.

<u>The Southeast Region</u>

- Raise expenditures on rural public services, particularly health and education.
- Redistribute revenue from more prosperous urban counties to less prosperous rural ones.
- Collaborate with other rural and urban counties to provide higher quality and more efficient services.
- Expand Medicaid.

Starting in the Southeast, the region where economic and health outcome disparities are widest, state leaders should raise rural spending levels on all manner of public services, especially education and health. Given that income levels in the Southeast are still much lower than in other regions, this will require making state tax systems more broad-based and progressive, as well as redistributing revenues from prosperous urban counties to less prosperous rural ones. On the spending side, rural counties in the Southeast should explore ways to collaborate with each other (as well as their urban neighbors) in offering

improved health and educational services to achieve greater economies of scale and improvements in service quality.

Rural counties in the Southeast are more numerous than elsewhere in the country, and as a result, include fewer residents and smaller tax bases. We are not advocating that rural counties be combined politically or administratively, but rather that they explore ways to share services, especially health and higher education. Of the fourteen states that have not yet expanded Medicaid to help their poorer citizens take advantage of the Affordable Care Act, seven are in the Southeast, more than any other region. States that have expanded Medicaid and Children's Health Insurance Program (CHIP) have experienced broad-ranging health and economic benefits in rural counties. The fragile state of the Southeast's rural hospitals and healthcare provision is especially concerning. Expanding Medicaid has been the key to stabilizing rural hospitals in other regions.

The South Central and Southwest Regions

- Increase expenditures on education and health statewide.
- Equalize per capita spending between urban and rural counties.
- Expand Medicaid.
- Bolster higher education system and incentivize in-state attendance.
- Invest in basic infrastructure in colonias and unincorporated communities.
- Improve urban-rural linkages for health.

The other region with the largest rural and rural-urban economic and health outcome disparities is the South Central region. Here, the challenges differ by state. In Texas and Oklahoma, rural counties in the Permian and Anadarko petroleum basins are currently doing fine economically while continuing to lag in terms of health outcomes. Outside the oil patch, most rural counties continue to face both economic and public health difficulties. In Texas and Oklahoma, state officials should start by spending more on education and health statewide, as well as by doing more to equalize per capita spending between urban and rural counties. Given its huge physical size and number of counties, Texas could also benefit by expanding its higher education system to make taking college-level courses more convenient. A good start in both states, as well as in Missouri, would be to expand Medicare to take advantage of health funding under the Affordable Care Act. States in this region should also make broad infrastructure investments in colonias and unincorporated communities to provide water, sewer, and utilities that promote public health and improve quality of life for many of the region's poorest communities.

The problems of rural counties in Missouri, Arkansas, and Louisiana are different. There, lagging metropolitan economies and weak rural-urban linkages are causing rural counties to fall further behind their urban counterparts. Missouri, Arkansas and Louisiana need to figure out how to make their metropolitan centers more entrepreneurial, and then work to improve their intrastate rural-urban economic and health service linkages. Entrepreneurial growth must not come at the expense of the physical health of rural and vulnerable people who, in this region, experience outsized environmental health problems as a result of urban growth.

The story is different still in the Southwestern states of Arizona, Nevada, and New Mexico.

Rural counties in all three states are large and sparsely populated. Those adjacent to major metropolitan areas are doing better economically, but those further away are suffering. Rural counties with large proportions of Latinos and Native Americans are under-represented politically at the state level so their economic and health needs have long received less political attention. The appropriate policy approach in all three states is for their state legislatures to begin to equalize the per capita combination of state and local spending, particularly on health and education. All three states should make greater efforts to help young people in isolated rural counties attend in-state colleges and universities.

The Pacific Region

- Redistribute education and health spending across counties on the basis of income, not just population.

The urban-rural disparity problem among Pacific Coast states has more to do with differences between coastal and inland counties than between urban and rural ones. Metropolitan counties in California, Oregon, and Washington—most of which are within an hour's drive of the Pacific Coast—continue to substantially outdistance interior counties in terms of job growth and income levels. And because access to health care correlates so strongly with income and immigration status, residents of inland counties suffer from a higher incidence of all health problems. Oregon, with one of the nation's highest and most progressive state income tax schedules, is doing significantly better than Washington (which does not have a state income tax) in meeting its rural health and education needs. California, which, after Massachusetts, has the nation's lowest share of rural residents, falls in between Oregon and Washington. Measured in per capita terms, state and local tax revenues in California are on the high side, but the costs of housing and delivering public services are even higher. As housing cost burdens in California have increased, political support for new public investments and services has declined. This has made it harder and harder for California's inland counties to keep pace with the service demands of a growing low-income population. The solution in all three states is to better equalize state and local infrastructure, education, and health spending across counties on the basis of income, not just population.

The Mid-Atlantic Region

- Direct efforts and funding to communities who can maintain their population and economic base,
- Appropriately tax natural resource extraction,
- Continue global budget models for rural healthcare provision.

The problem of urban-rural disparities takes on a similar spatial dimension among the Mid-Atlantic states of Maryland, New York, Pennsylvania, and West Virginia (New Jersey and Delaware do not have any rural counties) where coastal metropolitan areas are growing (or at least holding steady) while inland and rural counties are gradually losing population. As in California, high coastal housing costs and property taxes are pushing some businesses and residents further inland, but these pressures have yet to reach most rural counties. The good news is that many inland and rural communities are on major east-west transportation routes and still have viable downtowns. New York and Maryland are also high-tax states and spend more per capita in rural counties than do Pennsylvania and West

Virginia. Looking ahead, all four states except Maryland will see those rural counties not located on major interstate highways continue to lose population. Within this context of likely gainers and losers, they should take a more tactical approach and direct their rural development efforts and funding to communities who have already demonstrated the ability to maintain their population and economic base. As Darwinian as this this approach may sound, no state government has the expertise and financial resources to reverse local population and job declines if the affected communities have not first shown the way.

Rural areas in this region have historically been excluded from the benefits of decades of expansive natural resource extraction. Pennsylvania stands to repeat this failure again. The Commonwealth could do much more to tax its shale oil and natural gas producers and distribute the revenues accordingly but continues to be politically unable to do so, despite other states successfully utilizing severance taxes to do this. Healthwise, both Pennsylvania and Maryland's promising state-led global budget movements promote stabilizing their rural hospitals and investing in rural community health. If successful, neighboring states may want to consider this health care payment model.

<u>The Midwest and Great Plains Regions</u>

- Restore or maintain state income and business tax effort levels

Rural counties in the Midwest are facing a similar quandary. The region as a whole is not adding new jobs or population as fast as the rest of the nation. Some counties with agricultural economies, especially those in Iowa and Minnesota, have very strong bipartisan civic traditions—it is not a coincidence that Garrison Keillor's fictitious town of Lake Wobegon is located in Minnesota—and have gained considerable experience coping with the agriculture's recurrent ups and downs.

In Ohio, Indiana, and Illinois, by contrast, rural economies have traditionally been supported either by agriculture or by small-scale manufacturing, both of which continue to be buffeted by the winds of economic change. More to the point, the manufacturing- and business-based engine of economic growth in these three states has always been concentrated in their metropolitan areas. This combined with persistent urban-rural and north-south splits in their legislatures has made it difficult to pursue consistent and effective policies designed to narrow rural disparities. Without a concerted effort, this is unlikely to change.

Until just recently, rural economies in the Great Plains states of North Dakota and South Dakota have benefitted from an oil and gas and agricultural commodities export boom. This, plus their relative demographic and political homogeneity, have made it easier for them to maintain a consistent level of spending on rural education and health services. Similar circumstances apply in Nebraska. Kansas, of late, has been engaged in a controversial experiment in cutting state income and business taxes. The result has been disastrous, with urban counties throughout Kansas forced to deal with steep cuts in education and other public service funding levels. Kansas' rural counties, which are slightly less dependent on sales and personal and corporate income taxes, and slightly more dependent on local property taxes have suffered only slightly less. For now, the biggest challenges facing rural counties in

the Great Plains is how to deal with the fallout from President Trump's trade war with China.

Intermountain Region

- Continue distributing growth-based revenue regionally.
- Continue government spending on education, health care, infrastructure, and public services.

Of the nation's more than 2,100 rural counties, those in the Intermountain states of Colorado, Idaho, Montana, Utah and Wyoming have performed best of late, and for similar reasons. Most are sparsely populated, and much of their recent growth has been in tourism, lifestyle, or second home-related sectors. This has enabled them to increase their revenue base while keeping year-round public-spending under control. Montana and Wyoming have recently benefitted from expanded shale oil production. Idaho and Utah have seen an influx of in-migrants residents and businesses from Pacific Coast metropolitan areas who are tired of those areas' congestion and high real estate prices. Most of this growth has been focused on the Salt Lake City and Boise metropolitan areas where it has inflated state budget coffers but not statewide service needs. Population and economic growth is occurring across Colorado—although it is focused most intensely in the Denver area—and the state's politicians have proved exceptionally adept at distributing growth-based revenue increments throughout the state. Many of those migrating to the Intermountain region are young, educated, and aspirational, with the result that there has been a political and demographic constituency for consistent-but-moderate government spending on education, health care, infrastructure, and public services. This might change should the U.S. economy enter into a prolonged recession, but for now, in comparison to the rest of the country, the Intermountain Region's rural counties are in good shape.

Appendix A: Rural Mortality Rates (Deaths per 10,000 Population) by State and Major Illness Cause (from best to worst)

Respiratory Infections		Drug Overdoses		Suicide		Gun & Domestic Violence		Strokes		Pulmonary Diseases		Cardiac Diseases		Colon Cancer		Lung Cancer		Breast Cancer		Prostate Cancer		Other Cancers	
VT	16.6	ND	3.4	CT	12.8	CT	1.9	HI	30.1	HI	22.9	CO	205.3	ID	19.7	UT	30.5	CO	21.7	MI	22.1	CO	157.2
OR	16.9	NE	3.9	MA	12.9	IA	2.0	MA	46.5	MA	39.0	AK	210.4	UT	19.7	CO	36.5	HI	21.8	HI	22.4	UT	160.2
AK	17.9	SD	4.1	NY	13.3	MA	2.1	MN	47.1	MN	39.3	MN	214.9	CO	20.0	NM	39.8	ME	22.5	OH	23.3	HI	172.4
WA	18.1	IA	4.3	IA	13.8	MN	2.2	ND	48.6	UT	40.7	MA	217.9	WA	20.1	AZ	40.1	CT	22.7	WV	23.6	NM	173.8
MN	18.4	MN	4.7	NE	13.8	NY	2.3	UT	50.1	AK	40.8	VT	222.4	CT	20.8	HI	42.1	MN	22.8	CO	23.7	AZ	175.3
NH	20.2	NY	5.9	MN	14.0	ND	2.3	CT	50.3	ND	41.7	CT	222.5	MA	21.2	ID	43.5	SD	22.8	TX	24.0	ID	177.7
NE	21.7	MD	6.0	SC	14.2	NE	2.3	AK	51.1	CT	43.6	HI	224.7	CA	21.2	ND	46.7	VT	22.8	VT	24.1	ND	180.4
ID	21.8	HI	6.4	OH	14.3	NH	2.4	WI	52.3	AZ	44.0	AZ	225.3	VT	21.3	WY	48.6	MI	23.0	KS	24.1	CT	182.9
WI	22.1	ID	6.8	LA	14.8	WI	2.4	AZ	52.7	WI	44.5	OR	227.3	MI	21.5	NE	48.9	NY	23.1	NE	24.2	WA	183.9
MI	22.8	WI	6.9	IL	15.0	VT	2.5	IA	53.7	WA	45.0	WA	228.4	AZ	21.7	MA	49.3	AK	23.1	NY	24.3	MA	183.9
CO	23.4	KS	7.1	MS	15.6	MI	2.5	WA	53.7	MD	45.1	ME	231.2	NH	21.9	CT	49.6	ND	23.2	IL	24.4	NE	184.4
ME	23.6	AR	8.1	GA	15.6	ME	2.6	MD	54.0	IA	45.9	NE	232.2	WI	22.3	WA	49.8	WA	23.3	MO	24.4	WY	185.0
ND	23.7	TX	8.2	PA	15.8	PA	2.9	SD	56.2	NH	47.4	NH	233.7	MD	22.3	MN	50.3	NM	23.3	CA	24.6	CA	186.0
CA	23.8	CO	8.3	TX	15.8	SD	3.0	NH	56.2	SC	47.7	MT	234.7	HI	22.5	CA	50.4	NH	23.4	OK	24.7	SD	186.9
FL	24.3	IL	8.4	NC	16.0	ID	3.1	PA	56.5	ID	47.8	ID	236.8	MN	22.8	SD	51.6	WI	23.5	WY	25.1	MN	187.9
MT	25.1	MS	8.6	ND	16.2	KS	3.1	ID	56.8	SD	48.7	WY	237.3	NM	23.2	MT	52.1	NE	23.7	AK	25.1	VT	189.7
SD	25.2	MT	8.6	FL	16.3	WY	3.2	SC	58.1	PA	48.9	UT	238.7	MT	23.2	IA	52.3	IA	23.7	SD	25.3	IA	190.6
IA	25.2	AL	8.7	IN	16.4	UT	3.2	CA	59.7	VT	50.3	NM	238.9	WY	23.5	AK	54.0	AZ	24.7	NH	25.3	MT	191.4
HI	25.4	VT	8.8	WI	16.4	IL	3.2	NE	59.8	NE	51.6	ND	242.3	OR	23.5	VT	54.6	ID	24.8	MD	25.4	NH	194.6
NM	25.8	MA	8.9	KS	16.6	HI	3.3	VT	59.9	CA	52.2	SD	244.2	ND	23.6	OR	54.7	MA	24.8	IN	25.4	AK	195.2
MD	26.9	WY	9.1	MI	16.9	IN	3.3	NM	60.8	NM	52.4	CA	246.1	NY	23.7	NH	56.2	WY	24.9	TN	25.5	MD	196.7
AZ	27.7	OR	9.1	ME	17.0	OH	3.4	MI	62.6	NC	53.2	WI	248.1	ME	23.9	TX	56.7	CA	25.0	PA	25.5	OR	197.0
CT	28.2	SC	9.3	NH	17.4	WA	3.7	NC	62.7	VA	53.8	KS	263.9	SD	23.9	WI	56.7	OR	25.0	WA	25.5	WI	197.8
NY	28.4	AK	9.3	VT	17.4	OR	3.8	OR	62.8	MI	53.9	IA	264.0	IA	24.0	KS	57.4	MT	25.3	IA	25.6	KS	198.5
UT	28.4	LA	9.4	SD	17.5	CO	4.0	NY	62.9	OR	54.1	MD	269.2	TX	24.3	MD	57.7	UT	25.5	ME	25.7	TX	199.3
IN	29.1	FL	9.5	AL	17.6	MT	4.2	CO	63.0	ME	54.4	PA	270.5	NC	24.7	PA	59.3	MD	25.8	NM	25.8	MI	199.3
OH	29.6	UT	9.5	MO	18.1	MO	4.3	ME	63.9	NY	54.9	NY	271.7	NE	24.7	NY	61.1	KS	25.8	FL	25.9	NY	201.5
WY	29.8	MI	9.6	VA	18.3	TX	4.4	TX	64.8	CO	55.0	MI	276.3	KS	24.9	MI	62.0	IN	25.8	CT	26.1	PA	205.7
PA	31.1	ME	9.9	KY	19.1	AK	4.6	VA	64.8	MT	56.2	NC	281.1	FL	25.2	NV	62.8	PA	25.9	WI	26.5	NV	206.4
KS	31.4	GA	10.5	MD	19.5	MD	4.8	MT	65.2	TX	57.3	IL	285.7	IN	25.7	NC	65.3	TX	26.0	KY	26.7	NC	209.6
NV	31.5	PA	10.7	WV	19.9	CA	5.0	KS	65.7	KS	57.8	FL	286.7	PA	25.7	OH	65.8	NV	26.1	AZ	26.7	ME	212.9
TX	31.7	IN	10.8	OK	20.1	NV	5.2	OH	66.6	LA	58.0	NV	289.3	NV	26.2	ME	65.8	IL	26.2	ND	27.0	OH	214.6
MA	31.8	MO	10.9	AR	20.2	KY	5.4	LA	66.9	OH	58.6	OH	291.3	SC	26.4	SC	65.9	OH	26.8	MA	27.1	IN	216.6
MO	32.9	VA	11.3	WA	20.4	FL	5.8	IL	67.3	IL	59.3	IN	293.6	IL	26.7	IL	69.9	MO	27.4	OR	27.2	IL	216.9
NC	33.1	NH	11.7	HI	20.4	OK	6.0	IN	70.7	IN	62.3	SC	294.4	OH	27.0	VA	70.2	NC	27.6	MT	27.5	OK	221.5
IL	34.0	WA	11.8	CO	22.1	VA	6.1	WY	72.2	MS	62.7	TX	296.9	MO	27.2	IN	70.7	WV	27.7	MN	28.1	MO	221.9
WV	35.2	NC	12.4	ID	22.1	WV	6.2	MS	72.3	WY	63.8	VA	298.2	OK	27.2	OK	72.1	TN	27.9	NC	28.2	SC	223.9
OK	35.6	AZ	12.7	WY	22.2	TN	6.5	MO	72.5	GA	64.8	WV	311.9	TN	27.4	GA	74.0	OK	28.0	ID	28.3	VA	224.6
SC	37.2	NV	12.9	AZ	22.3	AZ	7.5	AR	73.4	MO	65.0	GA	319.2	VA	27.4	MO	74.1	FL	28.0	VA	28.5	FL	229.9
AL	38.0	OH	12.9	TN	22.3	GA	7.5	NV	74.3	AR	65.3	MO	323.7	AR	27.8	MS	75.4	KY	28.2	UT	28.7	GA	230.7
VA	38.2	CT	13.4	CA	22.3	NC	7.7	GA	74.9	NV	67.8	AL	340.0	GA	28.1	WV	78.2	AR	28.7	NV	28.8	AR	233.2
TN	39.6	CA	14.5	OR	22.9	NM	8.4	AL	77.5	AL	68.2	KY	344.7	AK	28.3	AL	78.3	GA	30.4	AR	29.0	WV	233.4
KY	40.4	OK	14.8	MT	24.6	AR	8.7	TN	77.7	TN	69.5	TN	355.7	WV	29.9	LA	78.9	VA	30.9	GA	31.8	TN	239.2
AR	42.4	TN	17.4	NM	25.7	LA	9.1	OK	79.4	FL	70.9	AR	357.6	KY	30.2	AR	79.9	SC	31.2	LA	34.4	MS	240.8
MS	42.6	NM	17.8	AK	26.5	SC	9.8	FL	80.3	OK	71.9	OK	361.0	MS	30.5	FL	80.2	AL	31.5	AL	35.5	AL	245.6
GA	43.1	WV	18.8	UT	28.0	AL	10.5	WV	84.8	WV	73.4	MS	368.3	AL	31.1	TN	87.2	MS	32.4	SC	35.9	LA	248.8
LA	52.8	KY	21.4	NV	31.6	MS	12.5	KY	89.6	KY	81.1	LA	373.7	LA	31.5	KY	100.5	LA	33.9	MS	36.5	KY	259.3

Appendix B: Ratio of Rural-to-Urban Mortality Rates by State and Major Illness Cause (from best to worst)

Respiratory Infections		Drug Overdoses		Suicide		Gun & Domestic Violence		Strokes		Pulmonary Conditions		Cardiac Diseases		Colon Cancer		Lung Cancer		Breast Cancer		Prostate Cancer		Other Cancers	
SD	0.87	MA	0.63	ND	0.72	ND	0.48	WY	0.89	AK	0.85	AK	0.91	VA	0.91	AZ	0.90	MI	0.91	MI	0.94	SD	0.96
AK	0.87	ND	0.74	MS	0.96	MI	0.55	SC	0.89	SC	0.86	ND	0.96	ME	0.97	MA	0.91	AK	0.92	CO	0.94	MA	0.96
MD	0.89	LA	0.78	WY	0.97	AK	0.62	AK	0.89	IA	0.94	SD	0.99	MD	0.98	NE	0.92	MD	0.95	SD	0.95	NE	0.96
NE	0.91	AL	0.78	SC	0.98	CT	0.63	SD	0.93	WA	0.95	ID	1.00	MI	0.99	ND	0.92	SD	0.96	WY	0.96	WY	0.96
WY	0.92	FL	0.81	LA	0.99	NY	0.67	IA	0.95	SD	0.95	MD	1.01	WA	1.00	SD	0.94	NY	0.96	NE	0.96	WA	0.97
NY	0.94	NY	0.82	IN	1.00	SD	0.68	WA	0.95	AZ	0.97	MI	1.01	IA	1.01	WY	0.95	NE	0.96	OH	0.96	CO	0.97
MI	0.94	HI	0.83	AZ	1.01	IL	0.74	NE	0.98	NC	0.98	MA	1.01	WY	1.01	VT	0.95	OH	0.97	VT	0.97	VT	0.98
IN	0.96	SD	0.83	MT	1.01	KS	0.75	ID	0.98	NE	0.98	CT	1.01	SD	1.01	WA	0.95	ME	0.97	WA	0.98	AK	0.98
NC	0.97	PA	0.84	AK	1.01	PA	0.75	NC	0.99	ID	0.99	WA	1.01	NC	1.02	CO	0.96	WY	0.97	WV	0.98	ND	0.98
ME	0.98	ID	0.85	KS	1.01	MA	0.77	MN	0.99	NH	0.99	KS	1.01	NE	1.02	NH	0.96	CO	0.97	MD	0.99	WV	0.99
ID	0.99	AK	0.85	CO	1.02	IN	0.78	ND	0.99	MN	1.00	CO	1.02	WI	1.03	AK	0.96	WV	0.98	IL	1.00	NH	0.99
AL	0.99	MS	0.85	ID	1.02	OH	0.79	AZ	1.00	IN	1.01	VT	1.02	NY	1.04	KS	0.97	NH	0.98	OR	1.00	MD	1.00
NH	1.01	MI	0.87	MD	1.02	MD	0.82	HI	1.00	ND	1.01	PA	1.03	AR	1.04	CT	0.97	OR	0.98	NM	1.01	MI	1.00
WV	1.03	CO	0.87	SD	1.02	MO	0.87	NH	1.00	ME	1.02	WY	1.03	CT	1.05	WV	0.99	WA	0.98	OK	1.01	KS	1.00
OH	1.03	MN	0.88	OK	1.05	WY	0.89	IN	1.01	MS	1.02	AZ	1.04	MO	1.06	IA	0.99	HI	0.98	TN	1.01	ID	1.01
HI	1.03	IA	0.89	AR	1.05	NE	0.90	ME	1.02	AR	1.02	NE	1.04	IL	1.06	NC	0.99	CT	0.98	IA	1.01	CT	1.01
ND	1.04	OH	0.89	TX	1.05	LA	0.92	MA	1.02	AL	1.03	SC	1.04	TN	1.06	MS	1.00	MN	0.99	KS	1.02	IN	1.01
UT	1.04	NH	0.89	NC	1.06	IA	0.93	AL	1.02	HI	1.03	UT	1.05	HI	1.06	IN	1.01	IN	0.99	IN	1.02	OR	1.01
MN	1.05	WV	0.89	IA	1.06	TX	0.95	AR	1.02	MT	1.03	WV	1.05	PA	1.06	MD	1.01	PA	0.99	ID	1.02	IA	1.01
CT	1.05	UT	0.92	GA	1.07	OK	0.98	MS	1.02	MA	1.03	IN	1.05	CO	1.06	MT	1.02	WI	0.99	CA	1.03	OH	1.02
WI	1.06	SC	0.93	OH	1.07	CA	0.99	MT	1.03	OH	1.04	MS	1.05	TX	1.06	ID	1.02	TX	1.00	TX	1.03	NC	1.02
IA	1.06	IN	0.93	MO	1.07	WA	0.99	OH	1.03	OK	1.05	CA	1.06	OK	1.08	AL	1.02	ND	1.00	UT	1.04	OK	1.03
PA	1.06	IL	0.93	FL	1.07	FL	1.02	WI	1.04	TX	1.06	NY	1.06	WV	1.08	OK	1.02	IL	1.01	WI	1.04	PA	1.03
AR	1.06	TX	0.94	WV	1.07	NV	1.02	KS	1.04	KS	1.06	OR	1.06	AZ	1.08	OH	1.02	MO	1.01	NY	1.04	AZ	1.03
TX	1.07	KS	0.95	PA	1.09	WI	1.03	OK	1.04	MO	1.07	OH	1.07	IN	1.08	MN	1.02	ID	1.01	PA	1.05	MS	1.03
WA	1.07	WY	0.95	MN	1.10	TN	1.07	TX	1.05	MI	1.08	TX	1.07	UT	1.09	WI	1.02	NM	1.02	NH	1.05	MN	1.03
CA	1.08	OK	0.98	NE	1.11	CO	1.08	MO	1.06	TN	1.08	AL	1.07	ID	1.09	OR	1.03	AZ	1.02	VA	1.06	TX	1.03
CO	1.08	NE	0.98	MA	1.12	AR	1.10	CT	1.06	WV	1.08	NC	1.08	AL	1.09	TX	1.03	TN	1.02	MO	1.06	NM	1.04
TN	1.09	NM	0.99	WA	1.13	WV	1.11	MI	1.07	GA	1.08	ME	1.08	NJ	1.09	SC	1.03	KS	1.02	MN	1.07	HI	1.04
MA	1.09	AZ	0.99	KY	1.13	NM	1.11	NM	1.07	CT	1.09	NH	1.08	LA	1.09	HI	1.04	OK	1.02	ND	1.07	MT	1.04
MS	1.10	MO	1.02	VT	1.14	ME	1.13	TN	1.07	WI	1.11	OK	1.08	NV	1.09	ME	1.04	UT	1.02	HI	1.08	AL	1.05
OR	1.10	ME	1.02	HI	1.15	ID	1.13	GA	1.08	VT	1.11	AR	1.08	KS	1.10	PA	1.05	IA	1.03	NC	1.08	AR	1.05
MO	1.11	OR	1.03	NM	1.16	HI	1.14	WV	1.09	MD	1.11	WI	1.09	OH	1.10	NM	1.05	CA	1.04	GA	1.08	ME	1.05
IL	1.12	NV	1.04	CT	1.17	MS	1.14	VT	1.11	NM	1.12	IL	1.09	GA	1.10	MI	1.05	NV	1.04	KY	1.09	TN	1.05
KS	1.13	AR	1.04	WI	1.18	MT	1.14	MD	1.11	UT	1.13	HI	1.09	NM	1.10	AR	1.07	NC	1.04	CT	1.09	SC	1.06
VT	1.15	GA	1.05	NH	1.18	MN	1.15	UT	1.11	LA	1.14	GA	1.10	MA	1.12	GA	1.08	AR	1.04	AR	1.09	UT	1.06
NV	1.15	WA	1.08	MI	1.18	AL	1.15	LA	1.12	PA	1.14	MN	1.11	MN	1.12	TN	1.10	MS	1.05	ME	1.10	IL	1.06
VA	1.17	MD	1.11	TN	1.18	SC	1.18	PA	1.13	CO	1.16	IA	1.11	OR	1.12	MO	1.12	MA	1.05	MA	1.10	WI	1.06
NM	1.17	TN	1.14	ME	1.20	AZ	1.18	CO	1.15	IL	1.19	MO	1.12	KY	1.12	LA	1.12	AL	1.06	MT	1.10	NY	1.07
GA	1.18	NC	1.17	UT	1.22	VT	1.18	IL	1.17	OR	1.23	NM	1.13	CA	1.12	NY	1.12	KY	1.07	AK	1.10	MO	1.07
KY	1.20	CT	1.17	OR	1.22	GA	1.19	OR	1.18	KY	1.23	MT	1.14	ND	1.13	IL	1.12	GA	1.07	MS	1.10	GA	1.07
OK	1.22	WI	1.20	IL	1.22	NC	1.24	KY	1.22	VA	1.24	TN	1.14	MS	1.13	VA	1.17	VT	1.08	NV	1.12	LA	1.08
AZ	1.24	VT	1.29	NY	1.24	VA	1.26	VA	1.24	NY	1.26	NV	1.17	SC	1.14	NV	1.18	LA	1.08	FL	1.13	CA	1.09
FL	1.26	MT	1.34	VA	1.25	OR	1.27	NY	1.24	NV	1.28	VA	1.19	VT	1.15	KY	1.19	MT	1.08	AL	1.15	NV	1.09
MT	1.27	CA	1.40	AL	1.30	UT	1.29	CA	1.25	CA	1.30	LA	1.19	MT	1.15	UT	1.20	VA	1.09	LA	1.18	VA	1.10
SC	1.29	KY	1.43	NV	1.32	KY	1.32	NV	1.26	WY	1.36	KY	1.20	AK	1.16	CA	1.21	SC	1.10	AZ	1.22	KY	1.11
LA	1.36	VA	1.43	CA	1.78	NH	1.38	FL	1.43	FL	1.46	FL	1.20	FL	1.20	FL	1.36	FL	1.10	SC	1.23	FL	1.18

Appendix C: Selected Rural County Health, Business, Demographic, and Income Data Summarized by State

State	2014 Per capita Health Care Expenditures by State (Source: Kaiser Family Foundation)	State Business Climate Ranking	2016 Rural Demographics & Income		
			Rural Population Share	Median Household Income (000)	Rural White Population Share Difference (v. State)
Alabama	$7,281	39	24%	$36.4	1%
Alaska	$11,064	2	46%	$68.9	-2%
Arizona	$6,452	27	5%	$38.5	-2%
Arkansas	$7,408	46	38%	$36.6	3%
California	$7,549	49	2%	$46.5	1%
Colorado	$6,804	18	12%	$51.7	2%
Connecticut	$9,859	47	5%	$73.5	1%
Delaware	$10,254	11	0%	na	na
Dist. of Columbia	$11,944	46	0%	na	na
Florida	$8,076	4	3%	$39.8	0%
Georgia	$6,587	33	17%	$37.7	3%
Hawaii	$7,299	38	19%	$57.6	2%
Idaho	$6,927	21	33%	$44.5	1%
Illinois	$8,262	36	11%	$47.3	4%
Indiana	$8,300	10	22%	$47.4	4%
Iowa	$8,200	45	41%	$50.3	3%
Kansas	$7,651	28	32%	$46.6	3%
Kentucky	$8,004	23	41%	$37.0	4%
Louisiana	$7,815	44	16%	$35.7	1%
Maine	$9,531	30	41%	$45.2	1%
Maryland	$8,602	40	3%	$52.7	1%
Massachusetts	$10,559	29	1%	$60.6	0%
Michigan	$8,055	13	18%	$44.8	4%
Minnesota	$8,871	43	22%	$52.3	3%
Mississippi	$7,646	31	54%	$35.4	0%
Missouri	$8,107	14	25%	$39.8	4%
Montana	$8,221	5	65%	$47.9	-2%
Nebraska	$8,412	24	35%	$50.0	4%
Nevada	$6,714	9	9%	$55.8	3%
New Hampshire	$9,589	6	37%	$60.1	3%
New Jersey	$8,859	50	0%	na	na
New Mexico	$7,214	25	33%	$42.1	-1%
New York	$9,778	48	7%	$48.9	3%
North Carolina	$7,264	12	22%	$39.5	0%
North Dakota	$9,851	17	51%	$61.6	-1%
Ohio	$8,712	42	20%	$46.6	4%
Oklahoma	$7,627	26	34%	$42.9	1%
Oregon	$8,044	7	16%	$43.2	1%
Pennsylvania	$9,258	34	11%	$46.1	3%
Rhode Island	$9,551	37	0%	na	na
South Carolina	$7,311	35	15%	$36.1	-3%
South Dakota	$8,933	3	63%	$49.6	2%
Tennessee	$7,372	16	23%	$38.2	5%
Texas	$6,998	15	11%	$44.2	2%
Utah	$5,982	8	11%	$58.4	1%
Vermont	$10,190	41	66%	$52.7	2%
Virginia	$7,556	22	12%	$42.3	2%
Washington	$7,913	20	10%	$48.3	2%
West Virginia	$9,462	19	38%	$39.3	2%
Wisconsin	$8,702	32	26%	$50.0	4%
Wyoming	$8,320	1	69%	$59.6	1%

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ENDNOTES

[1] Rural economic development activities are the responsibility of the U.S. Department of Agriculture's Office of Rural Development, which annually summarizes the state of rural America in its Rural Development Performance Report series.

[2] https://www.ruralhealthinfo.org/data-explorer

[3] Louisiana refers to its counties as parishes. Alaska refers to its counties as boroughs. The Commonwealth of Virginia is divided into 95 counties, along with 38 independent cities that are considered **county**-equivalents for census purposes.

[4] Urban areas are identified by the Census Bureau according to their population size, density, and the presence of a central city. All non-urban areas are considered rural. Delineating rural areas by census tract rather than county yields a U.S. rural population share estimate of 19.3% (https://www.census.gov/newsroom/press-releases/2016/cb16-210.html).

[5] Particular land uses and economic activities are not exclusive to urban and rural. Farming and forestry activities can occur in urban counties while urban activities such as finance and advanced business services can occur in rural counties.

[6] Because of rural America's sparse population, greater care must be taken when interpreting ACS data for rural counties. The limitations of using the ACS in rural areas are discusses in the 2009 Census Bureau publication*, A Compass for Understanding and Using American Community Survey Data* (https://www.census.gov/content/dam/Census/library/publications/2009/acs/ACSRuralAreaHandbook.pdf)

[7] https://www.census.gov/programs-surveys/cbp.html

[8] http://www.healthdata.org/results/data-visualizations.

[9] According to the Census Bureau, in 2016, the median age of residents of rural counties was 73.3 years. By contrast, the 2016 median age of urban county residents was 73.4 years.

[10] Correlation coefficients vary between +1 (indicating a perfect positive correlation, meaning that the values of both variables vary from their respective means by the same amount) through 0 (meaning that the two variables' variations around their means are unrelated) to -1 (meaning that a positive variation by one variable around its mean is exactly matched by a negative variation in the other). Correlation coefficients are non-linear, meaning that a correlation coefficient of 0.8 does not indicate twice the correlation of a correlation coefficient of 0.4.

[11] R-squared values vary between 0 and 1, with a value of 0 indicating that there is no association or correlation between the two sets of variables (In this case, between region and rural economic performance.); and a value of 1 indicating that the association is so strong as to constitute an identify (In this case, knowing which region a county is in would tell one everything there was to know about its economic performance.)

[12] Alaska and Hawaii are included in the analysis but are not identified with any region.

[13] Illness-specific mortality rates are reported for: (i) respiratory infections; (ii) drug overdoses, suicide, domestic and gun violence, strokes, pulmonary diseases, cardiac diseases, colon cancer, lung cancer, breast cancer, prostate cancer, and all other cancers combined.

[14] Including rural shares of state job growth, rural unemployment rate, rural poverty rate, and rural household income level.

[15] Including rural life expectancy, mortality rates for children aged 0-to-4, mortality rates for children, teenagers and young adults aged 5-to-24, and mortality rates for seniors aged 65-and-above.

[16] https://hifld-geoplatform.opendata.arcgis.com/datasets/a2817bf9632a43f5ad1c6b0c153b0fab_0