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# Lack of Higher Wage Opportunities in Missouri Contributes to Slower Economic Growth

**Mallory Rahe**

University of Missouri

## **ABSTRACT**

This paper uses publicly available datasets from federal government agencies to explore differences in income inequality across rural and urban Missouri in the aftermath of the Great Recession to better understand how these factors are associated with relative job loss and job recovery. Previous work has explored various explanations for Missouri's weak economic performance; could income inequality be a contributing factor? I find that Missouri has lower income inequality than the nation, largely from a lack of high-wage jobs. Missouri, and especially rural Missouri, obtains lower income inequality primarily through a lack of high-income households. Across the nation, rising income inequality is concentrating wealth and constraining consumption. Examining the state across multiple measures, Missouri's residents have limited abilities to consume and invest, which inhibits economic growth. Low median household incomes and a lack of highly paid jobs are all contributing to slow population growth and slow or negative employment change during the past two national recessions. These challenges are present in both rural and urban areas of the state.

## 1. INTRODUCTION AND BACKGROUND

The last national economic recession, the Great Recession, which started in December 2007 and officially ended in June 2009, led to significant job losses in the United States. Some local economies in the nation experienced a quicker and less severe loss of total jobs before beginning to grow again, signaling more economic resilience than other local economies. After observing rising income inequality and household debt in the years leading up to the Great Recession, a significant amount of work has studied the relationship between these two factors and economic resilience.

Economic theory suggests that some level of income inequality is essential in a capitalist economy to incentivize people to use their scarce resources in the most efficient ways possible and to be willing to take risks to increase their incomes.<sup>1</sup> However, it also has been argued that too much income inequality restricts growth when it limits consumption among low income households, reducing the number of jobs involved in supporting consumption. More worryingly if income inequality restricts access to educational and social opportunities it limits an individual's ability to reach their full economic and social potential constraining their upward mobility.<sup>2</sup> Previous research suggests that the effect of income inequality varies, and of particular interest, income inequality appears to operate differently in rural compared to urban areas. In light of this work, my study focuses on how these forces operate in Missouri's rural and urban areas, and if there are any factors that help explain any observed difference.

The Great Recession presented a natural experiment to evaluate the influence of income inequality on economic stability. A common explanation of how various economic forces combined to create the Great Recession describes how rising income inequality in the United States, combined with increasing incomes in countries with higher savings rates, created a surplus of capital seeking investment opportunities in the global financial system. Financial innovations created subprime loans and other financial instruments which expanded household credit markets.<sup>3</sup> At the same time, rising income inequality combined with relaxed regulations and other changes in US consumer behavior increased the demand for credit among households.<sup>4</sup> Temporary increases in both the supply of and demand for credit supported an increase in household consumption which triggered an increase in employment across multiple sectors.<sup>5</sup> As debt levels became unsustainably high and households began to default, financial sectors tightened access to additional credit and triggered a reinforcing cycle of economic contraction and job loss driven by a decline in household spending.

This is how decreases in the local value of the housing stock and the level of debt and financial distress among households led to first a decline in household consumption and then a decline in the number of jobs needed to support that consumption.<sup>6</sup> A decline in household spending and consumption across all incomes contributed to the spread of employment decline from areas with a high rate of initial home foreclosures to the rest of the United States and the world.<sup>7</sup>

Urban areas with higher levels of income inequality began to lose jobs more quickly and lost more jobs during the Great Recession. By contrast, among the smallest population counties, higher levels of income inequality decreased the severity of job loss during the Great Recession.<sup>8</sup> Another study of all counties found that higher levels of high earning households as well as higher income inequality in adjacent counties decreased the economic stability of a county by increasing unemployment and decreasing wages. This indicates that these economies were less “resilient” to economic shocks. As a significant share of all economic activity in the United States is tied to household spending, it is particularly important to understand how income inequality affects household spending and consumption.

This paper uses publicly available datasets from federal government agencies to explore differences in income inequality across rural and urban Missouri in the aftermath of the Great Recession to better understand how these factors are associated with relative job loss and job recovery. Previous work has explored various explanations for Missouri’s weak economic performance; could income inequality be a contributing factor? I find that Missouri has lower income inequality than the nation, largely from a lack of high-wage jobs. Missouri, and especially rural Missouri, obtains lower income inequality primarily through a lack of high-income households. Across the nation, rising income inequality is concentrating wealth and constraining consumption. Examining the state across multiple measures, Missouri’s residents have limited abilities to consume and invest, which inhibits economic growth. Low median household incomes and a lack of highly paid jobs are all contributing to slow population growth and slow or negative employment change during the past two national recessions. These challenges are present in both rural and urban areas of the state.

In the next section, I provide a brief review of economic growth within the state followed by a comparison of state and county income inequality and companion income measures to provide important context to a county’s level of income inequality. The percent of households who spend too much of their income on mortgages and home ownership costs round out an understanding of

how counties have different abilities to support local jobs at different levels of income inequality. Finally, I discuss why understanding the nuances of Missouri's income inequality matters for policymakers and leaders interested in growing the economy.

## **2. ECONOMIC AND JOB GROWTH IN MISSOURI**

The Missouri economy has a long history of slower economic growth and weak job creation when compared to the United States.<sup>9</sup> Not only did Missouri experience below average employment growth before the turn of the current century, but it suffered a longer duration of nonfarm payroll employment loss than the national economy, and a slower rate of economic growth following each downturn. For example, it took six-and-a-half years for nonfarm payroll employment to return to its pre-recession levels following the 2001 downturn, two-and-a-half years longer than the national average. Once the state started losing nonfarm jobs in March 2008 it took the state eight years to regain the same number of nonfarm jobs as before the Great Recession started. This was eighteen months longer than the national recovery.<sup>10</sup> During these same eight years, population in the state slowly increased.

Comparing the number of jobs to the number of working-age residents provides insight into how the state adapted through the past two national recessions. Table 1 shows that Missouri still has fewer jobs per working-age person (between the ages of 18 to 64) than before either the 2001 recession or the Great Recession across each group of counties. Rural and urban Missouri have experienced these two recessions differently. Urban Missouri has had positive job and working-age population growth, and these parts of the state on average have more full-time and part-time jobs in 2017 than in both 2007 and 2001. However, job growth has been slower than the growth in the working-age population, which means there are still not as many jobs per person as before. As a group, the density of jobs per person increases as an urban area's overall size increases, as expected. That is, we expect urban areas to have a surplus of jobs compared to the number of working residents and to support employment for neighboring areas.

**Table 1**  
**Working-Age Population and Employment Changes across Rural and Urban Missouri**

# MO counties	County Description - 2013 Rural Urban Continuum Codes	Jobs to Population ages 18-64 ratio		% change 2001-2017		Job Recovery	
		2001	2017	Total Jobs	Population ages 18-64	More jobs in 2007 than in 2001	More jobs in 2017 than 2007
16	Metro - Counties in metro areas of 1 million population or more	0.91	0.88	9%	13%	yes	yes
6	Metro - Counties in metro areas of 250,000 to 1 million population	0.85	0.81	19%	26%	yes	yes
12	Metro - Counties in metro areas of fewer than 250,000 population	0.91	0.86	11%	17%	yes	yes
5	Nonmetro - Urban population of 20,000 or more, adjacent to a metro area	0.79	0.75	14%	19%	yes	yes
4	Nonmetro - Urban population of 20,000 or more, not adjacent to a metro area	0.82	0.79	9%	13%	yes	no
28	Nonmetro - Urban population of 2,500 to 19,999, adjacent to a metro area	0.69	0.64	-1%	6%	yes	no
14	Nonmetro - Urban population of 2,500 to 19,999, not adjacent to a metro area	0.72	0.67	-3%	4%	yes	no
8	Nonmetro - Completely rural or less than 2,500 urban population, adjacent to a metro area	0.58	0.55	-3%	3%	yes	no
22	Nonmetro - Completely rural or less than 2,500 urban population, not adjacent to a metro area	0.62	0.59	-4%	1%	no	no

Sources: *United States Department of Agriculture, Economic Research Service 2013 Rural Urban Continuum Codes classification; Bureau of Economic Analysis annual estimates of total employment; United States Census Bureau, Population Division, annual estimates of the resident population for selected age groups, 2000-2018; and author's calculations.*

By comparison, some parts of rural Missouri are growing while others are not. Larger rural counties<sup>11</sup> are experiencing both population and job growth. These counties are still adding more people than they are jobs, which means they still have fewer jobs per working-age resident and rely on residents commuting to neighboring counties. Smaller rural areas in Missouri<sup>12</sup> had fewer jobs in 2017 than in 2001, even as the number of residents ages 18 to 64 increased slightly over this same time period. It is significant to note that the size of the population ages 18 to 64 has increased slightly in these areas as the total population has decreased. These effects become more pronounced in counties with smaller populations and in rural areas that are not adjacent to urban areas. These rural economies are increasingly reliant on residents being able to commute for work and are likely struggling to both retain people and to capture spending dollars from residents and travelers.

At the same time, Missouri's unemployment rate is currently lower than the national average, which suggests that a smaller share of working-age people are actively seeking employment. This trend has also been happening more broadly at the national level.<sup>13</sup> Only thirty counties or county equivalents in the state (out of 115) have a higher ratio of jobs per resident ages 18 to 64 in 2017 compared to

2001. It is unclear how the dynamics of labor force participation decisions and available employment opportunities are playing out across the state.

A portion of Missouri's weak economic performance can be attributed to the state's higher share of rural population, and to slower than average growth in the state's two largest urban areas: Kansas City and St. Louis. In Missouri and the United States, the smallest rural counties that are not adjacent to urban areas have the highest population loss (in percentage terms). At the same time, US metropolitan<sup>14</sup> areas had the fastest growing populations and employment. The Missouri portion of the two largest urban areas by comparison had slower employment growth rates than not only the national average, but also the state average. This means that the two densest areas of economic activity are not supporting stronger job growth in their surrounding regions. Recognizing that on average the Missouri's economy has had weak economic growth after the past two national recessions, I now discuss income inequality within the state.

### **3. URBAN VS. RURAL INCOME INEQUALITY IN MISSOURI**

Income inequality can be measured in a number of ways; aggregate measures like the GINI index, Theil index, and Atkinsons index provide a single measure of an income distribution. These measures are difficult to interpret as perfect equality in incomes is not a policy goal in a capitalist economy. Other measures, like the Palma ratio and the Ratio of Mean Annual Income, compare concentrations in wealth among high income and low-income individuals. For example, the Palma ratio compares the income earned by the top 10 percent to the bottom 40 percent. I modify this measure to compare the top 5 percent to the bottom 40 percent due to publicly available data limitations for all US counties through the Census Bureau's American Community Survey. Neither measure suggests what level of income concentration is desirable.

Table 2 shows compared to the average household in the United States, Missouri households have less income inequality. The US average is pulled up by a few states with very large populations that also have high income inequality. This means that Missouri has average levels of income inequality among US states ranking 25<sup>th</sup> out of 50. Among neighboring states, Iowa and Nebraska have notably low levels of income inequality.

All three income inequality measures in Table 2 are highly correlated so I chose to report differences among Missouri counties using the modified Palma ratio as it is easier to interpret. The highest

earning 5 percent of all households in Missouri received \$1.78 of income for every \$1 received by households who are among the lowest earning 40 percent of households in the state. Furthermore, monitoring the income of the lowest earning 40 percent of all households is important for understanding economic growth. An analysis by the OECD, for instance, has shown that income deprivation is associated with a decline of household investment in educational attainment and consumption among the lowest earning 40 percent of all households. This in turn has been linked to slowing the growth in gross domestic product.<sup>15</sup>

**Table 2**  
**Income Inequality Measures, 2013-2017**

Measure	Missouri Value	MO Rank	Interpretation	U.S. value
		Among States		
Palma	1.78	25	The highest earning 5 percent of all households in the state receive \$1.78 of income for every \$1 received by households who are among the lowest earning 40 percent in the state.	2.01
Ratio of Mean Annual Income	14.4	23	The highest earning 20 percent of all Missourians received 14.4 times the income of the lowest earning 20 percent of all Missourians.	16.4
GINI	0.46	25	46 percent of all income in the state would need to be redistributed to achieve perfect income equality.	0.48

Sources: *United States Census Bureau, American Community Survey Data 5-year estimates for 2013-2017. GINI index is provided in table B19083; Ratio of Mean Annual Income is calculated from income data in table B19081; Modified Palma ratio is calculated from income data in table B19082.*

The income data used to calculate all of these measures come from publicly available data in the American Community Survey. The American Community Survey is a product of the US Census Bureau and began as a replacement to the decennial census long form in 2005. Surveys are sent out monthly to a sample of households across the United States; this rolling survey style is constantly collecting data from households and releases estimates annually. Areas with large populations, 65,000 residents or more, receive estimates based on all surveys collected within a single year as well as the estimates based on all surveys collected over a five-year period. Rural areas which have much smaller populations only receive five-year estimates as far more surveys must be collected to accurately represent the population. The ACS surveys ask respondents to self-report their income data for the following categories: employment income, retirement income, rental property income, dividend or interest payments and cash public assistance.<sup>16</sup> These income estimates are used extensively by federal agencies to distribute money to individuals and communities.<sup>17</sup> These

measures of income do not ask people to report capital gains income. Excluding capital gains income likely underestimates the income of high earning households. The value of Supplemental Food Assistance Program (SNAP) vouchers (formerly known as food stamps) and public housing subsidies are also excluded. Excluding these two forms of public assistance underestimates the purchasing power of low-earning households. Capital gains from stock investments began to account for an increasing share of income, especially for the wealthiest Americans, in the 1990s.<sup>18</sup> Excluding all of these income sources may underestimate income inequality, as household income earned from investments in the stock market are more likely to exceed the value of SNAP benefits and housing subsidies to a household. Given these limitations in the data we now turn to examine recent rates in income inequality.

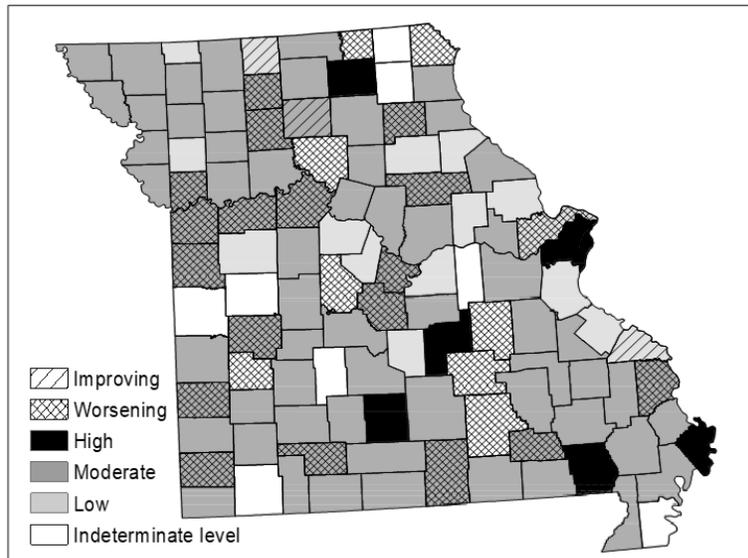
### *Income inequality varies among Missouri counties*

With the state's overall income inequality putting it at average relative to other states, for our purpose an interesting question is how varied is income inequality within the state? Using the national average as a point of comparison, I compare income inequality across jurisdictions within the state. Income inequality has increased in the United States and Missouri since the Great Recession began.<sup>19</sup> Figure 1 classifies all Missouri counties into one of three levels of income inequality (low, moderate, and high) by identifying five benchmark counties.<sup>20</sup> Each benchmark county had varying levels of income inequality from 2013-2017 and highly reliable estimates.<sup>21</sup> Counties were assigned to a category by calculating statistically significant differences from each county to each benchmark county. Sixteen counties have undetermined levels of income inequality as these counties were not statistically different from four or five of the benchmark counties.

Income inequality in Missouri does not have a consistent pattern of differences across the continuum of small and remote rural areas to the largest urban areas. Most counties within the state have lower and stable levels of income inequality. St. Louis city and St. Louis County are the only areas in Missouri with a statistically significant higher level of income inequality than the US average. Yet both urban areas have similar levels of income inequality as other urban areas in the Midwest. Urban areas often have higher income inequality than rural areas because they offer a wider range of wages and salaries—including some share of high-wage jobs. Income inequality has worsened in thirty-one of Missouri's 114 counties and in St. Louis city when comparing the five-year averages between 2006-2010 and 2013-2017. Perry, Mercer, and Linn counties—each with lower initial levels

of income inequality than most Missouri counties—are the only three places where income inequality levels have improved over the same time period.

**Figure 1**  
**Missouri Counties Have Lower Levels of Income Inequality than the U.S. Average**



Source: *United States Census Bureau, American Community Survey, comparison of Modified Palma Ratios between the 2006-2010 five-year estimates and the 2013-2017 five-year estimates, based on income data in table B1 19082.*

Examining the level of income inequality alone is insufficient for understanding how a county's distribution of income is impacting development. Some level of income inequality is a healthy signal that the economy is generating a range of wage and salary opportunities, and that households are investing in obtaining assets, starting businesses, and increasing their potential for higher earnings through education. Median household incomes offer an indication of the overall consumption capacity in a county. Poverty rates and the percent of the population earning less than \$10,000 offer two perspectives of distress and limited consumption capacity. The percent of households earning more than \$200,000 and the income threshold of the highest earning 5 percent of all households provide insights into the population's accumulation of income and capacity to invest.

Missouri consistently has a lower median household income than the United States in annual data from 2005-2017. So, while the state has lower income inequality there is also an overall lower capacity to consume. This lower median average can be partially attributed to a lack of high-income

households in the state. While 7 percent of households in both the state and nation earn less than \$10,000, 3.9 percent of households in Missouri earn more than \$200,000 compared to 6.3 percent nationally from 2013-2017. Missouri and the country also have similar poverty rates of 14.6 percent during 2013-2017, a trend that holds across multiple years. Compared to the national average, Missouri has less concentrated wealth, which reduces income inequality. From county to county, median household income varies significantly.

Table 3 shows that income inequality varies widely among Missouri’s five largest counties which contain 44 percent of the state’s total population. As mentioned previously, St. Louis County and city have the highest rates of income inequality in the state, while neighboring St. Charles County has low rates. Both the center of Kansas City, Jackson County, and Greene County, which contains Springfield, have moderate income inequality. Among these five urban geographies, the city of St. Louis and Greene County have lower median household incomes. A similar number of high-income households live in St. Louis city compared to downtown Kansas City in Jackson County, but by comparison there are almost twice as many households earning less than \$10,000 in St. Louis city. St. Louis city also has the highest poverty and child poverty rates. St. Louis County has the most concentrated wealth; the highest earning 5 percent of all households had \$250,000 or more in income. St. Charles County attains low-income inequality by having very few low-income households and the lowest poverty rates; this county has the highest median household income. Economies with some high-income households may have more internal capacity to invest in local economic growth.

**Table 3**  
**Missouri’s Largest Five Urban Areas Have Both High and Low Income Inequality**

County or Equivalent	Level of Income Inequality	Median Household Income	Range of \$ Between Median and Mean Household Income	Percent of Households Earning <\$10,000	Percent of Households Earning >\$200,000	5 Percent of Households Earn >	Poverty Rate	Child Poverty Rate
St. Louis city	High	39,000	19,000	14	3	164,000	25	4
St. Louis	High	63,000	30,000	5	9	250,000	10	1
Greene	Moderate	43,000	17,000	9	3	155,000	19	2
Jackson	Moderate	51,000	18,000	8	4	176,000	16	2
St. Charles	Low	78,000	16,000	3	7	215,000	6	

Source: United States Census Bureau American Community Survey 2013-2017 five-year estimates, multiple tables. Median household income and household earnings are rounded to the nearest \$1,000.

Table 4 provides a comparison of nonmetropolitan counties across the range of income inequality. Compared to the urban counties in Table 3, a smaller share of households in these rural counties are earning \$200,000 or more. The level of income required to classify a household among the highest earning 5 percent of all households is also substantially lower in most counties. Yet a range in the level of income inequality can also be seen in Missouri’s rural counties. Counties which host a large share of college students not living in college dormitories, such as Phelps County (Missouri University of Science and Technology, Rolla Technical Institute and Metro Business College), and Adair County (Truman State, A. T. Still University), tend to have higher income inequality than similarly sized counties without colleges.<sup>22</sup> Johnson County, containing Warrensburg, the home of Central Missouri University, has relatively low income inequality similar to several outlying and more rural counties of urban areas.

**Table 4**  
**Missouri’s Rural Areas Have Fewer High-Earning Households**

County or County Equivalent	Level of Income Inequality	Range of \$ Between Median and		Percent of Households Earning <\$10,000	Percent of Households Earning >\$200,000	5 Percent of Households Earn >	Poverty Rate	Child Poverty Rate
		Household Income	Mean Household Income					
Phelps	High	42,000	18,000	10	3	155,000	20	21
Butler	High	38,000	14,000	10	3	133,000	22	31
Dunklin	Moderate	32,000	13,000	13	1	116,000	27	37
Camden	Moderate	50,000	15,000	8	4	167,000	18	21
St. Francois	Moderate	43,000	12,000	8	1	130,000	15	19
Perry	Low	55,000	8,000	3	1	136,000	8	11
Monroe	Low	42,000	10,000	3	0	118,000	13	21
Johnson	Low	51,000	10,000	7	1	144,000	16	19

Source: *United States Census Bureau American Community Survey 2013-2017 five-year estimates, multiple tables. Median household income and household earnings are rounded to the nearest \$1,000.*

Again, it is useful to recognize that counties have different levels of income inequality through different combinations of income distributions. Counties like Phelps, Butler, and Dunklin have a higher percent of households earning less than \$10,000, low median household incomes, and higher poverty rates. Dunklin, compared with Phelps and Butler counties, however, has lower overall income inequality. This can be explained by the fact that Dunklin has even fewer high earning households than Phelps or Butler. In this case, lower income inequality is indicating that fewer households have high incomes and higher spending potential. Camden County, a county with

moderate levels of income inequality, has a higher median household income, a wider range in household earnings including higher wage opportunities, and the ability to support more local consumption of goods and services. Johnson, Perry and Monroe counties all have low levels of income inequality across a range of median household incomes. Perry and Monroe have a lower percent of households earning \$10,000 or less and all three counties have few high-earning households. However, higher median household incomes in Perry and Johnson may support more local purchasing and in turn more local employment.

These differences among Missouri counties illustrate the importance of examining median income levels, poverty rates and the degree of concentrated wealth to better understand what an overall measure of income inequality means for a particular county. I will now examine percent of households who are housing-cost burdened and the median value of a home in a county to provide additional context to income inequality and its relationship to household consumption and subsequent job growth after a recession.

Median home values offer one comparison of the level of assets that homeowners hold. This is not a perfect metric as it excludes the value of nonresidential buildings and land, which can be considerable for some households. However, for many Americans, the most valuable asset they own is their home, and mortgage debt could be viewed as a way to build assets. This premise becomes undermined when the value of homes becomes artificially high, as seen in high growth parts of the economy, or when the value of a home depreciates over time, as observed in low-growth parts of the economy. In these situations, households either take on too much debt or invest too much income into a depreciating asset. Even more worrisome is when the value of a family's home is used to secure access to credit to support or maintain the consumption of other goods and services. When an increasing share of the local consumption of goods and services is supported by households taking on debt and their ability to access additional credit is reduced—as occurred during the financial crisis that occurred during the Great Recession—their consumption declines sharply and large employment losses follow. The federal government assumes that households should not spend more than 30 percent of their income on mortgage and home-ownership costs. If they do, they are considered to be housing cost burdened, and these households may be in danger of having too little income for necessities and emergencies.

Therefore, examining the median value of a home and the percent of households who are spending too much of their income on housing, we have two other proxies of local consumption capacity. Households are considered housing-cost burdened by the federal government when they spend more than 30 percent of their income on housing. Missourians with mortgages are not as housing-cost burdened as the average US resident and the state ranks 14th lowest among the fifty states and the District of Columbia. An estimated 24 percent of all households spent too much on housing costs, similar to the surrounding states. Considering the eight border states, Missouri's household debt levels are most similar to Kansas and Iowa. Table 5 provides such a comparison for the same set of counties we examined earlier.

**Table 5**  
**Median Home Values and Households that Spend too Much on Housing Costs Vary by Income Levels**

	County or County Equivalent	Level of Income Inequality	Median Home Value	% Households with a Mortgage who are Housing Cost Burdened	Job Growth Rate 07-17	Population ages 18-64 growth rates 07-17	Jobs per person ages 18- 64 in 2017
Urban	St. Louis County	High	\$ 181,000	25	3	2	1.1
	St. Louis city	High	\$ 124,000	29	2	2	1.2
	Greene	Moderate	\$ 136,000	23	5	10	1.0
	Jackson	Moderate	\$ 132,000	25	2.5	7.7	0.9
	St. Charles	Low	\$ 199,000	20	17	20	0.7
Rural	Butler	High	\$ 105,000	27	1	1	0.8
	Phelps	High	\$ 126,000	22	-1	3	0.7
	Dunklin	Moderate	\$ 70,000	29	-3	-6	0.6
	Linn	Moderate	\$ 80,000	19	-8	-4	0.8
	St. Francois	Moderate	\$ 110,000	25	0	7	0.6
	Camden	Moderate	\$ 176,000	30	-9	9	0.7
	Monroe	Low	\$ 103,000	30	-9	-3	0.6
	Perry	Low	\$ 132,000	19	10	4	0.9
Johnson	Low	\$ 147,000	18	-1	7	0.7	

*Source: Income inequality, median home value, and housing-cost burdened data from the United States Census Bureau American Community Survey 2013-2017 five-year estimates, multiple tables. Median home values are rounded to the nearest \$1,000. Bureau of Economic Analysis annual estimates of total employment; United States Census Bureau, Population Division, annual estimates of the resident population for selected age groups 2000-2018; and author's calculations.*

Comparing these measures for the state's largest population counties provides additional nuance to the earlier income inequality comparison. The state's two urban cores, St. Louis city and Jackson County, have lower median home values than other parts of their respective urban areas. Among these largest urban areas, St. Charles again stands out as a county where low-income inequality is achieved through a lack of low-income households and significant assets. The county has the second

highest median home value in the state and a lower percent of the population is considered housing-cost burdened. By comparison the low-income inequality rural counties have a much lower median home value, and Perry and Johnson have similar levels of the population who are spending too much on housing costs. Dunklin County has one of the lowest median home values among rural counties and one of the highest percent of households that are housing-cost burdened. High percentages of housing-cost burdened households occur in counties with both high and low levels of income inequality, again complicating the effort to view income inequality as either entirely good or bad.

Homeowners in counties with lower valued homes like Dunklin and Linn have fewer assets and less collateral for debt.<sup>23</sup> Both counties have fewer jobs and working-age residents than before the Great Recession. Camden County has gained working-age residents while losing jobs, and the county also has a high median home value, indicating that despite a weaker internal economy the county's natural amenities, including the Lake of the Ozarks, continues to make Camden an attractive place to live and people are willing to commute. Counties that have higher median wages and higher valued homes have a higher ability to consume and to finance consumption and investments through a combination of salary and income. These economies are healthier from the investment in education, asset creation, and consumption capacity of their residents. Counties without strong internal consumption will be able to support fewer jobs locally, if all else is equal.

#### **4. DISCUSSION AND POLICY RECOMMENDATIONS**

Missouri's rural and urban economy has been slower to recover jobs during the two prior recessions than the nation as a whole. Nationally, efforts to explain economic resiliency and economic growth after a recession have examined the role of income inequality and its relationship to consumer spending and household investments and have found that income inequality appears to operate differently in rural and urban areas. The evidence presented in this study shows that Missouri has lower income inequality than the US average. Counties across Missouri arrive at similar levels of income inequality through different concentrations of wealth and measures of household distress. In general, urban Missouri has higher levels of income inequality than rural Missouri, which is similar to the United States as a whole. Rural areas often obtain lower income inequality through a lack of high-wage jobs. These lower levels of income inequality are worrying for a less-discussed reason. In

Missouri, the average resident has a lower income and a lower valued home. This means that most residents have access to less credit based on their income or their primary asset, their home. Many counties in Missouri, particularly rural counties, have low income inequality through the lack of high-wage jobs while still having average poverty levels.

Rural Missouri faces two pressing challenges. First, rural Missouri lacks higher income households who can invest in and continue to support locally rooted employment. Second, rural Missouri needs entrepreneurs, industries, and a well-trained workforce that can find ways to increase productivity and support income growth among households. Rural households have too little income, which restricts their ability to invest in education and training, to consume local goods and services, and to build businesses. This will be particularly challenging as rural areas of the state continue to lose jobs and struggle to retain working-age people.

Rural Missouri must creatively seek out economic opportunities that will work for the region. Efforts that connect the state's assets and talent to larger markets of consumers in ways that are entrepreneurial, while building wealth within the region, can create meaningful development. Often rural areas hold underutilized talent, and it can be harder to coordinate economic activities and pursue mutually beneficial goals when each small business is focused on making payroll, fulfilling the next order, or surviving the next month. Connecting with urban markets and consumers in authentic ways that convey the social, cultural, and environmental values embedded in many rural businesses can be a way to differentiate smaller rural producers. This type of product differentiation can command a higher price and support the development of not just people and businesses but their communities. The two closest urban markets for rural Missouri are St. Louis and Kansas City, metropolitan areas that have had slow growth and weaker consumer markets. This impedes the potential growth of rural businesses.

Looking at the future of the state, rural and urban areas must be viewed as partners. Strengthening rural Missouri will be hard work and this work must have a regional component. Yet the work will be slow, the results will be small within the total size of the economy, and the effort must be replicated region by region, adapting to local assets and capacity. Even so, this work is important and should be done. At the same time, another way to benefit rural Missouri is to support Missouri's cities, especially St. Louis. If St. Louis could grow faster, and by that I mean *all* of St. Louis and not just its expanding periphery, the rest of the state would benefit by having a larger internal market of

consumers, having higher wages and a stronger tax base to strengthen the state budget, and by experiencing a growth in productivity that would result as more citizens had the economic freedom to meaningfully engage in the economy and society.<sup>24</sup>

*Mallory Rahe is an Assistant Professor of Extension, University of Missouri, Division of Applied Social Sciences.*

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## NOTES

<sup>1</sup> Simon Kuznets, "Economic Growth and Income Inequality," *The American Economic Review* 45, no. 1 (1955): 1-28, accessed July 10, 2019, <https://www.jstor.org/stable/1811581>.

<sup>2</sup> Thomas Piketty, "About Capital in the Twenty-First Century," *American Economic Review* 105, no. 5 (2015): 48-53, accessed August 7, 2019, <https://pubs.aeaweb.org/doi/pdfplus/10.1257/aer.p20151060>.

<sup>3</sup> Atif Mian and Amir Sufi, "Household Leverage and the Recession of 2007–09," *IMF Economic Review* 58, no. 1 (2010): 74-117, accessed July 5, 2019, <https://link.springer.com/article/10.1057/imfer.2010.2>; Till Van Treeck and Simon Sturn. 2012. "Income Inequality as a Cause of the Great Recession?: A Survey of Current Debates," ILO Working Papers, Conditions of Work and Employment Branch.

<sup>4</sup> Raghuram G. Rajan, *Fault Lines: How Hidden Fractures Still Threaten the World Economy* (Princeton, NJ: Princeton University Press, 2010).

<sup>5</sup> Atif Mian and Amir Sufi, "The Consequences of Mortgage Credit Expansion: Evidence From the US Mortgage Default Crisis," *The Quarterly Journal of Economics* 124, no. 4 (2009): 1449-1496.

<sup>6</sup> Atif Mian and Amir Sufi, "What Explains the 2007–2009 Drop in Employment?" *Econometrica* 82, no. 6 (2014): 2197-2223.

<sup>7</sup> Atif Mian and Amir Sufi, "The Consequences of Mortgage Credit Expansion: Evidence From the US Mortgage Default Crisis," *The Quarterly Journal of Economics* 124, no. 4 (2009): 1449-1496; Atif Mian and Amir Sufi, "House Prices, Home Equity-Based Borrowing, and the US Household Leverage Crisis," *American Economic Review* 101, no. 5 (2011): 2132-56.

<sup>8</sup> Mallory L. Rahe, Bruce Weber, Xiurou Wu, and Monica Fisher, "Income Inequality and County Economic Resistance to Job Loss during the Great Recession," *Review of Regional Studies* 49, no. 1 (2019): 129-147; Paul A. Lewin, Philip Watson, and Anna Brown, "Surviving the Great Recession: The Influence of Income Inequality in US Urban Counties," *Regional Studies* 52, no. 6 (2018): 781-792, accessed July 5, 2019, <https://doi.org/10.1080/00343404.2017.1305492>.

<sup>9</sup> Rik W. Hafer and William H. Rogers. "The Missing Million: Missouri's Economic Performance Since the Moon Landing." Essay, Show-Me Institute, St. Louis, Missouri, April 19, 2019. Accessed January 3, 2020, <https://showmeinstitute.org/publication/employment-jobs/missing-million-missouris-economic-performance-moon-landing>.

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<sup>10</sup> The Quarterly Census of Employment and Wages employment data covers approximately 97 percent of all US jobs and offers the best comparison of jobs on a quarterly basis; the database is assembled from employers which report to the Unemployment Insurance program. Self-employed workers, half of all agricultural jobs, and employees in the Armed Forces, railroads, student workers and elected officials are excluded. Center on Budget and Policy Priorities, “Chart Book: The Legacy of the Great Recession,” June 6, 2019, accessed October 5, 2019, <https://www.cbpp.org/research/economy/chart-book-the-legacy-of-the-great-recession>.

<sup>11</sup> Nine counties with an urban area of between 20,000 and 50,000 people.

<sup>12</sup> Seventy-eight counties with an urban area of less than 20,000 people.

<sup>13</sup> Alex Richter, Tyler Atkinson, and Laton Russell. “Changes in Labor Force Participation Help Explain Recent Job Gains.” Federal Reserve Bank of Dallas, February 19, 2019, <https://www.dallasfed.org/research/economics/2019/0219>.

<sup>14</sup> Metropolitan areas are classified as counties with 50,000 or more people living within a single urban area or a county where at least 25 percent of the working residents commute to a metropolitan area. “ERS Rural America at a Glance, 2019 Edition,” accessed November 30, 2019, <https://www.ers.usda.gov/webdocs/publications/95341/eib-212.pdf?v=5832>.

<sup>15</sup> Organization for Economic Cooperation and Development (OECD), “In It Together: Why Less Inequality Benefits All,” *2015 Report*, accessed July 22, 2019, [https://www.oecd-ilibrary.org/employment/in-it-together-why-less-inequality-benefits-all\\_9789264235120-en](https://www.oecd-ilibrary.org/employment/in-it-together-why-less-inequality-benefits-all_9789264235120-en).

<sup>16</sup> Jessica Semega, Melissa Kollar, John Creamer, and Abinash Mohanty, U.S. Census Bureau, Current Population Reports, P60-266, *Income and Poverty in the United States: 2018*, U.S. Government Printing Office, Washington, DC, 2019, accessed November 12, 2019, <https://www.census.gov/library/publications/2019/demo/p60-266.html>.

<sup>17</sup> Katherine Nesse and Mallory Rahe, “Conflicts in the Use of the ACS by Federal Agencies Between Statutory Requirements and Survey Methodology,” *Population Research and Policy Review* 34, no. 4 (2015): 461-480.

<sup>18</sup> Elizabeth McNichol, Douglas Hall, David Cooper, and Vincent Palacios. November 15, 2012. “*Pulling Apart: A State-By-State Analysis of Income Trends*,” Center on Budget and Policy Priorities and the Economic Policy Institute. Available online at <http://www.cbpp.org/research/pulling-apart-a-state-by-state-analysis-of-income-trends-1>.

<sup>19</sup> This analysis uses five-year estimates from the Census Bureau’s American Community Survey to report data for all counties in Missouri. I use the earliest available period 2006-2010 and compare this to the latest available period 2013-2017. Each five-year data set produces one estimate built from 60 months of continuous surveys.

<sup>20</sup> The five benchmark counties used to categorize the state by level of income inequality using the modified Palma ratio include St. Louis county (high), Jackson, Greene and Jasper counties (moderate), and Clay county (low).

<sup>21</sup> Each estimate had a calculated coefficient of variation less than 10 percent. For more details on survey estimates and errors see US Census Bureau, *Understanding and Using American Community Survey Data: What All Data Users Need to Know*, U.S. Government Printing Office, Washington, DC, 2018,

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[https://www.census.gov/content/dam/Census/library/publications/2018/acs/acs\\_general\\_handbook\\_2018.pdf](https://www.census.gov/content/dam/Census/library/publications/2018/acs/acs_general_handbook_2018.pdf).

<sup>22</sup> The ACS estimates of income inequality and poverty in this report are based on household incomes which include the incomes of individuals over the age of 15 and exclude people living in group quarters (prisons, nursing homes, college dormitories, or military barracks). In college towns, the students who are not living in dormitories are counted in households.

<sup>23</sup> Due to data limitations, I cannot account for household access to other types of collateral including nonresidential buildings and land.

<sup>24</sup> See Howard Wall, “The Missouri-Wide Effects of City Earnings Taxes,” Policy Paper No. 37 (2020), also included in the *Missouri Policy Journal*, accessed at <https://www.lindenwood.edu/academics/beyond-the-classroom/publications/missouri-policy-journal/number-9-spring-summer-2020/>