

Regional Income Inequality in the United States: 1969-2017

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In the wake of the Great Depression and World War II, economists spent great energy searching for insights into the phenomena of economic growth and economic development. The mood was positive; if the determinants of growth and development could be revealed, solutions could be found. Much of the effort focused on narrowing the gaps between rich and poor nations although intranational regional variation received some attention. This paper explores the extreme differences in regional income across U.S. counties in the 1969-2017 period.

The analysis focuses on the tails of the regional income distribution, the 100 lowest and 100 highest per capita income counties. This is a procedure used by Peach (1996) in an analysis of regional income inequality from 1959 to 1989. The work is motivated by J. K. Galbraith (1964).

There is no place in the world where a well-educated population is really poor. If so, let us here in the United States select, beginning next year, the hundred lowest income counties ...and designate them as special education districts. These would be equipped (or re-equipped) with a truly excellent and comprehensive school plant, including primary and secondary schools, transportation and the best in recreational facilities. (1964, 1967, p. 129).

At least two factors raise the expectation that regional income inequality might have changed in the last half-century. First, major structural changes have occurred at the national level. These changes are both institutional and technological. The institutional changes include tax reform, welfare reform, NAFTA and other trade agreements, earned income tax credits, increased spending on social programs, and a national trend toward greater income inequality among individuals, households, and families. Technological changes include the widespread adoption of personal computers, the internet, cell phone use and dramatic changes in the biological sciences, among others. It is possible, but not obvious, that these and other structural changes have altered traditional patterns of regional income inequality. The second is that growth theory suggests that regional economies should converge over time.

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A note on Growth Theory

Traditional (neo-classical) growth theory, derived from Solow (1956), contains two assertions that have guided many studies on regional inequality. The first is the inevitability of the steady state. The second proposition is that per-capita output and income levels will converge over time. The absolute convergence hypothesis proposes that “per capita incomes of countries converge to one another in the long run independently of their initial conditions” (Galor 1996, p. 1056).

Conditional convergence suggests that initial conditions matter and that there is no single steady state to which all areas must converge.

Empirically, the prediction of absolute convergence has found little support. As Solow recognized, general economic principles “apply differently in different social contexts” (Solow 1962. quoted in Halsmayer 2014, p. 247). Because countries have different savings rates, education rates, rates of technological advancement, and institutional milieu, not all countries converge to the same steady state. While this paper does not specifically test the convergence hypothesis, growth theory at least hints that regional change should occur, other things equal.

Solow hinted at the importance of social context. Original institutionalism takes a holistic view of the economy and its place in society. The economy is embedded in the greater social system where ceremonial encapsulation and past boundedness are likely to constrain change. Other things are seldom equal.

Literature Review

Most of the literature on regional inequality focuses on one of four things: to understand the social impacts of inequality, to find whether regions are converging, to understand the determinants of regional economic growth, or to reveal the apparent causes of regional inequality. A sample of related studies is reviewed below.

Young, et al (2008) define σ -convergence as the case when “the dispersion of real per capita income [...] across a group of economies falls over time” (p.1083). β -convergence is evident when “the partial correlation between growth in income over time and its initial level is negative” (p. 1083). Using both state and county income data, Young, Higgins, and Levy (2008) seek evidence of beta and sigma convergence in the United States over the 1970-1998 period. They find evidence of beta convergence but little evidence of sigma convergence and many cases of sigma divergence. Income dispersion across counties is steady or growing through time. Doran and Jordan (2016) also use state and county data. They examine both between-state and within-state inequality using Theil coefficients. Decomposing the Theil coefficients, they conclude that there has been some

convergence between states but growing divergence within states during their 1969-2009 study period. Nunn, Parsons, and Shambaugh (2018) use confirmatory factor analysis to create a county “vitality index” and then look for county-level index convergence between 1980 and 2016. They concluded that “if a county had low vitality in 1980 it was likely to have low vitality in 2016” (p.6). They find that five factors, population density, the degree of industry concentration, the manufacturing share of employment, the share of those without a high school degree, and the share of college graduates, explain 71% of the 1980 index variation and 66% of the 2016 variation. In all, the evidence suggests that county-level income convergence is not meeting theoretical expectations.

Rupasingha, Goetz, and Freshwater (2002) work to explain persistent differences in county growth rates. Their dependent variable is 1990-1997 county per-capita income. They incorporate a wide variety of independent variables, including social and institutional variables. They estimate an ordinary least squares (OLS) regression, find evidence of spatial effects, and then re-estimate the model using both spatial autoregressive (SAR) and spatial error (SEM) models). They find that ethnic diversity and higher levels of social capital have positive impacts on growth while income inequality is associated with lower growth rates. Spatial effects are also significant.

Two papers address both county level growth and county-level income inequality. Ngarambé, Goetz, and Debertin (1998) studied 1970s and 1980s changes in real family income in 1,257 counties in the southern U.S. The results were mixed. Outcomes changed with the decade. Education levels, growing wage differentials between skilled and unskilled labor, and household structures were influential. Ultimately their findings suggest that it “may not be possible to simultaneously achieve rapid economic growth while also reducing income inequality” (p.336). Kim (2004) used factor analysis to construct several growth factors and then used them to explain growth and inequality using 1979-2000 data from counties in Florida, both for the whole state and in regional groupings. Because factors were used as independent variables it is difficult to briefly identify causes, but the general conclusion is that the Gini coefficient, human capital, urbanization, and other factors influenced county growth in income.

Data:

The two main sources of income data at the county level are from the U.S. Bureau of the Census (Census) and the Bureau of Economic Analysis (BEA). Both agencies are part of the U.S. Department of Commerce. There are major differences in these data sources. In this paper, we are using BEA income data for 3,089 counties that appeared in all years.

BEA has published annual estimates of county level per capita income since 1969 as well as state estimates dating to 1929. The BEA income data differ substantially from Census data in both

concept and method of collection. The Census income data are collected by surveys, exposing the estimates to both sampling and non-sampling error. In contrast, the BEA data are collected from administrative sources including the Internal Revenue Service, the Social Security Administration, and other agencies of the federal government. Among the most important conceptual differences is that BEA includes supplements (e.g. benefits) in its wages and salaries data while Census does not since the supplements are not ‘money income’. BEA personal income also includes the imputed value of owner-occupied housing while Census money income does not.

In 2003, the Census Bureau implemented the American Community Survey (ACS) and county level income data changed dramatically. The motivations for starting ACS included replacing the old Census long-form, providing annual estimates of economic and social characteristics of the population, and saving some money. The shift from the Census long-form to ACS created a number of difficulties for those interested in regional income inequality over time. For example, as of 2017 (U.S. Bureau of the Census) the ACS sample size is too small to provide annual estimates for counties with a population of less than 65,000. Instead, five-year averages are published. In 2017 2,292 of 3,137 counties and county equivalents were below the 65,000 threshold (73.1%).

Counties

In 2017, Issaquena County, MS was the poorest county in the US, as measured by BEA per capita income (\$11,937) only 21.9% of the national average \$54,446. Issaquena County is located adjacent to the Mississippi River, to the north and west of Jackson. Issaquena County is the smallest county in Mississippi in terms of population (1,339 in 2017), less than half (48.1 %) of its population in 1969.

Like many poor counties, Issaquena is a majority-minority county (63.8% Black compared to the national average of 13.4%). The median value of an owner-occupied house was \$50,200 compared to the national figure of \$193,500. Less than half of households had access to broadband internet (49.2%) compared to the national average of 78.1%. Among the population 25 years old and older, 6.1% held a bachelor’s degree or higher compared to the national figure of 30.9%. The poverty rate in Issaquena County (38.1 %) is nearly twice as high as in Mississippi (19.8 %) and more than three times as high as in the US (11.8 %). In 2017, the unemployment rate in Issaquena County was 11.8%, nearly three times the national rate of 4.4%.

Like many of the nation’s lowest income counties, Issaquena County has been poor for a long time. The BEA data on county per capita income began in 1969 and Issaquena County has been among the lowest 100 counties since that time.

Teton County, Wyoming had the highest per capita income (\$233,680) of any US county in 2017. This figure is more than four times the national average (\$55,446) and nearly twenty times (19.5) the per capita income of Issaquena County. Teton County has been in the top 100 counties in terms of per capita income since 1969. The largest city in Teton County is Jackson.

Teton County is 95.2% white and 81.5% white non-Hispanic. The median value of an owner-occupied house in Teton County was \$739,100, nearly four times the national figure (\$195,500) and nearly 15 times (14.9) the figure for Issaquena County. Access to broadband was high with 83.5% of households having this service. Among the population 25 years old and older, 54.1% held a bachelor's degree or higher compared to the national figure of 30.9%. The poverty rate in Teton County was 5.8%, about half of the national poverty rate. In 2017, Teton County had an unemployment rate of 2.8%.

Low-income counties differ from the high-income counties. The lowest 100 counties are geographically concentrated in four main clusters: (1) Appalachia (16 counties in Kentucky, West Virginia and Tennessee); (2) the Deep South (44 counties in Arkansas, Mississippi, Louisiana, Alabama, Georgia, and South Carolina and Florida); The US Mexico Border (10 counties in Texas), and the Plains states (22 counties in Oklahoma, Colorado, Missouri, North Dakota and South Dakota). In contrast, the high-income counties are concentrated in the east and west coasts (44) and a scattering of counties in the rest of the nation. See Maps 1 and 2.

The low-income counties are generally small rural counties with low population density. In 2017 the 100 lowest-income counties housed less than 1% of the nation's population while the 100 highest income counties contained nearly 15% of the nation's population (Table 1). The low-income counties are smaller than the average US county and were just under half the size of the high-income counties. Population density in the high-income counties was seven times that of the low-income counties. Less than a fourth (23) of low-income counties had a population larger than 25,000, while nearly three-fourths (74) of high-income counties had a population greater than 25,000.

The low-income counties are also racially and ethnically concentrated when compared to the high-income counties. The people of the low-income counties are less likely to be White non-Hispanic, but more likely to be Black, Hispanic or American Indian than those living in the highest income counties. Only a small% of the people in the low-income counties are Asian (1.09) compared to the national average (5.35) or the highest income counties (12.05).

The aggregate figures for the 100 lowest and highest income counties conceal some of the racial and ethnic concentration. While as a group, the 100 lowest income counties are 15.2% Black, the 26 low income counties in Alabama, Georgia, and Mississippi are 55.7% Black. As a group, the

100 lowest income counties are 12.9% Hispanic, but the ten Texas counties in the group are 86.8% Hispanic. As a group, 3.5% of the 100 lowest counties are American Indian but the nine counties in the group in the Dakotas are 64.7% American Indian. In contrast 17 of the lowest 100 counties located in Kentucky, Tennessee, and West Virginia (Appalachia) are 90.1% White and 89.9% White non-Hispanic.

Other indicators of social and economic well-being are not surprising. Educational attainment as measured by the% of the population 25 years old and older with a bachelor's degree or higher is 12.2% in the 100 lowest income counties, a figure that is substantially lower than the nation (30.9%), and the 100 highest income counties (43.3%). The median value of a house in the 100 highest income counties is nearly 5 times that found in the lowest income counties. The unemployment rate in the lowest income counties is not quite double the unemployment rate in the 100 highest income counties. The poverty rate in the 100 lowest income counties (26.8%) is nearly three times the poverty rate found in the 100 highest income counties.

Table 1 about here

As displayed in Table 2, the composition of the lowest 100 counties changes slowly over time. From 1969 to 1979, 53 of the original 100 counties remained in the bottom 100 and 88 of the original counties were in the bottom 10% of counties. Little had changed by 1989, when 52 of the original counties remained in the bottom 100 and 86 of the original counties were in the bottom 10%. Indeed, by 2017 (not quite fifty years later), 28 of the 100 lowest-income counties in 1969 remained on the list and 66 were in the bottom 10% of counties.

Table 2 about here

There is greater stability in the high- income counties. From 1969 to 1979, 60 of the 100 highest income counties remained in the top 100 and 85 of those counties were in the top ten%. In some decades, three quarters of the 100 highest income counties remained in the top 100 a decade later (e.g., 1989 to 1999). From 1969 to 2017, nearly half of the 100 highest income counties remained in the top 100 and 71 of the high- income counties remained in the top ten%.

Concluding remarks

The 100 lowest income counties in the US are different from the 100 highest income counties and the nation. The 100 lowest income counties are geographically concentrated in a few clusters, while the 100 highest income counties are geographically dispersed. The low- income counties are generally small and rural with low population density while the high- income counties are not. The residents of the low-income counties are more likely to be from racial and ethnic minority groups than those from the high-income counties or the nation. The people of the low-income counties are likely to be less well-educated than their counterparts in the high-income counties and the

nation. Both groups of counties changed slowly from decade to decade and over the nearly fifty years examined.

A reasonable assertion is that these conditions will not change substantially over the next fifty years. While the particular counties comprising the lowest 100 counties in terms of per capita income may be different, these counties will still be concentrated in the same regional clusters: Appalachia, the Deep South, the US Mexico border area, and the Great Plains. Fifty years from now, the people of the lowest income counties are still likely to be members of racial and ethnic minority groups. And, fifty years from now the people of the lowest income counties are likely to remain less well-educated than the people of the highest income counties or the nation.

Dramatic technological and institutional changes over the last fifty years have not altered the nature of regional income inequality in a substantial way, nor are such changes likely to do so during the next fifty years.

Table 1 County Characteristics, 2017

	Lowest 100 Counties	US	Highest 100 Counties
Per Capita Income	\$26,448	\$31,177	\$83,260
Population	3,052,629	321,004,407	44,797,436
Percent White Non-Hispanic	58.96	61.4	71.34
Percent Black	15.12	12.65	9.98
Percent American Indian	3.51	0.82	0.38
Percent Asian	1.09	5.35	12.05
Land Area (Sq. Miles)	858.1	1128.9	1784.2
Population Density	35.0	91.2	246.6
Percent Hispanic	12.92	18.3	11.91
Percent with BA or More	12.24	30.9	43.3
Percent Below Poverty Level	26.84	11.8	9.03
Median Value of House	\$79,689	\$193,500	\$373,003
Median Age	38.8	37.8	41.2
Dependency Ratio	64.79	60.8	61.10
Unemployment Rate	5.8	4.4	3.7
Sources: American Community Survey, 5 Year Estimates, 2013-2017 and Bureau of Labor Statistics, Local Area Unemployment Statistics.			

Table 2 County Changes by Decade

Lowest 100 Counties Remaining in Lowest 100 (lowest 10 %) by Decade					
	1969	1979	1989	1999	2009
1969	100 (100)				
1979	53 (88)				
1989	53 (89)	52 (86)			
1999	40 (79)	45 (74)	59 (96)		
2009	28 (66)	33 (70)	34 (71)	44 (83)	
2017	28 (66)	29 (66)	32 (69)	39 (75)	70 (92)
Highest 100 Counties Remaining in Highest 100 (highest 10 %) by Decade					
	1969	1979	1989	1999	2009
1969	100 (100)				
1979	60 (85)				
1989	60 (79)	60 (79)			
1999	61 (73)	54 (73)	76 (97)		
2009	43 (69)	50 (76)	67 (92)	75 (95)	
2017	48 (71)	54 (75)	66 (94)	76 (98)	74 (94)
Source: Author calculations from BEA personal income data.					

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Map 1: 100 Lowest Per Capita Income Counties 2017



- Low Income Counties
- Other Counties



Map 2: 100 Highest Per Capita Income Counties 2017



- High Income Counties
- Other Counties

