Communities Moving Ahead, Falling Behind: Evidence from the Index of Deep

Disadvantage

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Bios

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Acknowledgements

Abstract

Using a multi-dimensional index weighting factors related to income, health and social mobility—the Index of Deep Disadvantage (IDD)—we rank the well-being of disadvantaged U.S. counties (initial scores below the median IDD) on the cusp of the Great Recession and then again well into the recovery. We consider their trajectories and compare the characteristics of counties that saw improvements since the onset of the recession to those that saw declines. We find a clear majority of counties were stable in relative rank. Counties showing improvement tended to have been worse off pre-recession compared to declining counties. Improving counties were less likely to be urban, tended to have smaller fractions of the population identifying as black and larger fractions as Hispanic, and had a lower proportion of jobs in manufacturing and larger proportion in mining. Stable counties were, on average, the worst off and actually experienced absolute declines in well-being.

The Great Recession of the late 2000s was the worst and longest-lasting downturn since the Great Depression. It forced many workers into long-term unemployment, others to withdraw from the labor market, and increased the risk of underemployment for those who remained employed (Grusky, Western, and Wimer 2011; Couch et al. 2018; Kroft et al. 2016). This downturn was followed by what some now call the "long recovery," which while protracted, eventually became by some measures the strongest in history. The consequences of the Great Recession and the benefits of the long recovery were demographically and geographically uneven, and it remains important to understand the long-term consequences of this shock. In this article, we use a novel index of community-level economic well-being drawing on factors related to income, health, and social mobility, the Index of Deep Disadvantage (IDD), to examine the trajectories of disadvantaged communities from prior to the Great Recession to well into the recovery. Have the conditions in communities improved or declined during these tumultuous years, and in what ways? Was the pre-existing degree of disadvantage predictive of improvement or decline? Finally, were particular geographic, demographic, or economic factors associated with different trajectories?

Restricting our sample to counties that were disadvantaged prior to the recession—scoring below the median on our index—we find that a clear majority of counties can be classified as "stable," moving relatively little in rank over the course of the recession and the recovery. Approximately 24 percent of counties we call "risers" because they moved up the IDD rankings at least one ventile, and approximately 16 percent we call "decliners" because they moved down the rankings at least one ventile. Stable counties that did not change position tended to be more disadvantaged prior to the "Great Recession" compared to rising and declining counties.

Rising counties had smaller proportions of people identifying as black and larger proportions as Hispanic in the population, and had lesser reliance on manufacturing and greater reliance on mining as components of the local labor market. Declining counties were somewhat better off pre-recession and tended to be more urban. Demographically, stable counties had larger fractions of the population identifying as black when compared to other counties. Counties we classify as "stable" actually tended to see absolute decline on many indicators of well-being, diverging even further from the rest of the nation after the recession.

Background

The Great Recession was unprecedented in the post-Second World War era, with deep unemployment, decline in overall economic activity, losses of income and wealth, and chilling of credit markets, among other consequences. One of the most notable features of the "Great Recession" is what has subsequently been termed the "long recovery," which was protracted compared to other recessions but ultimately segued into a period of extraordinarily low unemployment and rising incomes even among low-earning workers.

Research finds that not all individuals and households were equally exposed to the hardships of the Great Recession (Bitler and Hoynes 2015; Pfeffer, Danziger, and Schoeni 2013). The largest proportional wealth losses were concentrated among households of color, and the racial wealth gap not only persisted during the recovery, it actually grew larger (Weller and Hanks 2018). Other indicators followed similar patterns. Blacks and Hispanics were more likely than whites to experience employment loss during the recession, and for blacks in particular the probability of re-employment declined (Couch, Fairlie, and Xu 2016). Using the official poverty measure, poverty rate among blacks and Hispanics—already considerably higher than the rate for whites—increased more sharply than it did for whites, and by 2010 blacks had a poverty rate

of 23.3 percent and Hispanics 22.4 percent compared to a rate of 9.9 percent for whites (Danziger, Chavez, and Cumberworth 2012). People with lower levels of education, low incomes, and lesser existing wealth saw larger proportional wealth declines (Pfeffer, Danziger, and Schoeni 2013). Men were hit harder by unemployment than women (Cunningham 2018; Hoynes, Miller, and Schaller 2012) because men are clustered in industries and occupations more likely to be impacted by economic downturns (Hoynes, Miller, and Schaller 2012).

The negative consequences of the recession also varied geographically, with some states experiencing surges in unemployment and poverty while others saw modest changes. As an example, in 2006 California's poverty rate was 12.2 percent and its unemployment rate was 4.9 percent. In 2010, these figures had risen to 16.3 percent and 12.2 percent, respectively. Over that same period, New Hampshire's poverty rate grew from 5.4 percent to 6.4 percent and its unemployment rate grew from 3.4 percent to 5.8 percent (University of Kentucky Center for Poverty Research 2020). One driver of these differences is industrial composition. An analysis of changes in state unemployment rates found that larger shares of Gross State Product in manufacturing were associated with larger increases in unemployment (Walden 2012).

Similar patterns were evident in finer geographic units. Thiede and Monnat (2016) found that counties within some states experienced much larger unemployment impacts than others, with noticeable clustering in parts of the West, the Southeast, and the Midwest. Larger populations of color (percent Hispanic and percent black), lower prevailing levels of education, and a larger proportion of the local workforce employed in manufacturing and in construction within counties were associated with larger increases in unemployment. In contrast, larger proportions of workers in agriculture, forestry, fishing, hunting, and mining were associated with better outcomes.

Differences in the effects of the recession were found at the city and even the neighborhood level. Examining neighborhoods in Chicago, Williams and colleagues (2013) find areas of pre-existing disadvantage and larger fractions of people of color were more likely to experience declines in local labor and housing markets. Kim and Cubbin (2019) examined Geographic Research on Wellbeing (a survey of postpartum women in California) data and found that previously high-poverty neighborhoods and (paradoxically) majority white neighborhoods experienced greater economic deterioration. Lerman and Zhang (2012) combined Panel Study of Income Dynamics data with neighborhood-level data on unemployment, poverty, and home prices, finding that high-poverty neighborhood dwellers experienced greater wealth losses and housing challenges than those in low-poverty areas.

Research Questions

Studies of community-level recovery from the recession tend to be limited in scope, focusing on particular geographic areas or specific indicators. Existing analyses also end relatively early during the recovery, so it is not possible to infer the complete trajectory of communities from pre-recession through economic rebound. How did community circumstances change, across multiple indicators, from prior to the recession until the end stages of the recovery? How do communities that improved, grew worse off, or remained relatively stable differ?

Methods

This article builds on the "Understanding Communities of Deep Disadvantage" project, an iterative mixed-methods study that seeks to broaden the poverty lens beyond income-based measures to other dimensions of disadvantage, such as health and economic mobility. It shifts attention from the individual to community. It is conducted by an interdisciplinary team of

researchers from the University of Michigan and Princeton University (principal investigators H. Luke Shaefer, Kathryn Edin, and Timothy Nelson) with funding from the Robert Wood Johnson Foundation. It uses methods that combine big data with systematic, in-depth qualitative interviews and ethnographic observations to better understand communities of deep disadvantage, with the goal of painting a vivid portrait of the lived-experiences of poor individuals and families in the nation's poorest communities.

Measuring Community Disadvantage

The first phase of the larger program of study involved the construction of a multidimensional Index of Deep Disadvantage (IDD) for all counties and the 500 largest cities in the U.S. The IDD draws on Census and administrative data to examine vulnerability in three interconnected domains of high salience to Americans: 1) income, using poverty and deep poverty rates that are official metrics of well-being for the nation; 2) health, using life expectancy and low birth weight, both of which are deeply connected to well-being over the life course; and 3) social mobility, using new estimates for counties and cities. Principal component analysis was used to weight these variables (standardized for comparison). This tool reveals that deep disadvantage across these dimensions is clustered in the U.S. in the Deep South, the Cotton Belt, Appalachia, the Rio Grande Valley, and across western Native Lands. This article uses the IDD to examine trajectories of communities over time, comparing index ranking as well as its components and other metrics at the cusp of the Great Recession and again well into the recovery.

We begin by constructing a pre-recession and a post-recession IDD for U.S. counties. The IDD is the first principal component from a principal component analysis (PCA) of the five features of the index. PCA yields a weighted average of the features where the weightings are

chosen to capture as much of the variation in the observed data as possible. PCA is sensitive to the magnitude of each feature included. Therefore each feature was normalized by subtracting its mean and dividing by its standard deviation. The first principal component represents over sixty percent of the variation in the data. The weights on each variable are fairly even, with a slightly higher loading on the share of community residents in poverty. Importantly, while we use social mobility in our primary index, these data are static so not otherwise analyzed.

Sample

We build a sample of all U.S. counties with data available on each component of the IDD prior to the recession (sufficient data is available for all counties post-recession). Of the United States' 3,141 counties, we find sufficient data for 1,817, approximately 58 percent.[1] Our analyses use a sample restricted to counties classified as "disadvantaged," those below the median value of the IDD pre-recession, giving a sub-sample of 908 U.S. counties.

Analysis

We first divide all counties, including those categorized as advantaged, in our sample into ventiles (twenty evenly-sized rank-ordered groups) based on the pre-recession IDD, then repeat the procedure for the post-recession IDD. After restricting to pre-recession disadvantaged counties, we categorize counties as "decliners," "risers," or "stable," depending on whether they moved in their ranking of disadvantage relative to other counties. We define a "decliner" as a county that moved beyond the adjacent ventile down the rankings, a "riser" as a county that moved beyond the adjacent ventile up the rankings, and a "stable" county as one that either

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[1] The primary limiting factor is coverage of county-level pre-recession poverty estimates.

remained in the same ventile or moved to an adjacent tranche.[2] These procedures evaluate change relative to other counties, not absolute change. A stable county may grow worse on some indicators, for example, but would maintain approximately the same rank if a majority of counties also grew worse on the indicator. We revisit this issue elsewhere in the article.

Having assigned counties to "rising," "declining," and "stable" categories, we next examine their pre-recession characteristics, starting with descriptive statistics on each component. We also consider other factors such as the pre-recession unemployment rate and median income, educational attainment as operationalized by the proportion of the working-age population with a bachelor's degree or greater, racial and ethnic composition, urbanicity, industry mix, and presence of tribal land in the county (note that racial and ethnic demographic data are available for only a subset of counties, limiting the sample for these analyses to 296 counties). We report the F-test from a linear regression, with standard errors clustered by state, to assess whether the differences on these factors are statistically significant between groups. After profiling counties in each group, we examine how they changed from pre-recession into the latter stages of the recovery by calculating differences on each component of the IDD and other indicators. Variables and their sources are listed in Table 1.

<TABLE 1: Data and sources.>.

Results

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[2] A reasonable question is whether we miss "advantaged" communities that subsequently fell into disadvantage. Examining the full sample (n=1,817), we find that only approximately 5 percent of counties were advantaged pre-recession but disadvantaged post-recession and only 5 percent exited disadvantage.

Initial Characteristics of Disadvantaged Communities

Table 2 presents descriptive statistics of the pre-recession characteristics of disadvantaged counties. The first column is for the sample overall; the subsequent columns present the descriptive statistics within each ventile. More disadvantaged counties were generally worse off on all indicators of wellbeing. They had distinctly higher poverty rates, deep poverty rates, higher rates of low-weight births, lower life expectancy, higher unemployment and lower median income than other counties. More disadvantaged counties generally had a somewhat lower proportion of residents with a bachelor's degree or greater. The most disadvantaged counties also tended to have larger proportions of the population identifying as black—nearly 40 percent, on average, in the most disadvantaged tranche. While counties in the second and third lowest ventiles had the largest proportions of their populations identifying as Hispanic, there was otherwise no consistent association with rank. Counties lower in initial ranking had a larger fraction of jobs in agriculture and mining while manufacturing was less prevalent at both the very bottom and the upper range of the distribution.

<TABLE 2: Descriptive statistics of communities classified as disadvantaged prior to the Great Recession.>

Change Over Time

Approximately 16.2 percent of counties (n=147) were "decliners," dropping more than one ventile in rank from pre- to post-recession. Another 24.2 percent were "risers" increasing more than one ventile. Most counties, 59.6 percent, were relatively stable in rank, remaining in the same ventile or shifting to an adjacent one. Table 3 presents pre-recession descriptive statistics on "declining," "rising," and "stable" counties and the F-test from a regression, with

standard errors clustered by state, to assess differences between the characteristics of interest among these three groups.

<TABLE 3: Pre-recession characteristics of declining, rising, and stable counties.>

"Decliners" actually tended to be initially more advantaged than "risers" or "stable" communities while communities categorized as "stable" had the lowest mean IDD score. Thus, the worst-off communities were, on average, the least likely to change ranking. Similar results are evident in each of the component variables. Decliners had lower initial poverty and deep poverty rates than risers or stable counties, with the latter two groups approximately the same. With regard to health indicators, "decliners" had the lowest initial rate of low birthweight, "risers" a slightly higher rate, and "stable" counties the highest rate. Decliners had the longest average life expectancy, though the mean rate for risers was only slightly lower. Life expectancy was, as with other characteristics, lowest for counties categorized as stable.

Both decliners and risers had a smaller average proportion of the population identifying as black than stable counties while risers had a larger proportion of the population identifying as Hispanic.[3] County categories did not meaningfully differ on educational attainment. Decliners had a noticeably higher median income pre-recession, however. Finally, decliners were more likely to be urban than either risers or stable counties, though the difference was only marginally statistically significant. Presence of a tribal reservation was not associated with movement in the IDD rankings. Finally, rising communities tended to have a lower proportion of jobs in manufacturing and a higher fraction in mining compared to either decliners or stable communities.

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[3] We reiterate, however, that demographic data is available for only a subset of counties

The map in Figure 1 presents the geographic distribution of rising, declining, and stable counties. Missing counties are primarily low-population rural units in the Great Plains. The next largest group of counties are those classified as advantaged (above the median IDD score) prior to the Great Recession, and therefore excluded from our analysis of change. These are primarily found in the Northeast, parts of the upper Midwest, and in the West. Rising, declining, and stable counties are distinctly clustered in the South, a result of many Southern counties being classified as disadvantaged pre-recession. Rising counties are distributed throughout the South with noticeable clusters in Louisiana and Texas. Additional pockets of rising counties are found in Oklahoma, Arkansas, Missouri, and central Washington state. Declining counties are more sporadically distributed, with a high number but little clustering in the South, in the "rust belt" of the upper Midwest (particularly Michigan and southern Ohio) and western New York, New Mexico, Nevada, and in interior and northern California.

<FIGURE 1: Map of county trajectories from prior to the "Great Recession" through the recovery.>

Absolute Change

Table 4 presents the pre-and post-recession means and standard deviations on our indicators of economic and social well-being for all disadvantaged counties. Post-recession average poverty, deep poverty, and low birthweight rate were all slightly but significantly higher following the recovery compared to the cusp of the recession. Conversely, life expectancy grew slightly but significantly longer. Unemployment rate was slightly lower, 7.74 percent compared to 7.84 percent, following the recession, but this difference was not statistically significant. Finally, population size tended to increase over time, from a mean of approximately 122,000 to 129,000.

<TABLE 4: Pre- to post-recession change among pre-recession disadvantaged counties.>

Table 5 presents the pre-recession and post-recession values and their differences for the declining, rising, and stable groups, and here differences emerge. The final column of the table presents the F-test from a regression, with state-clustered standard errors, of the pre- to-post-recession difference in the characteristic of interest on the indicators for county groups. Differences in change in poverty, change in deep poverty, low birthweight, life expectancy, and median income were statistically signficant. Both decliners and stable counties grew worse off on poverty, deep poverty, rate of low birth weight, and median income, although the differences were larger for the decliner group. Risers improved on all these indicators. While all counties improved on average in life expectancy, rising counties improved the most and declining counties the least. Differences in unemployment rate were only marginally significant.

<TABLE 5: Pre-recession to post-recession absolute change by county trajectory group.>

Discussion

Our clearest finding is that the norm was actually relative (but not absolute) stability among counties. The largest group of counties, approximately 60 percent, either remained in the same ventile or moved to one adjacent. Despite the seismic changes of the Great Recession, a county near the top of the distribution was likely to remain so following the recovery, and a county in extreme disadvantage tended to remain that way as well.

While the largest group of counties in our analysis did not meaningfully shift in rank, approximately 16 percent declined and 24 percent improved on our IDD composite measure of well-being. Prior to the Great Recession, "decliners" tended to be better-off on some economic indicators than "risers," with lower poverty rates and higher median incomes. They did have higher unemployment rates, however, perhaps presaging their subsequent decline. Decliners also

had slightly higher rates of low birthweight and slightly lower life expectancy, on average, compared to "risers," but the differences are practically negligible. Decliners tended to have larger fractions of the population identifying as black than risers, but smaller populations identifying as Hispanic.

On all of our key indicators, stable counties—those that did not change more than the adjacent ventile in the rankings on our IDD composite measure of disadvantage—were worse-off prior to the Great Recession. They had worse IDD scores, higher poverty rates, elevated incidence of low birthweight, higher unemployment rates, lower median income, and lower life expectancy. Communities near the bottom of the distribution prior to the recession were likely to still be near the bottom well into the recovery. Movement up and down the rankings was primarily a reshuffling among counties that were already somewhat better off. These stable communities also had the largest average fraction of the population identifying as black, though their Hispanic population proportion was not noticeably different from "rising" counties.

A possible explanation for the relative stability among the worst-off counties is simply how far removed they were from more advantaged counties to begin with, even when restricting our sample to counties below the median on the IDD measure. Pre-recession, the values of many of our key variables are fairly close in the upper ventiles; that is, a county in the ninth ventile is not greatly different from one in the eighth or even the seventh ventile. However, there are more expansive gaps in the lower ventiles, so a more substantial absolute change is required to move meaningfully in rank.

Improvements or declines tended to happen across all indicators in the IDD. Among counties that grew worse off, for instance, average poverty rate increased by 3.8 percentage points, the deep poverty rate by 2.6 percentage points, and the rate of underweight births by 0.60

percentage points. For decliners, average poverty increased by 1.7 percentage points, deep poverty by 0.8 percentage points, and underweight births by 0.27 percentage points. The major exception to this pattern is life expectancy, which on average improved slightly for all county classifications.

Limitations

We do not analyze the causes of change within communities, which could come from either change in the experiences of people in communities or changing composition due to inflows or outflows. Using county as the unit of analysis could mask important within-county variation, such as a distressed city in an affluent area or a disadvantaged neighborhood within a prosperous municipality. Further, our sample is restricted by the availability of relevant data. Many missing counties are extremely rural and counties of this nature are therefore under-represented in our analysis. As the worst-off counties in the observed sample are disproportionately rural, we could be missing some pockets of deep disadvantage.

Communities in the Next Crisis?

As of the writing of this article, the United States is in the midst of a new seismic economic upheaval because of the coronavirus epidemic. We cannot say with certainty whether the longer-term trajectories of disadvantage will parallel those of the Great Recession but our analysis offers some insights into possible consequences of this new shock. Perhaps most importantly, the most vulnerable communities prior to the Great Recession were still among the worst-off following the recovery, and even grew worse off in absolute terms on some key indicators such as poverty and deep poverty. There is little reason to believe a different outcome is likely for these worst-off communities in the latest recession. Analysts have described the initial phases of the economic recovery from the pandemic-related recession as "k-shaped," with

the circumstances of already-advantaged households rebounding quickly and those of disadvantaged households continuing to deteriorate. If this pattern holds and it aggregates to the community level, we might expect to see increasing stratification in indicators of disadvantage.

Service sector jobs and retail jobs have been particularly hard-hit due to both policy and behavioral changes in response to the pandemic. Communities reliant on these industries could experience steeper declines in overall well-being, a contrast to the Great Recession when job losses in manufacturing and construction were acute. Noticeably different from the Great Recession is the role of public health measures in response to the pandemic. Some states, for instance, more quickly and extensively encouraged quarantine and curtailed non-essential economic activities. While a short-term shock to communities in states with more immediate and extensive shut-downs, the long-term economic implications and their relationship to successful management of the pandemic are as of yet unclear. On the other hand, the federal government in the CARES Act took a more inclusive approach to income support than in previous recessions, and considerable research suggests that these actions at least in the short-term may have greatly mitigated economic hardship. Understanding how the CARES Act, including a broadly available economic impact payment and greatly expanded unemployment insurance, impacted communities differentially will be important.

Conclusion

In the United States, the damage of the Great Recession and the gains of the recovery were unequally distributed. In this article, we used the multi-factor Index of Deep Disadvantage to identify disadvantaged counties prior to the recession, defined as scoring below the median on the IDD measure. We then constructed a post-recession IDD. After assigning all U.S. counties to ventiles in the two time periods, we then identified those counties that moved more than the

adjacent tranche, terming counties that grew worse off decliners, those that improved as risers, and those that stayed within one ventile of their original position as stable, then compared their characteristics. Counties that were worst off prior to the Great Recession also tended to be ranked quite low following the recovery, and these stably-ranked counties actually declined in absolute terms on measures of well-being. Rising counties tended to have been worse-off prior to the recession than declining counties, but both were on average less disadvantaged than the stable country group. Improving counties were more rural, had smaller fractions of the population identifying as black and larger proportions as Hispanic, and were economically less reliant on manufacturing. Multiple indicators, including the time-varying components of the IDD, tended to improve or decline in concert.

The most prominent lesson from our analysis is the persistence of deep disadvantage. Even following the economic upheaval of the Great Recession, the most disadvantaged counties—counties with large fractions of people of color in the population, higher poverty and unemployment rates, and poorer physical health—were still generally the most disadvantaged after the recovery and even continued to diverge from the rest of the nation. While risers and decliners had large shifts in indicators such as poverty rate, movement either up or down the rankings of disadvantage was a reshuffling of those more-advantaged communities. As the U.S. enters a new economic crisis, in this case a consequence of the coronavirus pandemic, questions about the trajectory of communities during the recovery are once again important.

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Table 1: Data and sources

	Pre-recession	Post-recession
Index of Deep Disadvantage Components		
Poverty rate	American Community Survey 3-year poverty rate estimate (2005-2007)	American Community Survey 5-year poverty rate estimate (2009-2013)
Deep poverty rate	American Community Survey 3-year deep poverty rate estimate (2005-2007)	American Community Survey 5-year deep poverty rate estimate (2009-2013)
Low birthweight	Share of live births less than 2500 grams, National Center for Health Statistics Natality Files (2003-2006)	National Center for Health Statistics Natality Files, 2011-2017
Life expectancy	Institute for Health Metrics and Evaluation, 2005	Robert Wood Johnson Foundation county health rankings
Mobility	Chetty causal mobility estimate	Chetty causal mobility estimate
Other indicators of county well-being		
Unemployment rate	American Community Survey 3-year estimates (2005-2007)	American Community Survey 5-year estimates (2009-2013)
Median income	American Community Survey 3-year estimates (2005-2007)	American Community Survey 5-year estimates (2009-2013)
Population change	American Community Survey 3-year estimates (2005-2007)	American Community Survey 5-year estimates (2009-2013)
Other Pre-Recession Descriptive Characteristics		
Percentage working-age	American Community Survey 3-year estimates (2005-2007)	American Community Survey 5-year estimates (2009-2013)
Racial/ethnic demograph	American Community Survey 3-year estimates (2005-2007)	American Community Survey 5-year estimates (2009-2013)
Urbanicity	National Center for Health Statistics (2013)	National Center for Health Statistics (2013)
Tribal land	U.S. Census (2010)	U.S. Census (2010)

Table 2: Descriptive statistics of communities classified as disadvantaged prior to the Great Recession

	Total					Pre-Recession Ventile					
		1	2	3	4	5	6	7	8	9	10
	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)
Poverty	18.68	28.26	22.83	21.15	18.57	17.80	16.92	16.19	15.89	15.02	14.11
	(5.07)	(5.47)	(3.22)	(3.08)	(2.56)	(2.59)	(2.38)	(2.24)	(2.34)	(2.31)	(2.41)
Deep poverty	7.86	12.64	9.95	8.80	7.88	7.51	6.76	6.58	6.46	6.30	5.68
	(2.75)	(3.34)	(2.48)	(2.16)	(1.78)	(1.55)	(1.05)	(1.50)	(1.47)	(1.16)	(1.12)
Low birthweight	9.05	11.45	10.58	9.57	9.26	8.89	8.68	8.38	8.01	7.78	7.85
	(1.68)	(1.89)	(1.53)	(1.29)	(1.20)	(1.02)	(1.05)	(1.01)	(1.03)	(0.94)	(0.96)
Life expectancy	75.39	73.34	74.09	74.70	74.88	75.49	75.67	75.90	76.26	76.67	76.86
	(1.67)	(1.87)	(1.53)	(1.48)	(1.20)	(1.25)	(0.82)	(1.19)	(1.16)	(1.08)	(0.98)
Unemplyment	7.84	10.48	8.85	8.21	7.47	7.59	7.80	7.30	6.97	7.27	6.61
	(2.36)	(3.43)	(2.46)	(2.35)	(1.46)	(1.60)	(2.02)	(1.88)	(1.95)	(1.73)	(1.72)
Median income	44974.14	34714.95	39773.11	41253.77	43601.53	45945.20	46483.33	47269.48	48538.95	50250.21	52013.49
	(7554.40)	(5003.63)	(4844.41)	(4968.02)	(4985.74)	(6435.12)	(5399.34)	(5543.50)	(6287.13)	(6814.85)	(6471.75)
Bachelor's+	17.07	15.48	14.72	14.95	16.48	17.96	15.83	17.78	18.30	19.93	19.25
	(7.59)	(7.20)	(7.42)	(7.44)	(6.31)	(8.57)	(5.88)	(8.83)	(7.49)	(8.22)	(6.32)
Pct black	15.79	39.79	21.46	23.85	23.26	16.90	16.43	14.05	9.77	9.52	9.06
	(14.84)	(24.01)	(18.28)	(18.92)	(13.13)	(12.81)	(12.32)	(13.36)	(9.63)	(8.21)	(7.46)
Pct hispanic	13.92	10.10	21.73	18.65	8.99	14.90	11.11	13.83	13.59	12.04	15.70
	(17.75)	(21.30)	(28.76)	(27.34)	(11.34)	(17.67)	(13.86)	(15.46)	(15.43)	(13.77)	(17.05)
Urban	0.46	0.27	0.33	0.32	0.43	0.56	0.49	0.49	0.55	0.55	0.64
	(0.50)	(0.45)	(0.47)	(0.47)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.48)
Rural	0.54	0.73	0.67	0.68	0.57	0.44	0.51	0.51	0.45	0.45	0.36
	(0.50)	(0.45)	(0.47)	(0.47)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.48)
Tribal land	0.16	0.18	0.14	0.16	0.14	0.13	0.13	0.16	0.18	0.20	0.22
	(0.37)	(0.38)	(0.35)	(0.37)	(0.35)	(0.34)	(0.34)	(0.36)	(0.38)	(0.40)	(0.42)

Table 3: Pre-recession characteristics of declining, rising, and stable counties.

	Decliners Mean (SD)	Risers Mean (SD)	Stable Mean (SD)	F(2,42)
IDD	-0.52	-0.96	-1.70	33.98***
	(0.55)	(0.91)	(1.45)	
Poverty	15.64	18.10	19.74	3.36***
	(2.64)	(4.16)	(5.52)	
Deep poverty	6.23	7.66	8.39	38.83***
	(1.38)	(2.23)	(3.03)	
Low birthwei	8.53	8.44	9.43	11.33***
	(1.22)	(1.29)	(1.81)	
Life expectar	75.85	75.89	75.05	10.97***
	(1.25)	(1.45)	(1.77)	
Unemployme	7.58	7.11	8.22	10.26***
	(1.97)	(1.83)	(2.56)	
Median incor	47994.95	46502.11	43531.97	20.26***
	(5885.32)	(7811.51)	(7498.28)	
% bachelor's-	17.32	16.61	17.18	0.50
	(6.66)	(7.51)	(7.86)	
% black	14.08	11.01	17.77	4.83*
	(12.37)	(12.01)	(15.93)	
% Hispanic	12.32	20.35	12.45	4.01*
	(15.95)	(19.57)	(17.34)	
Urban	0.53	0.42	0.46	2.74#
	(0.50)	(0.49)	(0.50)	
Rural	0.47	0.58	0.54	2.74#
	(0.50)	(0.49)	(0.50)	
Tribal land	0.16	0.18	0.16	0.12
	(0.37)	(0.39)	(0.36)	
n	147	220	541	
%	16.19	24.23	59.58	

#0.10;*0.05;**0.01;***0.001

Note that n=296 total for the percent black and percent Hispanic variables, 56 decliners, 56 risers, and 184 stable.

F test is from a linear regression with standard errors clustered by state. F(2,38) for percent black and percent Hispanic, F(2,42) for all else.

Table 4: Pre- to post-recession change among pre-recession disadvantaged counties.

	Pre-recession Mean (SD)	Post-recession Mean (SD)	Difference Mean (SD)	t(907)
IDD	-1.33	-1.26	-0.07	-3.23**
	(1.32)	(1.26)	(0.67)	
Poverty	18.68	19.71	-1.04	-10.10***
	(5.07)	(4.98)	(3.10)	
Deep poverty	7.86	8.70	-0.84	-11.55***
	(2.75)	(2.93)	(2.19)	
Low birthweight	9.04	9.18	-0.13	-4.23***
	(1.68)	(1.74)	(0.95)	
Life expectancy	75.39	75.90	-0.51	-13.89***
	(1.67)	(2.18)	(1.12)	
Unemployment	7.84	7.74	0.10	1.36
	(2.36)	(2.33)	(2.30)	
Median income	44.97	43.99	0.01	7.76***
	(0.76)	(0.76)	(0.38)	
Population (10,000)	12.15	12.93	-0.77	-6.60***
	(31.06)	(33.16)	(3.52)	

#0.10;*0.05;**0.01;***0.001

n=908

Table 5: Pre-recession to post-recession absolute change by county trajectory group.

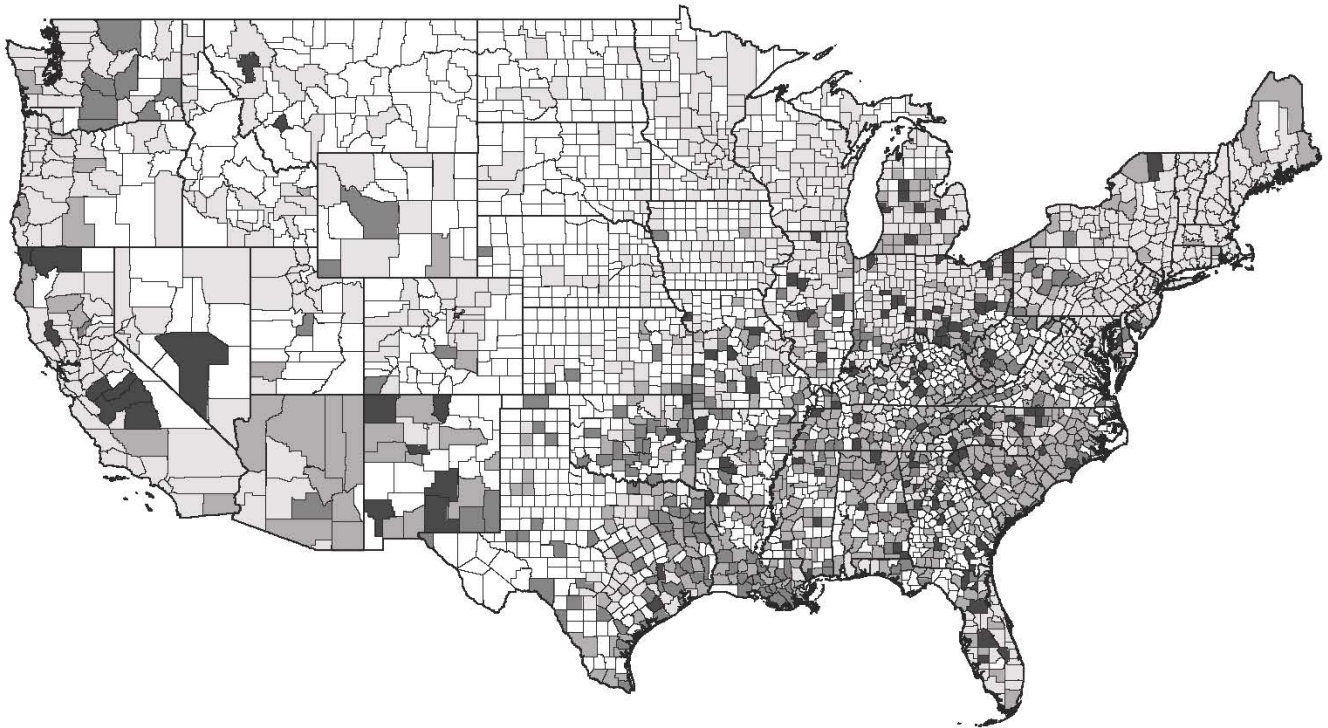|	Decliners Mean (SD)	Risers Mean (SD)	Stable Mean (SD)	F(2,42)
Poverty	3.83	-1.66	1.38	178.98***
	(2.25)	(2.47)	(2.66)	
Deep poverty	2.59	-0.83	1.04	144.13***
	(1.65)	(1.64)	(2.05)	
Low birthweight	0.6	-0.27	0.17	29.03***
	(0.82)	(0.87)	(0.94)	
Life expectancy	0.16	0.75	0.52	8.62***
	(0.91)	(1.18)	(1.11)	
Unemployment	0.13	-0.46	-0.02	2.75#
	(2.00)	(1.89)	(2.51)	
Median income (10000)	-0.35	0.16	-0.14	55.77***
	(0.32)	(0.08)	(0.32)	
Population (10000)	0.5	0.97	0.77	0.76
	(1.68)	(4.84)	(3.24)	

#0.10;*0.05;**0.01;***0.001

n=908

Values are mean and standard deviation of the pre-recession to post-recession difference on each variable.

F test is from a linear regression with standard errors clustered by state.

County Trajectories Pre-recession Through Recovery

10/30/2020

1:36,978,595

0	262.5	525	1,050 mi
0	415	830	1,660 km

US State Boundaries

USA County Boundary

County Trajectories Pre-recession Through Recovery

Decliner

Riser

Stable

Advantaged pre-recession

Missing: Insufficient data