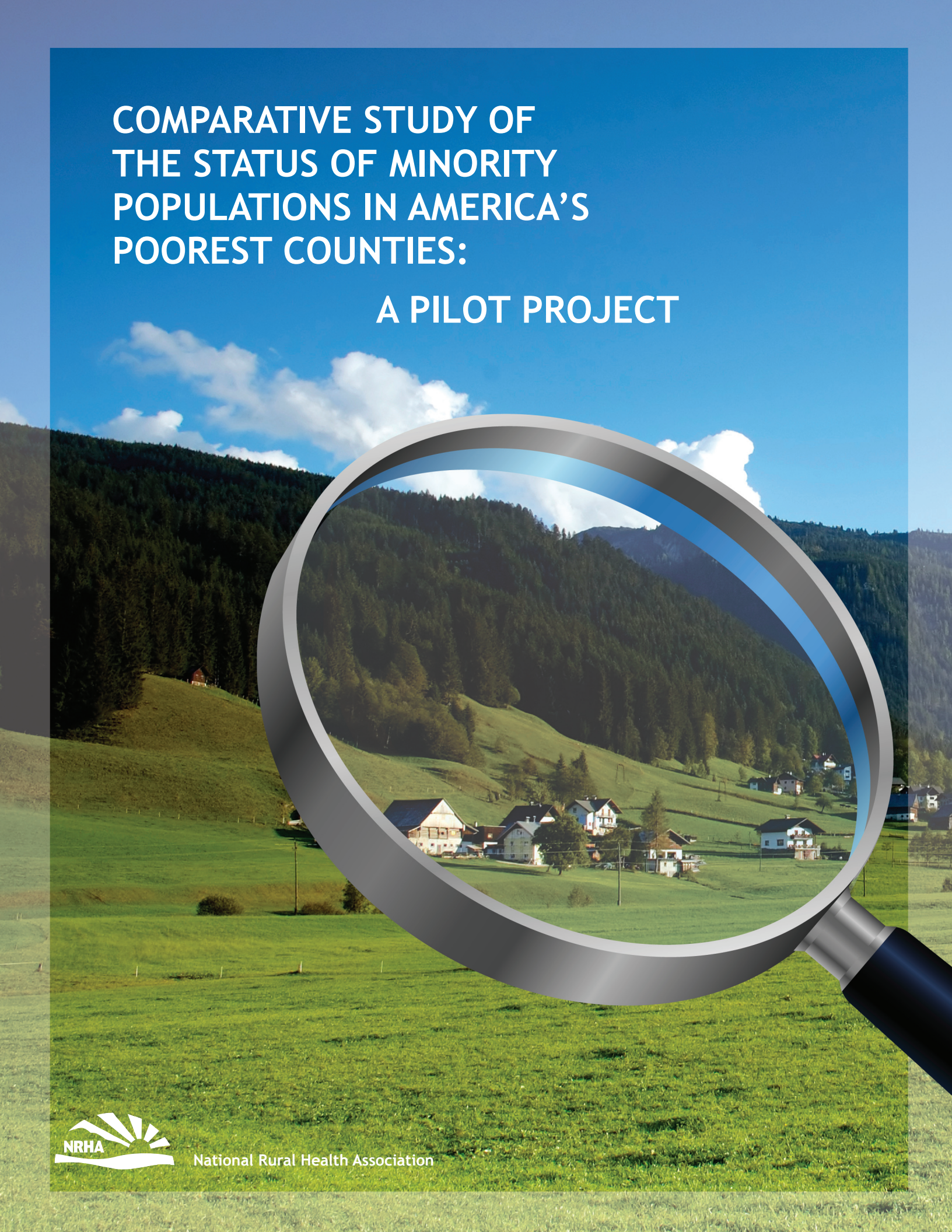
COMPARATIVE STUDY OF THE STATUS OF MINORITY POPULATIONS IN AMERICA'S POOREST COUNTIES:

A PILOT PROJECT



National Rural Health Association

COMPARATIVE STUDY OF THE STATUS OF MINORITY POPULATIONS IN AMERICA'S POOREST COUNTIES: A PILOT PROJECT

Final Report

September 10, 2008

National Rural Health Association (NRHA)
521 East 63rd St.
Kansas City, Missouri

NRHA program officer: Rosemary McKenzie,
Minority Health Liaison and Program Services Manager

Principal Investigator: Michael E. Samuels, Dr.P.H.,
Endowed Chair/Distinguished Scholar in Rural Health Policy,
Professor of Family and Community Medicine,
College of Medicine, University of Kentucky

Co-Principal Investigator: Elmer T. Whitler, M.A., M.P.A.,
Director of Research,
Center for Excellence in Rural Health,
College of Medicine, University of Kentucky

This report is dedicated to the memory

of

Calvin L. Beale, M.A.,

Senior Demographer, Economic Research Service,

U.S. Department of Agriculture

September 1, 2008

His work is the inspiration and the foundation of this study.

TABLE OF CONTENTS **PAGE**

Executive Summery

The primary findings of this study are methodological. This exploratory study served the useful purpose of identifying data barriers to the comparative study of minorities in high poverty counties, barriers to their health care access, and their disparities in health outcomes at the county level. The small numbers for each classification of rural high poverty counties often cause statistics related to them to be withheld unless the number of health incidents is above a certain threshold, usually 20 to 50 incidents or occurrences. This action is based on data guidelines promulgated by the Center for Disease Control and Prevention (CDC) and followed by most states and other health reporting authorities. This is a major problem since 97 percent of the high poverty counties have populations of fewer than 20,000 people; therefore many of the rates will often involve fewer than 50 cases. In addition, 151 of the high poverty counties are classified as "Frontier" with low population densities. This CDC policy inhibits the use of synthetic statistical measures that would be useful in approximating the health and health-related issues in low population rural counties.

This study is a pilot to ascertain the feasibility of developing a health-related profile based on data from 25 counties in five states, which could be applied to all of the 442 rural high-poverty counties. The chief classification of counties is based on United State Department of Agriculture (USDA) rural high poverty categories (Black, Hispanic, Native American/ Alaska native, Southern Highlands, and Other). Data for this classification includes rates for poverty, race/ethnicity, health and related outcome measures. The crucial question is whether methods based on currently available data can be developed that provide meaningful analysis of the relationship of poverty, race/ethnicity and health outcome measures for low population rural counties.

The study concludes that health measures can be assembled from data collected if the collection is not limited by frequency minimums. Using the five USDA categories of high poverty counties as the unit of analysis will enable comparison between ethnic and racial groups. This comparative analysis would describe in greater detail the nature of access barriers to primary health care for minorities in high poverty counties and the deleterious health outcomes of these barriers, setting the stage for policies and practices needed to overcome these barriers.

In the programmatic area, the analysis did not reveal any significant difference between the five USDA categories. We believe this is not because there are not differences, but that a 25-county sample was too small to find them. This probably would not be the case if all of the high poverty counties were studied and compared using the USDA categories.

This study makes policy recommendations concerning the uniform reporting of race/ethnicity statistics at the local level. We propose CDC guidelines be revised to allow county incidence data of all deaths and events/occurrences of 10 or greater to be released. We also suggest the need to invest in studies to develop analytical models and synthetic statistical methods that can produce reliable and useful planning information for rural counties with small populations.

In the area of future research, studies are suggested to look at differences in health and health-related issues and outcomes using the USDA five classifications of rural high poverty counties by race and ethnicity with the unit of analysis being the individual USDA categories. The analysis would look at race/ethnicity difference within these categories: Black (210 counties), Hispanic (74 counties), Native American/Alaska Native (40 counties), Southern Highlands (91 counties), and Other (27 counties) for a total of 442 counties. This should provide sufficient race/ethnicity cell sizes to construct a statistically valid study.

I. Background and Problem Statement

Background

"Disparity" is often used interchangeably with racial/ ethnicity differences in health. Other terms used are "inequality" and "inequity". Differences in the definition of these terms relates to a judgment as to what conditions are avoidable and unfair or unjust and who makes that judgment. These judgments are based upon resources and ideology. They are political decisions. A health disparity should be viewed as a chain of events signified by a difference in: (1) environment, (2) access to, utilization of, and quality of care, (3) health status or (4) a particular health outcome that deserves scrutiny. One can take the view that all health differences between socioeconomic groups constitute inequities in health. Health Canada considers 12 factors as determinants of health: (1) income and social status, (2) social support networks, (3) education,

(4) employment and working conditions, (5) social environments, (6) physical environments, (7) personal health practices and coping skills, (8) healthy child development, (9) biological and genetic endowment, (10) health services, (11) gender and (12) culture. [1]

The literature substantiates health disparities based on race and ethnicity. The 2006 National Healthcare Disparities Report says that for most core health quality measures blacks (73 percent), Hispanics (77 percent) and poor people (71 percent) received worse quality health care than reference groups[1]. The report showed that disparities for poor people (67 percent) were increasing, but they found no significant changes for minorities. They provide some dramatic disparities in chronic disease related outcomes (e.g. Blacks had 90 percent more extremity amputations for diabetes; Hispanics had 63 percent more pediatric asthma hospitalizations). In the study *Eight Americas: Investigating Mortality Disparities across Races, Counties, and Race-Counties in the United States*, researchers divided the race-county combinations of the U.S. population into eight distinct groups to explore the causes of the disparities that can inform specific public health intervention policies and programs. Using county data, they found striking differences in life expectancy between the eight groups. For example, in 2001, the life expectancy gap among the 3.4 million high-risk urban black males and the 5.6 million Asian females was nearly 21 years. The causes of death that were mainly responsible for these variations were various chronic diseases and injury. The gaps were similar in 2001 to what they were in 1987. [2]

Poverty and education levels are good predictors of disease prevalence, mortality patterns and ethnic disparities. For example, one study found that cervical cancer incidence and mortality rates increased with increasing poverty and decreasing education levels for the total population as well as for non-Hispanic white, black, American Indian, Asian/Pacific Islander and Hispanic women. The five-year survival rate among women diagnosed with advanced cervical cancer was approximately 30 percent lower in low socioeconomic census areas.[3]

There is rich literature on preventive services. In predicting preventive services utilization, the focus has been on individual characteristics with no consideration given to the role of contextual variables. One study investigated whether county-level racial and ethnic composition is associated with the use of preventive services. They found that county racial or ethnic composition is associated with the utilization of certain preventive services, after accounting for individual level characteristics. They observed that individuals in largely Hispanic counties are more likely to report cholesterol screenings, while those in counties with more blacks are more likely to have regular mammograms. They also found that Hispanic individuals who reside in predominantly black counties report higher levels of utilization for most preventive services compared to Hispanics living in other counties. [4] The findings suggest the role of physical and social environments in determining health behaviors and outcomes. The specific finding that Hispanic individuals who reside in predominantly black counties report higher levels of utilization for most preventive services compared to Hispanics living in other counties suggests some policy issues related to resources directed to black counties.

The United State Department of Agriculture (USDA) has tracked the rural high poverty counties of the United States for a number of years (See Appendix A). These 442 counties in 23 states are divided into five groups (Black, Hispanic, American Indian/Alaska native, Southern Highlands and Other). We have used their classification terms to remain consistent and avoid confusion (e.g. Black versus African-American). These counties, America's poorest, present an opportunity to radically improve state and national health outcomes due to the disproportionate disease burden they carry. They also provide an opportunity to better understand the relationship between race/ethnicity and poverty.

Problem Statement

Many aggregate health statistics, such as those cited above, point to a disparity between the health of minorities and the poor. Aggregate numbers mask much higher rates for individual rural counties. Single statistical measures provide an incomplete analysis of the multiple health and health-related issues that define health status. What is needed is single-county data that correlates race/ethnicity with poverty and related health statistics. Without comprehensive assessment of all available information, there can be no effective plan to improve the health of the rural poor and minorities. There are major problems confronting groups trying to improve health care access and status in their rural communities. There is a lack of awareness of the

race/ethnicity and poverty health-related issues of their community. Assessable data, usually from national or state studies, is not designed to give information specific to local problems. This information conceals the true situation at the local level and fails to provide a meaningful context to interpret health data and develop comprehensive health policy. Comprehensive data is needed to develop flexible state policies and reflect county and sub-county needs and problems in rural America. Such data would empower the community and elected officials to make better health-related decisions and policies.

Our purpose in this pilot study was to select variables to assess health inequalities among racial/ethnic groups with the nation's rural high poverty counties. The comparison was to be between the racial/ethnic groups within each of these counties. We selected variables we thought best described the disparities. One of the purposes of the study was to provide insights into which segments of the population might be of greatest interest to policy makers and funding agencies. Another purpose of the study is to make policy makers, the health community and the public aware of disparities in a more detailed way.

The USDA's Economic Research Service has tracked the 442 non-metro counties with persistent poverty for a number of years. They have found that minority populations are more likely than non-Hispanic whites to be concentrated in areas where overall poverty is persistently high. Over half of all non-metro poor blacks and Native Americans live in such areas, as do 30 percent of all poor Hispanics. However only a seventh of poor non-Hispanic white households live in these areas, not withstanding the regional concentrations of white poverty in the Southern Highlands.[5] This finding along with USDA classification of the persistent poverty counties (Black, Hispanic, American Indian/ Alaska Native, Southern Highlands, and Other) is the genesis of this study and its' design.

We completed a project, *The Health in Kentucky: A County Assessment*, in which we developed county data profiles for Kentucky's 120 counties (See Appendix B). Many of the data elements in this project are anticipated to be similar to those to be used in the proposal outlined below. [3] We feel that the experience gained and lessons learned in this single-state study using county-specific data has prepared us to do a similar multi-state project.

There are profound gaps in our understanding of the forces that drive the quality of various social determinants of health. The quality of social determinants of health is influenced by the organization of societies and how these societies distribute material resources among their members. It is important to our understanding of the quality of social determinants of health to consider the political, economic and social forces that shape the organizational and distributional practices of societies. Health is determined by income and social status, social support networks, education, employment and working conditions, physical and social environments, biology and genetic endowment, personal health practices and coping skills, healthy child development and health services.[6] The approach of this study is epidemiological in nature and is intended to provide objective data that will allow informed policy consideration that will lead to the linkage of these outcomes to the health determinants above and form the basis for societal distribution of resources to mitigate health disparities in rural poverty counties.

II. Objectives of the Study

The study is a pilot to see if it is possible to develop a profile of individual counties by race/ethnicity. The sample for the pilot study is 25 counties in five states, using county-specific data for each of the five USDA rural high poverty groups (Black, Hispanic, Native American /Alaska native, Southern Highlands, and Other) that include poverty, race/ethnicity and health outcome measures. If this proves not to be possible, can a method be developed that can provide a meaningful analysis of the relationship of poverty, race/ethnicity and health outcome measures for the selected counties?

III. The Study

A. Sample Selection

Listed below are the 442 high poverty counties broken out by the USDA categories to show their distribution.

USDA Rural High Poverty Counties - Table 1		
Type	**Frequency**	**Percent**
Black	210	47.511
Hispanic	74	16.742
Native	40	9.050
Other	27	6.109
Southern Highlands	91	20.588
Source: USDA, ERS, 2007		

We reviewed the high poverty counties by Rural Urban Classification Code (RUCC).

Rural High Poverty Counties - Table 2		
RUCC 2003	Frequency	Percent
4	14	3.2
5	16	3.6
6	107	24.2
7	137	31
8	45	10.2
9	123	27.8
Source: USDA, ERS, 2007		

We also reviewed the high poverty counties by USDA classification by percent of poverty. The results show a range of from 6.1 to 47.5 percent for the 25 sample counties. This is comparable to the rates by USDA classification for the total 442 high poverty counties.

Rural High Poverty Counties - Table 3		
Type	**Frequency**	**Percent**
Black	210	47.5
Hispanic	74	16.7
Native	40	9.1
Other	27	6.1
Southern Highlands	91	20.6
Source: USDA, ERS, 2007		

We examined the high poverty counties by USDA classification by state to consider our selection of five counties in five different states for a total of 25 counties (see below):

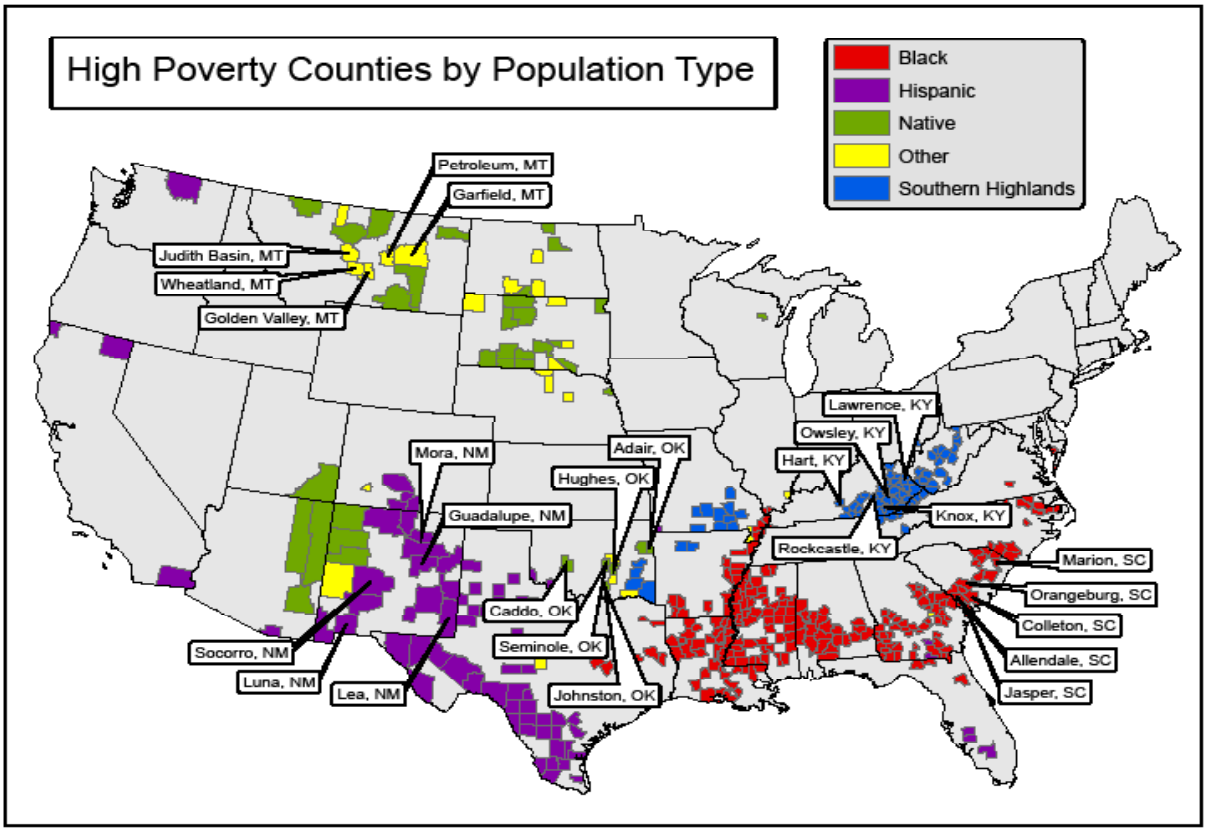
High Poverty Counties by State and USDA Type - Table 4 Sample States Highlighted						
State	Black	Hispanic	Native	Other	Southern Highlands	Total
AK	0	0	4	1	0	5
AL	21	0	0	0	0	21
AR	14	0	0	0	2	16
AZ	0	1	3	0	0	4
CA	0	3	0	0	0	3
CO	0	4	0	1	0	5
FL	3	3	0	0	0	6
GA	46	2	0	1	0	49
HI	0	0	0	1	0	1
IL	2	0	0	1	0	3
KY	1	0	0	0	42	43
LA	32	0	0	0	0	32
MD	1	0	0	0	0	1
MO	3	1	0	1	10	15
MS	50	0	0	0	0	50
MT	0	0	6	6	0	12
NC	12	0	0	0	0	12
ND	0	0	3	3	0	6
NE	0	0	1	3	0	4
NM	**0**	**13**	**3**	**1**	**0**	**17**
OH	0	0	0	0	2	2
OK	0	2	6	3	4	15
SC	15	0	0	0	0	15
SD	0	0	12	4	0	16
TN	1	0	0	0	8	9
TX	7	44	0	1	0	52
UT	0	0	1	0	0	1
VA	2	0	0	0	5	7
WA	0	1	0	0	0	1
WI	0	0	1	0	0	1
WV	0	0	0	0	18	18
Total	210	74	40	27	91	442
Source: USDA, ERS, 2007						

We looked at the percentage of high poverty counties by state.

Rural High Poverty Counties - Table 5			
State	Frequency	Cumulative Frequency	Percent
AK	5	5	1.1
AL	21	26	4.8
AR	16	42	3.6
AZ	4	46	0.9
CA	3	49	0.7
CO	5	54	1.1
FL	6	60	1.4
GA	49	109	11.1
HI	1	110	0.2
IL	3	113	0.7
KY	43	156	9.7
LA	32	188	7.2
MD	1	189	0.2
MO	15	204	3.4
MS	50	254	11.3
MT	12	266	2.7
NC	12	278	2.7
ND	6	284	1.4
NE	4	288	0.9
NM	17	305	3.8
OH	2	307	0.5
OK	15	322	3.4
SC	15	337	3.4
SD	16	353	3.6
TN	9	362	2.0
TX	52	414	11.8
UT	1	415	0.2
VA	7	422	1.6
WA	1	423	0.2
WI	1	424	0.2
WV	18	442	4.1

Final Sample Selection

Based on the analysis above, sample states were chosen using the five USDA racial/ethnic types for high poverty counties (Black, Hispanic, Native American, Southern Highlands, or Other) with the proviso that each state has a minimum of five counties of a sample selection type. Once a state was chosen for a selected type, a sample was made of five counties within each chosen state by type representing the dispersion from low to high poverty rates so as to capture more of the important variations in social, demographic, economic, health services and other explanatory variables that relate to disparities in health access and outcomes for those in poverty and who are characterized by distinct racial/ethnic and cultural characteristics. We also took into consideration Rural Urban Continuum Codes to have sample representation by county population and metro proximity.



IV. Analysis of Sample High Poverty Counties

Having identified the sample counties we gathered demographically descriptive information on the counties. They follow below:

A. Demographic description of the 25 selected counties.

Table 6 shows a wide range of population for the 25 sample counties. They vary from a low of 474 residents for Petroleum County, Montana, (USDA Other), to 57,312 for Lea County, New Mexico, (USDA Hispanic). This variation is representative of the five USDA classifications as a whole.

Sample High Poverty Counties - Table 6					
			Population		
State	County	USDA Type	2006	2005	2000
KY	Hart	Southern Highlands	18547	17573	17244
KY	Knox	Southern Highlands	32527	11626	11085
KY	Lawrence	Southern Highlands	16321	29665	30060
KY	Owsley	Southern Highlands	4690	15957	16100
KY	Rockcastle	Southern Highlands	16857	16290	15447
MT	Garfield	Other	1244	1199	1279
MT	Golden Valley	Other	1150	1159	1042
MT	Judith Basin	Other	2142	2198	2329
MT	Petroleum	Other	474	470	493
MT	Wheatland	Other	1959	2037	2259
NM	Guadalupe	Hispanic	4365	4369	4680
NM	Lea	Hispanic	57312	56719	55511
NM	Luna	Hispanic	27205	26498	25016
NM	Mora	Hispanic	5151	5107	5180
NM	Socorro	Hispanic	18240	18148	18078
OK	Adair	Native	22317	21988	21038
OK	Caddo	Native	30063	30229	30150
OK	Hughes	Native	13893	13835	14154
OK	Johnston	Native	10436	10259	10513
OK	Seminole	Native	24650	24770	24894
SC	Allendale	Black	10748	10917	11211
SC	Colleton	Black	39467	39605	38264
SC	Jasper	Black	21809	21398	20678
SC	Marion	Black	34684	34904	35466
Source: Area Resource File (ARF), 2006 Release, HRSA, June 2007					

Table 7 documents that the sample counties were chosen to select all Rural Urban Continuum Codes (RUCC) categories (4-9) from the most populous to the least populous counties. The number selected for each category is roughly equivalent to the percentage of each RUCC level among the high poverty counties. Poverty rates varied from 20.4 percent (Wheatland County, Montana) to 45.4 percent (Owsley County, Kentucky) in 2000 (USDA Poverty Percent) to from 10.7 percent (Garfield County, Montana) to 32.1 percent (Allendale County, South Carolina) in 2004. This trend to lower rates is encouraging.

Sample High Poverty Counties - Table 7						
State	County	USDA Type	Beale Code 1993	RUCC 2003	USDA Poverty Percent	Poverty 2004 Percent
KY	Hart	Southern Highlands	9	8	22.4	20.5
KY	Knox	Southern Highlands	7	7	34.8	29.1
KY	Lawrence	Southern Highlands	8	6	30.7	24.8
KY	Owsley	Southern Highlands	9	9	45.4	35.5
KY	Rockcastle	Southern Highlands	6	7	23.1	21.4
MT	Garfield	Other	9	9	21.5	10.7
MT	Golden Valley	Other	8	8	25.8	17.9
MT	Judith Basin	Other	8	8	21.1	13.6
MT	Petroleum	Other	9	9	23.2	10.8
MT	Wheatland	Other	9	9	20.4	18.8
NM	Guadalupe	Hispanic	9	7	21.6	19.5
NM	Lea	Hispanic	5	5	21.1	17.6
NM	Luna	Hispanic	6	6	32.9	24.3
NM	Mora	Hispanic	8	8	25.4	19.6
NM	Socorro	Hispanic	7	6	31.7	23.6
OK	Adair	Native	6	6	23.2	18.7
OK	Caddo	Native	6	6	21.7	18.3
OK	Hughes	Native	7	7	21.9	19.7
OK	Johnston	Native	7	7	22.0	16.1
OK	Seminole	Native	6	7	20.8	20.5
SC	Allendale	Black	7	6	34.5	32.1
SC	Colleton	Black	6	6	21.1	20
SC	Jasper	Black	8	6	20.7	21.6
SC	Marion	Black	6	6	23.2	22.5
SC	Orangeburg	Black	4	4	21.4	21.6
Sources: USDA, ERS, Area Resource File (ARF), 2006 Release, HRSA, June 2007						

Table 8 shows youth poverty rates for the sample counties. For ages 0-17 years, it varies from 14.9 percent (Petroleum, Montana) to 39.8 percent (Owsley County, Kentucky). For ages 5-17 years, it varies from 13.6 percent (Petroleum, Montana) to 36.1 percent (Owsley County, Kentucky). While there is some improvement, it is minimal. In 2006 the poverty rate for minors in the United States was the highest in the industrialized world, with 21.9 percent of all minors. (http://www.epi.org/content.cfm/webfeatures_snapshots_20060719). Only three of the 25 sample counties are below the national rate.

Sample High Poverty Counties - Table 8						
			Youth Poverty 2004			
			Age 0-17		Age 5-17	
State	County	USDA Type	Number	Percent	Number	Percent
KY	Hart	Southern Highlands	1165	30	734	26.6
KY	Knox	Southern Highlands	780	28.6	509	26.4
KY	Lawrence	Southern Highlands	2673	39.4	1726	35.7
KY	Owsley	Southern Highlands	1417	39.8	947	36.1
KY	Rockcastle	Southern Highlands	1209	32.6	778	29.3
MT	Garfield	Other	40	15.3	26	13.9
MT	Golden Valley	Other	49	25.2	36	28.8
MT	Judith Basin	Other	89	19.3	59	15.7
MT	Petroleum	Other	16	14.9	11	13.6
MT	Wheatland	Other	104	27.3	79	29.5
NM	Guadalupe	Hispanic	221	24.9	140	21.8
NM	Lea	Hispanic	3685	23.5	2437	22
NM	Luna	Hispanic	2664	36.7	1748	33.2
NM	Mora	Hispanic	292	27.2	195	23.7
NM	Socorro	Hispanic	1478	33.9	987	30.6
OK	Adair	Native	1656	27.2	1042	24.8
OK	Caddo	Native	2018	26.2	1225	22.9
OK	Hughes	Native	819	27.7	521	24.7
OK	Johnston	Native	584	24.8	376	21.8
OK	Seminole	Native	1900	30.7	1182	28.1
SC	Allendale	Black	1119	39.5	781	39.8
SC	Colleton	Black	3016	29.7	2013	27.2
SC	Jasper	Black	1506	27.6	1099	28.2
SC	Marion	Black	2898	32.4	1924	29.9
SC	Orangeburg	Black	6585	29.5	4304	27.3
Source: Area Resource File (ARF), 2006 Release, HRSA, June 2007						

Table 9 shows the USDA assessment of whether a high poverty county has low education, low employment rates, persistent poverty (at least three consecutive years) and if it is losing population. The number 1 indicates yes, and 0 indicates no. The most obvious pattern is that all of the Southern Highlands counties in the sample have low education, low employment rates and persistent poverty.

Sample High Poverty Counties - Table 9						
State	County	USDA Type	Low Education	Low Employment	Persistent Poverty	Losing Population
KY	Hart	Southern Highlands	1	1	1	0
KY	Knox	Southern Highlands	1	1	1	0
KY	Lawrence	Southern Highlands	1	1	1	0
KY	Owsley	Southern Highlands	1	1	1	1
KY	Rockcastle	Southern Highlands	1	1	1	0
MT	Garfield	Other	0	0	0	1
MT	Golden Valley	Other	1	0	0	0
MT	Judith Basin	Other	0	0	0	0
MT	Petroleum	Other	0	0	0	1
MT	Wheatland	Other	1	0	0	0
NM	Guadalupe	Hispanic	0	1	1	0
NM	Lea	Hispanic	1	1	0	1
NM	Luna	Hispanic	1	1	1	0
NM	Mora	Hispanic	0	1	1	0
NM	Socorro	Hispanic	0	1	1	0
OK	Adair	Native	1	0	1	0
OK	Caddo	Native	0	0	1	0
OK	Hughes	Native	0	1	1	0
OK	Johnston	Native	0	0	1	0
OK	Seminole	Native	0	0	0	1
SC	Allendale	Black	1	1	1	0
SC	Colleton	Black	0	1	1	0
SC	Jasper	Black	1	0	1	0
SC	Marion	Black	1	1	1	0
SC	Orangeburg	Black	0	0	1	0
Sources: USDA, ERS, Area Resource File (ARF), 2006 Release, HRSA, June 2007						

Table 10 looks at unemployment rates for the sample counties. They vary from a low of 4.1 percent (Wheatland County, Montana) to 13.8 percent (Marion County, South Carolina). The national unemployment rate was 4.8 percent (2006). Only eight of the sample counties were below the national unemployment rate, and five of them were in Montana.

Sample High Poverty Counties - Table 10						
State	County	USDA Type	Low Education	Low Employment	Persistent Poverty	Losing Population
KY	Hart	Southern Highlands	1	1	1	0
KY	Knox	Southern Highlands	1	1	1	0
KY	Lawrence	Southern Highlands	1	1	1	0
KY	Owsley	Southern Highlands	1	1	1	1
KY	Rockcastle	Southern Highlands	1	1	1	0
MT	Garfield	Other	0	0	0	1
MT	Golden Valley	Other	1	0	0	0
MT	Judith Basin	Other	0	0	0	0
MT	Petroleum	Other	0	0	0	1
MT	Wheatland	Other	1	0	0	0
NM	Guadalupe	Hispanic	0	1	1	0
NM	Lea	Hispanic	1	1	0	1
NM	Luna	Hispanic	1	1	1	0
NM	Mora	Hispanic	0	1	1	0
NM	Socorro	Hispanic	0	1	1	0
OK	Adair	Native	1	0	1	0
OK	Caddo	Native	0	0	1	0
OK	Hughes	Native	0	1	1	0
OK	Johnston	Native	0	0	1	0
OK	Seminole	Native	0	0	0	1
SC	Allendale	Black	1	1	1	0
SC	Colleton	Black	0	1	1	0
SC	Jasper	Black	1	0	1	0
SC	Marion	Black	1	1	1	0
SC	Orangeburg	Black	0	0	1	0
Sources: USDA, ERS, Area Resource File (ARF), 2006 Release, HRSA, June 2007						

V. Analysis of High Poverty County Sample by Race/Ethnicity

Below is the initial analysis of the high poverty counties by race/ethnicity*.

Sample High-Poverty Counties Percent Race/Ethnicity, 2005 - Table 11							
State	County Name	USDA Type	White Non-Hispanic	Black/African American Non-Hispanic	Hispanic	American Indian/ Native Alaskan	Other
KY	Hart	Southern Highlands	92.5	5.5	1.0	0.2	0.8
KY	Knott	Southern Highlands	97.9	0.7	0.6	0.1	0.6
KY	Lawrence	Southern Highlands	98.6	0.2	0.4	0.3	0.4
KY	Owsley	Southern Highlands	98.8	0.1	0.7	0.1	0.2
KY	Rockcastle	Southern Highlands	98.5	0.2	0.6	0.2	0.5
MT	Garfield	Other	98.9	0.1	0.4	0.4	0.3
MT	Golden Valley	Other	98.1	0.0	1.2	0.6	0.1
MT	Judith Basin	Other	98.0	0.0	0.7	0.3	0.9
MT	Petroleum	Other	98.6	0.0	1.0	0.2	0.2
MT	Wheatland	Other	96.7	0.2	1.4	0.6	1.2
NM	Guadalupe	Hispanic	17.6	1.4	79.2	1.1	0.6
NM	Lea	Hispanic	50.3	4.4	43.5	1.0	0.9
NM	Luna	Hispanic	38.1	0.8	59.6	1.1	0.4
NM	Mora	Hispanic	18.8	0.1	80.2	1.1	-0.2
NM	Socorro	Hispanic	38.4	0.5	47.9	10.9	2.2
OK	Adair	American Indian	48.3	0.4	3.5	42.5	5.4
OK	Caddo	American Indian	63.3	3.1	7.6	24.3	1.7
OK	Hughes	American Indian	72.0	4.6	2.9	16.2	4.2
OK	Johnston	American Indian	74.8	1.9	2.8	15.3	5.2
OK	Seminole	American Indian	69.7	5.2	2.5	17.4	5.2
SC	Allendale	Black/African American	25.4	72.2	2.2	0.1	0.1
SC	Colleton	Black/African American	55.8	41.0	1.8	0.6	0.8
SC	Jasper	Black/African American	38.7	51.4	8.9	0.4	0.6
SC	Marion	Black/African American	41.2	55.6	2.3	0.3	0.6
SC	Orangeburg	Black/African American	35.5	61.9	1.1	0.5	1.0
US			67.4	12.2	14.0	1.0	5.4
Area Resource File, 2006							

* The category "Asian Pacific Islander" was not included since that population is less than 1 percent of the total population of the 442 high poverty counties.

Based on the tables above, we concluded that our model for the project was probably incorrect. To test the validity of the model we developed the following table using cancer death rates.

Sample High-Poverty Counties - Table 12

Cancer Deaths by Select High-Poverty Rural Counties, 2000-2004

State	County	USDA Type	RUCC 2003	Black/African American	Hispanic/ Latino	American Indian/Alaska Native	White/ Caucasian
KY	Hart	Southern Highlands	8	271.3			204.9
KY	Knox	Southern Highlands	7				252.8
KY	Lawrence	Southern Highlands	6				252.0
KY	Owsley	Southern Highlands	9				275.8
KY	Rockcastle	Southern Highlands	7				224.5
Kentucky				273.2	165.2	81.7	223.0
MT	Garfield	Other	9				
MT	Golden Valley	Other	8				
MT	Judith Basin	Other	8				160.4
MT	Petroleum	Other	9				
MT	Wheatland	Other	9				166.0
Montana					149.2	262.3	186.6
NM	Guadalupe	Hispanic	7		196.9		189.3
NM	Lea	Hispanic	5	173.3	133.8		189.5
NM	Luna	Hispanic	6		144.0		167.6
NM	Mora	Hispanic	8		127.7		115.8
NM	Socorro	Hispanic	6		145.0		176.8
New Mexico				190.6	158.9	121.8	171.9
OK	Adair	American Indian	6				237.6
OK	Caddo	American Indian	6			221.1	222.8
OK	Hughes	American Indian	7			143.2	226.6
OK	Johnston	American Indian	7			205.1	193.2
OK	Seminole	American Indian	7	383.6		256.3	209.9
Oklahoma				252.0	121.7	205.8	203.9
SC	Allendale	Black/African American	6	199.1		158.7	168.4
SC	Colleton	Black/African American	6	233.8			223.5
SC	Jasper	Black/African American	6	230.0			212.7
SC	Marion	Black/African American	6	250.4			213.5
SC	Orangeburg	Black/African American	6	226.2			190.0
South Carolina				243.0	60.6	75.2	193.6
United States				238.8	129.1		190.7

Source: CDC State Cancer Data

Note: Blank spaces indicate that data are not available from CDC and State Cancer Registries either because of no reported deaths or cell size judged to be too small (<50).

Table 11 led us to suspect that the distribution of county level population would not be sufficient to allow analysis of variables by race ethnicity. For example Owsley County, Kentucky, is 98.8 percent white non-Hispanic, and Golden Valley County, Montana, is 98.1 percent white non-Hispanic. Lea County, New Mexico, has sufficient cell size for Hispanic and white non-Hispanic, but has only 4.4 percent black and 1 percent American Indian/Native Alaskan population. Adair County, Oklahoma, has sufficient cell size for white non-Hispanic and American Indian/Native Alaskan, but has only .4 percent black and 3.5 percent Hispanic population. Allendale County, South Carolina, has sufficient cell size for black and white non-Hispanic, but only 2.2 percent Hispanic and .1 percent American Indian/ Native Alaskan population. Based on these observations we attempted the analysis of a health variable (cancer deaths) by race/ethnicity (Table 12).

In addition, the various classifications of Hispanic for web-based data reported by federal and state agencies pose some serious challenges. The census bureau reports self-defined race and ethnicity in a well-known typology. Data can be reported as black Hispanic, white Hispanic, and all persons of Hispanic origin. Often state agencies report health and social/economic indicators data in collapsed categories of white, black, and other.

Table 12 above confirms that there are not sufficient numbers of all minorities in these individual counties to allow for the race/ethnicity comparisons by data variable (e.g. cancer death rates) at the county level that we had hoped for. Specifically, we do not have a single county without at least one missing value for a particular race/ethnicity group. By race/ethnicity we were able to get a value for white/Caucasian for all 25 counties. For black, we were able to find values in eight of the 25 counties. For Hispanic/Latino, we found values for five of the 25 counties. And for American Indian/Native Alaskan, we found values for five of the 25 counties.

The initial conceptualization of the model was exploratory and relied on the researchers' experience examining Kentucky's 43 counties classified as rural high-poverty by the USDA. Forty-two of these counties were classified as Southern Highlands and one as Black/African American. Several lessons were learned through this experience. The 42 Southern Highlands counties equate with what is usually understood as Eastern Kentucky, an Appalachian high poverty region that garnered national headlines at the beginning of Lyndon Johnson's war on poverty. These Southern Highlands counties have small populations and are not culturally or ethnically diverse. Fulton County lies in the western and Mississippi Delta region of Kentucky. While Fulton is the only rural Kentucky County with a substantial Black/African American population (23 percent), the total population is around 8,000. The average population for these 43 high poverty counties is 16,000, with range in population being from 2,000 to 68,000. The lack of ethnic diversity and small population size for many of the counties necessitates having to assemble event data over many years to get a reliable statistical rate for some of the USDA classifications. Data are not available in sufficient quantity for some classifications, such as Hispanic, Native American, and Black/African American in the 42 Southern Highlands counties.

The USDA typology was derived after all U.S. counties were analyzed for their poverty rates. The 442 counties with poverty rates of 20 percent or higher were classified as high poverty. An examination the poverty in these counties suggested the poverty rates of minority populations were so extreme in comparison to the poverty rates of the general population that they drove the poverty rates into the high-poverty range. This disparity of extreme poverty is characteristic of minorities in the categories black/African American, Hispanic, Native American and Southern Highlands. Some counties did not have any detectable distinguishing cultural/ethnic character and where classified as other.

The USDA analysis of poverty was as the county level, not individual, in terms of these classifications of minority populations. The USDA analysis probed available data to try to determine other county level characteristics. For example, a further distinguishing characteristic of the Southern Highlands counties was the high rate of self-reported personal disability and for the black/African American population was the rate of female-headed households. Without being explicit, this pioneering USDA analysis suggests an interpretation of data at the county level for the contextual effects on disparities that are likely to be most intensely experienced by the populations encompassed by the USDA typology. However, the further suggestion is that

everyone living in these high poverty counties suffers some inequity in access and social/economic benefit because of the extreme poverty of the minorities.

The small numbers for each classification of rural high poverty counties often cause statistics related to them to be restricted year after year unless the number of cases is above a certain threshold, usually 20 to 50. This action is based on data guideline promulgated by the Center for Disease Control and Prevention (CDC) and followed by most state and other health reporting authorities. This is a major problem since 97 percent of the high poverty counties have populations of fewer than 20,000 people. Therefore many of the rates will often involve fewer than 50 cases. In addition, 151 of the high poverty counties are classified as "Frontier" with low population densities. This CDC policy inhibits the use of synthetic statistical measures that would be useful in approximating the health and health related issues in low population rural counties.

An even greater number problem exists with the Behavioral Risk Factor State Survey (BRFSS). This is particularly critical since it is the only reliable source of behavioral data (e.g. physical activity). Although the overall number of respondents in the BRFSS is more than sufficiently large for statistical inference purposes, sub-group analyses can lead to estimators that are unreliable. Consequently, users need to pay particular attention to the sub-group sample when analyzing sub-group data, especially within a single data year or geographic area. Small sample sizes may produce unstable estimates. Reliability of an estimate depends on the actual unweighted number of respondents in a category, not on the weighted number. Interpreting and reporting weighted numbers that are based on a small, unweighted number of respondents can mislead the reader into believing that a given finding is much more precise than it actually is. The BRFSS follows a rule of not reporting or interpreting percentages based upon a denominator of fewer than 50 respondents (unweighted sample). For this reason, the FIPS County code is removed from the data file for any county with less than 50 respondents. (http://www.google.com/search?hl=en&q=cdc+denominator+size+BRFSS&btnG=Search)

We were able to develop some tables by white and non-white. (See Tables 15, 16 and 17 and Section VI below). That was also unsatisfactory so we moved to a model using the county as the unit of analysis rather than racial/ethnic groups within the county. (See Tables 10. 11, 12 and Section VI below).

VI. Health and Health-Related Measures of the Twenty-five Selected Counties

Sample High-Poverty Counties - Table 13

Average Death Rates Per 100,000 by Race/Ethnicity, 2001-2004

State	County	USDA Type	RUCC 2003	All Persons	White/ Caucasian	Black/ African American	Other
KY	Hart	Southern Highlands	8	1012	1001	1393	0
KY	Knox	Southern Highlands	7	1113	1118	1935	0
KY	Lawrence	Southern Highlands	6	1107	1111	0	0
KY	Owsley	Southern Highlands	9	1556	1563	0	0
KY	Rockcastle	Southern Highlands	7	1075	1081	0	0
MT	Garfield	Other	9	1298	1311	0	0
MT	Golden Valley	Other	8	573	579	0	0
MT	Judith Basin	Other	8	1004	1016	0	0
MT	Petroleum	Other	9	611	615	0	0
MT	Wheatland	Other	9	1472	1517	0	0
NM	Guadalupe	Hispanic	7	962	1000	0	0
NM	Lea	Hispanic	5	904	931	789	314
NM	Luna	Hispanic	6	964	990	506	
NM	Mora	Hispanic	8	844	861	0	0
NM	Socorro	Hispanic	6	787	839	559	537
OK	Adair	American Indian	6	1092	1470	2041	822
OK	Caddo	American Indian	6	1234	1478	747	809
OK	Hughes	American Indian	7	1518	1745	766	1115
OK	Johnston	American Indian	7	1359	1533	1005	962
OK	Seminole	American Indian	7	1352	1491	1869	1014
SC	Allendale	Black/African American	6	1070	1370	967	0
SC	Colleton	Black/African American	6	1019	1051	1003	556
SC	Jasper	Black/African American	6	800	727	883	0
SC	Marion	Black/African American	6	1051	1140	995	0
SC	Orangeburg	Black/African American	6	1050	1364	894	
US				845	907	806	

Area Resource File, 2006

Sample High-Poverty Counties - Table 14 Average Infant Mortality, 1956-1999						
State	County Name	USDA Type	RUCC 2003	All Persons	White/Caucasian	Nonwhite
KY	Hart	Southern Highlands	8	9.6	8.9	6.0
KY	Knox	Southern Highlands	7	9.8	9.2	0.0
KY	Lawrence	Southern Highlands	6	11.8	9.7	0.0
KY	Owsley	Southern Highlands	9	8.9	7.7	0.0
KY	Rockcastle	Southern Highlands	7	9.8	8.5	0.0
MT	Garfield	Other	9	7.5	7.5	0.0
MT	Golden Valley	Other	8	13.3	13.7	0.0
MT	Judith Basin	Other	8	7.2	6.2	0.0
MT	Petroleum	Other	9	0.0	0.0	0.0
MT	Wheatland	Other	9	12.3	12.8	0.0
NM	Guadalupe	Hispanic	7	10.5	10.3	0.0
NM	Lea	Hispanic	5	9.6	8.4	11.4
NM	Luna	Hispanic	6	8.3	7.1	30.4
NM	Mora	Hispanic	8	7.6	7.4	0.0
NM	Socorro	Hispanic	6	9.6	9.9	8.3
OK	Adair	American Indian	6	10.0	11.1	8.1
OK	Caddo	American Indian	6	10.3	8.5	13.9
OK	Hughes	American Indian	7	10.6	8.0	12.6
OK	Johnston	American Indian	7	11.8	11.7	0.0
OK	Seminole	American Indian	7	12.3	9.0	16.5
SC	Allendale	Black/African American	6	18.5	13.7	18.9
SC	Colleton	Black/African American	6	13.6	9.1	15.2
SC	Jasper	Black/African American	6	13.5	11.8	13.8
SC	Marion	Black/African American	6	19.9	9.0	21.5
SC	Orangeburg	Black/African American	6	13.7	9.6	15.6
US				6.9	5.7	11.4
Area Resource File, 2006						

Table 15 looks at four exploratory health and health related measures. Health un-insurance varies from a low of 15.6 percent (Lawrence County, Kentucky) to a high of 33.4 percent (Lea County, New Mexico). Only two of the sample counties have a rate below the national average of 19.3 percent (2006). Primary Care Physician to Population Ratios vary from 0 (Garfield, Golden Valley, Judith Basin and Petroleum counties, Montana) to a high of 5.1 (Allendale County, South Carolina). Adequacy of Primary Care Measures vary from 92 (Socorro County, New Mexico) to a low of 51 in Jasper County, South Carolina). Data was not available for the Oklahoma counties. Child immunization coverage varies from a high of 100 percent (Garfield and Judith Basin counties, Montana) to a low of 63 percent (Adair County, Oklahoma). Data was not available for the New Mexico counties and two of the Oklahoma counties.

Sample High Poverty Counties - Table 15						
State	County	USDA Type	Uninsured for Health Care	Primary Care Physician Ratio (1:3,500)	Adequacy Primary Care	Child Immunization Coverage Birth-2 years
KY	Hart	Southern Highlands	19.1	2.4	80	75
KY	Knox	Southern Highlands	21.1	0.9	86	81
KY	Lawrence	Southern Highlands	15.6	1.5	89	84
KY	Owsley	Southern Highlands	25.2	2.4	76	71
KY	Rockcastle	Southern Highlands	16.3	0.9	85	80
MT	Garfield	Other	19.4	0.0	73	100
MT	Golden Valley	Other	25.2	0.0	46	n/a
MT	Judith Basin	Other	23.4	0.0	75	100
MT	Petroleum	Other	28.5	0.0	68	n/a
MT	Wheatland	Other	24.6	6.9	61	90
NM	Guadalupe	Hispanic	28.3	1.6	79	
NM	Lea	Hispanic	33.4	1.2	83	
NM	Luna	Hispanic	29.7	1.8	80	
NM	Mora	Hispanic	28.8	0.0	84	
NM	Socorro	Hispanic	23.5	2.1	92	
OK	Adair	Native	21.0	2.5		63
OK	Caddo	Native	22.7	1.9		
OK	Hughes	Native	23.3	1.0		
OK	Johnston	Native	22.1	1.4		50
OK	Seminole	Native	21.0	2.1		63
SC	Allendale	Black	23.8	5.1	63	92
SC	Colleton	Black	19.4	1.8	77	90
SC	Jasper	Black	22.0	1.8	51	85
SC	Marion	Black	22.4	1.4	81	95
SC	Orangeburg	Black	18.4	1.9	72	91
Sources: USDA, ERS, Individual State Health Data Reporting Authorities						

Table 16 looks at hospital admissions and available beds. The number of available beds varies from none in Golden Valley, Judith Basin, Petroleum counties in Montana and in Jasper County, South Carolina, to 226 beds in Lea County, New Mexico. The highest number of hospital admissions is in Orangeburg County, South Carolina.

Sample High Poverty Counties - Table 16				
State	County	USDA Type	Hospital Admissions 2004	Hospital Beds 2004
KY	Hart	Southern Highlands	644	25
KY	Knox	Southern Highlands	2048	39
KY	Lawrence	Southern Highlands	4810	74
KY	Owsley	Southern Highlands	0	0
KY	Rockcastle	Southern Highlands	1446	86
MT	Garfield	Other	44	28
MT	Golden Valley	Other	0	0
MT	Judith Basin	Other	0	0
MT	Petroleum	Other	0	0
MT	Wheatland	Other	148	54
NM	Guadalupe	Hispanic	228	10
NM	Lea	Hispanic	5889	226
NM	Luna	Hispanic	2128	119
NM	Mora	Hispanic	0	0
NM	Socorro	Hispanic	829	15
OK	Adair	Native	1686	31
OK	Caddo	Native	1052	40
OK	Hughes	Native	693	25
OK	Johnston	Native	561	25
OK	Seminole	Native	1121	29
SC	Allendale	Black	563	69
SC	Colleton	Black	4938	131
SC	Jasper	Black	0	0
SC	Marion	Black	7609	124
SC	Orangeburg	Black	10440	301
Source: Area Resource File (ARF), 2006 Release, HRSA, June 2007				

In reviewing the sample counties Loss of Years of Productive Life (YPLL), they varied from a rate of 6 in Petroleum County, Montana, to a high of 10,417 for Orangeburg County, South Carolina. Only eight of the sample counties were below the national average (7,562), and five of these were in Montana.

Sample High-Poverty Counties - Table 17

Three Year Average YPLL-75 and Deaths, 2001-2004

State	County	USDA Type	RUCC 2003	Average YPLL/Death	Deaths	YPLL-75
KY	Hart	Southern Highlands	8	16	88	1,444
KY	Knox	Southern Highlands	7	19	170	3,191
KY	Lawrence	Southern Highlands	6	18	90	1,644
KY	Owsley	Southern Highlands	9	20	40	780
KY	Rockcastle	Southern Highlands	7	17	92	1,576
MT	Garfield	Other	9	9	3	27
MT	Golden Valley	Other	8	16	2	31
MT	Judith Basin	Other	8	11	9	100
MT	Petroleum	Other	9	6	1	6
MT	Wheatland	Other	9	21	12	256
NM	Guadalupe	Hispanic	7	21	19	395
NM	Lea	Hispanic	5	20	248	4,918
NM	Luna	Hispanic	6	17	121	2,092
NM	Mora	Hispanic	8	21	20	410
NM	Socorro	Hispanic	6	21	72	1,536
OK	Adair	American Indian	6	20	129	2,575
OK	Caddo	American Indian	6	20	175	3,527
OK	Hughes	American Indian	7	18	78	1,376
OK	Johnston	American Indian	7	18	65	1,168
OK	Seminole	American Indian	7	19	163	3,102
SC	Abbeville	Black/African American	6	19	126	2,370
SC	Colleton	Black/African American	6	20	219	4,448
SC	Jasper	Black/African American	6	20	85	1,706
SC	Marion	Black/African American	6	21	204	4,246
SC	Orangeburg	Black/African American	6	20	510	10,417

Area Resource File, 2006

XII. Discussion, Summary and Conclusions

The primary findings of this study are methodological. This exploratory study served the useful purpose of identifying significant data barriers to the comparative study of minorities in high poverty counties, barriers to their accessing health care, and their disparities in health outcomes at the county level. Most sample states collect data that is comparable to allow the selection of measures on vital statistics and health services, including measures such as adequacy of prenatal care, child immunizations and preventative care screenings. These data are usually reported by race (black, white, and other classifications), age, gender, and other characteristics. However, the small numbers of particular minorities in the rural high poverty counties often cause statistics related to them to be restricted unless the number of cases is above a certain threshold, usually 20 to 50. This issue is the product of CDC and state health department policies of not reporting case numbers below 50. This is a major problem since 97 percent of the high poverty counties have populations of less than 20,000 people and often the incidence rates of a particular measure will involve less than 50 cases. In addition, 151 of the high poverty counties are classified as "Frontier" with low population densities. This CDC policy inhibits the use of synthetic statistical measures that would be useful in approximating the health and health-related issues in low population counties. Our study discovered that race/ethnicity statistics are not always routinely or consistently collected (e.g. New Mexico versus other states). This made our study not feasible using our original model. Future studies may be more successful in separating out racial/ethnic difference using the five USDA classifications as the unit of analysis.

In the case of some specific data issues some, but not all, data are reported for multiple years, with the intent that one can assess trends in the data and combine them for more reliable estimates. Some inconsistencies exist in key measures for some states such as adequacy of primary care, with the Kotelchuck index being reported at the state level and Kessner index at the county level. This preliminary analysis suggests that these states collect data for such measures that can be obtained and analyzed for resolving some of these inconsistencies.

Our conclusions based on this sample analysis are that standard measures can probably be assembled from data collected for the 31 states. If the data is not limited by frequency minimums with USDA-classified high poverty counties and using the unit of analysis as the five USDA categories, it should be possible to make comparisons between the ethnic/racial groups covered by the USDA classification. Such a comparative analysis will help describe in greater detail the nature of access barriers to primary health care for minorities in high poverty counties, the deleterious health outcomes of these barriers, and the policies and practices that are needed to overcome these barriers. There will be continuing difficulties in comparing race/ethnicity among the USDA classification of the 442 high poverty counties in their five groupings. The racial/ethnic composition of the high poverty counties is 59 percent non-Hispanic white, 23 percent black, 11 percent Hispanic, 6 percent American Indian/Alaska Native and less than 1 percent Asian/Native Hawaiian. This will make the analysis challenging.

In the programmatic area, our analysis did not reveal any significant difference between the five USDA categories. We believe this is not that there are not differences, but that a 25-county sample was too small to find the differences. This would not be the case if the all of the high poverty counties were studied and compared by the USDA categories:

Black	210 counties
Hispanic	74 counties
Native American	40 counties
Southern Highlands	91 counties
Other	27 counties
Total	442 counties

XIII. Policy Recommendations and Areas for Future Research

1. Encourage uniform reporting of race/ethnicity statistics at the local level.
2. Revise CDC and state health department guidelines to allow county data with case numbers of 10 or greater.
3. Consider special CDC Behavioral Risk Factor State Surveys (BRFSS) specifically directed at the 442 high poverty counties in 31 states.
4. Encourage states to over sample their high poverty and frontier counties in the conduct of BRFSS.
5. Invest in health and health-related studies to develop analysis model and synthetic statistical methods that are applicable to rural counties with small population

Future Research

1. Study differences in health and health-related issues and outcomes using the USDA five classifications of rural high poverty counties by race and ethnicity with the unit of analysis being the individual USDA categories.
2. Evaluate the potential of the change in CDC policy to allow statistics based on 11 to 50 cases on better describing health and health-related issues in Frontier and other low population rural counties.
3. Develop application of synthetic statistical techniques to health issues in small population rural high poverty counties.

References

Footnotes

1. Carter-Pokras, Olivia, Ph.D., Baquet, Claudia, MD, MPH, " What is a Health Disparity?," Public Health Reports, September-October, 2002, 117, p.426-434.

2. Murray**,** Christopher J. L., Kulkarni**,** Sandeep C., Michaud**,** Catherine, Tomijima, Niels, Bulzacchelli, Maria T., Iandiorio, Terrell J., Ezzati, Majid, "Eight Americas: Investigating Mortality Disparities across Races, Counties, and Race-Counties in the United States," Public Library of Science Medicine, http://dx.doi.org/10.1371/journal.pmed.0030260, Sept. 12, 2006.

3. Singh, Gopal K., Ph.D., Miller, Barry A., Dr.P.H., Hankey, Benjamin F., Sc.D., Edwards, Brenda K., Ph.D., "Persistent Area Socioeconomic Disparities in U.S. Incidence of Cervical Cancer, Mortality, Stage, and Survival, 1975-2000," CANCER, www.interscience.wiley.com, July 26, 2004, p1051-1057.

4. Bejamins, Maureen R., M.A., Kirby, James B., Ph.D., Bond-Hule, Stephanie A., Ph.D., "County Characteristics and Racial and Ethnic Disparities in the Use of Preventive Services," http://www.sciencedirect.com/science?, April 2, 2004, p.1-12.

5. Beale, Calvin L., Gibbs, Robert M., "Severity and Concentration of Persistent High Poverty in Nonmetro Areas," http://www.ers.usda.gov/AmberWaves/February06/DataFeature/.

6. Raphael, Dennis, "Social Determinants of Health: Present Status, Unanswered Questions, and Future Directions," International Journal of Health Services, Vol. 36, No. 4, p. 651-677, 2006.

Bibliography

7. "2006 National Healthcare Disparities Report," U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality, Rockville, MD, AHPQ Publication No. 07-0012, December 2006.

8. Kentucky Institute of Medicine. "The Health of Kentucky: A County Assessment." Lexington, KY, 2007. http://kyiom,org/healthky2007.pdf.

9. South Carolina Rural Research Center, "Minorities in America: An Overview of Population Characteristics, 2002," Columbia, SC.

10. Beale, Calvin, "Anatomy of Nonmetro High-Poverty Areas: Common in Plight, Distinctive in nature." "Amber Waves: The Economics of Food, Farming, Natural Resources and Rural America," February, 2004, 1-7.

11. Shi, Leiyu, et.al, "Primary Care, race and mortality in US states." Social Science & Medicine 61(2005) 65-75.

12. Wewers, Mary Ellen, et.al, "Risky Behaviors Among Ohio Appalachian Adults, Preventing Chronic Disease: Public Health Research, Practice and Policy," Vol. 3, No. 4, October 2006, 1-11.

13. Johnson K. "Demographic Trends in Rural and Small Town America." Reports on Rural America, Vol. 1, No. 2, Carsey Institute, University of New Hampshire, 2006. www.carseyinstitute.unh.edu.

14. Agency for Healthcare Research and Policy, "Health Care Disparities in Rural Areas: Selected Findings From the 2004 National Healthcare Disparities Report," May, 2005. www.ahrq.gov.

15. Smedley, et. al., "Unequal Treatment Confronting Racial and Ethnic Disparities in Health Care," 2003. http://www.raconline.org/guides/disparities/.

16. Beale C. "The Ethno/Racial Context of Poverty in Rural and Small Town America." Ch. 13. In Poverty and Race in America: The Emerging Agendas, Hartman C. Lexington Books, 2006.

17. "Racial and Ethnic Health Disparities Report Card," August 31, 2007. New Mexico Department of Health, Office of Policy and Multicultural Health, Santa Fe, New Mexico. www.health.state.nm.us/opmh/2007ReportCard.pdf.

18. Regenstein, Marsha, et.al., National Public Health and Hospital Institute, "Barriers to Prenatal Care: Findings from a Survey of Low-Income and Uninsured Women Who Deliver at Safety Net Hospitals," Washington, DC, October 2005.

19. Partridge, Mark D., "High Poverty Nonmetropolitan Counties in America; Can Economic Development Help?" International Regional Science Review, Vol. 28(4), 2005, p 415-40.

20. Wittenburg, David, "A Health-Conscious Safety Net? Health Problems and Program Use among Low-Income Adults with Disabilities," The Urban Institute, Series B, No.B-62, September 2004, http://www.urban.org.

21. "Knowledge Path: Racial and Ethnic Disparities in Health." Maternal and Child Health Library, Georgetown University, 2007. www.mchlibrary.info/KnowledgePaths/kp_race.html.

22. "Minority Health: Addressing Racial and Ethnic Disparities in Health." Agency for Health Care Research and Quality, 2007. www.ahrq.gov/research/minorix.htm.

23. "Reducing Ethnic and Racial Inequities in Health Care," Agency for Health Care Research and Quality, 2007. www.ahrq.gov/research/inequities.htm.

24. "Eliminating Health Disparities." American Medical Association, 2007. www.ama-assn.org/ama/pub/category/7639.html.

25. "Racial and Ethnic Health Disparities in North Carolina," REPORT CARD, 2003. Office of Minority Health and Health Disparities and State Center for Health Statistics North Carolina Department of Health and Human Services. www.ncminorityhealth.org/omhhd/OMH_Documents/Report%20Card/Final%20Report%20Card%20&%20Cover.pdf.

26. "Racial and Ethnic Health Disparities in North Carolina," REPORT CARD, 2006. Office of Minority Health and Health Disparities and State Center for Health Statistics North Carolina Department of Health and Human Services. www.schs.state.nc.us/SCHS/pdf/ReportCard2006.pdf.

27. "Frontier: A New Definition, The Final Report of the Consensus Development Project," Frontier Education Center, Ojo Sarco, NM, April, 1998. http://frontierus.org/documents/consensus_paper.htm.

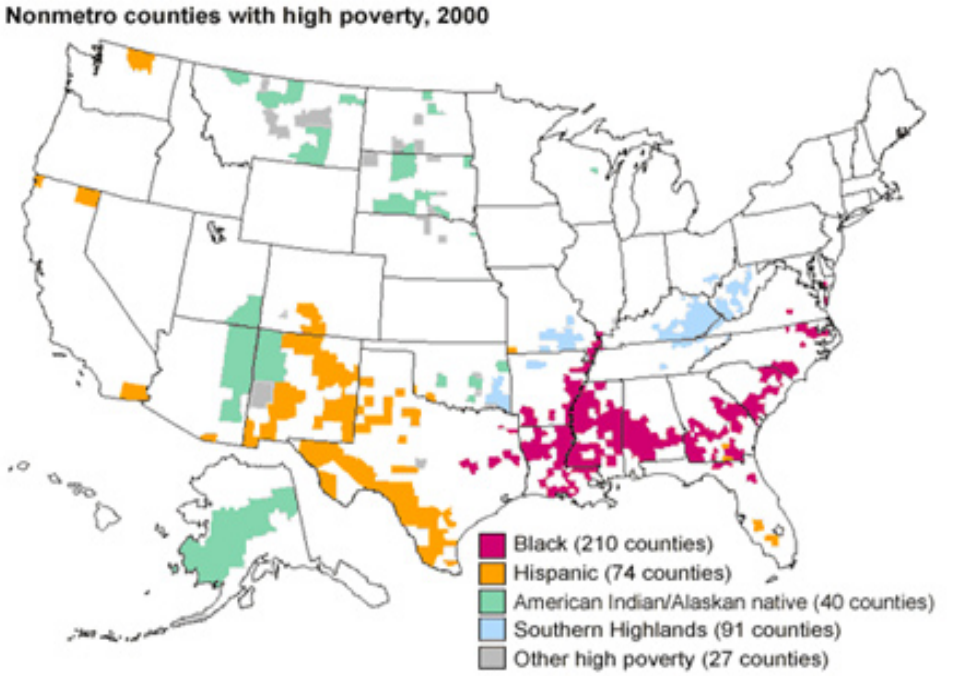
28. The National Association of Health Data Organizations. "NAHDO-CDC Cooperative Agreement Project. Statistical Approaches for Small Numbers: Addressing Reliability and Disclosure Risk," December 2004.

29. Benjamins MR, Kirby JB, Huie SAB. "County characteristics and racial and ethnic disparities in the use of preventive services." Preventive Medicine, 39 (2004) 704-712.

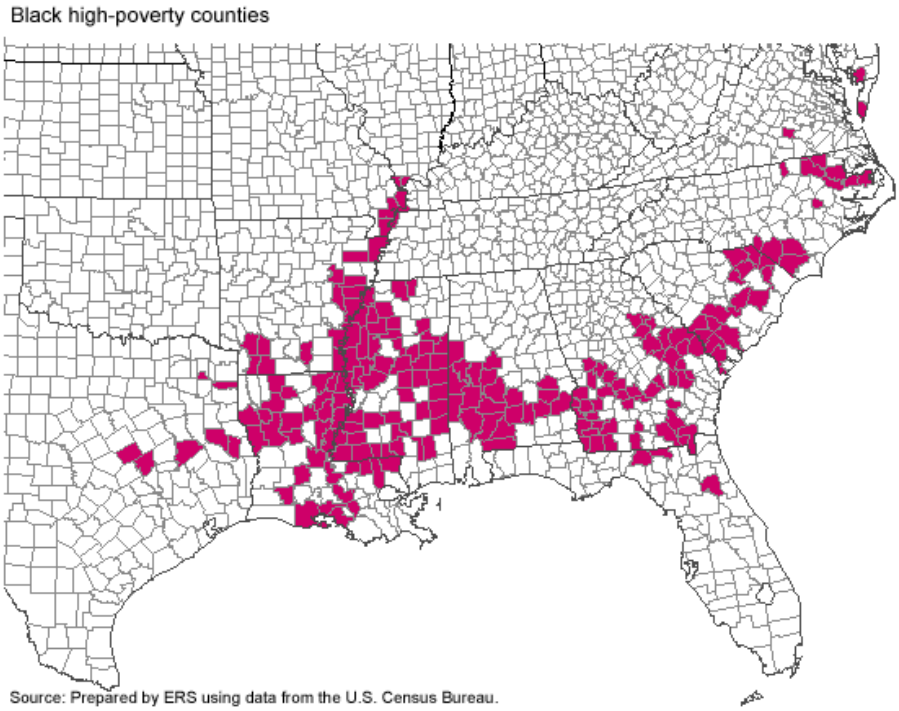
30. "Analytic and reporting guidelines: The Third National Health and Nutrition Examination Survey," NHANES III (1988-94) October, 1996 National Center for Health Statistics Centers for Disease Control and Prevention, Hyattsville, Maryland.

31. "Statistical Issues in Interactive Web-based Public Health Data Dissemination Systems," Michael Stoto, RAND, paper developed for NAPHSIS, Sept 19, 2002, p. 18.

Appendix A: High Poverty County Demographic Maps by USDA Race/Ethnicity Codes.

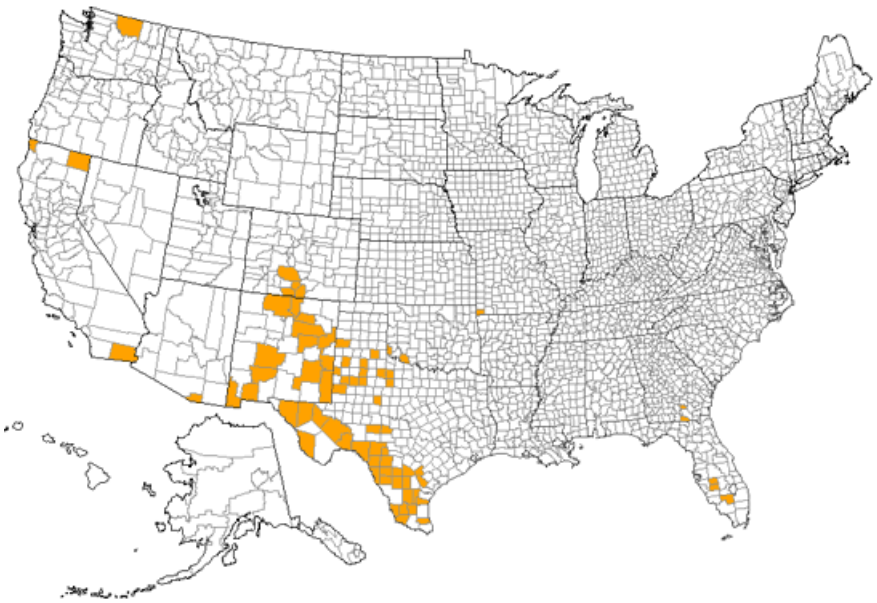


Source: Calculated by ERS using Census 2000 data, U.S. Census Bureau.
Note: High poverty is defined as a poverty rate of 20 percent or more.



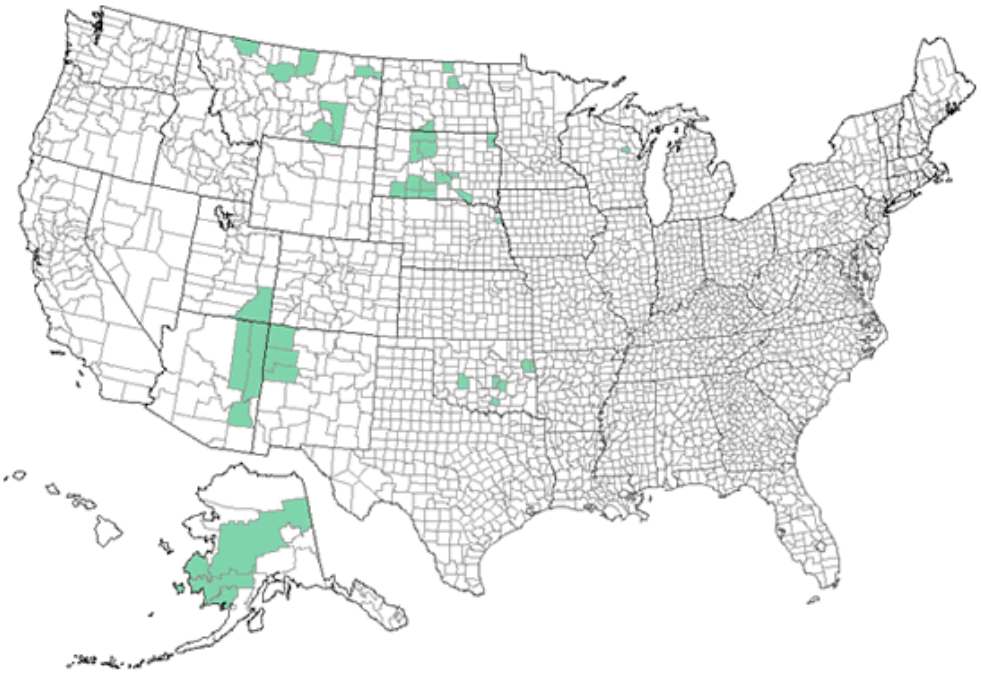
Source: Prepared by ERS using data from the U.S. Census Bureau.

Hispanic high-poverty counties



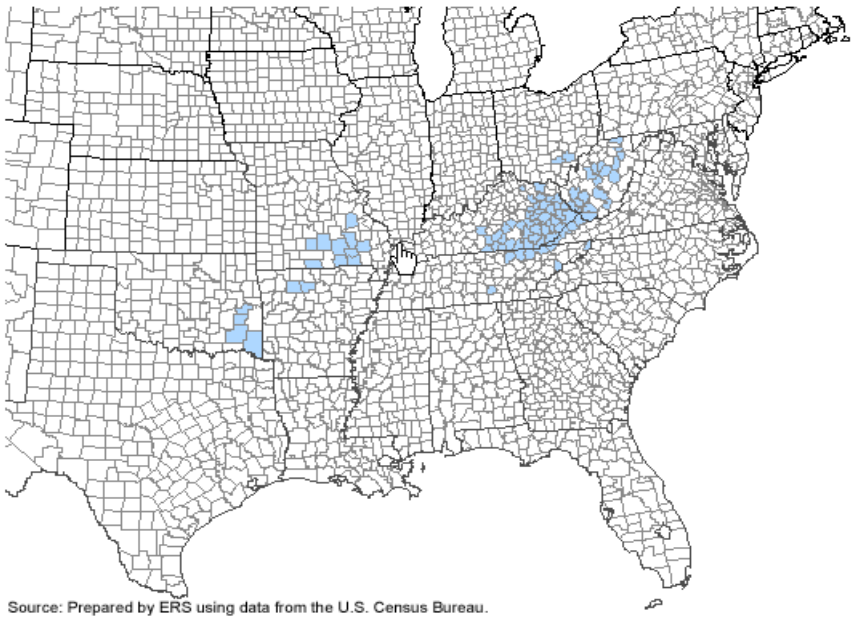
Source: Prepared by ERS using data from the U.S. Census Bureau.

American Indian and Alaska Native high-poverty counties



Source: Prepared by ERS using data from the U.S. Census Bureau.

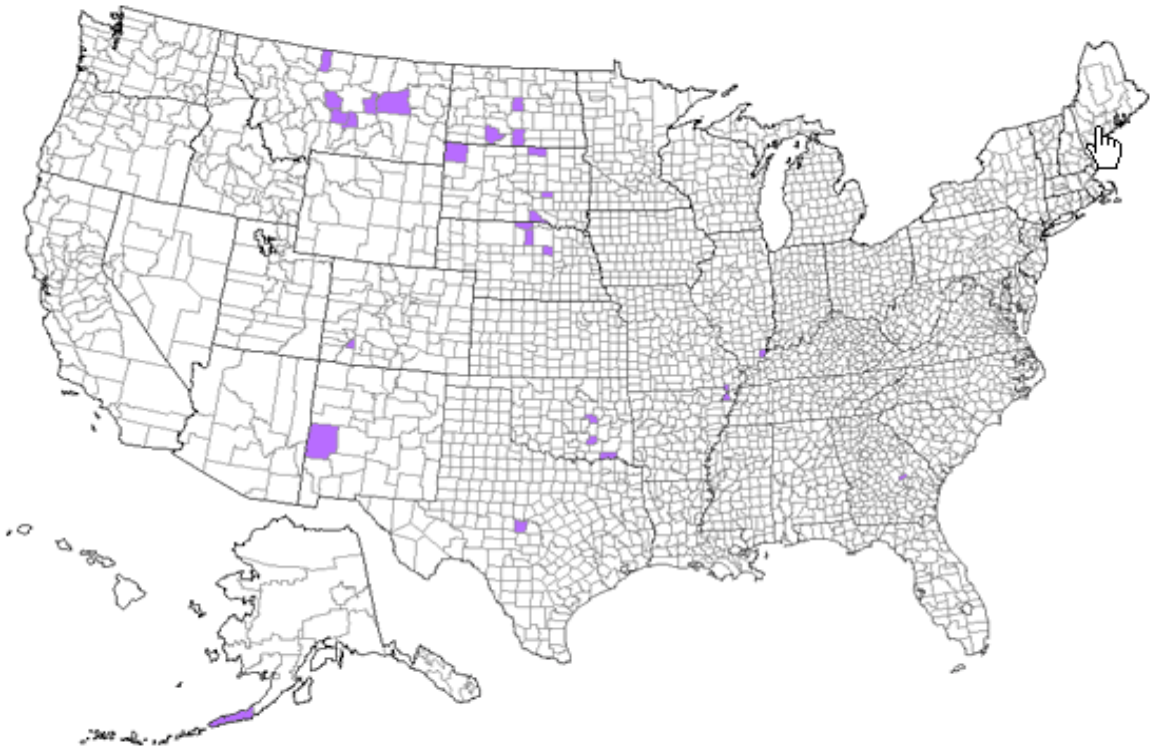
Southern Highlands high-poverty counties



Source: Prepared by ERS using data from the U.S. Census Bureau.

View a list of these counties.

Other high-poverty counties



Source: Prepared by ERS using data from the U.S. Census Bureau.

View a list of these counties.

Appendix B: The Health of Kentucky: A County Assessment

This study was the basis for the *Comparative Study of the Status of Minority Populations in America's Poorest Counties: A Pilot Project*. The appendix does not include the county profiles for all of Kentucky's 120 counties. It does contain the county profile for each of the five Kentucky counties included in the pilot study representing USDA Southern Highlands' classification:

Hart
Knox
Lawrence
Owsley
Rockcastle

Appendix C: Rural Income, Poverty and Welfare: High Poverty Counties, Economic Research Service, USDA (http://www.ers.usda.gov/Briefings/IncomePovertyWelfare/HighPoverty/Analysis.htm).

Rural Income, Poverty and Welfare: High Poverty Counties

The decade of the 1990s was one of growing U.S. prosperity, ending with record-high average income levels and the lowest unemployment rate in 30 years. As a result, the incidence of poverty dropped from a decade earlier, according to the 2000 Census. This welcome decline occurred particularly in rural and small-town non-metropolitan (non-metro) areas, where the poverty rate fell from 17.1 percent to 14.6 percent over the decade. Despite this improvement, more than 400 non-metro counties (out of a total of 2,308 non-metro counties, based on 1993 metro-non-metro definitions) had poverty rates of 20 percent or more in 2000, well above the overall non-metro average.

For the most part, these areas of high poverty are of long standing, with conditions stemming from a combination of social and economic factors rather than from personal events, such as temporary job layoffs or loss of a spouse. Of the 442 non-metro counties classified as high poverty counties in 2000 (based on 1999 income), three-fourths reflect the low income of their racial and ethnic minorities and are classified as black, Hispanic, or Native American high-poverty counties. In these counties, either:

- a majority of the poor are black, Hispanic, or Native American; or
- it is only the high incidence of poverty among these minority groups that brings the county's overall rate above 20 percent.

Of the remaining fourth of high poverty counties, most (91 counties) are located in the Southern Highlands of eastern Kentucky, West Virginia and parts of Missouri and Oklahoma. In these areas, the poor are predominantly non-Hispanic whites. The residual high poverty counties (27) fall outside of the classification of black, Hispanic, Native American or Southern Highlands. They include thinly settled farming areas in the northern Great Plains, where annual income levels vary widely depending on wheat and cattle prices and output, and the only two high-poverty counties where Asians account for more than half of the poor.

High poverty frequently occurs in an ethnic or sub-regional context, but the factors affecting poverty differ within these contexts. The diversity within these high poverty areas means that there is no single recipe for prosperity. Strategies to improve the economic well-being of rural residents in such areas will differ based on individual and community needs.

Defining High-Poverty Counties

USDA's Economic Research Service has developed a typology of high-poverty counties that reflects racial/ethnic and regional differences in the character of these counties. High-poverty counties are defined here as non-metro counties with a poverty rate of 20 percent or more based on 1999 income reported in the 2000 Census. This definition is consistent with the Census Bureau practice of identifying poverty areas. Of the 444 non-metro counties (based on the 1993 Office of Management and Budget definition) classified as high-poverty counties in 2000, three-fourths reflect the low income of racial and ethnic minorities. Black (210 counties), Hispanic (74 counties) or Native American (40 counties) high poverty areas are identified by one of two conditions: (1) more than half of the poor population in the county is from one of these minority groups or (2) more than half of the poor population is non-Hispanic white, but the high poverty rate of a minority group pushes the county's poverty rate over 20 percent. For example, Alabama's Crenshaw County has a poverty population that is 55 percent non-Hispanic white and 44 percent black. The poverty rate for whites is 17 percent, but the 39 percent poverty rate of blacks pushes the overall county poverty rate above 20 percent. The Southern Highlands (91 counties) high poverty areas are located in this part of the country, and the poor are predominantly non-Hispanic. The remaining 27 high poverty counties fall outside of the definition of racial/ethnic minority and Southern Highland county types.

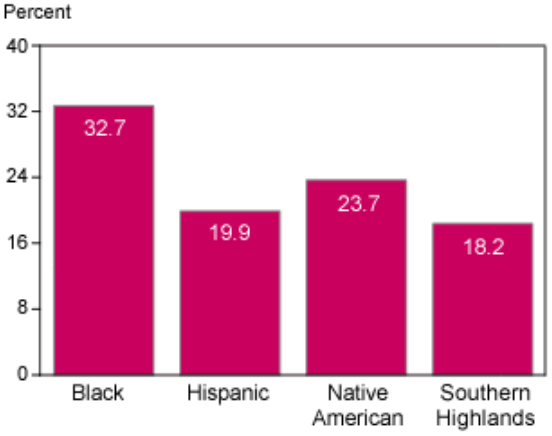
The typology of high poverty counties used here is based on county-level data. Once the high poverty counties are identified, comparisons among high-poverty types are made for persons or households within the county by poverty level, education,

employment, family structure, disability and language proficiency to assess key differences.

Black High Poverty Counties

Of the high-poverty counties, 210 were characterized by the low income of their black residents. These counties, with nearly 5 million residents, lie in the old plantation belt of the southern Coastal Plain, especially from southern North Carolina through Louisiana. Thirty-nine percent of blacks in these counties had poverty-level income, a proportion well above that of blacks in non-metro counties without high poverty (28 percent) or in metro areas (24 percent).

Proportion of children in female-headed households by high-poverty county type, 2000



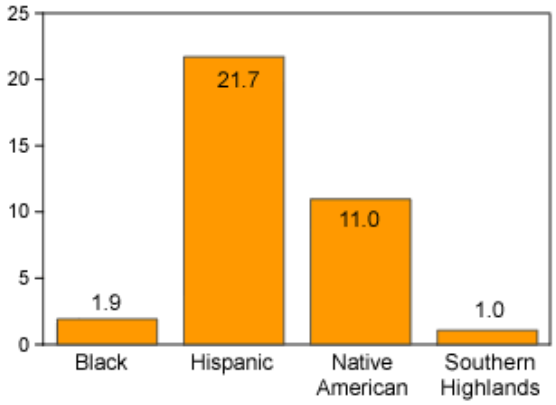
Source: Calculated by ERS using data from the U.S.Census Bureau.

Among conditions relevant to poverty, black high poverty counties stand out most prominently in the fact that a third of all poor children under 18 in these areas were in female-headed households with no husband present. This proportion is much higher than that found in other types of high poverty areas, and is double that in non-metro counties without high poverty. In general, poverty in female-headed households with children, but no husband present, is much higher than in other household types. In non-metro America as a whole, such households had a poverty incidence of 42 percent, compared with 10 percent for all other households with minor children. It is difficult for female-headed families to attain adequate income, unless they receive child support, given the lower average wages of women and the lack of other wage earners in such a family. Black high poverty counties also have higher proportions of households without a motor vehicle (12.5 percent) than other high poverty county types and non-metro counties without high poverty (6.9 percent). Limited access to a motor vehicle can inhibit access to employment and essential services in rural and small town communities that have little or no public transportation.

Hispanic High Poverty Counties

High poverty among Hispanics accounted for the overall high poverty in 74 counties. These counties are concentrated in the traditional Hispanic homeland of the Southwest, especially Texas and New Mexico, but some are now in Florida, Georgia, Missouri and Washington, as Hispanics have grown rapidly from immigration and dispersed outside of traditional settlement areas. Within the 74 counties, Hispanic poverty rates averaged 32 percent in 2000, a substantial decline from the 41-percent level in 1990. This drop was achieved despite the fact that Hispanics rose as a share of the entire population in the 74 counties (from 53 percent to 59 percent), and the proportion of higher-income non-Hispanic whites in these counties dropped, with absolute declines in many counties.

Proportion of the population that does not speak English "very well" by high-poverty county type, 2000



Source: Calculated by ERS using data from the U.S.Census Bureau.

Despite the rising dominance of Hispanics within high poverty areas where the poor are mostly Hispanic, a declining share of all non-metro Hispanics now live in high poverty areas. Hispanic growth in non-metro areas outside of these high poverty areas was so rapid in the 1990s that the share of all non-metro Hispanics living in Hispanic high poverty counties fell from 34 percent

to 26 percent. In contrast, non-metro blacks and Native Americans showed only modest shifts away from high poverty areas to lower poverty counties elsewhere.

Hispanic high poverty counties differ most widely from other high poverty counties in the share of people who report that they do not speak English "very well" (22 percent). Native American high poverty counties had the next highest proportion with 11 percent of residents reporting difficulty with the English language. Lack of English proficiency is an obvious hindrance to obtaining higher-skilled work. It is especially prevalent in areas with large recent influxes of immigrants, such as along the Mexican border, where it exceeds 40 percent in some non-metro counties.

Hispanic poverty counties have a large share of adults (37 percent) who did not complete high school, a condition partly created by the high amount of recent immigration and the limited schooling many Hispanic immigrants attained in their home countries. This level is considerably higher than the 21 percent for Hispanics in non-metro counties without high poverty. Hispanic high poverty counties have more than double the ratio of high school dropouts to four-year college graduates than non-metro areas without high poverty.

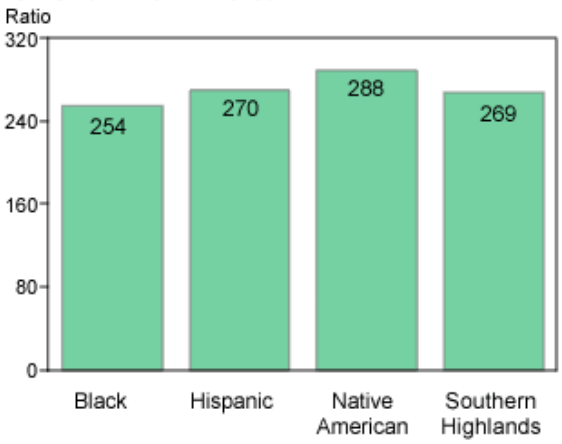
Native American High Poverty Counties

The high poverty rate in 40 non-metro counties resulted from low income among Native Americans, including Alaskan Natives. These counties are all located in areas of either historic tribal presence or 19th-century Indian reservation resettlement, especially in the Northern Plains, the Southwest, Oklahoma and Alaska. The poverty rate of Native Americans in these counties was 41 percent, a level greater than that of the dominant minority in other types of high poverty counties. The Native American counties did not simply have a greater incidence of poverty, they also had the highest proportion in deep poverty. A fifth of the total population in these areas lived in households with incomes below 75 percent of the poverty line.

Native American high-poverty counties have both the lowest share of people employed and the lowest share of men employed in full-time, year-round work compared with other high poverty counties. Only 36 percent of males age 16 and over had full-time, year-round work in high poverty Native American counties, versus 47.5 percent in counties without high poverty.

In addition, Native American counties had the highest dependency rate (as measured by the ratio of total population to employed people) of all county groups, with 288 persons of all ages for every 100 with jobs. In contrast, non-metro counties without high poverty had a ratio of 214 workers per 100 persons.

Ratio of population per 100 workers by high-poverty county type, 2000



Source: Calculated by ERS using data from the U.S.Census Bureau.

Native Americans in high poverty counties are much more likely to be children (along with the parent or parents with whom they live) than older people, compared with high poverty minorities in other areas. Native American high poverty counties have 5.9 poor children under age 18 for each poor person age 65 and over. This compares with ratios of 4.2 for every poor older person in Hispanic high poverty counties and just 2.6 in non-metro counties without high poverty. Thus alleviation of poverty needs to focus more on children and their parents in Native American high poverty areas than it does in other areas.

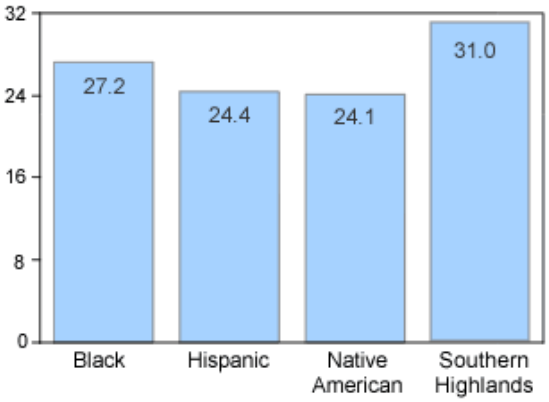
In many Native American high poverty counties, especially in the Northern Plains, the white proportion of the population has dwindled as the number of white farmers and ranchers interspersed among the Indian lands has declined. The non-Hispanic white share of the population in these areas fell from 44.5 percent in 1990 to 40 percent in 2000. Thus it is impressive that despite the serious conditions outlined above, the overall reduction in poverty in the Native American areas during the 1990s, from 34 percent to 28 percent, was achieved despite a diminished presence of the racial group with the highest income.

High Poverty in the Southern Highlands

In the high poverty counties not classified as black, Hispanic or Native American, the majority (91) is in the Southern Highlands. Most are in the Allegheny and Cumberland Plateau country of Kentucky and West Virginia, but others are in the Ozark Plateau and Ouachita Mountains, west of the Mississippi River. Racial and ethnic minorities in these counties are few, and the vast majority of the poor are non-Hispanic whites.

Poverty in the Southern Highlands is chronic. Historically, the region's topography offered limited potential for commercial farming, few urban centers emerged, education lagged, and much of the area was subject to periods of boom and bust in the logging and mining industries. The modern era has brought improvements, with poverty much reduced since 1960. But the high poverty counties share several conditions that contribute to individual income remaining below the poverty level for more than a fifth of the population.

Proportion of the population reporting disability by high-poverty county type, 2000



Source: Calculated by ERS using data from the U.S.Census Bureau.

One feature that stands out in the Southern Highlands high poverty counties is that 31 percent of people age 21 to 64 report having a disability. This is a higher incidence than found in any of the other high poverty county groups or in counties without high poverty. Some disabilities of residents in the Highlands stem from mining-related injuries or diseases, but many of the counties with high rates are not mining areas. Not all of the disabilities are work-limiting, but their unusual prevalence restricts the potential for education and employment opportunities alone to reduce Southern Highlands poverty.

Despite strides in educational attainment, the high-poverty Southern Highlands counties retain a ratio of high school dropouts to four-year college graduates that is two-and-a-half times that in non-metro counties without high poverty. The Highlands ratio of 3.5 to 1 is higher than that in any of the minority high poverty counties. Many young people in the Southern Highlands who have attained advanced education have moved elsewhere for economic opportunity.

Other High Poverty Counties

Only 27 high poverty counties fall outside of the classifications of black, Hispanic, Native American or Southern Highlands. Fifteen are thinly settled farming areas in the northern Great Plains, where income levels can vary widely from year to year, depending on wheat and cattle prices and output. Two others are the only high poverty counties where Asians are more than half of the poor.

All types of high poverty counties have multiple characteristics on which they differ from counties with less poverty. Virtually all (94 percent) of these counties reflect historic geographical concentrations of minority and Southern Highlands populations. Widespread poverty limits the tax base, and where chronic, may impose a poverty of services. But each type of high poverty county has its own signature characteristics that are poverty related. It is essential to recognize these typically deep-rooted distinctions and their significance if low-income problems are to be addressed successfully in federal and other programs. High poverty is high poverty, but the context in which it exists varies.

Appendix D: List of High Poverty Counties

State	County name	1993 Beale code	High-poverty county type
AL	BARBOUR	6	Black
AL	BIBB	6	Black
AL	BULLOCK	6	Black
AL	BUTLER	7	Black
AL	CHOCTAW	9	Black
AL	CLARKE	7	Black
AL	CONECUH	7	Black
AL	CRENSHAW	6	Black
AL	DALLAS	4	Black
AL	ESCAMBIA	6	Black
AL	GREENE	8	Black
AL	HALE	6	Black
AL	LOWNDES	8	Black
AL	MACON	6	Black
AL	MARENGO	7	Black
AL	MONROE	7	Black
AL	PERRY	7	Black
AL	PICKENS	6	Black
AL	PIKE	6	Black
AL	SUMTER	7	Black
AL	WILCOX	9	Black
AK	ALEUTIANS EAST BOROUGH	7	Other
AK	BETHEL CENSUS AREA	7	Native
AK	DILLINGHAM CENSUS AREA	9	Native
AK	WADE HAMPTON CENSUS AREA	9	Native
AK	YUKON-KOYUKUK CENSUS AREA	9	Native
AZ	APACHE	5	Native
AZ	GRAHAM	7	Native
AZ	NAVAJO	5	Native
AZ	SANTA CRUZ	6	Hispanic
AR	BRADLEY	7	Black
AR	CHICOT	7	Black
AR	COLUMBIA	7	Black
AR	DESHA	7	Black
AR	HEMPSTEAD	6	Black
AR	LAFAYETTE	8	Black
AR	LEE	6	Black
AR	MISSISSIPPI	4	Black
AR	MONROE	7	Black
AR	NEVADA	7	Black
AR	NEWTON	9	Southern Highlands
AR	PHILLIPS	7	Black
AR	POINSETT	6	Black
AR	ST. FRANCIS	6	Black
AR	SEARCY	9	Southern Highlands
AR	WOODRUFF	7	Black

CA	DEL NORTE	7	Hispanic
CA	IMPERIAL	4	Hispanic
CA	MODOC	7	Hispanic
CO	ALAMOSA	7	Hispanic
CO	CONEJOS	9	Hispanic
CO	COSTILLA	9	Hispanic
CO	SAGUACHE	9	Hispanic
CO	SAN JUAN	9	Other
FL	DE SOTO	6	Hispanic
FL	HAMILTON	9	Black
FL	HARDEE	6	Hispanic
FL	HENDRY	6	Hispanic
FL	MADISON	7	Black
FL	PUTNAM	6	Black
GA	ATKINSON	9	Hispanic
GA	BACON	7	Black
GA	BAKER	8	Black
GA	BEN HILL	7	Black
GA	BROOKS	7	Black
GA	BURKE	6	Black
GA	CALHOUN	8	Black
GA	CANDLER	7	Black
GA	CHARLTON	8	Black
GA	CLAY	9	Black
GA	CLINCH	7	Black

GA	COOK	7	Black
GA	CRISP	6	Black
GA	DECATUR	6	Black
GA	DOOLY	6	Black
GA	EARLY	6	Black
GA	ECHOLS	9	Hispanic
GA	EMANUEL	7	Black
GA	EVANS	8	Black
GA	GRADY	6	Black
GA	GREENE	6	Black
GA	HANCOCK	9	Black
GA	JEFFERSON	8	Black
GA	JENKINS	7	Black
GA	JOHNSON	9	Black
GA	MACON	6	Black
GA	MARION	8	Black
GA	MILLER	9	Black
GA	MITCHELL	6	Black
GA	QUITMAN	9	Black
GA	RANDOLPH	7	Black
GA	SCREVEN	6	Black
GA	SEMINOLE	6	Black
GA	STEWART	8	Black
GA	SUMTER	6	Black
GA	TALBOT	8	Black

GA	TALIAFERRO	9	Black
GA	TATTNALL	7	Black
GA	TAYLOR	8	Black
GA	TELFAIR	7	Black
GA	TERRELL	6	Black
GA	TOOMBS	7	Black
GA	TREUTLEN	7	Other
GA	TURNER	7	Black
GA	WARE	7	Black
GA	WARREN	8	Black
GA	WASHINGTON	7	Black
GA	WHEELER	9	Black
GA	WILCOX	9	Black
HI	KALAWAO	5	Other
IL	ALEXANDER	7	Black
IL	GALLATIN	8	Other
IL	PULASKI	9	Black
KY	ADAIR	7	Southern Highlands
KY	BATH	8	Southern Highlands
KY	BELL	7	Southern Highlands
KY	BREATHITT	9	Southern Highlands
KY		9	Southern Highlands
KY	CLAY CASEY	9	Southern Highlands
KY	CLINTON	9	Southern Highlands

KY	CUMBERLAND	9	Southern Highlands
KY	ELLIOTT	8	Southern Highlands
KY	ESTILL	6	Southern Highlands
KY	FLOYD	7	Southern Highlands
KY	FULTON	7	Black
KY	HARLAN	7	Southern Highlands
KY	HART	9	Southern Highlands
KY	JACKSON	8	Southern Highlands
KY	JOHNSON	7	Southern Highlands
KY	KNOTT	9	Southern Highlands
KY	KNOX	7	Southern Highlands
KY	LAUREL	7	Southern Highlands
KY	LAWRENCE	8	Southern Highlands
KY	LEE	9	Southern Highlands
KY	LESLIE	9	Southern Highlands
KY	LETCHER	7	Southern Highlands
KY	LEWIS	8	Southern Highlands
KY	LINCOLN	7	Southern Highlands
KY	MCCREARY	9	Southern Highlands
KY	MAGOFFIN	9	Southern Highlands
KY	MARTIN	9	Southern Highlands
KY	MENIFEE	9	Southern Highlands
KY	METCALFE	9	Southern Highlands
KY	MONROE	7	Southern Highlands

KY	MORGAN	9	Southern Highlands
KY	OWSLEY	9	Southern Highlands
KY	PERRY	7	Southern Highlands
KY	PIKE	7	Southern Highlands
KY	POWELL	6	Southern Highlands
KY	ROBERTSON	9	Southern Highlands
KY	ROCKCASTLE	6	Southern Highlands
KY	ROWAN	7	Southern Highlands
KY	RUSSELL	9	Southern Highlands
KY	WAYNE	7	Southern Highlands
KY	WHITLEY	7	Southern Highlands
KY	WOLFE	9	Southern Highlands
LA	ASSUMPTION	6	Black
LA	AVOYELLES	6	Black
LA	BIENVILLE	6	Black
LA	CALDWELL	8	Black
LA	CATAHOULA	7	Black
LA	CLAIBORNE	6	Black
LA	CONCORDIA	7	Black
LA	DE SOTO	6	Black
LA	EAST CARROLL	7	Black
LA	EAST FELICIANA	6	Black
LA	EVANGELINE	7	Black
LA	FRANKLIN	7	Black

LA	GRANT	8	Black
LA	IBERIA	4	Black
LA	IBERVILLE	6	Black
LA	JEFFERSON DAVIS	6	Black
LA	LINCOLN	4	Black
LA	MADISON	7	Black
LA	MOREHOUSE	6	Black
LA	NATCHITOCHES	6	Black
LA	POINTE COUPEE	6	Black
LA	RED RIVER	8	Black
LA	RICHLAND	6	Black
LA	SABINE	7	Black
LA	ST. HELENA	8	Black
LA	ST. MARY	4	Black
LA	TANGIPAHOA	4	Black
LA	TENSAS	9	Black
LA	VERMILION	6	Black
LA	WASHINGTON	6	Black
LA	WEST CARROLL	9	Black
LA	WINN	7	Black
MD	SOMERSET	7	Black
MS	ADAMS	7	Black
MS	AMITE	9	Black
MS	ATTALA	6	Black

MS	BENTON	8	Black
MS	BOLIVAR	5	Black
MS	CHICKASAW	7	Black
MS	CHOCTAW	9	Black
MS	CLAIBORNE	8	Black
MS	CLARKE	7	Black
MS	CLAY	7	Black
MS	COAHOMA	7	Black
MS	COPIAH	6	Black
MS	COVINGTON	7	Black
MS	FORREST	5	Black
MS	FRANKLIN	9	Black
MS	GRENADA	7	Black
MS	HOLMES	6	Black
MS	HUMPHREYS	7	Black
MS	ISSAQUENA	9	Black
MS	JASPER	9	Black
MS	JEFFERSON	9	Black
MS	JEFFERSON DAVIS	9	Black
MS	KEMPER	9	Black
MS	LAUDERDALE	5	Black
MS	LEAKE	6	Black
MS	LEFLORE	7	Black
MS	LOWNDES	5	Black
MS	MARION	7	Black
MS	MARSHALL	6	Black
MS	MONTGOMERY	7	Black
MS	NESHOBA	7	Black
MS	NOXUBEE	9	Black
MS	OKTIBBEHA	7	Black
MS	PANOLA	7	Black
MS	PERRY	9	Black
MS	PIKE	7	Black
MS	QUITMAN	9	Black
MS	SCOTT	6	Black
MS	SHARKEY	9	Black
MS	SIMPSON	6	Black
MS	SUNFLOWER	7	Black
MS	TALLAHATCHIE	9	Black
MS	TUNICA	8	Black
MS	WALTHALL	9	Black
MS	WASHINGTON	5	Black
MS	WAYNE	7	Black
MS	WILKINSON	9	Black
MS	WINSTON	7	Black
MS	YALOBUSHA	7	Black
MS	YAZOO	6	Black
MO	CARTER	9	Southern Highlands

MO	DUNKLIN	7	Other
MO	MCDONALD	8	Hispanic
MO	MISSISSIPPI	7	Black
MO	NEW MADRID	7	Black
MO	OREGON	9	Southern Highlands
MO	OZARK	9	Southern Highlands
MO	PEMISCOT	7	Black
MO	REYNOLDS	9	Southern Highlands
MO	RIPLEY	9	Southern Highlands
MO	SHANNON	9	Southern Highlands
MO	TEXAS	9	Southern Highlands
MO	WASHINGTON	6	Southern Highlands
MO	WAYNE	9	Southern Highlands
MO	WRIGHT	6	Southern Highlands
MT	BIG HORN	6	Native
MT	BLAINE	9	Native
MT	CHOUTEAU	8	Native
MT	GARFIELD	9	Other
MT	GLACIER	7	Native
MT	GOLDEN VALLEY	8	Other
MT	JUDITH BASIN	8	Other
MT	LIBERTY	9	Other
MT	PETROLEUM	9	Other
MT	ROOSEVELT	7	Native

MT	ROSEBUD	7	Native
MT	WHEATLAND	9	Other
NE	KEYA PAHA	9	Other
NE	ROCK	9	Other
NE	THURSTON	8	Native
NE	WHEELER	9	Other
NM	CATRON	9	Other
NM	CHAVES	5	Hispanic
NM	CIBOLA	6	Native
NM	GUADALUPE	9	Hispanic
NM	HIDALGO	7	Hispanic
NM	LEA	5	Hispanic
NM	LUNA	6	Hispanic
NM	MCKINLEY	5	Native
NM	MORA	8	Hispanic
NM	QUAY	7	Hispanic
NM	RIO ARRIBA	6	Hispanic
NM	ROOSEVELT	7	Hispanic
NM	SAN JUAN	5	Native
NM	SAN MIGUEL	6	Hispanic
NM	SIERRA	6	Hispanic
NM	SOCORRO	7	Hispanic
NM	TAOS	7	Hispanic
NC	BERTIE	9	Black

NC	BLADEN	6	Black
NC	COLUMBUS	6	Black
NC	GREENE	8	Black
NC	HALIFAX	4	Black
NC	MARTIN	6	Black
NC	NORTHAMPTON	9	Black
NC	ROBESON	4	Black
NC	SCOTLAND	7	Black
NC	TYRRELL	9	Black
NC	VANCE	6	Black
NC	WASHINGTON	7	Black
ND	BENSON	9	Native
ND	EMMONS	8	Other
ND	GRANT	8	Other
ND	ROLETTE	9	Native
ND	SHERIDAN	9	Other
ND	SIOUX	9	Native
OH	ATHENS	4	Southern Highlands
OH	VINTON	9	Southern Highlands
OK	ADAIR	6	Native
OK	CADDO	6	Native
OK	CHEROKEE	6	Native
OK	CHOCTAW	7	Other
OK	COAL	9	Other

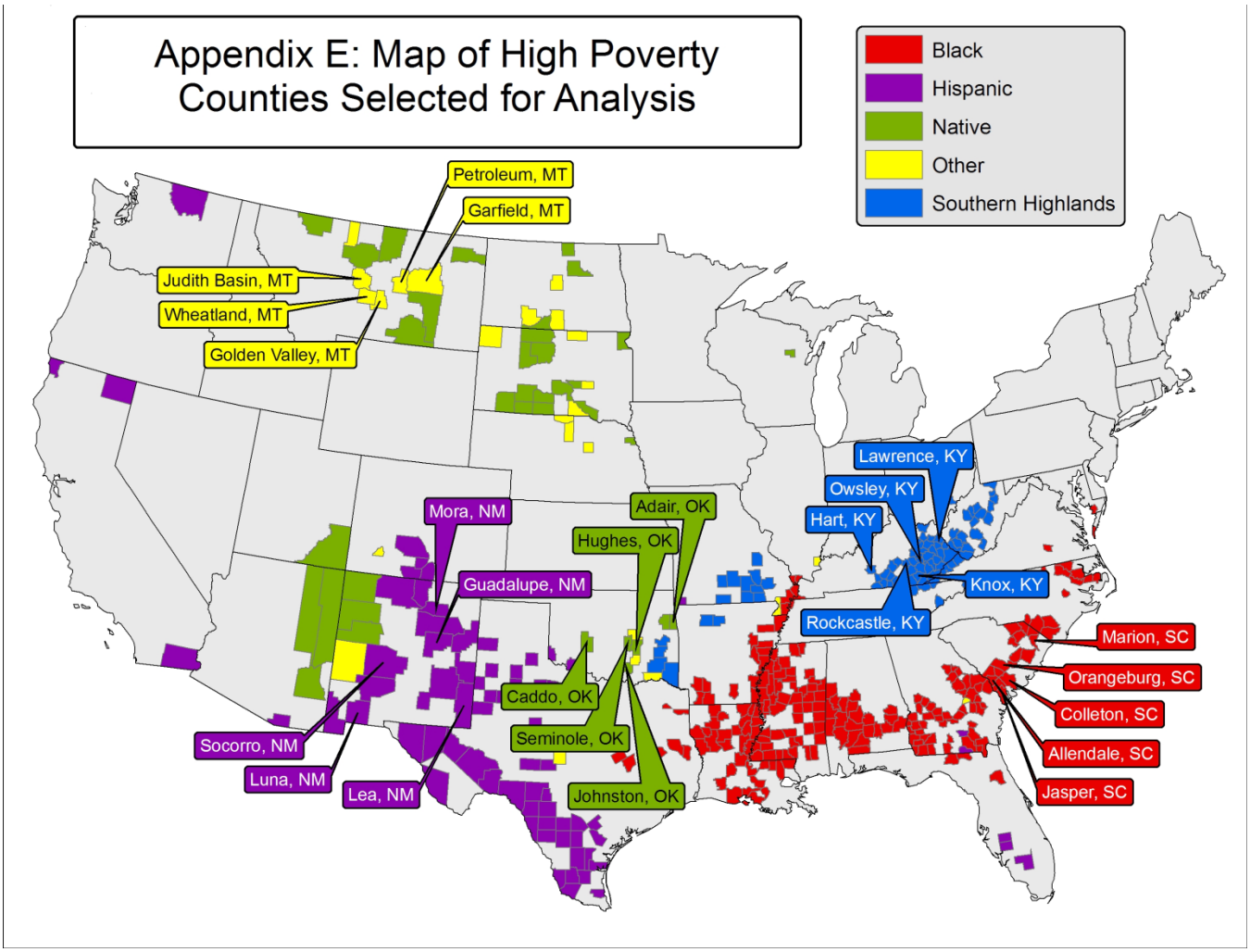
OK	HARMON	7	Hispanic
OK	HASKELL	6	Southern Highlands
OK	HUGHES	7	Native
OK	JOHNSTON	7	Native
OK	LATIMER	7	Southern Highlands
OK	OKFUSKEE	6	Other
OK	MCCURTAIN	7	Southern Highlands
OK	PUSHMATAHA	7	Southern Highlands
OK	SEMINOLE	6	Native
OK	TILLMAN	6	Hispanic
SC	ALLENDALE	7	Black
SC	BAMBERG	7	Black
SC	BARNWELL	6	Black
SC	CHESTERFIELD	6	Black
SC	CLARENDON	6	Black
SC	COLLETON	6	Black
SC	DARLINGTON	4	Black
SC	DILLON	6	Black
SC	HAMPTON	7	Black
SC	JASPER	8	Black
SC	LEE	6	Black
SC	MARION	6	Black
SC	MARLBORO	7	Black
SC	ORANGEBURG	4	Black

SC	WILLIAMSBURG	6	Black
SD	BENNETT	9	Native
SD	BUFFALO	9	Native
SD	CHARLES MIX	9	Native
SD	CORSON	9	Native
SD	DEWEY	9	Native
SD	GREGORY	9	Other
SD	HARDING	9	Other
SD	JACKSON	9	Native
SD	JERAULD	9	Other
SD	MCPHERSON	9	Other
SD	MELLETTE	9	Native e
SD	LYMAN	9	Nativ
SD	ROBERTS	9	Native
SD	SHANNON	7	Native
SD	TODD	9	Native
SD	ZIEBACH	9	Native
TN	CAMPBELL	6	Southern Highlands
TN	CLAIBORNE	6	Southern Highlands
TN	COCKE	7	Southern Highlands
TN	FENTRESS	9	Southern Highlands
TN	GRUNDY	6	Southern Highlands
TN	HANCOCK	9	Southern Highlands
TN	JOHNSON	8	Southern Highlands

TN	LAKE	9	Black
TN	SCOTT	6	Southern Highlands
TX	ATASCOSA	6	Hispanic
TX	BEE	6	Hispanic
TX	BROOKS	7	Hispanic
TX	CAMP	6	Black
TX	COCHRAN	7	Hispanic
TX	CROSBY	8	Hispanic
TX	CULBERSON	7	Hispanic
TX	DEAF SMITH	6	Hispanic
TX	DIMMIT	7	Hispanic
TX	DUVAL	7	Hispanic
TX	EDWARDS	9	Hispanic
TX	FALLS	6	Black
TX	FLOYD	7	Hispanic
TX	FRIO	7	Hispanic
TX	GAINES	7	Hispanic
TX	GARZA	6	Hispanic
TX	HALL	9	Hispanic
TX	HASKELL	7	Hispanic
TX	HOUSTON	7	Black
TX	HUDSPETH	8	Hispanic
TX	JIM HOGG	6	Hispanic
TX	JIM WELLS	4	Hispanic

TX	KARNES	6	Hispanic
TX	KING	9	Hispanic
TX	KINNEY	9	Hispanic
TX	KLEBERG	4	Hispanic
TX	KNOX	9	Hispanic
TX	LAMB	6	Hispanic
TX	LA SALLE	6	Hispanic
TX	LYNN	6	Hispanic
TX	MCCULLOCH	7	Other
TX	MCMULLEN	9	Hispanic
TX	MARION	8	Black
TX	MAVERICK	5	Hispanic
TX	MENARD	8	Hispanic
TX	NACOGDOCHES	5	Black
TX	NOLAN	6	Hispanic
TX	PECOS	7	Hispanic
TX	PRESIDIO	7	Hispanic
TX	REAL	9	Hispanic
TX	REEVES	7	Hispanic
TX	ROBERTSON	6	Black
TX	SAN AUGUSTINE	9	Black
TX	SCHLEICHER	8	Hispanic
TX	STARR	6	Hispanic
TX	TERRELL	9	Hispanic
TX	TERRY	6	Hispanic
TX	UVALDE	7	Hispanic
TX	VAL VERDE	5	Hispanic
TX	WILLACY	6	Hispanic
TX	ZAPATA	6	Hispanic
TX	ZAVALA	7	Hispanic
UT	SAN JUAN	7	Native
VA	BUCHANAN	9	Southern Highlands
VA	DICKENSON	9	Southern Highlands
VA	LEE	9	Southern Highlands
VA	NORTHAMPTON	9	Black
VA	NOTTOWAY	6	Black
VA	WISE	7	Southern Highlands
VA	NORTON (INDEPENDENT CITY)	7	Southern Highlands
WA	OKANOGAN	7	Hispanic
WV	BARBOUR	7	Southern Highlands
WV	BOONE	6	Southern Highlands
WV	BRAXTON	9	Southern Highlands
WV	CALHOUN	9	Southern Highlands
WV	CLAY	8	Southern Highlands
WV	FAYETTE	6	Southern Highlands
WV	GILMER	9	Southern Highlands
WV	LINCOLN	8	Southern Highlands
WV	LOGAN	7	Southern Highlands

WV	MCDOWELL	7	Southern Highlands
WV	MINGO	7	Southern Highlands
WV	MONONGALIA	5	Southern Highlands
WV	ROANE	8	Southern Highlands
WV	SUMMERS	7	Southern Highlands
WV	TAYLOR	7	Southern Highlands
WV	UPSHUR	7	Southern Highlands
WV	WEBSTER	9	Southern Highlands
WV	WYOMING	9	Southern Highlands
WI	MENOMINEE	9	Native


Appendix E: Map of High Poverty Counties Selected for Analysis
Black
Hispanic
Native
Other
Southern Highlands
Petroleum, MT
Garfield, MT
Judith Basin, MT
Wheatland, MT
Golden Valley, MT
Lawrence, KY
Owsley, KY
Hart, KY
Knox, KY
Rockcastle, KY
Mora, NM
Adair, OK
Hughes, OK
Guadalupe, NM
Caddo, OK
Seminole, OK
Johnston, OK
Socorro, NM
Luna, NM
Lea, NM
Marion, SC
Orangeburg, SC
Colleton, SC
Allendale, SC
Jasper, SC

521 East 63rd Street, Kansas City, MO 64110