

SECTION I

Introduction

Since its formation in 1965, the Appalachian Regional Commission has pursued a comprehensive program of regional development to improve socioeconomic conditions and alleviate poverty. Initially, 85 percent of ARC funds were allocated to highway construction in order to overcome the region's remoteness and physical isolation from the rest of the country, notwithstanding Appalachia's close proximity to the population concentrations of the Eastern United States (Isserman and Rephann, 1995). Although highway construction has remained an important activity for ARC, from its inception, funds have also been appropriated for hospitals and treatment centers, land conservation and stabilization, mine land restoration, flood control and water resource management, vocational education facilities, and sewage treatment works (Isserman and Rephann, 1995). The ARC and state and local governments have spent more than \$15 billion on economic and social development in the region (Wood and Bischak 2000).

Although Appalachia continues to be a region of the U.S. with relatively high levels of poverty, it has made significant gains during the past 25 years. Numerous articles, books and documentaries have highlighted the plight of the Appalachian people over the years (Harrington, 1962; Caudill, 1963; Weller, 1965; Lyson and Falk, 1993; Couto, 1994). In this mountainous, geographically remote, and disproportionately rural region, residents have traditionally contended with a cyclical economy, lower than U.S. average earnings, and higher than average poverty levels (PARC, 1964; ARC, 1972; ARC, 1979). Besides the rural and geographically isolated nature of the region, the socioeconomic differences between Appalachia and other parts of the country have been shaped by a number of factors including the relative lack of high-skill/high-wage manufacturing, limited industrial diversity, sensitivity of the region's industries to recession, dependence on extractive industries, export of capital, and lack of investment in the human capital of the region (Dix, 1978; Raitz and Ulack, 1984; Duncan, 1992; Haynes, 1997).

The following report explores recent poverty trends for the 399 counties that comprise Appalachia. The Appalachian Regional Commission (ARC) has provided funding for this

research. The analysis examine the Census Bureau's *Small Area Income and Poverty Estimates* (abbreviated as SAIPE, which will also be referred to as "SAIP estimates" to focus on the numerical estimates themselves rather than the overall statistical estimates program) and their effects on the ARC *distressed county* designation. We begin with a discussion of the SAIP estimates. This is followed by an examination of the changes in total poverty in Appalachia between 1979 and the mid-1990s, with particular emphasis paid to the post-1990 period, including a discussion of the geographical distribution of poverty. While our analysis covers the total population (all ages), we focus in greater detail on child poverty. We conclude with an evaluation of the impact of using the SAIPE estimates for the years 1989, 1993 and 1995 to assign the economically distressed status designation used by the ARC.³

Small Area Income and Poverty Estimates Program

Detailed poverty and income levels for states and sub-state geographic areas, especially counties, are among the most important products of the decennial census of population and housing. However, the ten-year interval between the census enumerations leaves a relatively long time span without more current data on the changes in poverty levels and rates in sub-state areas. Measuring poverty at ten-year intervals does not capture fluctuations within the period and is seldom coincident with the timing of major economic shifts. Moreover, national poverty trends do not uniformly affect all states and sub-state areas, nor do these national trends consistently affect all age groups within the population. This ten-year gap between censuses undermines the ability of many federal, state, and local programs designed to alleviate poverty to effectively identify and reach their target populations.

The Census Bureau's *Small Area Income and Poverty Estimates Program* was initiated to remedy this deficiency by providing post-censal county estimates of income and poverty. We provide a brief summary of this program in this report; more detailed information on the *Small Area Income and Poverty Estimates Program* can be found at the Census Bureau's website (<http://www.census.gov/hhes/www/saibe/saibe93/origins.html>), and in reports from the

³ We have used the 1990 Census estimates for poverty when referring to poverty change since 1990. See appendix A for a further discussion of the Census Small Area Income and Poverty Estimates.

National Research Council (1998 and 2000). The primary reason for developing post-censal estimates of income and poverty for small areas is that the national levels and spatial distributions of these characteristics are not stable over time. If decennial census data are used to benchmark poverty relief programs for an entire decade, the programs remain fixed on the decennial targets even when income and poverty levels rise or fall nationally, or the relative levels of poverty for population groups, states, or local areas change. The Census Bureau (under authorization from Congress) prepares poverty estimates for children ages 5-17. These statistics are for use by the U.S. Department of Education in allocating federal funds under Title I of the Elementary and Secondary Education Act for education programs to aid disadvantaged school-age children. In this report we examine levels and changes in poverty among the entire population, among children ages 0-4, and among children ages 0-17, while recognizing that the poverty estimates for children 5-17 and the models that generate them have been subjected to greater scrutiny and more thorough evaluation (National Research Council, 1998).

The principal aim of the Census Bureau's SAIPE program has been to produce post-censal estimates of median income and poverty for states, counties, and school districts in the absence of actual measures collected in a large-scale survey or a census. To accomplish this goal, the Census Bureau uses multiple regression statistical modeling to generate updated county-level estimates of income and poverty. Multiple regression is a statistical technique that attempts to explain or predict the level of a single dependent variable based on the levels of a set of independent variables (Vogt 1993). In the absence of a single source of reliable estimates for income and poverty, regression modeling leverages several data sources and time periods in order to optimize precision (National Research Council 1997).

The SAIPE multiple regression models have produced biennial estimates of income and poverty beginning in 1993. The SAIPE model uses several county-level independent (predictor) variables, the number of personal exemptions claimed on federal income tax returns by families with incomes at or below the poverty level, the number of people receiving food stamps, the 1990 census of population, and the Census Bureau population estimates. The statistical model incorporates county-level data on income and poverty from the Demographic Supplement of the Current Population Survey (CPS) conducted in March each year, as the dependent variable. The

SAIPE model combines three years of CPS data to improve the precision of the estimates. This technique is similar to ARC's use of three-year averages for unemployment and per capita market income in the designation of distressed counties. Because the CPS sample does not include all counties, the relationship between the predictor variables and the dependent variable is estimated for the subset of counties included in the CPS sample, and then applied to all counties.

In 1994, Congress authorized a study by the National Research Council (NRC) to assess the production, appropriateness, and the reliability of the updated poverty estimates for children ages 5-17. Upon evaluation of the original model and poverty estimates for 1993, the NRC Panel concluded that the 1993 estimates represented a substantial step toward the production of post-censal poverty estimates. The panel further recommended the use of these estimates (together with poverty estimates from the 1990 Census) for allocations for school year 1997-98 under the terms of Title I of the Elementary and Secondary Education Act allocations (National Research Council, 1997). Subsequent revisions of the 1993 estimates were evaluated by the NRC Panel and recommended for use in Title I allocations for school year 1998-99 (National Research Council, 1998). The Panel concluded that the estimates, although containing strengths and weaknesses, were superior to continued use of child poverty rate data from the outdated 1990 Census for allocations under Title I. Poverty estimates for counties and school districts for 1995 were also evaluated by the NRC Panel. The 1995 estimates for children ages 5-17, released in 1999, were recommended for Title I allocations for school year 1999-2000 (National Research Council, 1999).

The decision to use the Census Bureau's post-censal poverty estimates for funding allocations is a tradeoff between precision obtained in the decennial census and more current (if less precise) post-censal estimates. The 1990 census estimates of poverty are more precise in a statistical sense because they are based on a very large sample (approximately one-sixth of all households). However, they describe the income and poverty situation only as of 1989. The 1993 and 1995 estimates are considerably less precise, but because of their relative currency, they provide a better description of poverty and economic conditions in the post-1990 period. The Census Bureau plans to continue research and development efforts to improve the estimation models and potentially reduce the time lag between the reference year of the estimates and their release date.

National income and poverty patterns changed between 1989 and the 1993 and 1995 SAIP

estimates. Between 1989 and 1993, Census Bureau estimates suggests that, median household income declined by 7 percent, the number of people below the poverty level increased by 25 percent, and the number of poor children ages 5 to 17 increased by 24 percent. These belie the heterogeneity of economic shifts in counties across the country. In the National Research Council Panel's preliminary analysis of poor school-age children for U.S. counties, several categories of counties experienced trends that, in the Panel's judgement, warranted further investigation. For example, large metropolitan central city counties experienced a high-implied percentage change in child poverty between the 1989 census estimates and the 1993 model-based estimates (42%). This change declined systematically with decreasing population size for metropolitan counties and continued the decline to the most remote, rural non-metropolitan counties. Counties with higher percentages of Native Americans had lower implied increases in child poverty; however, there was no particular pattern of change for counties containing reservations. Farm counties had an implied decline in child poverty, while non-farm non-metropolitan counties had an implied increase in child poverty. Some of this change may be related to systematic biases in the estimation models (see National Research Council, 1998) but in all likelihood also represents actual changes in levels of poverty and its geographic distribution during this period.